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Site Location: 194 Southwood Road, Hayling Island, PO11 9QL

Proposed Development: Construction of an infill extension to an existing residential dwelling.

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1. Development Description and Site Area

Proposed Development and Location

- 1.1 The site is located at 194 Southwood Road, Hayling Island, PO11 9QL (Figure 1).
- 1.2 The existing site consists of a residential dwelling. The proposed development is for the construction of an infill extension to an existing residential dwelling to provide greater habitable space.
- 1.3 The existing building consists of 5 bedrooms, 4 of which are located on the ground floor. Post-development, one of the existing bedrooms will be converted to an entrance foyer and the proposed undercroft extension will be used as a bedroom.
- 1.4 The nearest watercourse/waterbody to the site is the English Channel, the Mean High Water line of the English Channel is located approximately 50m to the south of the proposed development site.

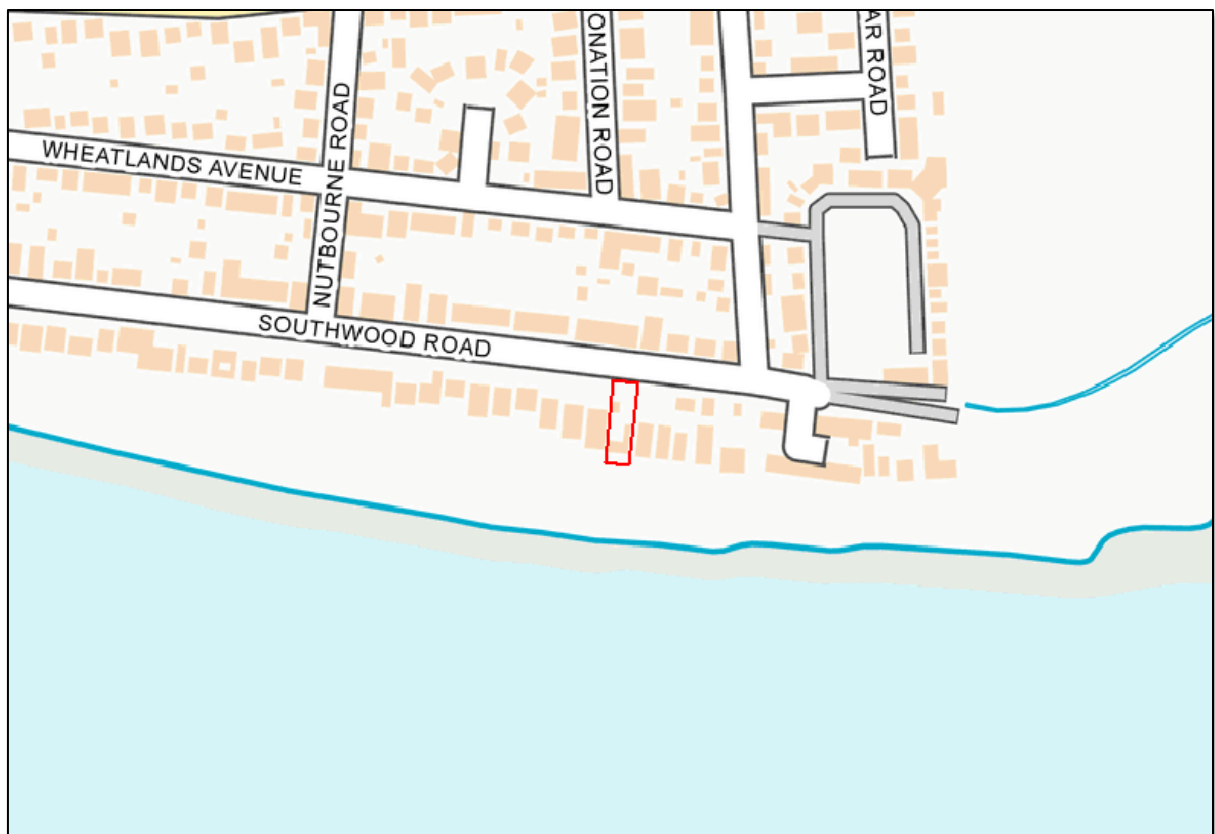


Figure 1: Wider Location Map. Approximate redline application boundary shown. (Source: OS)

Vulnerability classification

- 1.5 According to the NPPF and the Environment Agency (EA) standing advice on development and flood risk, as well as the low detail, national-scale flood mapping created on behalf of the EA the site is partially located in Flood Zone 3 (High Risk; 1 in 200 or greater annual probability of flooding from the sea (>0.5%)) and partially located in Flood Zone 3 (Medium Risk; between 1 in 200 and 1 in 1000 annual probability of flooding from the sea (0.5%-0.1%)).

- 1.6 Under the NPPF guidance, the existing site is considered “More Vulnerable” due to its residential usage, post development the proposed development will remain being classified as “More Vulnerable”.

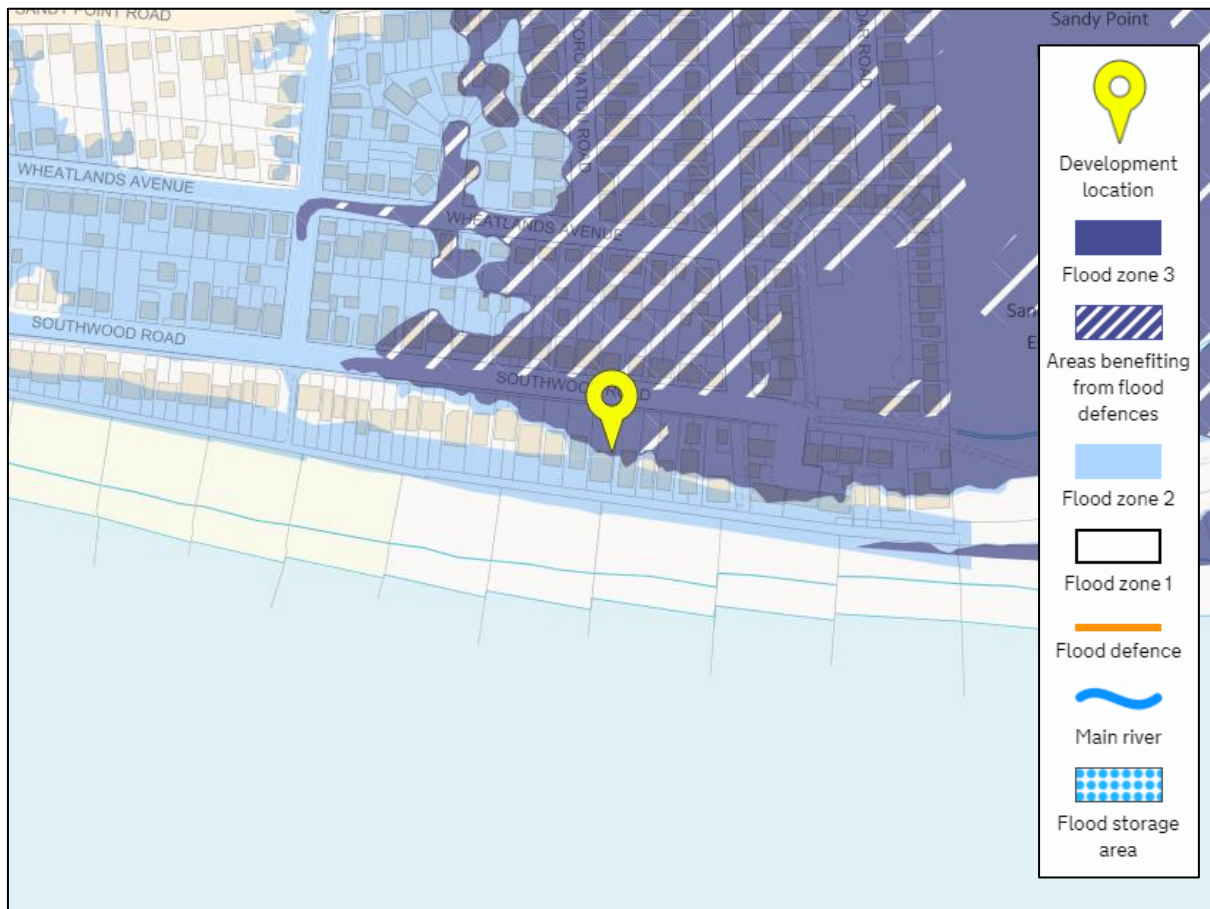


Figure 2: EA Flood Zone Map (Source: EA Online)

Geology

- 1.7 The site's bedrock geology has been identified by the British Geological Survey's public mapping model as the Wittering Formation formed of sand, silt and clay. The superficial geology is identified as the Beach and Tidal Flat Deposits (Undifferentiated) formed of clay, silt, sand and gravel (Source: BGS).

2. Sequential Test/Exception Test

- 3.1 Under the NPPF, all new planning applications must undergo a *Sequential Test*. This test must 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 test refers to the EA Flood Zones. For reference, 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 1: The Sequential Test: Flood Risk Vulnerability and Flood Zone 'Compatibility' Table as specified by NPPF. Shaded cells denote the proposed re-development. Please note: ✓ means development is appropriate; ✗ means the development should not be permitted.

- 3.3 Using the principles of the Sequential Test outlined above, the proposed development is 'More Vulnerable' and located within Flood Zone 2 and 3 (as defined by the EA online Flood Map, Figure 2) and as such, the development is required to implement the Exception Test.

For the Exception Test to be passed, the proposed development must meet the following criteria:

- it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh the flood risk, as informed by a Strategic Flood Risk Assessment;
- a Flood Risk Assessment demonstrates that the development will be safe, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

(Source: the NPPF)

- 3.4 The Sequential Test does not need to be applied for individual developments on sites which have been allocated in development plans through the Sequential Test, or for applications for **minor development** or change of use.
- 3.5 As such, and in order to address these requirements, the planning application submitted by the applicant is required to be accompanied by a FRA which shows that the development can be achieved in a sustainable manner, with an overall reduction of flood risk to the site and surrounding area.

3. Site Flood Hazards

Sources of Flooding

- 4.1 As outlined in Figure 3, the proposed development is located within Flood Zone 2 and 3 (Medium/High risk of flooding) and is considered to be 'More Vulnerable' under the NPPF. Communication with the Environment Agency (EA) has identified the following potential sources of flooding to the site.

Source	Description
Fluvial	N/A
Tidal	English Channel
Surface	N/A
Groundwater	N/A
Sewer	N/A

Table 2: Summary of flood sources.

Mechanisms and History of Flooding

- 4.2 According to the low detail, national-scale flood mapping created on behalf of the EA the probability of tidal flooding at the site is 1:200 or greater annual probability (>0.5%) for areas in Flood Zone 3 and between 1:200 and 1:1000 (0.5% - 0.1%) annual probability of flooding for areas in Flood Zone 2. Figure 2 outlines only the potential floodplain; and the mitigating effects of flood defences currently in place are not considered.

Tidal

- 4.3 The EA Flood Map for Planning (Figure 2) confirms that the site lies within Flood Zone 2 and 3 (Medium and High Risk, respectively), and benefits from the presence of defences.
- 4.4 The nearest watercourse/waterbody to the site is the English Channel, the Mean High Water line of the English Channel is located approximately 50m to the south of the proposed development site.
- 4.5 The EA have provided sea levels (still water design estimates) for the 0.5% (1:200) and the 0.1% (1:1000) annual exceedance probabilities relevant to the site. The chainage point relevant to the site is 62.
- 4.6 The values provided by the EA are based on 2011 base data, and take into account:

- Revised epochs as per 'Flood risk assessments: climate change allowances - guidance for Sustainable Places and Partnerships and Strategic Overview teams' 08/02/2016
 - Revised data from 'Extreme Sea Levels for Estuaries and Harbours, April 2015' Please refer to 'Adapting to Climate Change: Advice for Flood and Coastal Erosion Risk Management Authorities' for the latest advice on applying sea level rise allowances to flood defence schemes
- 4.7 The SFRA, Channel Coast Observatory and Shoreline Management Plan have identified that the sub-region of which the site is located, is protected from flooding from the sea by defences along the majority of its coastal frontages. The level of protection afforded by the defences along each frontage varies considerably, with areas such as Portsea Island, parts of Gosport and Southampton, and Hayling Island generally defended to a higher level than other frontages in the sub-region. There are no significant flood defences on rivers in the sub-region, although localised flood protection measures such as bank protection and maintenance of structures provide benefits in terms of flood risk in a number of locations.
- 4.8 The site is located within Policy Unit 5AHI05 (Chichester Harbour Entrance to Langstone Harbour Entrance) of the North Solent Shoreline Management Plan.
- 4.9 An extensive tidal floodplain covers the western and eastern ends of this frontage of Hayling Island's open coast. Significant numbers of residential properties at Eastoke, commercial assets and facilities and transport networks are within the extensive tidal floodplain. The defences to the east on Hayling Island are maintained by the Local Authority with short sections maintained by a private sailing club.
- 4.10 The short, medium and long-term policy for policy unit 5AHI05 is to 'hold the line'. The intention is to manage the open coast of Hayling Island as a single frontage through maintenance and improvements to the defence structures and integrated beach management activities, with beach recycling from areas of accretion (e.g. currently at the western end) and replenishment to areas of beach volume depletion (e.g. Eastoke). The approved Eastoke Strategy and the existing Beach Management Plan for Hayling Island frontage details the beach recycling and replenishment requirements that will provide a level of flood protection to coastal communities, commercial assets and local transport networks, amenity open space and facilities, including a golf course.
- 4.11 It is important to note that the existing development consists of manmade swales which direct any tidal floodwater around the dwelling and towards Southwood Road, where it is drained. The proposed development will retain these swales.

Surface Water (Pluvial)

- 4.12 The EA Risk from Surface Water Flooding map has identified the site to be located in an area that is of "Very Low" risk of surface water flooding (Figure 3). With a less than 0.1% chance of flooding annually from this source. There are small areas of "Low" and "Medium" risk of surface water flooding along Southwood Road. Areas identified to be a "Low" risk have between 0.1% and 1% chance of flooding annually and areas at "Medium" risk have between 1% and 3.3% chance of flooding annually.

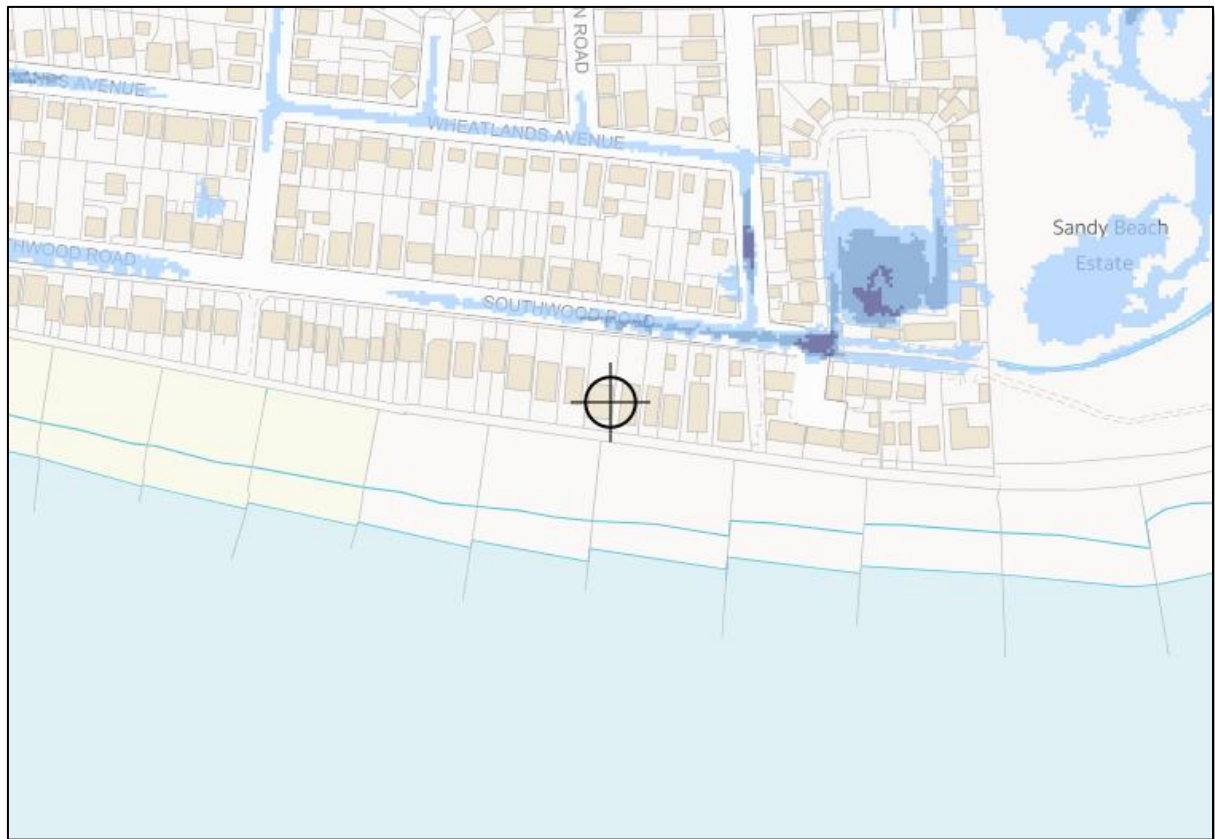


Figure 3: Surface Water Flood Map (Source: EA)

- 4.13 The EA Surface Water Depth Map shows the site would be unaffected by any flood depths during an event with a high, medium and low chance of occurring. The Low Chance of occurring map shows that the areas identified to be “Low” and “Medium” risk, along Southwood Road could be affected by flood depths no greater than 300mm.
- 4.14 The EA have not provided any information relating to specific pluvial flood events on site or in the surrounding area.
- 4.15 As such the risk from surface water flooding to the site can be considered **relatively low**.

Groundwater

- 4.16 At the time of writing, no records of groundwater flooding at the site have been provided. The EA has not classified the site to be located within a groundwater source protection zone.
- 4.17 The site is located within a groundwater vulnerability zone classified as a Medium-High.
- 4.18 No further information has been provided by the PUSH SFRA in regards to groundwater susceptibility areas.
- 4.19 Based on anecdotal evidence provided at the time of writing, the risk of flooding from this source to the site is considered to be **relatively low**.

Sewer

- 4.20 At the time of writing, no records were sourced to indicate that sewer flooding had been documented at the property via the EA or SFRA.

4.21 As such the risk of sewer flooding to the development is deemed to be **relatively low**.

Surface Water Drainage Strategy

4.22 The existing site consists of a residential dwelling. The proposed development is for the construction of an infill extension to an existing residential dwelling to provide greater habitable space.

4.23 Given the small scale nature of the proposed development, and the fact that built footprint will not increase post-development, it is recommended to discharge any minor increase in surface water runoff via the existing management system associated with the existing building.

Records of Historical Flooding

4.24 The EA have one record of previous flooding from around the area from November 2005, but have no specific details, it should be noted that the EA records are not comprehensive.

4.25 Incidents of flooding on the Island have been recorded in particularly the open coast facing the English Channel which is exposed to medium wave energy as per the PUSH SFRA as demonstrated on Figure 4 below.

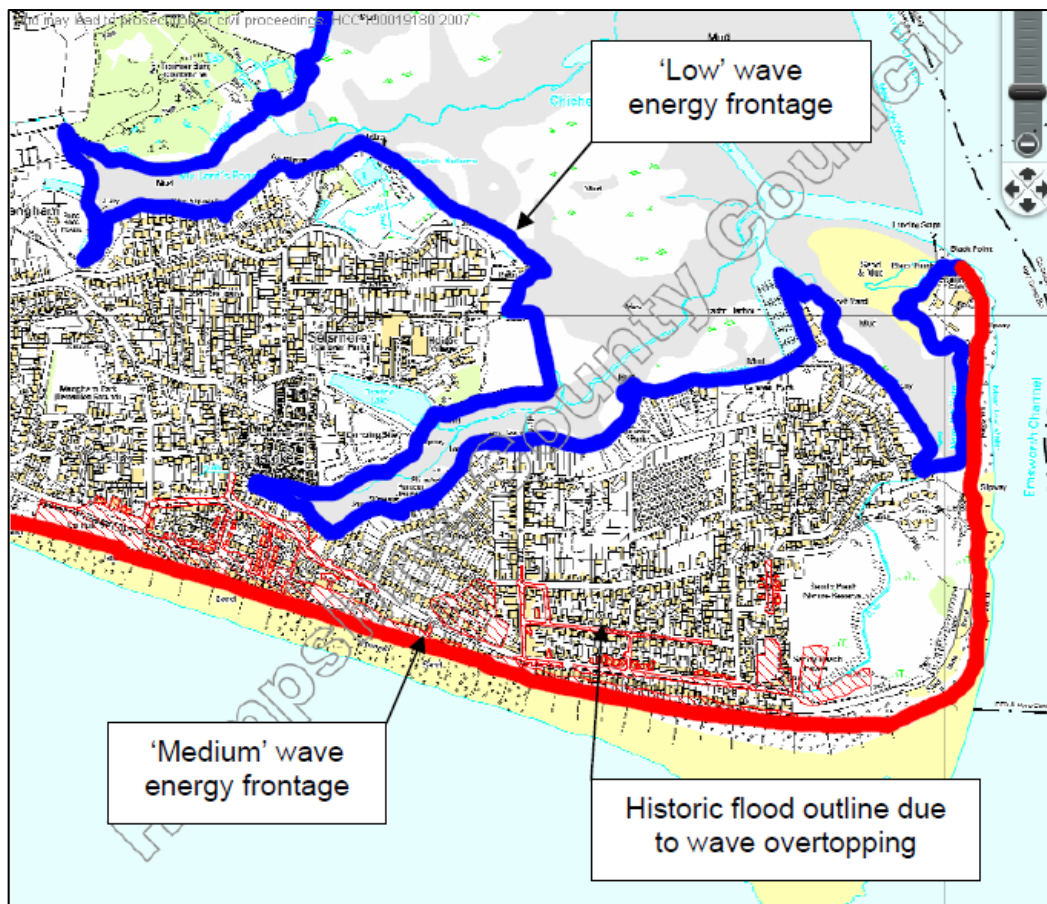


Figure 4: Wave Energy and Historic Flood Map (Source: PUSH SFRA)

4. Flood Risk Management Measures

- 5.1 The site is located in Flood Zone 3 (High Risk of flooding as defined in the NPPF) according to the EA Floodmap, as such the proposed development will require flood mitigation measures.
- 5.2 Given the nature of the tidal cycle and fluvial channel setting, flood waters on site will likely recede as in-channel water levels fall.
- 5.3 The proposed development is for the construction of an infill extension to an existing residential dwelling to provide greater habitable space. As such it is recommended that the applicant implement the following measures:
- Floor levels of the proposed extension to be set no lower than existing floor levels;
 - Internal access to the upper floors to be maintained for the lifetime of the development;
 - Non-return valves on any new sewer connections to prevent black-flow;
 - All plumbing insulation to be of closed-cell design;
 - Any patio or path areas constructed/altered as part of the proposed development should be laid as a permeable surface;
 - Utilise any existing surface water drainage infrastructure to discharge the negligible increase in surface water runoff rate/volume resulting from the proposed development, and;
 - Site owners, management staff and residents to be made aware of EA Flood Warning/Alert Service and have a flood management plan if the site/surrounding area is affected by either fluvial or surface water flooding.
- 5.4 Due to the nature of tidal flooding internal access from the ground floor to the upper floors of the building will be maintained for the lifetime of the property; thereby providing safe refuge.

Flood Evacuation and Access / Egress

- 5.5 The site resides within Flood Zone 3 (tidal) and is located within an EA Flood Warning Service Area (Figure 5).
- 5.6 It is recommended the site owner and all site users' sign up to the EA flood warning service if they have not done so already in order to provide betterment to the site. It is recommended that all new site owners and new site users are made aware are of the potential flood risk to the site and that they sign up to the EA flood warning service.

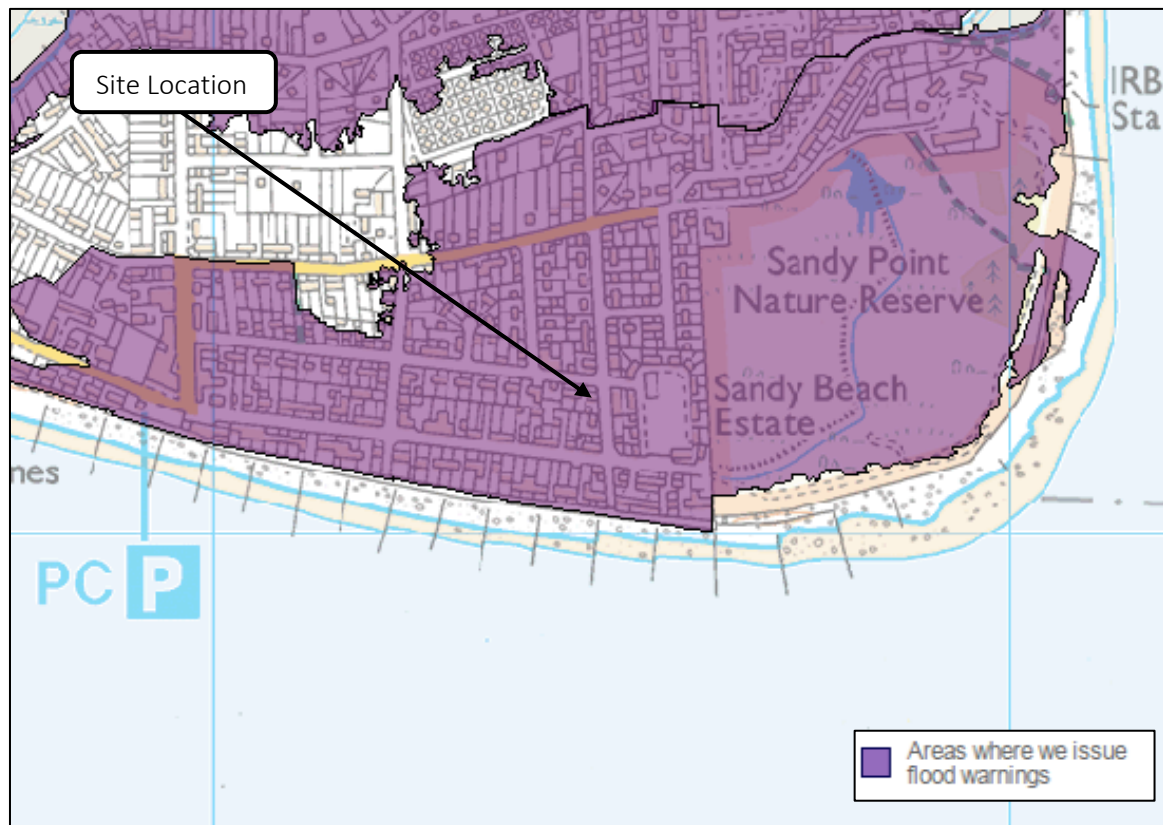


Figure 5: The EA Flood Warning and Alert Areas (Source: EA Online)

- 5.7 The EA operate a 5 day county-wide forecast in relation to flood risk. It is recommended that this service is regularly checked to ensure occupants/residents are aware of any possible risks: <https://flood-warning-information.service.gov.uk/5-day-flood-risk>.
- 5.8 The EA operate a Flood Information service which identifies whether any flood warnings or alerts have been issued for a specific postcode or place in England or Wales: <https://flood-warning-information.service.gov.uk/>.
- 5.9 The EA also operates a 24-hour telephone service on 0345 988 1188 that provides frequently updated flood warnings and associated floodplain information. It is important to note that the EA's flood warnings are only in relation to fluvial and tidal flooding, and do not cover other sources of flooding such as surface water or groundwater flooding.
- 5.10 The site owner(s) and management will be required to register for this service (<https://www.gov.uk/sign-up-for-flood-warnings>). It is advised that all residents and site users also register for this service, as management may not be on site at the time of a flood event. It is the responsibility of the site owner to make this service available to all site users.
- 5.11 The site owner(s), site management and residents will be required to register for this service. It is the site owner and site management's responsibility to make this service available and known to all site users.
- On receipt of a **FLOOD ALERT**, the site users should:
 - Monitor the situation via local media;
 - Make themselves aware of forecast local weather conditions;

- Alert others resident in the property of the situation;
 - Prepare to evacuate if necessary.
 - On receipt of a **FLOOD WARNING**, the site users should:
 - Follow advice to “go in, stay in, and tune in”;
 - Be prepared to follow instruction form the Emergency Services.
 - On receipt of a **SEVERE FLOOD WARNING**, the site users should:
 - Follow advice to “go in, stay in, and tune in”;
 - Remain attentive to local media forecasts and news bulletins;
 - Do not evacuate unless instructed to do so by the Emergency Services;
 - Only when instructed to evacuate by the Emergency Services, leave the property and follow the agreed evacuation route – detailed previously.
- 5.12 If flooding has already occurred before prior evacuation, it is advised site users return to the property and await evacuation. No evacuation should be sought if flood depths exceed 25cm, evacuation should only be sought with the assistance of the emergency services in these circumstances.
- 5.13 It is recommended that occupants egress to the upper floors of the building for safe refuge during an unexpected flood event, this internal route will be maintained for the lifetime of the development.
- 5.14 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.

5. Conclusion

- 6.1 Ambiantal Technical Solutions Limited has been appointed to undertake a National Planning Policy Framework (NPPF) compliant Flood Risk Assessment (FRA) at the site: 194 Southwood Road, Hayling Island, PO11 9QL.
- 6.2 The existing site consists of a residential dwelling. The proposed development is for the construction of an infill extension to an existing residential dwelling to provide greater habitable space.
- 6.3 According to the NPPF and the Environment Agency (EA) standing advice on development and flood risk, as well as the low detail, national-scale flood mapping created on behalf of the EA the site is partially located in Flood Zone 3 (High Risk; 1 in 200 or greater annual probability of flooding from the sea (>0.5%)) and partially located in Flood Zone 3 (Medium Risk; between 1 in 200 and 1 in 1000 annual probability of flooding from the sea (0.5%-0.1%)). The site has been shown to benefit of the presence of defences.
- 6.4 The nearest watercourse/waterbody to the site is the English Channel, the Mean High Water line of the English Channel is located approximately 50m to the south of the proposed development site.
- 6.5 The site is located within Policy Unit 5AHI05 (Chichester Harbour Entrance to Langstone Harbour Entrance) of the North Solent Shoreline Management Plan. The short, medium and long-term policy for policy unit 5AHI05 is to hold the line. Details from the EA has shown that the site benefits from defences in the form of a vegetated shingle beach with timber groynes, sand dunes and embankments and a raised masonry wall.
- 6.6 Given the small scale nature of the proposed development, and the fact that built footprint will not increase post-development, as such surface water runoff will continue to be managed via the existing system associated with the existing building.
- 6.7 The existing building consists of 5 bedrooms, 4 of which are located on the ground floor. Post-development, one of the existing bedrooms will be converted to an entrance foyer and the proposed undercroft extension will be used as a bedroom.
- 6.8 As such, and given that:
 - a) the site lies within a developed residential area with substantial flood defence infrastructure;
 - b) the proposed development is for the extension of an existing residential dwelling, and considered to a 'minor development';
 - c) the site lies within an area where the long-term policy for the coastline is 'Hold the Line';
 - d) in terms of flood vulnerability, significant betterment can be achieved through the implementation of flood warning procedures;

following the guidelines contained within NPPF, the proposed development type is **considered to be suitable** assuming appropriate mitigation and approvals for any ditch works (including adequate warning and evacuation procedures) can be maintained for its lifetime.

Appendix A – Supporting Information