

Flood Risk Assessment: 17 St John's Street Hythe SO45 6BZ.

Submitted in support of an application for a rear extension to form flexible living space.

Applicant: Barrie Willacy

Date: December 2023

1.0 Introduction

1.1 No 17 St John's Street is an 18th C Grade II listed cottage, part of a short terrace of three properties within the Hythe Conservation Area. This application is for a minor extension to a range of outbuildings at the rear of the cottage. The additional floor area proposed is approximately 10 sq metres. This FRA relates solely to the risk of flooding to this property and does not take account of risk to any other property.

1.2 The site of the extension is within Flood Zone 3 defined by the Environment Agency and shown on the current map of Flood Risk posted on the Agency web site.

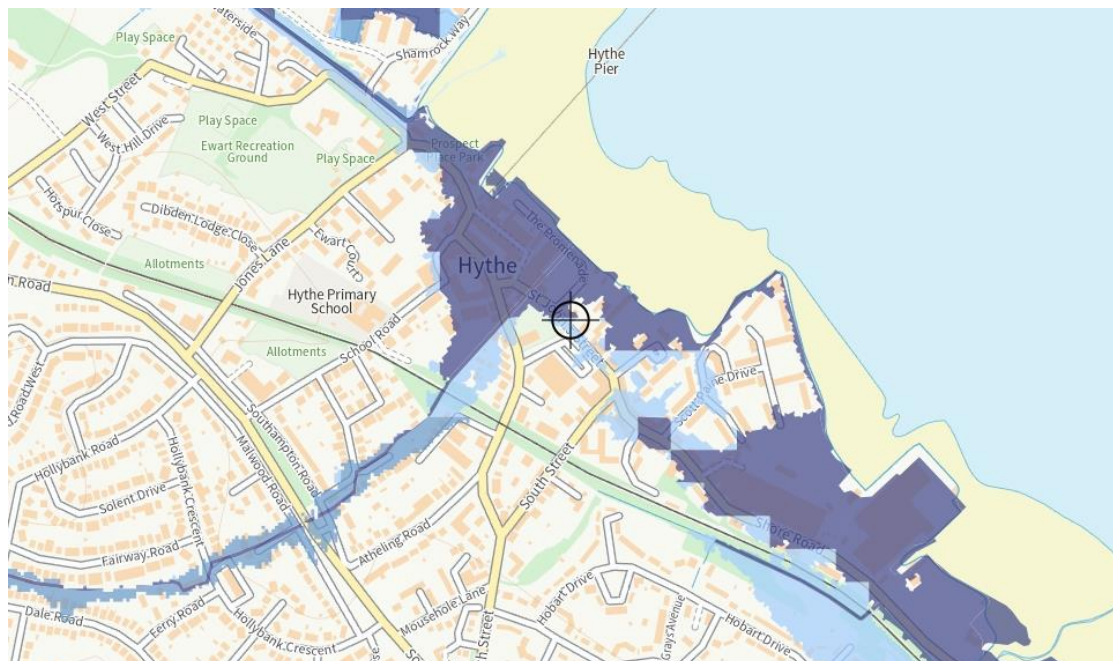


Fig 1 - Environment Agency flood map for Hythe

1.3 All levels on supporting plans relate to Ordnance Datum Newlyn (AOD). It is noted, however, that there is a disparity between the baseline ground levels used by the OS in preparation of the more recent DTM series of maps and those used by the Environment Agency in preparation of the SSD. The Agency acknowledges that the DTM data used for the SSD are out of date and therefore the most recent set of OS levels have been used to

determine key external ground levels and floor levels. This does not affect the estimated flood levels set out within the SSD. (email Abbie Parker of the, Environment Agency/ /Barrie Willacy Dec 5th 2023). An extract of the OS DTM survey is attached (Figure 2) and has been included in the application set (Wil 305)

2.0 Flood risk assessment data

2.1 SSD /336237 provided by the Environment Agency dated November 29th 2023 - attached - predicts a 0.5% (1 in 200 year event), or greater, annual probability of flooding from the sea with a flood level (ignoring wave height and climate change) of 3.12m AOD. There is a 0.1% (1 in 1000 year event) or greater, annual probability of flooding with a flood level of 3.24m AOD. The SSD indicates a 1%, (1 in 100 year event) or greater, annual probability of flooding from rivers.

Corrections for climate change

2.2 The estimated rise in sea levels resulting from climate change has been taken from Environment Agency data <flood risk assessments climate change allowances>. The higher central allowance for sea level rise accommodating 70% of possible flood events is 5.7mm per annum between 2000 and 2035 and 8.7mm per annum rise from 2035 to 2065. I have relied upon an estimated correction from 2020 until 2050. The last recorded update by the Environment Agency was 2019 whilst a cut-off date of 2050 allows a reasonable period in which to take long term decisions on flood protection for the site with a view to incorporating decisions taken in the interim by those authorities with wider responsibility for flood protection of the village.

Applying the corrections.

2.3 The total sea level rise owing to climate change over the 30 years between 2020 and 2050 is estimated to be 216mm. This would result in a water surface level across the site - using the 0.5% probability/1;200 year event - of **3.34m AOD**. This level would generate a water depth across the site ranging from 100 mm in the front garden of the property (point 1 on the flood levels map –page 12 of the SSD); there would be no flooding at point 2 - the courtyard paving adjacent the proposal, to 490 mm at point 9 – adjacent the beach. Applying the same correction to the 0.1% probability/1:1000 year event would give an estimated flood water level of **3.46m AOD** resulting in water depths across the site of 220mm (point1); no flooding (point 2); 610mm (point 9).

2.4 A flood event of this scale would overtop the existing sea walls 2 and 3 adjacent The Promenade with an existing effective crest level of 3.22m AOD and 3.19m AOD respectively and would overtop walls 4 and 5 with existing crest levels of 3.26m AOD and 3.20m AOD (flood defences data page 11 of the SSD). Figure 3 illustrates the comparison between estimate flood levels and key ground and structural levels.

2.5 The finished floor level of the proposal at 3.65 AOD would not flood in either of these projected flood events.

3.0 *Surface water flooding*

3.1 So far as the risk of surface water flooding is concerned it is assumed that outside the times of a peak tidal flood event the main gravity drainage systems will flow freely. Whilst it is recognised that peak surface water flow often coincides with low pressure and spring tides and therefore with the highest probability of tidal flooding, it is assumed for the purpose of this assessment that such a coincidence will constitute a relatively small addition to the maximum estimated water volume resulting from a tidal event.

3.2 It is understood that The Environment Agency proposes to examine Hythe's flooding problems from 2026 with a view to work being undertaken by 2028 whilst acknowledging that slippage may occur (reference: section 5: Hythe and Dibden Parish Council Flood Risk Assessment submission for proposed flood defences at Prospect Place open space, Hythe, January 2023) It is unlikely – on past record - that such work will in any event ameliorate flooding of private coastal property such as No 17 St John's Street as a consequence of direct flooding from the sea and therefore that owners will need to make their own arrangements to address the potential impact of a flood event.

4.0 *The Proposal*

4.1 Applying the current flood data from the Environment Agency set out above, the proposal would not represent a significant additional loss of flood plain or an impediment to flood water flows in the event of a major flood. In the case of a 1:200 year flood event it is likely – given the present condition of existing flood defences – that a substantial area of the centre of Hythe village, public spaces – roads, footpaths etc and the ground floors of some property closest to Southampton Water will be flooded. In this context the proposal – a footprint of approximately 13m² – would not represent a significant additional constraint to the short term storage or movement of flood water.

4.2 Although measures to prevent or reduce the impact of a flood event have already been taken and additional measures –figure 4 - will be incorporated, it is likely that the habitable space will be flooded in an extreme event, either wholly or partially, as a consequence either of failure of a component part of the designed system or because the scale of a flood event exceeds the parameters used in the modelling. A key element of the approach, therefore, is to accept that flooding will occur and to take steps to minimise the impact and facilitate a rapid recovery.

Measures to ameliorate the impact of flooding when it occurs.

4.3 A number of practical measures will be incorporated in the design and construction of the proposal.

- The ground floor of the extension and the existing outbuilding which it adjoins are to be of solid construction – concrete ground slab, screed and tiling. The greater part of the ground floor construction of the main cottage is also solid floor, those parts which included a timber floor finish will be changed to a solid floor finish;
- The finished floor level is the same as that of the main historic building 150 mm above adjacent ground level at 3.65m AOD;

- Any gaps around below ground service entry ducts serving the main dwelling will be examined and stopped if proven necessary;
- External walls of the proposal are to be masonry to 3.85m AOD;
- All electrical services are to be run at high level within wall cavities, electrical outlets are at a minimum of 700 above floor level. Electrical outlets are at or above this level in the main part of the dwelling
- A gas pressurised drain stopper will be located adjacent the last IC before the main sewer to enable it to be deployed in the event of a flood warning.

5.0 *Flood defence.*

5.1 It is unlikely that an effective system of flood defence for the property as a whole could be implemented before 2050 and, indeed, it may not be an appropriate course of action. The intention, in the intervening period, is to allow the greater part of the garden to flood but to implement a system of protection for the core of the habitable floor area, including the proposal. This will incorporate, and where necessary improve, existing masonry structure. The attached plan (figure 4 also included in the planning set as Wil 307) refers. Specific elements of this enclosure are:

- an existing flood defence wall stretching across the property immediately to the north east of the proposed extension, bonded to the masonry dividing wall between numbers 15 and 17 at its northern end and to the existing 1800 high masonry wall forming the boundary with the commercial boatyard to the south. A flood board closes the gap where the path breaches the wall. The top of this wall and flood board is at 4.0m AOD;
- the masonry boundary wall to the boatyard – 1.8m height - is of relatively recent construction and is to be repaired and repointed as required;
- a flood gate of appropriate design is to be installed inside the existing side gate to the property to complete the enclosure to the gable wall of the house. Top level 4.0m AOD;
- the gable wall will be repaired/repointed as necessary;
- the half brick wall which extends the line of the gable to the front garden wall will be pointed and the junction with the main house walls examined and remade if necessary, lowest point 4.10m AOD;
- the top of the historic garden wall fronting the street is currently at 3.65m AOD. It is of half brick construction rendered and in reasonably good condition although may require stiffening. It is proposed to leave this wall in place. A removable flood barrier or gate will be provided across the path embodying the technical requirements of such a device with the need to reflect the value of the heritage asset;
- a half brick wall forms the return of the enclosure to the front façade of the house adjacent No 15. The lower part of this wall is at 4.10m AOD.

This wall will be repaired and repointed and the joints between it and the street facing garden wall and between it and the façade will be remade.

Seaward flood protection

5.2 A removable flood barrier was installed across a demountable slipway adjacent the beach at the north east end of the property. It was installed following the 2008 flood event to prevent or limit flooding of the seaward end of the garden in the particular circumstances of high spring tides combined with strong easterlies resulting in 300+ mm wave height. Given that these circumstances usually occur at times of high rather than low pressure it is relatively uncommon but because of the relatively long fetch represents one of the more aggressive sea states for this part of Southampton Water. The top of this barrier is currently 3.40 AOD, approximately the same as the level of the adjacent sea wall along the frontage of No 15 and the boatyard to the south.

5.3 In the absence of more extensive floor protection to the property - including to the long boundary walls – this barrier would be outflanked by extreme tidal flooding but, as noted, that is not its principal purpose. It is accepted that the lower part of the garden will flood in such circumstances; it would have no consequential impact upon adjacent property – by definition already flooded - and there is therefore little point in raising the height of this barrier in the absence of more coherent plan of flood protection for the village.

6.0 Management of risk

6.1 The financial cost of providing effective protection for the whole property against an extreme flood event is currently unaffordable and, as noted, possibly also inadvisable. As a consequence it is accepted that in certain conditions the property will flood. The objective therefore is to minimise risk to life, injury and damage to property and allow a rapid recovery.

6.2 Owners/ occupiers will continue to subscribe to the Environment Agency phone flood warnings and via the Local Authority Flood Line to allow timely evacuation of the property and to ensure that all occupants are able to move to a safe location. A plan is in place to move vehicles to higher ground with a safe route out of the flooded area on receipt of an advance warning.

6.3 Practical steps will be taken to reduce the risk of injury both to ourselves and to members of the emergency services and to this end a Flood Response Plan (FRP) has been prepared and will be initiated in the event of tidal or fluvial flooding.

6.4 The Flood Response Plan includes: a plan of the property; method of evacuation; parking and escape route plan for vehicles; contact details of the local authority flood line; details of water stop cock, main gas valve; mains electric isolating switch; method of installation of removable flood barriers/ flood gates across paths and external doors; preparation and instructions for use of the pressurised drain stopper; location and method of preparation of an inflatable boat to assist evacuation if necessary.

6.5 - A Flood Kit has been prepared including:

First aid kit;

Matches in a waterproof container;

Tools including an adjustable spanner, pliers and any special tools required to turn off services;

Any prescribed medicines for all occupants;

Spare spectacles;

All domestic requirements for a stay away from the property – toiletries, soap towels etc;

Antibacterial hand gel;

Sturdy, warm clothes, including wellingtons/ waders;

Identification, driving licenses other important documentation stored in a waterproof bag.

Mobile phones/ tablets etc including chargers and appropriate leads with protective enclosure.

Torches and chargers including leads

End

Barrie Willacy – December 6th 2023

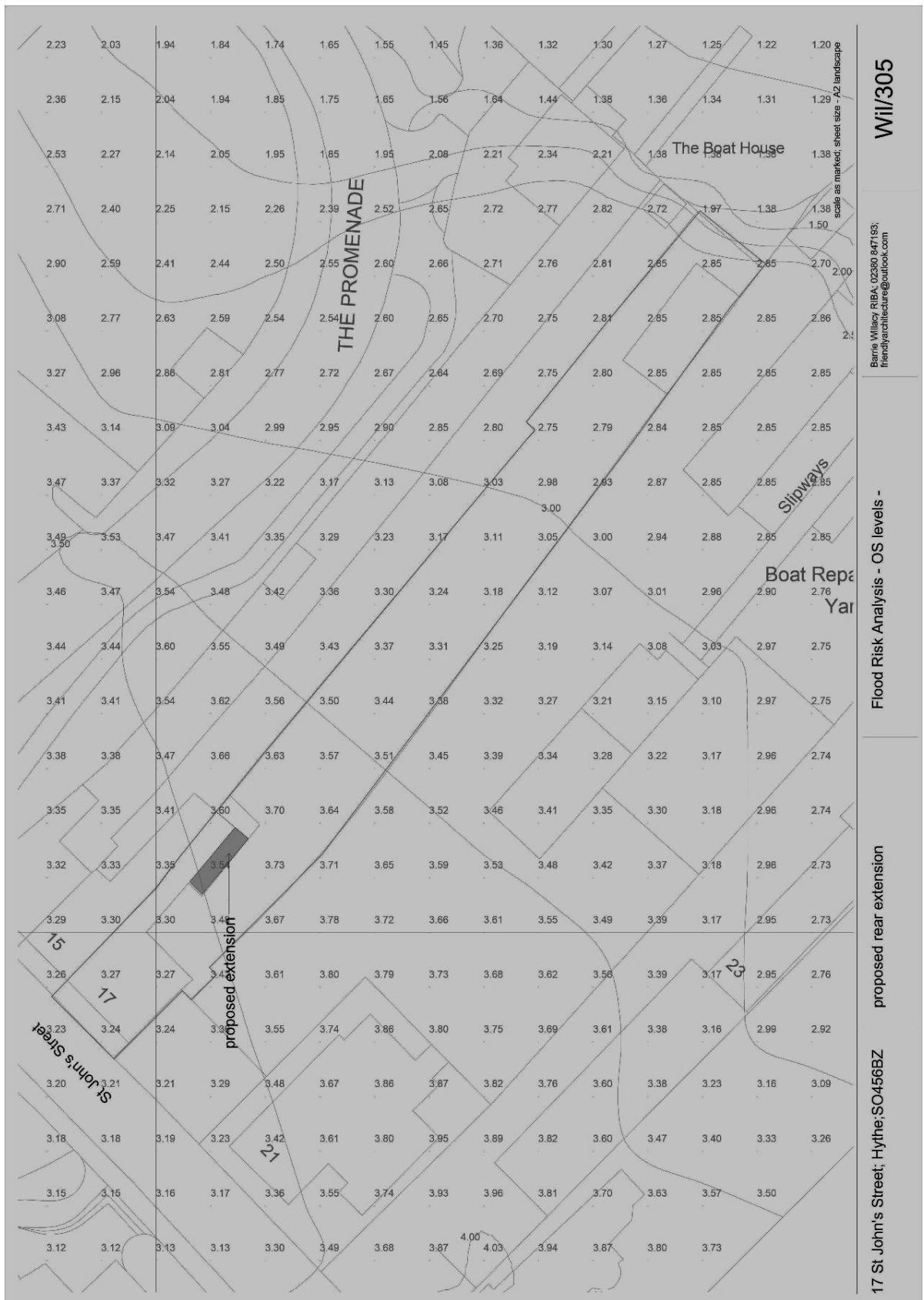
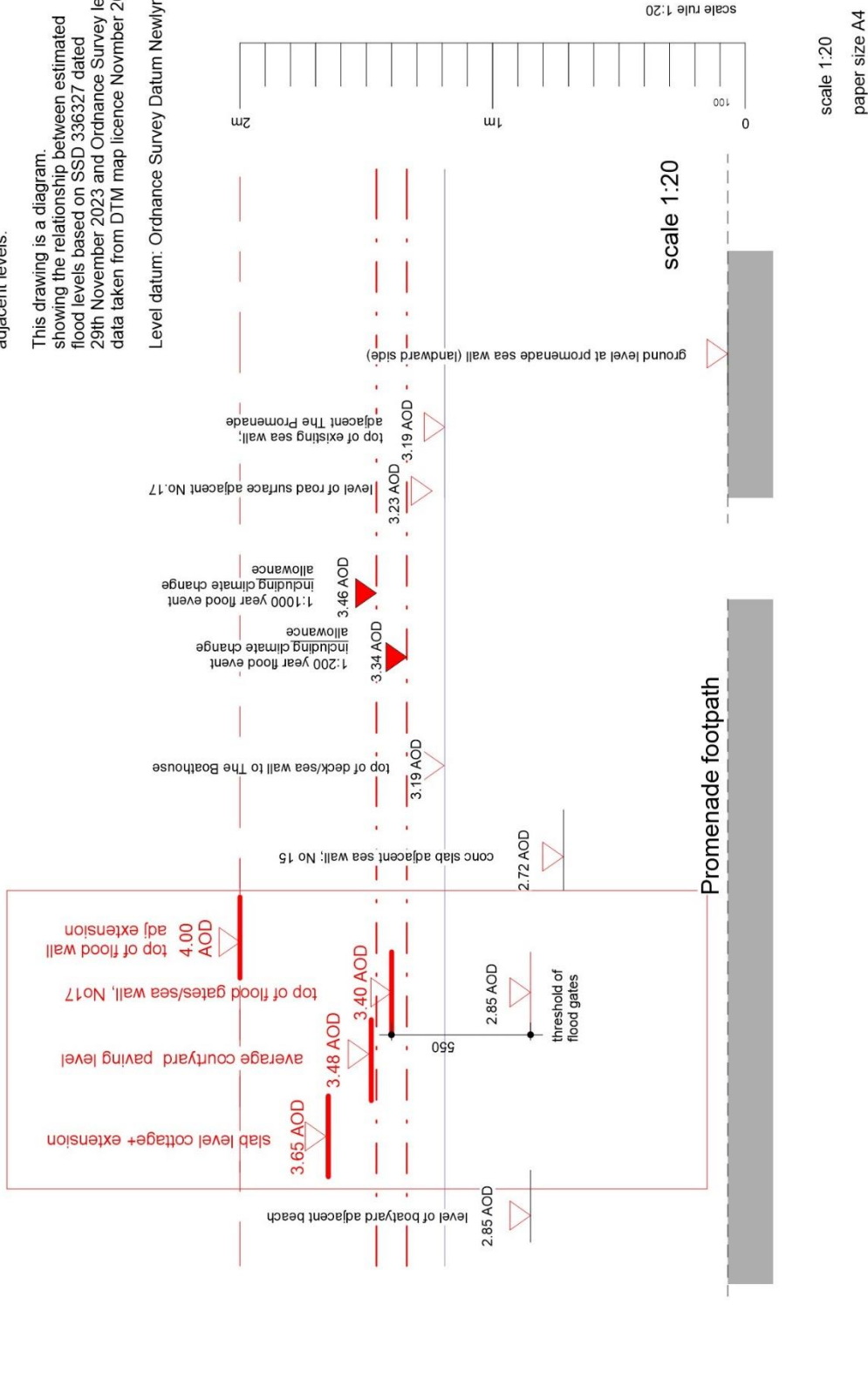


Figure 2 - level survey of site

Predicted tidal flood levels related to relevant adjacent levels.

This drawing is a diagram showing the relationship between estimated flood levels based on SSD 336327 dated 29th November 2023 and Ordnance Survey level data taken from DTM map licence November 2023

Level datum: Ordnance Survey Datum Newlyn



17 St Johns Street, Hythe, SO45 6BZ

proposed rear extension

diagram showing flood level relationships

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Figure 3 - proposed flood defence measures

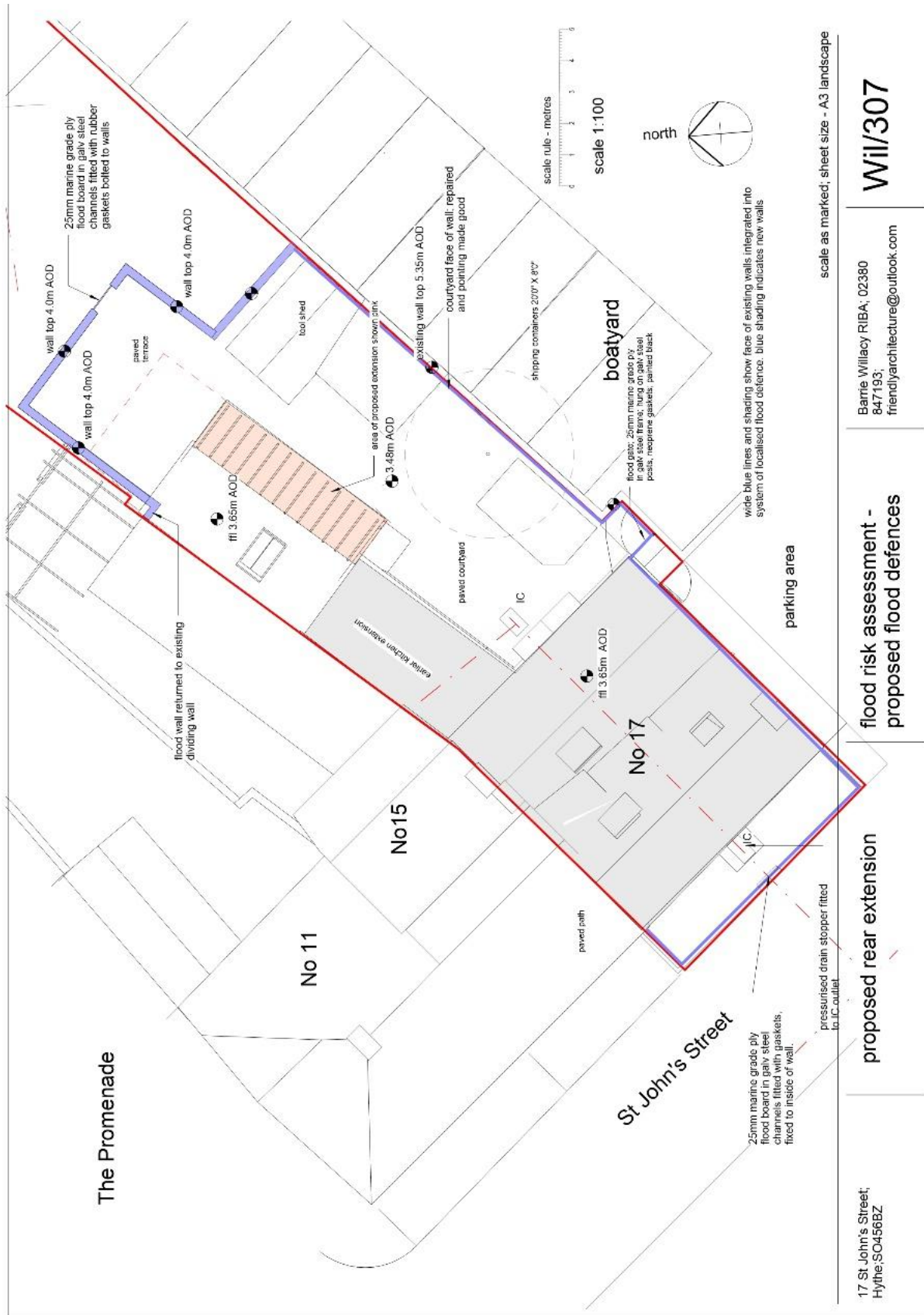


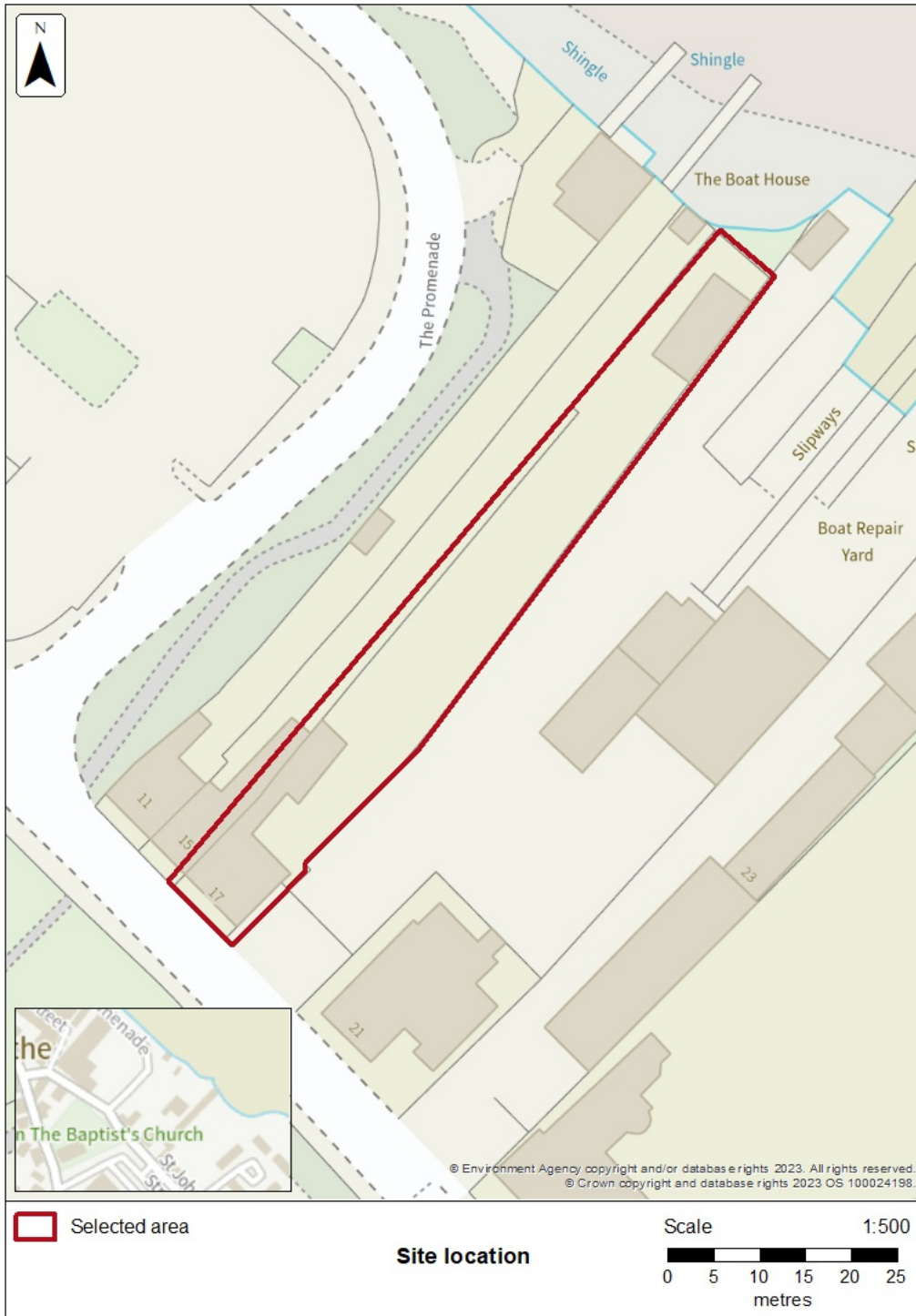
Figure 4 - diagram showing estimated flood levels, existing and proposed ground levels

Flood risk assessment data



Location of site: 442522 / 107925 (shown as easting and northing coordinates)
Document created on: 29 November 2023
This information was previously known as a product 4.
Customer reference number: SSD/336327

Map showing the location that flood risk assessment data has been requested for.



How to use this information

You can use this information as part of a flood risk assessment for a planning application. To do this, you should include it in the appendix of your flood risk assessment.

We recommend that you work with a flood risk consultant to get your flood risk assessment.

Included in this document

In this document you'll find:

- how to find information about surface water and other sources of flooding
- definitions for the terminology used throughout
- flood map for planning (rivers and the sea)
- historic flooding
- flood defences and attributes
- information to help you assess if there is a reduced flood risk from rivers and the sea because of defences
- modelled data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits help and advice

Not included in this document

This document does not include a Flood Defence Breach Hazard Map.

If your location has a reduced flood risk from rivers and sea because of defences, you need to request a Flood Defence Breach Hazard Map and information about the level of flood protection offered at your location from the Solent and South Downs Environment Agency team at ssdenquiries@environment-agency.gov.uk. This information will only be available if modelling has been carried out for breach scenarios.

Include a site location map in your request.

Information that's unavailable

This document **does not** contain:

- climate change modelled data

There is not any modelled climate change data for this location. This is because detailed modelling hasn't been carried out in this area. You will need to consider the [latest flood risk assessment climate change allowances](#) and factor in the new allowances to demonstrate the development will be safe from flooding.

Surface water and other sources of flooding

Use the [long term flood risk service](#) to find out about the risk of flooding from:

- surface water
- ordinary watercourses
- reservoirs

For information about sewer flooding, contact the relevant water company for the area.

Terminology used

Annual exceedance probability (AEP)

This refers to the probability of a flood event occurring in any year. The probability is expressed as a percentage. For example, a large flood which is calculated to have a 1% chance of occurring in any one year, is described as 1% AEP.

Metres above ordnance datum (mAOD)

All flood levels are given in metres above ordnance datum which is defined as the mean sea level at Newlyn, Cornwall.

Flood map for planning (rivers and the sea)

Your selected location is in flood zone 3.

Flood zone 3 shows the area at risk of flooding for an undefended flood event with a:

- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- between a 0.1% and 0.5% probability of occurring in any year for flooding from the sea
- between a 0.1% and 1% probability of occurring in any year for fluvial (river) flooding

It's important to remember that the flood zones on this map:

- refer to the land at risk of flooding and do not refer to individual properties
- refer to the probability of river and sea flooding, ignoring the presence of defences
- do not take into account potential impacts of climate change

This data is updated on a quarterly basis as better data becomes available.







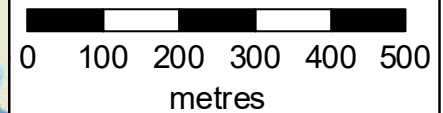
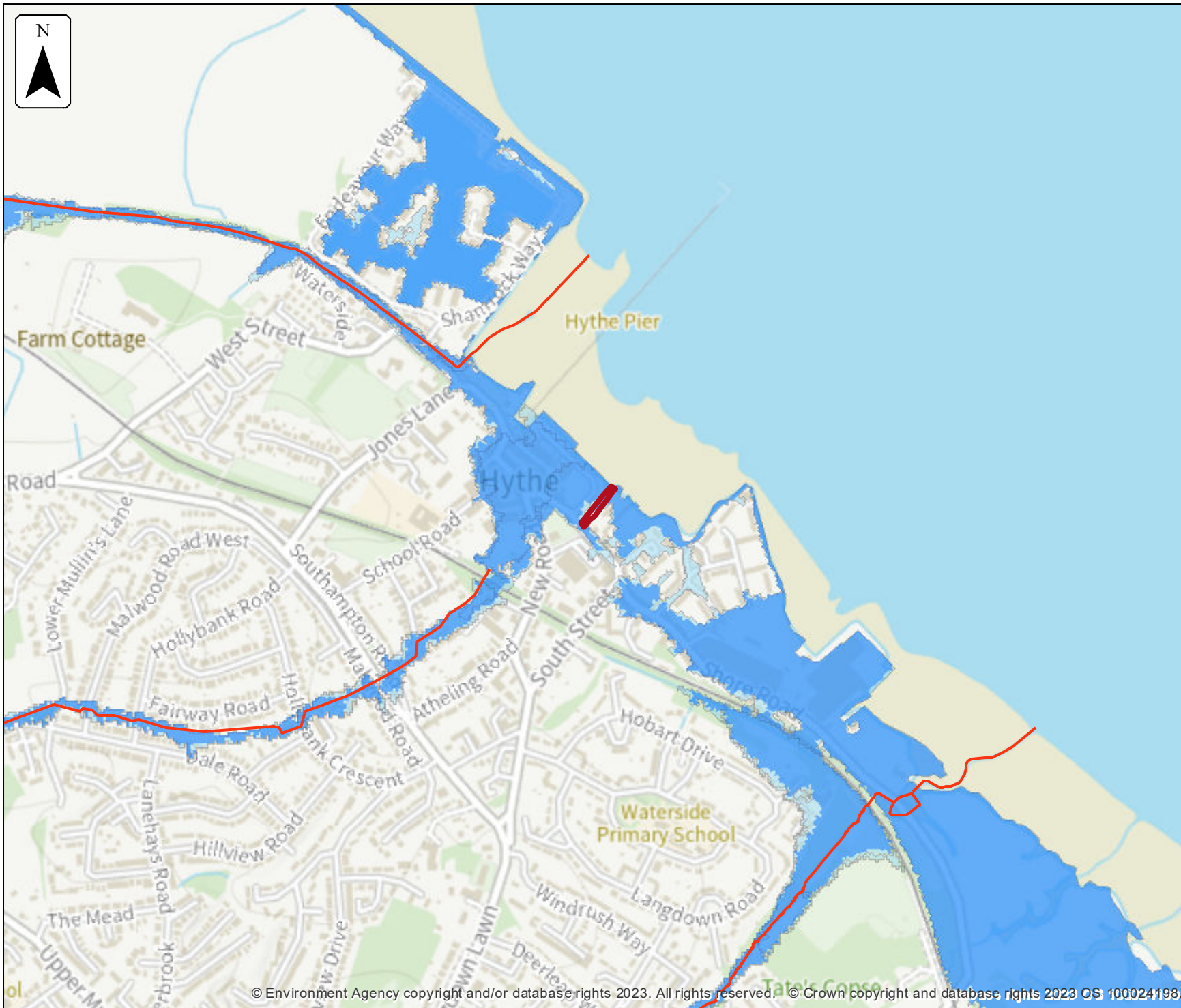
Flood map for planning

Location (easting/northing)
442522/107925

Scale
1:10,000

Created
29 Nov 2023

-  Selected area
-  Main river
-  Flood zone 3
-  Flood zone 2



Historic flooding

This map is an indicative outline of areas that have previously flooded. Remember that:

- our records are incomplete, so the information here is based on the best available data
- it is possible not all properties within this area will have flooded
- other flooding may have occurred that we do not have records for
- flooding can come from a range of different sources - we can only supply flood risk data relating to flooding from rivers or the sea

You can also contact your Lead Local Flood Authority or Internal Drainage Board to see if they have other relevant local flood information. Please note that some areas do not have an Internal Drainage Board.

[Download recorded flood outlines in GIS format](#)







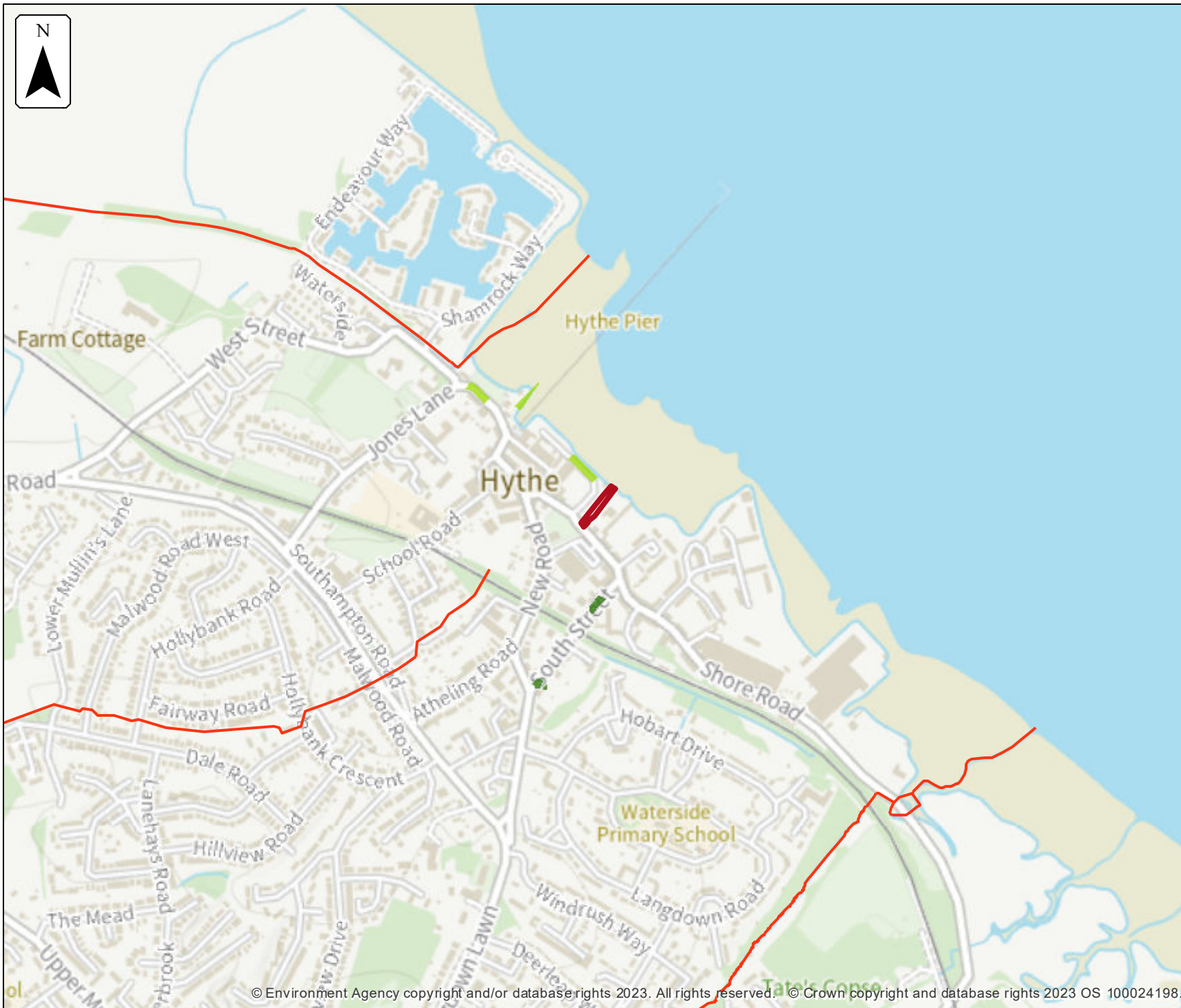
Historic flood map

Location (easting/northing)
442522/107925

Scale
1:10,000

Created
29 Nov 2023

-  Selected area
-  Main river
- Date of flood event
 -  March, 2008
 -  November, 2000



Historic flood event data

| Start date | End date | Source of flood | Cause of flood | Affects location |
|-----------------|-----------------|-----------------|----------------|------------------|
| 10 March 2008 | 10 March 2008 | sea | other | No |
| 1 November 2000 | 1 November 2000 | unknown | unknown | No |

Flood defences and attributes

The flood defences map shows the location of the flood defences present.

The flood defences data table shows the type of defences, their condition and the standard of protection. It shows the height above sea level of the top of the flood defence (crest level). The height is in mAOD which is the metres above the mean sea level at Newlyn, Cornwall.

It's important to remember that flood defence data may not be updated on a regular basis. The information here is based on the best available data.

Use this information:

- to help you assess if there is a reduced flood risk for this location because of defences
- with any information in the modelled data section to find out the impact of defences on flood risk






Flood defences

Location (easting/northing)
442522/107925

Scale
1:2,500

Created
29 Nov 2023

-  Selected area
-  Main river
-  Flood defence



Flood defences data

| Label | Asset ID | Asset Type | Standard of protection (years) | Current condition | Downstream actual crest level (mAOD) | Upstream actual crest level (mAOD) | Effective crest level (mAOD) |
|-------|----------|------------|--------------------------------|-------------------|--------------------------------------|------------------------------------|------------------------------|
| 1 | 184601 | Embankment | 200 | | | | 2.47 |
| 2 | 185557 | Wall | 200 | | | | 3.22 |
| 3 | 185551 | Wall | 200 | | | | 3.19 |
| 4 | 185552 | Wall | 200 | | | | 3.26 |
| 5 | 185553 | Wall | 200 | | 3.20 | 3.20 | 3.20 |
| 6 | 185687 | Wall | 200 | | | | 3.50 |

Any blank cells show where a particular value has not been recorded for an asset.

2014 Southampton Water Coastal Model - Flood Levels Centred on Grid Ref: SU4249807896



Flood Levels Map

Location (easting/northing)
442498/107896

Scale

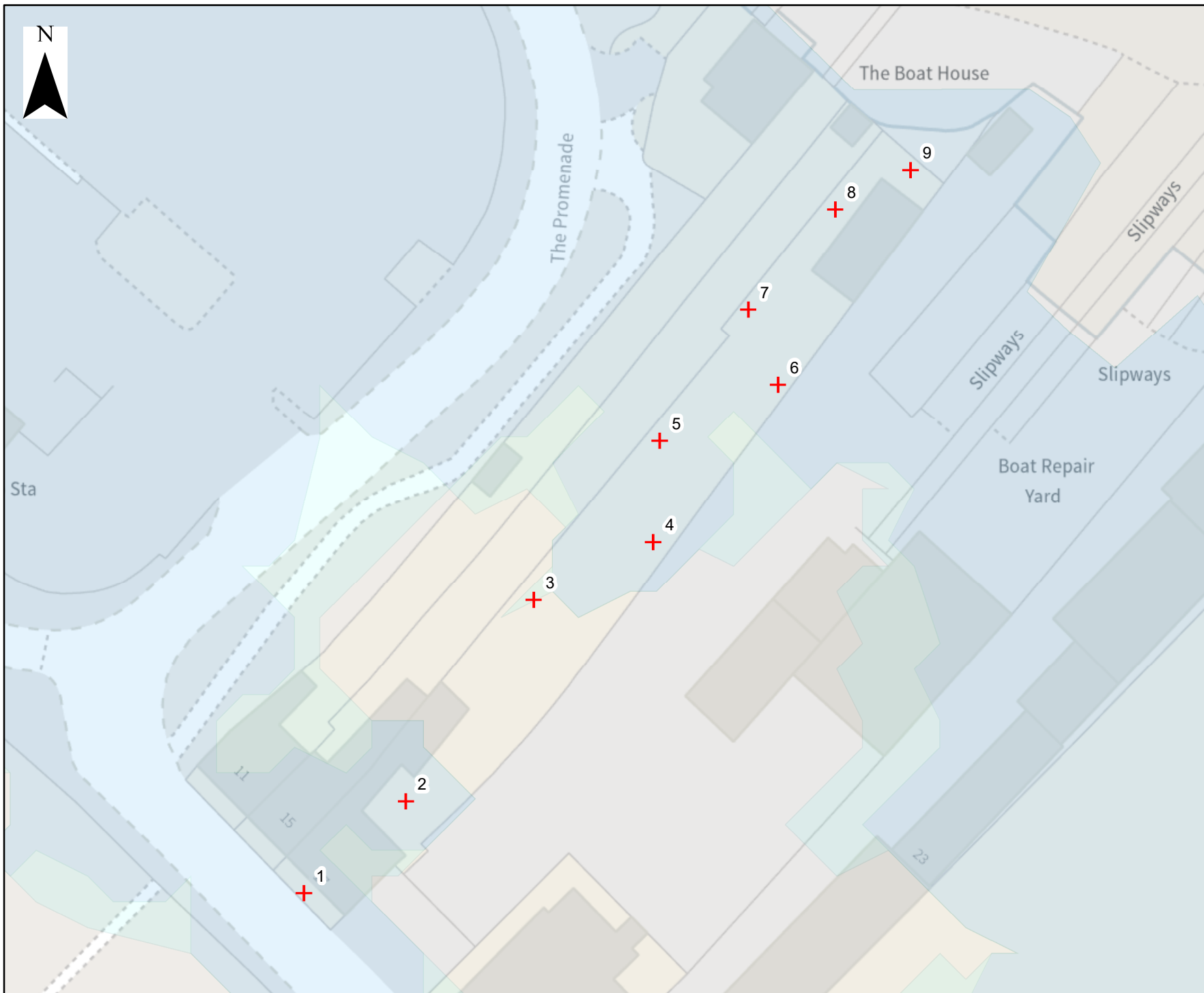
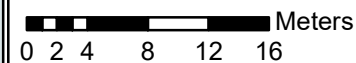
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Created

29th November 2023

Legend

- Location Points
- flood_zone_3
- flood_zone_2



Water Depths & Levels for 17 St John's Street, Hythe SO45 6BZ

| Point | Water Depth (Metres) | | Water Surface Level (mAOD*) | |
|-------|--|---|--|---|
| | 0.5% Annual Probability/1 in 200 Year (Flood Zone 3) | 0.1% Annual Probability/1 in 1000 Year (Flood Zone 2) | 0.5% Annual Probability/1 in 200 Year (Flood Zone 3) | 0.1% Annual Probability/1 in 1000 Year (Flood Zone 2) |
| 1 | 0.13 | 0.24 | 3.12 | 3.24 |
| 2 | 0.05 | 0.10 | 3.12 | 3.24 |
| 3 | NoData | 0.06 | NoData | 3.24 |
| 4 | 0.07 | 0.14 | 3.12 | 3.24 |
| 5 | 0.14 | 0.26 | 3.12 | 3.24 |
| 6 | 0.36 | 0.48 | 3.12 | 3.24 |
| 7 | 0.19 | 0.32 | 3.12 | 3.24 |
| 8 | 0.57 | 0.70 | 3.12 | 3.24 |
| 9 | 0.48 | 0.61 | 3.12 | 3.24 |

* Levels in metres above Ordnance Datum Newlyn

Strategic flood risk assessments

We recommend that you check the relevant local authority's strategic flood risk assessment (SFRA) as part of your work to prepare a site specific flood risk assessment.

This should give you information about:

- the potential impacts of climate change in this catchment
- areas defined as functional floodplain
- flooding from other sources, such as surface water, ground water and reservoirs

About this data

This data has been generated by strategic scale flood models and is not intended for use at the individual property scale. If you're intending to use this data as part of a flood risk assessment, please include an appropriate modelling tolerance as part of your assessment. The Environment Agency regularly updates its modelling. We recommend that you check the data provided is the most recent, before submitting your flood risk assessment.

Flood risk activity permits

Under the Environmental Permitting (England and Wales) Regulations 2016 some developments may require an environmental permit for flood risk activities from the Environment Agency. This includes any permanent or temporary works that are in, over, under, or nearby a designated main river or flood defence structure.

[Find out more about flood risk activity permits](#)

Help and advice

Contact the Solent and South Downs Environment Agency team at ssdenquiries@environment-agency.gov.uk for:

- [more information about getting a product 5, 6, 7 or 8](#)
- general help and advice about the site you're requesting data for