

BROOK HOUSE, THE CADNEY, BETTISFIELD, WHITCHURCH,
SHROPSHIRE, SY13 2LR



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CADNEY, BETTISFIELD,
WHITCHURCH,
SHROPSHIRE, SY13 2LR**

**Flood Consequence
Assessment**

November 2015

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CLIENT'S REFERENCE:

BROOK HOUSE, THE CADNEY, BETTISFIELD, WHITCHURCH, SHROPSHIRE, SY13 2LR

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DRAWING NO.
J01483/A2/001

TITLE
1 IN 1000 YEAR FLOOD ROUTING FROM
SHROPSHIRE UNION CANAL

INTRODUCTION

1.1 General

1.1.1 JNM Engineering Ltd has been commissioned to undertake a Flood consequence assessment (FRA) on behalf of Roger Ward in support of his planning application for the proposed development at Brook House, The Cadney, Bettisfield.

1.1.2 This report sets out the findings of the flood consequence assessment required by the Local Planning Authority in support of the planning application for this development. The assessment has been carried out in accordance with the Technical Advice Note 15 (TAN15).

1.2 Background Information

1.2.1 The TAN15 gives guidance on probability and development vulnerability.

Zone A Low Probability

This zone comprises of land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any one year (<0.1%).

Zone B Medium Probability

This zone comprises of 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.

Zone C(1)High Probability

This zone comprises of 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.

Zone 3C(2)The Functional Floodplain

This zone comprises of land where water has to flow or be stored in times of flood. Strategic FRA'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 Environment Agency (EA), including water conveyance routes.

- 1.2.2** As part of its general obligations under the Water Resources Act 1991, Natural Resources Wales (NRW) has carried out surveys of its existing flood defences against flooding and has published a series of nationwide 'Indicative Floodplain Maps' based upon information from historic flood events and basic hydraulic modelling. In general terms, these maps give a good indication of the areas likely to be affected by flooding. More recently the NRW have published the 'Flood Map' on their website which is based on improved hydraulic modelling and detailed local data. The Flood Map indicates areas that may be affected by a 1 in 100 year fluvial flood or a 1 in 200 year tidal/coastal flood (ie Zone C as defined in TAN15). It also indicates areas that may be affected by an extreme flood (ie Zone B as defined in TAN15). However it should be stated that the NRW flood maps only cover water courses with substantial catchment areas and do not cover all ditch courses and brooks that maybe susceptible to flooding.
- 1.2.3** Natural Resources Wales Map for the proposed development shows that the site boundary is inside of the indicative floodplain and is shown in Zone B. The extent of the indicative floodplain is shown in Appendix 1.
- 1.2.4** The proposed development area is approximately 0.1 ha and is shown on drawing J01483/A2/001. The site is a domestic property with detached garage.
- 1.2.5** Enquiries have been made of the Natural Resources Wales as to any recorded flooding instances and we are awaiting a response.

2 STRUCTURE OF THE REPORT

- 2.1** This report has been structured to follow the general principles set out in the TAN15 to the deal specifically with flooding.

This report has been based upon desk studies supplemented by site inspections.

SITE AND CATCHMENT CHARACTERISTICS

3 DEVELOPMENT DESCRIPTION AND LOCATION

3.1.1 The proposed development is located at Brook House, The Cadney, Bettisfield, Shropshire. It is proposed to convert a garage into new self contained holiday accommodation. The nearest postcode is SY13 2LR with national grid reference 347154E, 335225N.

The modern village of Bettisfield is situated on low-lying land, 1.5km south of the A495 Oswestry to Whitchurch Road. The land rises gently to the north with the Victorian church and Bettisfield Hall Farm located on the brow of a hill, separated from the present village ribbon development along two minor roads by the Shropshire Union Canal and a disused railway line.

The Shropshire Union Canal is a narrow canal and runs for 46 miles and $\frac{1}{4}$ furlongs through 21 locks from Llantisllo-Horseshoe Falls (which is a dead end) to Hurlstone Junction (where it joins the Shropshire Union Canal).

The canal lies in the counties of Staffordshire, Shropshire and Cheshire in the north-west midlands of England. It links the canal system of the West Midlands, at Wolverhampton, with the River Mersey and Manchester Ship Canal at Ellesmere Port, Cheshire, 66 miles (106 km) distant.

The SU main line was the trunk narrow canal route to be built in England. It was not completed until 1835 and was the last major civil engineering accomplishment of Thomas Telford.

The site falls within an area which has an elevated risk of flooding.

The site is not situated within 250m of an area benefiting from flood defences according to the regulatory body flood map. The site has been identified as being on or within 25m of Flood Zone 3 according to the regulatory body flood map and is at high risk of river or coastal flooding.

There are no records of past flooding at the site or within 250m. The flood insurance claim rating for this area is low with less than 2 claims per 1000 households.

The site is 87.121m above sea level.

3.1.2 Section 5 of TAN 15 sets the vulnerability class for the proposed development as “highly vulnerable development”. The site boundary is shown to be outside of the floodplain on the **indicative** floodplain maps (i.e. the site is shown to fall within Zone B: Low Probability). This type of development is deemed to be suitable when building within Zone B.

3.2 Definition of the Flood Hazard

- 3.2.1** The main sources of flooding are from rivers, tidal waters, overflowing sewers/drains, overland runoff from high ground and high water tables.

Flooding from Rivers

- 3.2.2** The closest river to the proposed development is the River Dee. From Assessing modelling work carried out by NRW, this does show flooding from the Shropshire Union Canal which is believed to contribute to flooding from the River Dee.

Flooding from Overland Runoff

- 3.2.3** Flooding from this source can be discounted due to the site and surrounding grounds topography.

Flooding from Existing Sewers and Drains

- 3.2.4** There are no sewers near to or crossing the development. Flooding from this source can be discounted.

Flooding from Ditches and Natural Ponds

- 3.2.5** There is a brook to the north and west boundary that takes flood water in extreme flood events from the Shropshire Union Canal. The NRW flood maps shows this breaching its banks 1 in 100 year storm events.

Flooding from Reservoirs, Canals, and other Artificial Sources

- 3.2.6** Flooding from The Shropshire Union Canal as stated in point 3.2.2.

Existing Drainage

- 3.2.7** All existing drainage is to be maintained and not altered. No additional drainage areas are proposed.

3.3 Detailed Development Proposals

3.3.1 Please refer to Flood Plan drawing J01483/A2/001 for site proposals. Due to the nature of the development, no formal drainage drawings have been detailed as the building is to remain unaltered and all existing drainage to be maintained.

3.3.2 It is proposed to convert an existing 2 storey garage into a 2 person holiday let. The ground floor is to be converted into a kitchenette and living room, with the 1st floor to be converted into a bedroom and ensuite. The existing building foot print is not to be extended.

3.4 Flood Risk Management Measures

3.4.1 It has been determined that there is one combined risk of flooding associated at this site. During high intensity storm events, the Shropshire Union Canal breaches its banks, flooding into a nearby water course. This is shown on the NRW flood maps to flood near to the proposed development site. In the worst case 1 in 100 year storm event, flooding from this source does not enter the proposed site boundary. However, the modelled 1 in 1000 year storm event map (i.e. Zone C) shows flood water from this source enter the site boundary. Refer to Appendix 1 and 2.

3.4.2 In all flooding events near to the proposed renovation works, even when the site boundary is breached, the existing garage building is not affected by flooding. The 1 in 1000 year flood water enters the sites boundary at approximately 5m, as shown on drawing J01483/A2/001. Due to the rise in level (300mm) of the driveway towards the finish floor level of the existing garage, water is prevented to entering the building.

3.4.3 As result no mitigation measures are required.

3.5 Off Site Impacts

3.5.1 No significant off site impacts are expected as all surface water drainage is to be maintained on site and no regrading of the site is proposed below the modelled flood level.

3.6 Residual Risks

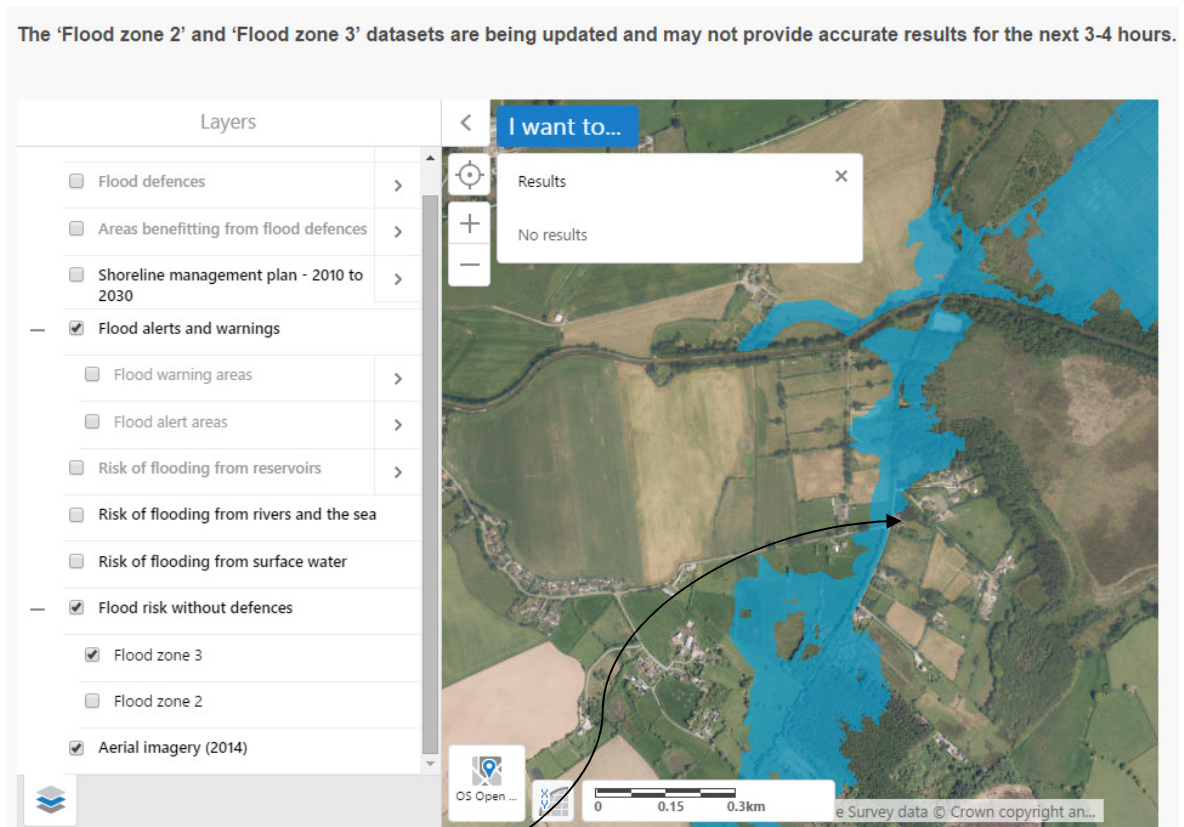
3.6.1 There is always a possibility of a flood in excess of the design standards (e.g. 1 in 100 years) that, if occurred, might conceivably cause some flooding to the development. However, such an event would have a very low probability and the risk of flooding to the development would be extremely small due. It is therefore considered that the residual risks associated with flooding are not significant.

CONCLUSIONS

- 3.7** This report gives details of the Flood Consequence Assessment, which has been carried out in relation to the proposed development site.
- 3.8** As demonstrated within the report, and as shown within Appendix 1, 2 and 3, the positioning of the proposed dwelling is not at significant risk of flooding.
- 3.9** The onsite drainage systems are existing and are to be unaltered.

Appendix 1

Natural Recourses Wales Flood Map (River & Seas) 1 in 100 year

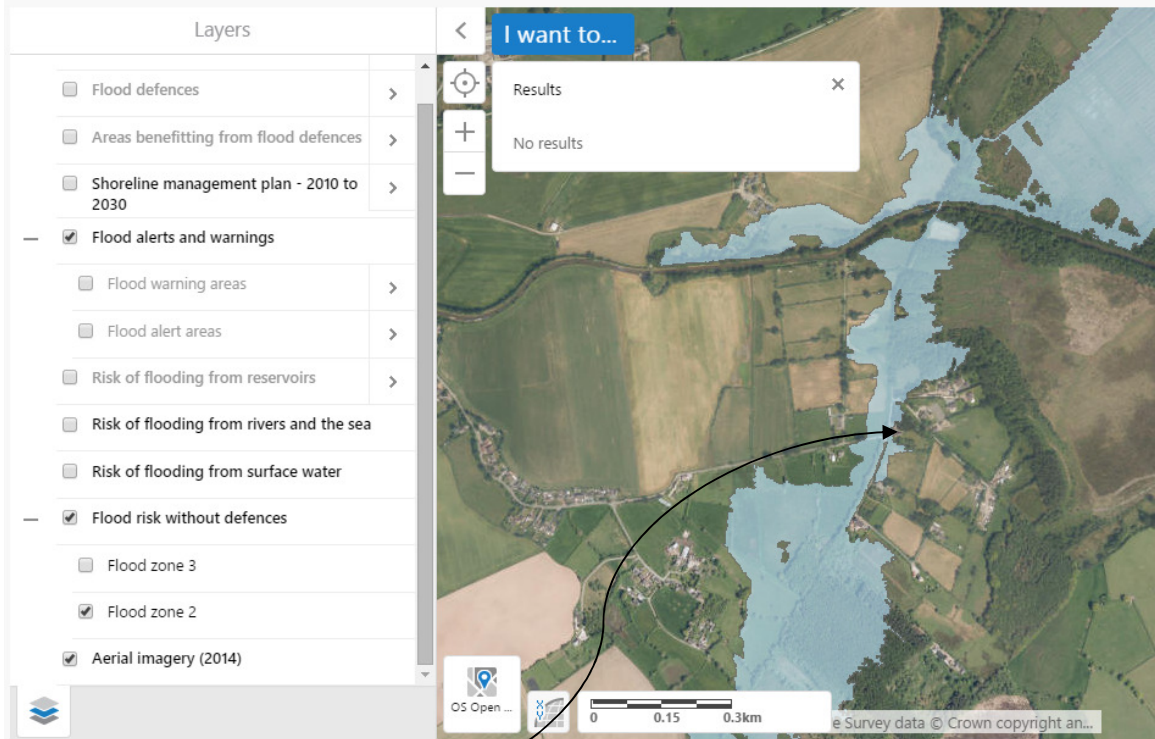


Proposed site location

Appendix 2

Natural Recourses Wales Flood Map (River & Seas) 1 in 1000 year

The 'Flood zone 2' and 'Flood zone 3' datasets are being updated and may not provide accurate results for the next 3-4 hour

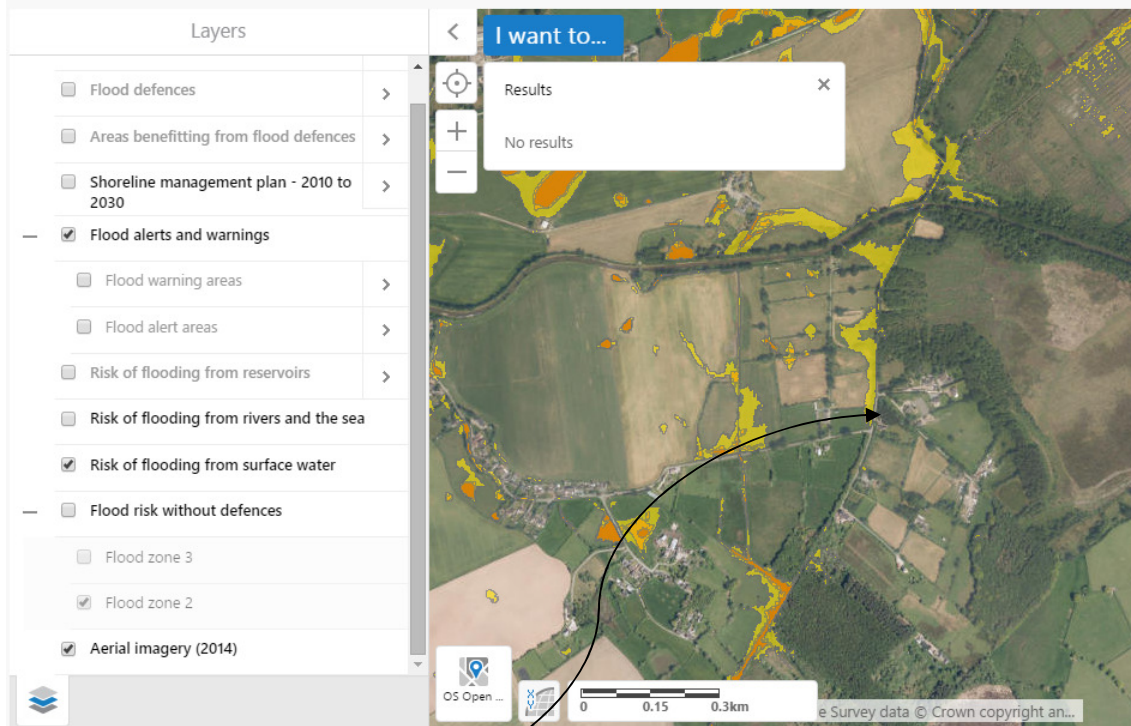


Proposed site location

Appendix 3

Natural Resources Wales Flood Map (Surface Water)

The 'Flood zone 2' and 'Flood zone 3' datasets are being updated and may not provide accurate results for the next 3-4 hours



Proposed site location