

Flood Risk Assessment

For

A Proposed New Dwelling at

Alyndene,

Chester Road

Rossett

LL12 0HN

Flood Risk Assessment

1. Introduction

- 1.1. This Flood Risk Assessment has been prepared to support the planning application for the development of a single residential dwelling house in the side garden of Alyndene, Chester Road (B5102), Rossett, LL12 0HN

2. Terms

- 2.1. In this report the following terms shall have the following meanings
- | | | |
|---------|----------------------|---|
| 2.1.1. | Applicant | Mr and Mrs D J Robson |
| 2.1.2. | Site | The site shown edged red on Plan1 |
| 2.1.3. | Alyndene | The existing semi-detached dwelling house on the Site shown edged blue on Plan 1 |
| 2.1.4. | Proposed Development | the development of a single detached residential dwelling house with basement on the Site shown edged green on Plan 1 |
| 2.1.5. | Plan 1 | a plan of the site and its environs attached in the Appendices as Document 7.1.1 |
| 2.1.6. | Location Plan | an Ordnance Survey plan extract showing the site and its immediate surroundings attached in the Appendices as Document 7.1.2 |
| 2.1.7. | AOD | Above Ordnance Datum |
| 2.1.8. | Flood Report | a flood risk report attached in the Appendices as Document 7.2 |
| 2.1.9. | Topographical Survey | a topographical survey of the Site carried out by the applicant from datum information provided by the Ordnance Survey attached in the Appendices as Document 7.3 |
| 2.1.10. | Site Photographs | photographs of the Site attached in the Appendices as Document 7.4 |

3. Flood Hazard and Flood Probability

- 3.1. A Flood Report has been commissioned by the Applicant from Sitescope Limited, part of the Landmark Information Group.
- 3.2. Section A of the Flood Report contains a flood risk assessment carried out by RMS.
- 3.2.1. RMS are the world's leading provider of products, services, and expertise for the quantification and management of catastrophe risk. Founded at Stanford University in 1988, they offer services for the management of insurance catastrophe risk associated

with natural perils. (Source – RMS website: www.rms.com, RMS Ltd, Peninsular House, 30 Monument Street, London EC3R 8NB)

- 3.2.2. The RMS flood report is a modelled dataset, which uses land height, predicted rainfall and a huge variety of other factors to predict both flooding from rivers and surface water flooding.
- 3.2.3. The RMS summary shows that the Site is within 50 metres of land with the risk of flooding on a 1 to 1000 year but that the Site itself is not considered to be affected by this risk.
- 3.2.4. The RMS summary also shows that the site itself is not considered to be affected by the risk of pluvial flooding.
- 3.3. Section B of the Flood Report contains flood risk information for the environs of the Site obtained from the Environment Agency
 - 3.3.1. The Environment Agency agrees with the conclusions drawn by RMS in that the Site is not shown to be within a Zone 3 (1 in 100 year risk) area.
 - 3.3.2. By contrast the Environment Agency flood map shows that part of the Site is within a Zone 2 area, which equates to a 1 in 1000 year risk of flooding.
- 3.4. For this reason more consideration needs to be given to the potential risk of flooding and the effect it could have on the Proposed Development.
 - 3.4.1. The Environment Agency flood map shows that only part of the Site is affected. This is the part of the site containing the Proposed Development. This area lies at the extreme edge of the 1 in 1000 year flood plain. The Environment Agency map is not considered to be accurate without more extensive modelling and so the applicant has carried out a Topographical Survey to aid interpretation of the Environment Agency Map.
 - 3.4.2. The Topographical Survey shows that Alyndene has a DPC of 16.495m AOD and a finished floor level of 16.650m AOD.
 - 3.4.3. The survey levels of the garden shown as being affected by the Zone 2 flood plain vary between a minimum of 15.985 and a maximum of 17.435 metres AOD. The 17.435 reading can be discounted as an anomaly caused by the existence of a mature Horse Chestnut tree which has significantly affected ground levels under its canopy by root action. The 15.985 reading lies in the opposite extreme corner of the site. Accordingly it can be seen that the main part of the garden subject to the Environment Agency assessment of the Zone 2 flood plain has less variation being between 16.365 and 16.395 metres AOD and is effectively flat.
 - 3.4.4. As there is no particular slope on the Site this can be interpreted as showing that in the event of a 1 in 1000 year flood actually affecting the site, it would be at the extreme limits of the flood plain and any ponding on the Site would be of minimal depth and by the nature of the flat site petering out to nothing.

- 3.4.5. To add veracity to this conclusion the character of the garden area can be seen in the Site Photographs.
- 3.5. It is clear from the Environment Agency Flood Plan that the Zone 2 flood plain is constrained in relation to the Property is constrained on its southerly boundary by the main Chester Road and this is apparent from the higher levels of the road shown on the Location Plan and (also visually from the Site Photographs - in particular Appendix documents 7.4.2 to 7.4.4) when compared with the levels shown on the Topographical Survey of the Property.
- 3.6. The road therefore acts as a bund. The Topographical Survey also shows a manhole in the pavement outside the Property surveyed at 16.53m AOD and the top of the dropped kerb surveyed at 16.680m AOD. From this point the Ordnance Survey Plan shows that the road rises towards the west, in the direction of the bridge over the River Alyn (17.1m AOD) and falls towards the east in the direction of the Golden Lion Pub (16.2m AOD)

4. Preliminary Conclusion

- 4.1. The site is not at risk of a 1 in 100 year flood (RMS and Environment Agency)
- 4.2. The site may be at risk of a 1 in 1000 year flood (Environment Agency only)
- 4.3. The DPC of the existing building on the Property has a DPC at 16.495m AOD and a finished floor level of 16.65m above floor level. It should be noted that Alyndene is not considered to be at risk of a 1 in 1000 year flood by either the Environment Agency or RMS
- 4.4. Chester Road which delimits and contains the possible flood plain within the site is at 16.680m AOD at the entrance to the site before it falls away to the east.

5. Flood Risk Mitigation Measures

- 5.1. As a possible but not definite risk of flooding has been identified it would be possible to challenge the classification of the site as being within the Zone 2 flood plain.
- 5.2. However such a challenge would still only be based on assumptions and predictions. The applicant therefore proposes flood risk mitigation measures for the Proposed Development that carry the benefit of certainty and can be demonstrated to prevent the risk of flooding to the residential dwelling house proposed for the site.

5.3. Altering DPC and Finished Floor Levels

- 5.3.1. It is proposed that the DPC of the proposed dwelling be raised to 16.58m AOD and the finished floor level be raised to 16.73m AOD.
- 5.3.2. The 16.58m AOD DPC level is 85mm (approximately one brick course) above the DPC level of Alyndene, which is not considered to be at risk of flooding in any event, and is

185mm above the highest level in the main part of the garden believed by the Environment Agency to be at the extreme edge of the Zone 2 flood plain.

- 5.3.3. The 16.73m finished floor level is 235mm above the DPC level of Alyndene, which is not considered to be at risk of flooding in any event and is 335mm above the highest level in the main part of the garden believed by the Environment Agency to be at the extreme edge of the Zone 2 flood plain.
- 5.3.4. In addition the 16.730m finished floor level is also 50mm above the 16.680m AOD level at which any extreme flooding affecting the site would be unable to rise any further. At this level any additional water would flow over the kerb constraining the site and down the main Chester Road in an easterly direction. For this mitigation effect to be required to prevent flooding to the dwelling the water levels would have had to have risen 285mm above the highest level in the main part of the garden believed by the Environment Agency to be at the extreme edge of the Zone 2 flood plain.
- 5.3.5. It is also proposed that the DPC of the proposed garages to the rear of the site be raised to 16.58m AOD and the finished floor level be raised to 16.73m AOD

5.4. Construction of Basement

- 5.4.1. It is proposed to construct a basement within the Proposed Development. It is appreciated that the Site is within the Zone 2 Flood Plain. Accordingly the basement is at risk of flooding from an extreme event.
- 5.4.2. Accordingly it is proposed that the only method of entry into the basement be from within the proposed dwelling and therefore within a location protected from flooding, in any event by the finished floor level.
- 5.4.3. It is recognised that the basement will have to be constructed using a methodology which prevents water ingress, but it is posited that the location of the proposed development within the flood plain produces no additional challenges in terms of construction than any other basement, save for the matter covered in 5.4.2.

6. Conclusion

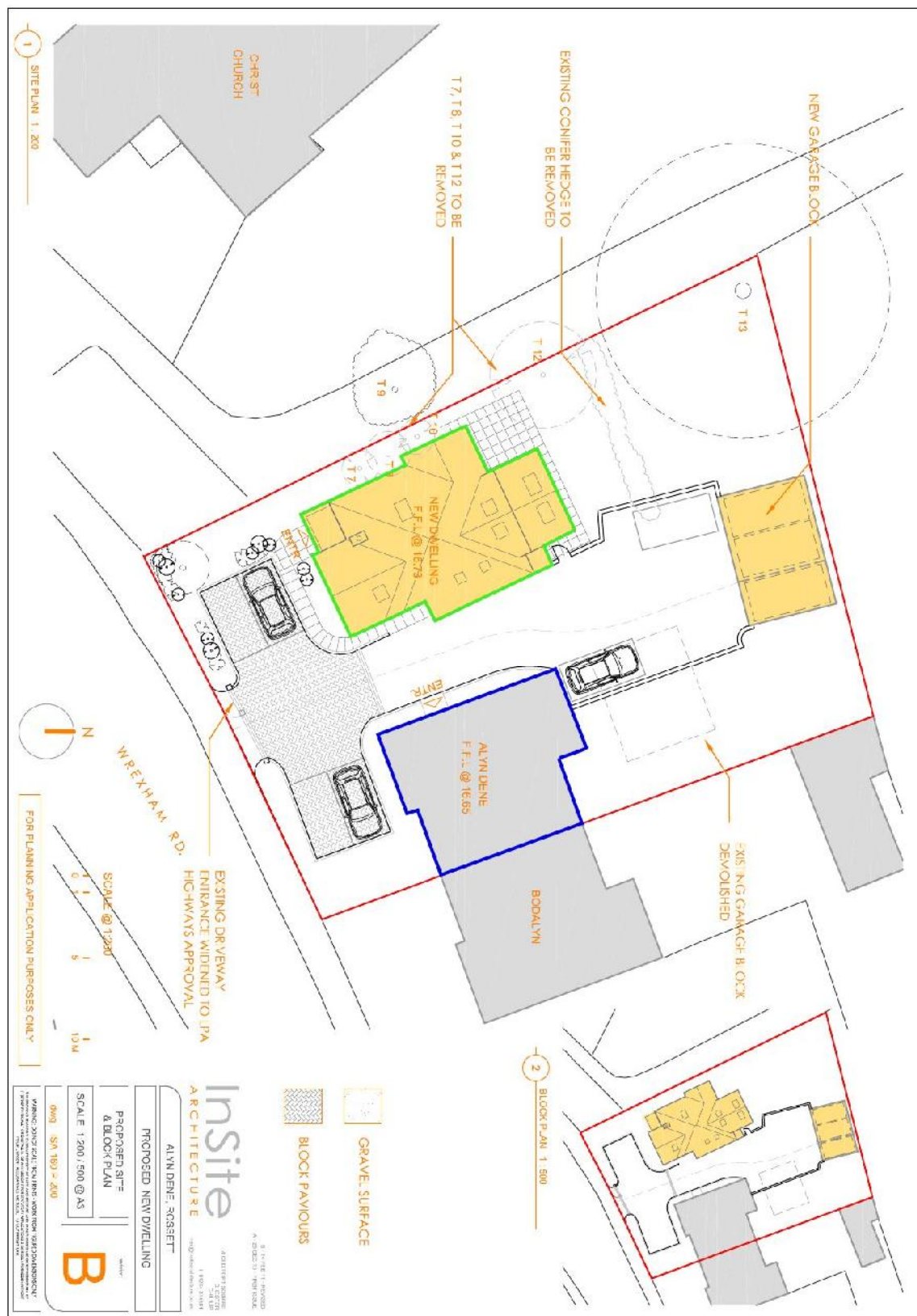
- 6.1. The Site may be at risk of an extreme event of flooding, which is, at worst, predicted to have minimal depths across only part of the Site, presenting extremely limited physical risk.
- 6.2. Development on the site can be carried which prevents the risk of such flooding (if any) actually affecting the buildings constructed on the Site.

7. Appendices

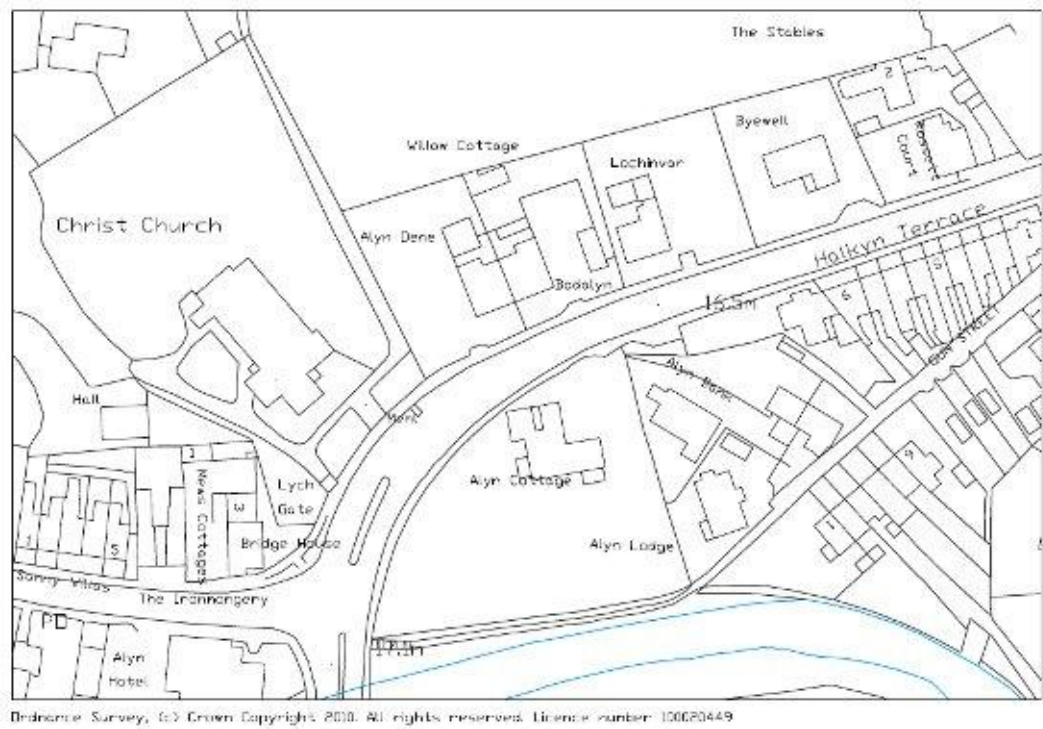
7.1. Plans

(from next page)

7.1.1. Site Plan.



7.1.2. Location Plan



7.2. Flood Report
(separate document)

7.3. Topographical Survey

Willow Cottage



7.4. Site Photographs



Front View of Site



View from Alyn Bridge



Front view of Existing Dwelling



Front view of Existing Dwelling and neighbouring Alyndene

Dated 01 February 2011