

FLOOD RISK ASSESSMENT

PROPOSED EXTENSION:

**Bramley House
Turners Lane
Crudwell
Wiltshire
SN16 9EH**

PREPARED BY:

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APPENDICES

1. PLAN OF PROPOSED DEVELOPMENT

DOCUMENT HISTORY

Issue No	Comments	Date
Draft	Issued for comment	09.01.2014
Version 1	Architect's Comments Added	09.01.2014

1.0 EXECUTIVE SUMMARY

- 1.1 This Flood Risk Assessment (FRA) is in support of a planning application to construct an extension to the east side of Bramley House.
- 1.2 The Proposal is to construct an extension to the south side of the House. The proposed extension is to be positively into the main drainage system associated with the house and therefore offers a slight reduction to the existing natural catchment area.
- 1.3 The existing house is constructed on land deemed to be in Flood Zone 1 and therefore not predicted to be affected by flooding in a 1 in 1000 year event.
- 1.4 The boundary of Flood Zone 1 in the vicinity of Bramley House appears to be the southern and eastern walls of the house.
- 1.5 The proposed extension is to the south of the existing building and therefore will boundary between Flood Zones 1 and 2 and therefore predicted to be affected by flooding around the 1 in 1000 year storm.
- 1.6 The location of the proposed extension is on in the extremity of Flood Zone 2 but on land gently sloping towards the water course and therefore the depth of flooding, should it ever occur, is likely to be very shallow and consequently more of a nuisance than a hazard.
- 1.7 A domestic extension located in Flood Zone 2 is classified as More Vulnerable in the Sequential Test (Table D2 of PPS 25). Table D3 of PPS 25 indicates that More Vulnerable developments should be permitted in Flood Zone 2 areas and do not require an Exception Test.
- 1.8 The Proposal will have no effect on the flood risk to the surrounding areas. The site may be affected in extreme rainfall events but the effects are considered a nuisance rather than a hazard.
- 1.9 It is considered that the permission for the Proposed Extension should not be refused on the grounds of flood risk.

2 INTRODUCTION

2.1 This Flood Risk Assessment has been prepared to accompany a planning application for the development of an extension to Bramley House, Turners Lane Crudwell, Wiltshire, SN16 9EH.

2.2 Section 10 of the National Planning Policy Framework (NPPF) outlines how developments should be assessed in order to meeting the challenge of climate change, flooding and coastal change.

2.3 Paragraph 100 (in Section 10) of the NPPF states the following: -

Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere. Local Plans should be supported by Strategic Flood Risk Assessment and develop policies to manage flood risk from all sources, taking account of advice from the Environment Agency and other relevant flood risk management bodies, such as lead local flood authorities and internal drainage boards. Local Plans should apply a sequential, risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account of the impacts of climate change, by: -

- *applying the Sequential Test;*
- *if necessary, applying the Exception Test;*
- *safeguarding land from development that is required for current and future flood management;*
- *using opportunities offered by new development to reduce the causes and impacts of flooding; and*
- *where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to facilitate the relocation of development, including housing, to more sustainable locations.*

2.3 Paragraph 103 (in Section 10) of the NPPF states the following: -

When determining planning applications, local planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where, informed by a site-specific flood risk assessment following the Sequential Test, and if required the Exception Test, it can be demonstrated that: -

- *within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location; and*
- *development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed, including by emergency planning; and it gives priority to the use of sustainable drainage systems.*

2.4 This Flood Risk Assessment has taken the requirements of Section 10 of the NPPF into consideration and has been carried out in accordance with the guidelines set out in PPS 25 where appropriate.

3 SITE LOCATION

- 3.1 Bramley House is situated on the eastern side of Crudwell and on the east side of the A429 as it passes through the village of Crudwell (See Fig 1).

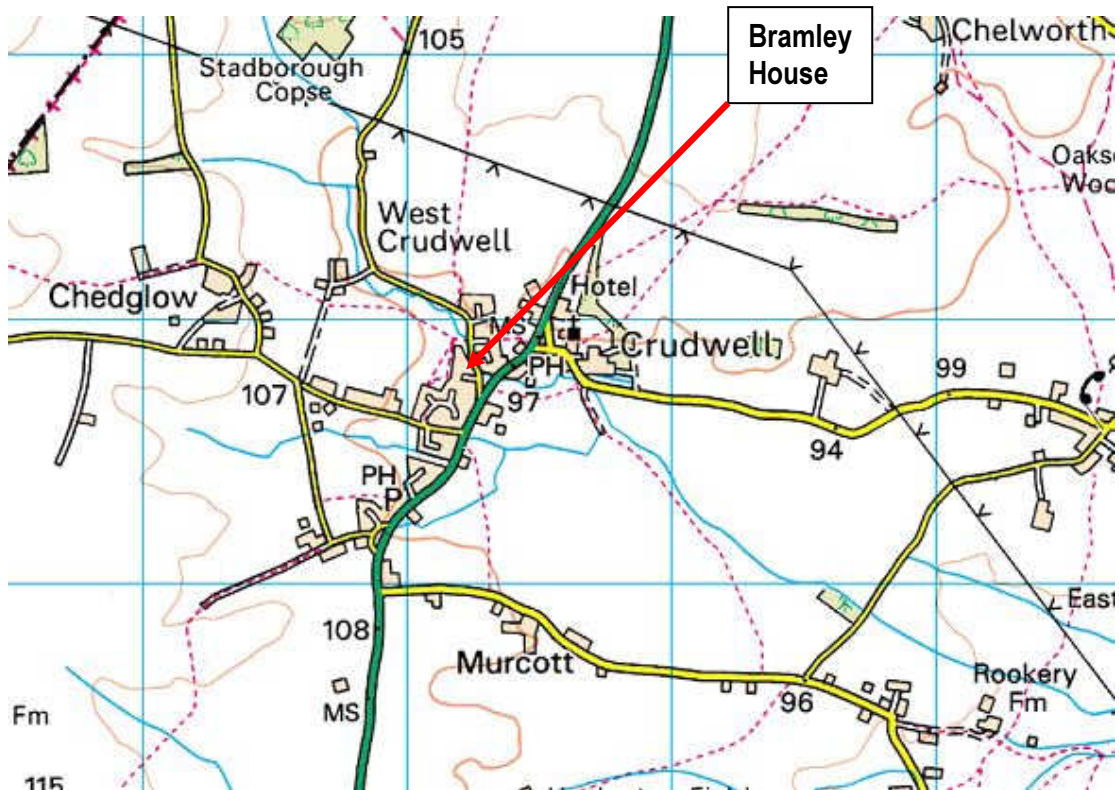


FIG 1 – LOCATION PLAN

- 3.2 The village of Crudwell is located in a shallow valley on land that slopes gently from west to east. The land around Crudwell is drained by a series of small watercourses draining to the east.
- 3.3 One such watercourse, Swill Brook, passes through to centre of Crudwell and in the vicinity Bramley House.
- 3.4 Although to Bramley House is located in Flood Zone 1 the area under the proposed extension is in the edge Flood Zone 2. The proposed extension is on land that is falling very gently from the house, towards the Brook and therefore on the upper extents of Flood Zone 2.

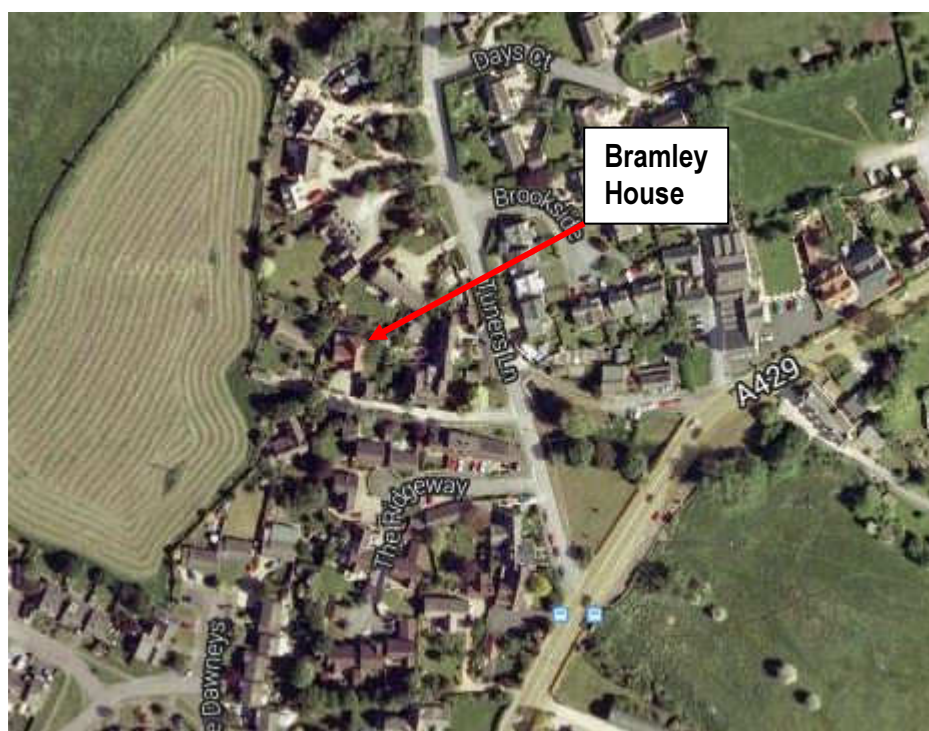


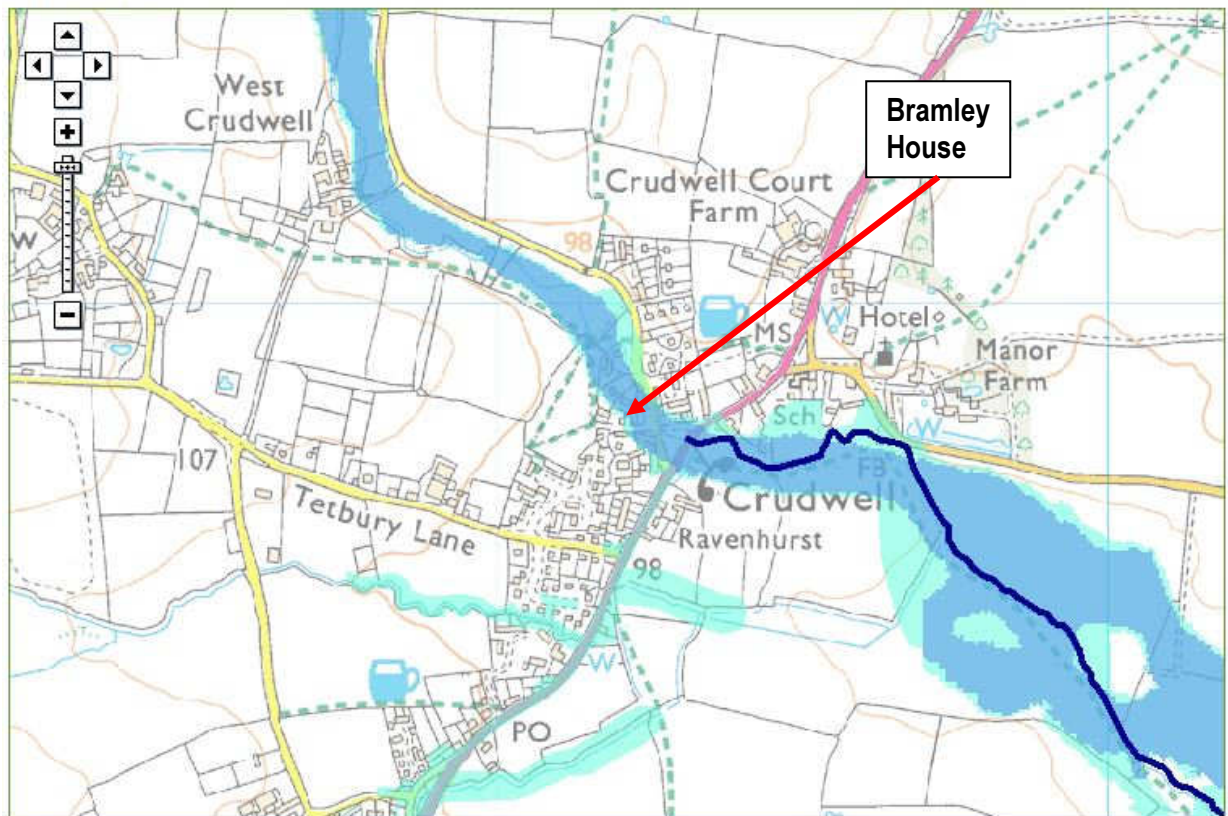
Fig 2 - Google Map View of Brook House and its surroundings



Fig 3 - Google Map View of Brook House Showing Extent of Property

- 3.4 The existing Bramley House is located on the edge of land designated as Flood Zone 1 and therefore not anticipated to be affected by flooding in a 1 in 1000 event.
- 3.5 Parts of the garden to the north and east are however located in Flood Zone 2 which is an area predicted to be affected by flooding in the “extent of extreme flood”, see the Environment Agency Flood Map (Fig 4). These outlying flood risk areas carry a 0.1 per cent risk (1 in 1000) of flooding occurring each year.
- 3.6 The proposed extension is located to the east of the property and on land that is at the extreme edge of Flood Zone 2. It is therefore predicted to be affected by events that are up to and in the region of 1 in 1000 year event and the resulting flooding depths are likely to be very shallow and more of a nuisance than a hazard.

SN16 9EH at scale 1:10,000

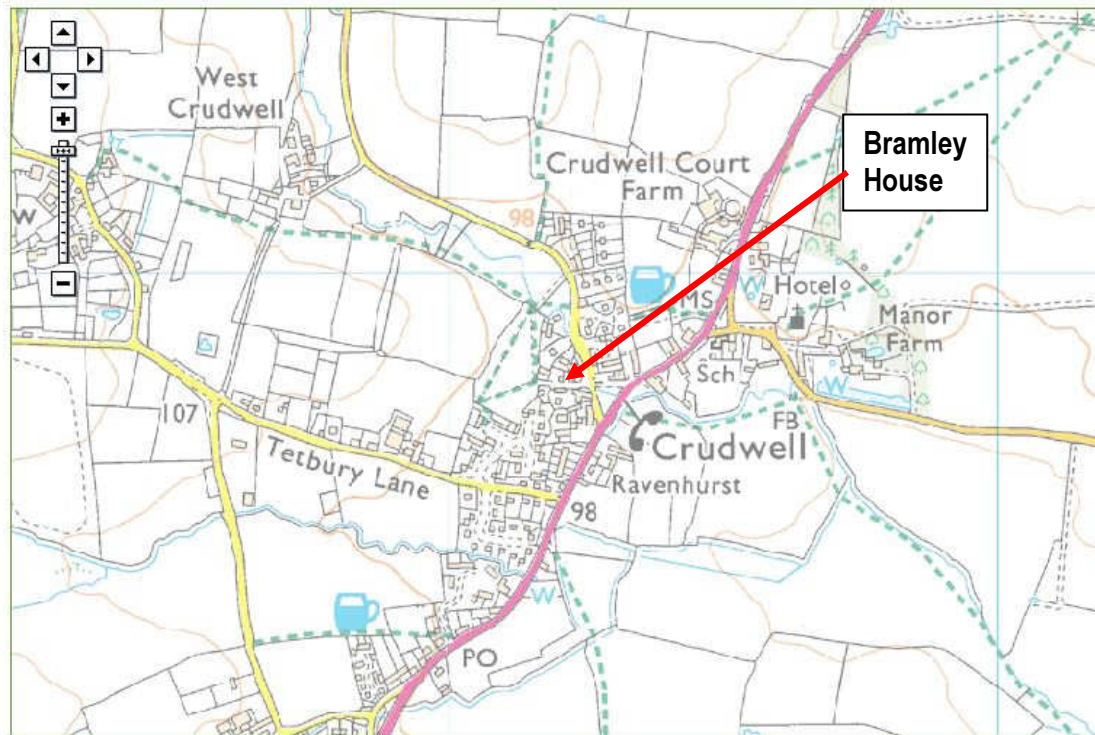
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Fig 4 – Environment Agency Flood Map

- 3.9 Bramley House is not located on land which is regarded as sufficiently at risk of flooding to initiate an automatic warning as indicated on the Environment Agency Flood Warning Map (Fig 5).

Map of X: 395,199; Y: 192,816 at scale 1:10,000

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Fig 5 – Agency Flood Warning Map

3.10 Figure 3c of The Wiltshire Strategic Flood Risk Assessment (North Wiltshire Sources of Fluvial Flooding) confirms the information provided by the Environment Agency outlined above – see fig 6 below.

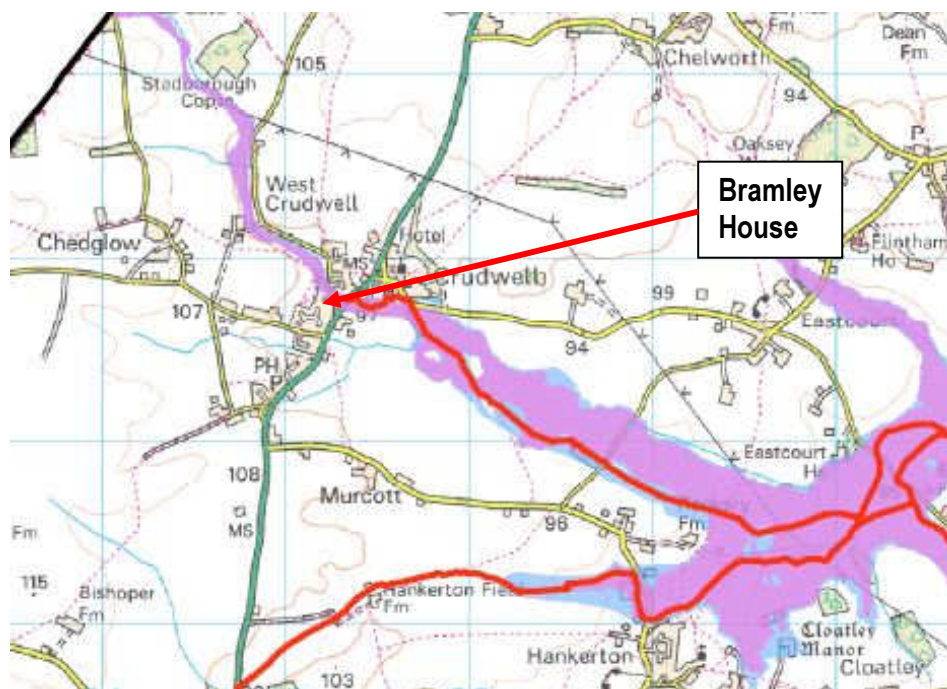


Fig 6 – Extract from Figure 3c of the Wiltshire Strategic Flood Risk Assessment

4 PROPOSED SCHEME

- 4.1 The Proposed Scheme involves the construction of an extension to the east side of the existing Bramley House.
- 4.2 Whilst Bramley House is located in Flood Zone 1, the proposed extension is located on the edge of Flood Zone 2 and therefore at risk of some flooding in an extreme event.
- 4.3 The Extension has been positioned on the south side of Bramley House as it is to be used as a utility area and is associated with, and adjoined to, the existing kitchen which is on the south side of the house. There is therefore no other appropriate alternative location for the extension.

5 SEQUENTIAL TEST

- 5.1 Annex D of PPS25 provides guidance on application of the sequential approach in relation to flood risk. The sequential approach seeks to ensure that, where possible, sites at little or no risk of flooding are developed in preference to areas at higher risk.
- 5.2 The Proposal is to construct an extension to Bramley House, freely accessible from the existing building, and it should therefore be designated as "Buildings used as dwelling houses" and therefore classified as More Vulnerable. See Table D.2 of PPS25 (extract contained in Fig 8 Below)

More Vulnerable	- Hospitals. - Residential institutions such as residential care homes, children's homes, social service homes, prisons and hostels. - Buildings used for: dwelling houses; student halls of residence; drinking establishments; nightclubs; and hotels - Non-residential uses for health services, nurseries and educational establishments. - Landfill and sites used for waste management facilities for hazardous waste.² - Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.
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Fig 8 – Extract from Table D2 of PPS 25

- 5.3 Table D.3 of PPS25 below shows that 'Less Vulnerable' development in Flood Zone 2 is appropriate and the Exception Test is not therefore required.

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	Exception test required	✓	×	×	×

Fig 9 – Extract from Table D3 of PPS 25

6 Potential Sources of Flooding

- 6.1 Groundwater – The Property is in the North Wiltshire area SFRA. That document states “The nature of the underlying geology of North Wiltshire means that groundwater flooding is not significant within the district”. It is therefore concluded that groundwater flooding will not be a threat.
- 6.2 Tidal/Coastal – Crudwell is remote from the coast and tidal rivers and therefore will not be affected by flooding from tidal/coastal sources.
- 6.3 Sewer flooding – The foul water from the existing property currently drains into a public foul water sewer. There are no reports of foul water flooding in the vicinity of Bramley House.
- 6.4 Fluvial flooding – the Environment Agency's flood map (see Fig 4) indicates that the proposed extension is located in a Flood Zone 2 area and therefore a 0.1 per cent (1 in 1000) chance of flooding occurring each year. The low probability of fluvial flooding is confirmed by the Wiltshire Strategic Flood Risk Assessment.
- 6.5 The site is remote from the Sea and therefore not at risk from Sea Flooding
- 6.6 There is no significantly higher ground adjacent to the development which could promote overland flow of water across the site. There are also no depressed areas which could encourage ponding and no evidence of ponding has been observed within the established history of the Site.

7 POTENTIAL FLOODING IMPACT SUMMARY

- 7.1 Whilst the development is located partially within the Flood Zone 2, the threat posed by flood risk is considered minimal.
- 7.2 If flooding does occur it is most likely that it would be as a result of the watercourse slowly rising and causing flooding around proposed extension after a period of protracted and extreme rainfall over a considerable period of time. Consequently, as the Property straddles the edge of Flood Zones 1 and 2, the anticipated flood depths would be very shallow and would accrue over a considerable period of time and therefore would not pose a significant threat.
- 7.3 Access for emergency services will not be affected by the Proposed Development
- 7.4 There is a proposed access/egress from the proposed extension but there are two alternative access/egress points within the property which are located in Flood Zone 1 and therefore offer alternative safe means of escape should flooding occur.
- 7.5 The topography of the land surrounding the Property has gentle gradients it will not be subject to a flash flooding from the surrounding area.
- 7.6 As a move to mitigate residual risks of extreme flooding beyond that of the 1 in 1000 year event the future design will ensure that services (especially the electricity supply) are kept significantly above ground level and that all areas of storage take the possibility of flooding into account i.e. items that could be affected by flooding to be stored above potential flood level.
- 7.7 It is also recommended that the advice given by DEFRA offered in Part 2 of a document available from the Government Portal site entitled "Improving the Flood Performance of New Buildings – Flood Resilient Construction" be taken into account at the detailed design stage to ensure that in the unlikely event of being affected by flooding any damage is kept to a minimum.

8 CONCLUSION

- 8.1 This Report has identified the flood risks associated with the proposed development in accordance with PPS25. The potential sources of flood risks have been identified and discussed in detail within the assessment. It has been demonstrated that the proposed use is appropriate according to Annex D of PPS25.
- 8.2 Surface water runoff from the site will not be increased by the proposed development as it is not proposed to alter the existing impermeable area and associated surface water arrangements.
- 8.3 It is considered that the risk of flooding is low and in the event of flooding occurring then it would not be a threat to individuals using the site nor impede access/egress.
- 8.4 There are alternative safe access/egress points to Flood Zone 2 available in the existing building which will avoid any issues with flooding in an extreme event.
- 8.5 This report demonstrates that the proposed development is compliant with the sequential and exception tests set out in PPS25 and therefore, it is considered, planning permission should not be refused on flood risk grounds.

APPENDIX 2

DETAILED PLAN OF PROPOSED DEVELOPMENT

