



**THE BUNGALOW, THE STREET,  
THORNHAM MAGNA, SUFFOLK**

## **FLOOD RISK ASSESSMENT**

Date:

November 2021

GHB Reference:

211/2020/FRA

Revision:

P3

Status:

PLANNING

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## 1.0 INTRODUCTION

- 1.1. This flood risk assessment is being submitted to support an application to construct an additional residential unit at The Bungalow, The Street, Thornham Magna. A location plan is shown in **Appendix A**.
- 1.2. The report is produced for the sole use by Abbey Lane Properties Ltd.
- 1.3. The report includes a thorough review of commercially available flood risk and Environment Agency (EA) data indicating potential sources of flood risk to the site.
- 1.4. The information provided within this report is based on the best available data currently recorded or provided by a third party. The accuracy of this report is therefore not guaranteed and does not obviate the need to make additional appropriate searches, inspections and enquiries.
- 1.5. The National Planning Policy Framework (NPPF, February 2019), Section 14 (Meeting the challenge of climate change, flooding and coastal change), Paragraph 155 states that:  
*“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.”*
- 1.6. The NPPF recommends the Environment Agency (EA) Flood Maps as a starting point for Flood Risk Assessment. An extract from the EA Flood maps is reproduced in Figure 1.1 below.

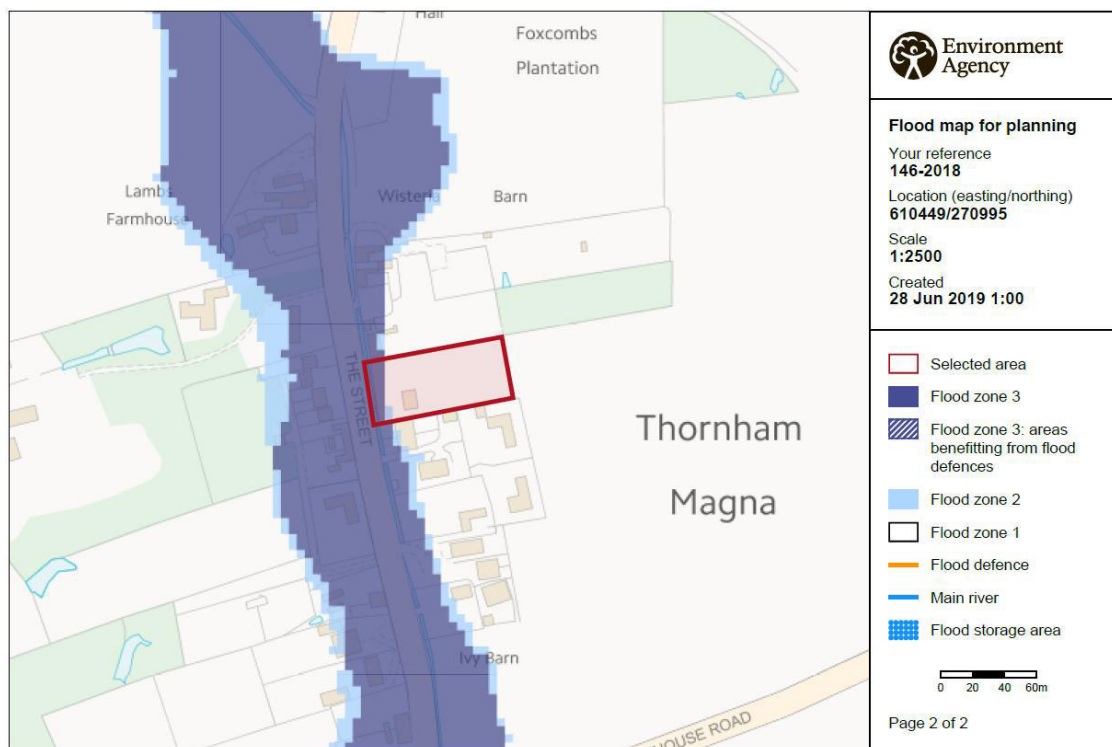


Figure 1.1 – Environment Agency Flood Map (Rivers and Seas)

- 1.7. The Environment Agency has produced standing guidance for developments dependent on their size and location. As can be seen from Figure 1.1 above, the frontage of the site is located within Flood Zone 2 & 3.

- 1.8. Industry best practice requires assessment of all flooding sources to be carried out. Despite this document having now been superseded by the NPPF, Figure 3.2 of the “PPS25: Development and Flood Risk” (PPS25) Practice Guide lists five key sources of flooding:
  - i. Fluvial (refer to Section 5);
  - ii. Tidal (refer to Section 6);
  - iii. Pluvial (refer to Section 7);
  - iv. Groundwater (refer to Section 8); and
  - v. Infrastructure Failure (refer to Section 9).

## 2. POLICY CONTEXT

- 2.1. The purpose of the planning system is to contribute to the achievement of sustainable development – *NPPF, Paragraph 7*
- 2.2. At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development which does not change the statutory status of the development plan as the starting point for decision making – *NPPF, Paragraph 12*
- 2.3. 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 – *NPPF, Paragraph 155*
- 2.4. The aim of the Sequential Test is to steer new development to areas with the lowest risk of flooding – *NPPF, Paragraph 158*
- 2.5. Following the Sequential Test, both elements of the Exception Test will have to be passed for development to be allocated or permitted – *NPPF, Paragraph 161*
- 2.6. The Environment Agency provide standing advice guidance.
- 2.7. Mid Suffolk District Council Core Strategy Focused Review Policy FC1 & FC1.1; taking account of sustainable development and its delivery.
- 2.8. Suffolk County Council, as lead local flood authority, document Suffolk Flood Risk Management Strategy advises on the standards to be used at a local level.

### 3. EXISTING SITE INFORMATION

- 3.1. The site is located at The Bungalow to the east of The Street, Thornham Magna. A site location plan is attached in **Appendix A**. The site can be located from postcode: IP23 8HB and NG Reference: TM104709
- 3.2. The site comprising an existing dwelling fronting the Carnser (<http://www.thornhams.org/?p=1098>), located beside an open channel watercourse, with steep banks and mature trees and hedges along either side, as shown in figure 3.1 below. 'The Street' is located to the west of the watercourse.



*Figure 3.1 – Image viewing south (downstream)*

- 3.3. The watercourse forms the lower part of a potentially wider channel for water to flow, which includes the western bank and the road. The Carnser to the east is higher than the road.
- 3.4. A topographical survey of the site area is attached in **Appendix B**.

#### 4. PROPOSED DEVELOPMENT

- 4.1. The development comprises of demolishing the existing bungalow and constructing two new houses, with the frontage set along the same line as the existing bungalow. The proposed layout is shown in **Appendix C**.
- 4.2. In accordance with Environment Agency advice, the site proposal is classified as **more vulnerable**.
- 4.3. Although the frontage of the site is located withing flood zone 2 and 3, as it includes the watercourse and Carnser, the sequential approach has been taken to locate the proposed properties in flood zone 1.
- 4.4. The Environment Agency table below (Table 4.1) shows that development is appropriate at the site based on the vulnerability classification and Flood Zone.

| Flood Zones | Flood Risk Vulnerability Classification |                         |                         |                 |                  |
|-------------|---|-------------------------|-------------------------|-----------------|------------------|
|             | Essential infrastructure                | Highly vulnerable       | More vulnerable         | Less vulnerable | Water compatible |
| Zone 1      | ✓                                       | ✓                       | ✓                       | ✓               | ✓                |
| Zone 2      | ✓                                       | Exception Test required | ✓                       | ✓               | ✓                |
| Zone 3a †   | Exception Test required †               | ✗                       | Exception Test required | ✓               | ✓                |
| Zone 3b *   | Exception Test required *               | ✗                       | ✗                       | ✗               | ✓*               |

Key:

✓ Development is appropriate

✗ Development should not be permitted.

Table 4.1: Environment Agency Flood Zone/ Classification Table

#### 5. FLUVIAL FLOODING

- 5.1. Fluvial flooding is the flooding associated with rivers. This can take the form of:
  - i. Inundation of floodplains from rivers and watercourses
  - ii. Inundation of areas outside the floodplain due to influence of bridges, embankments and other features that artificially raise water levels
  - iii. Overtopping of defences
  - iv. Breaching of defences
  - v. Blockages of culverts
  - vi. Blockages of flood channels or corridors
- 5.2. The channel and immediate surrounding area are known to flood based on local knowledge. The channel adjacent to 'The Street' is sited within a valley and the highway offers a path of least resistance should the channel flood.
- 5.3. The flood map shown in figure 1.1 has most of The Street flooding for a > 1% AEP (1in100).
- 5.4. As the flood maps are generated by the Environment Agency, flood data was requested from them. Unfortunately, the Environment Agency have no data available.

5.5. Therefore, to assess the likelihood of flooding, the flood map for planning were used by relating the flood extents to the topographical survey. This gave the level of flood zone 3 to be 39.00m AOD and flood zone 2 to be 39.12m AOD.

## 6. TIDAL FLOODING

6.1. Tidal flooding is a risk of water levels from the sea or an estuary exceeding the normal tidal range. This can take the form of:

- i. Overtopping of defences
- ii. Breaching of defences
- iii. Other flows (fluvial surface water) that could pond due to tide locking
- iv. Wave action

6.2. The site is located too far from the sea to be affected by tidal flooding.

## 7. PLUVIAL FLOODING

7.1. Pluvial flooding is a risk of overland flows and ponding associated with extreme rainfall events. This can take the form of:

- i. Sheet run-off from adjacent land (urban or rural)
- ii. Surcharged sewers

7.2. As rain falls everywhere within the United Kingdom, there will always be a residual risk of flooding from extreme rainfall events.

7.3. The Environment Agency has produced maps with risk classifications that show the risk of flooding from surface water run-off which is shown in figure 7.1 below, which shows the channel and upper reaches of The Street are at high risk of flooding.

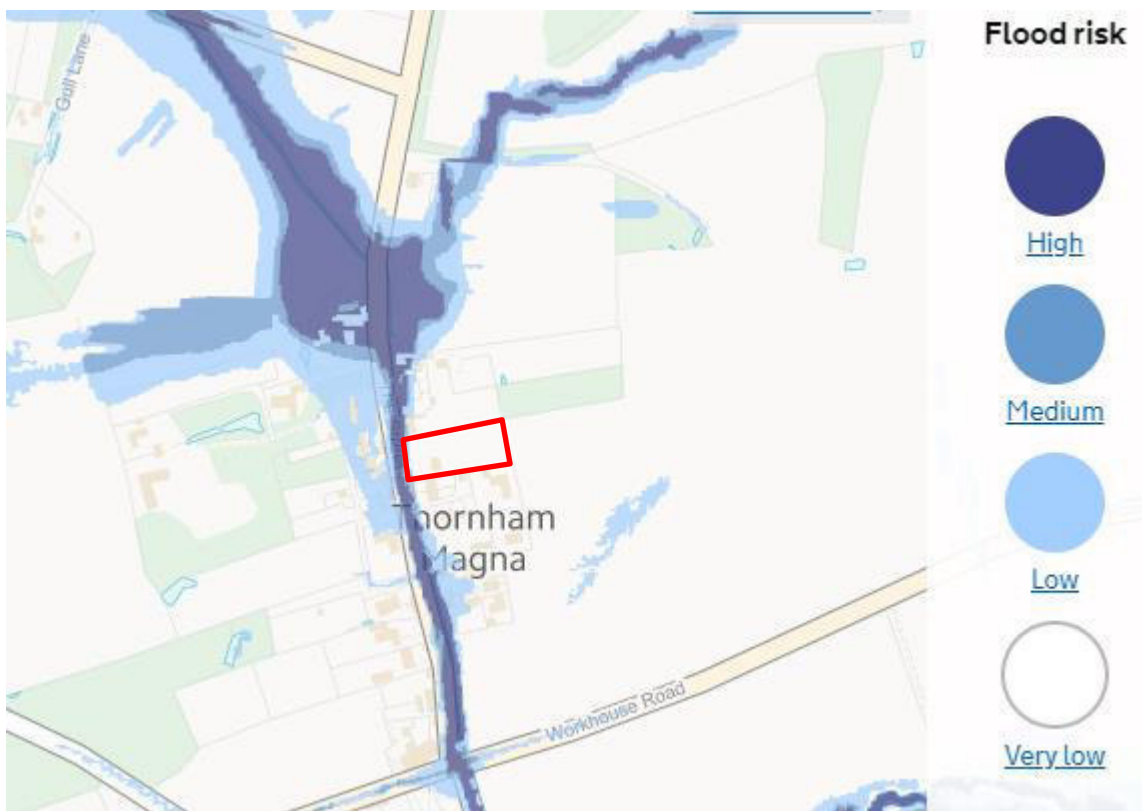


Figure 7.1 – Surface water flooding extents

7.4. An extract for the area showing the extent of flooding in the Medium Risk Scenario is reproduced in Figure 7.2 below, which shows the site is not at risk of flooding in this scenario.

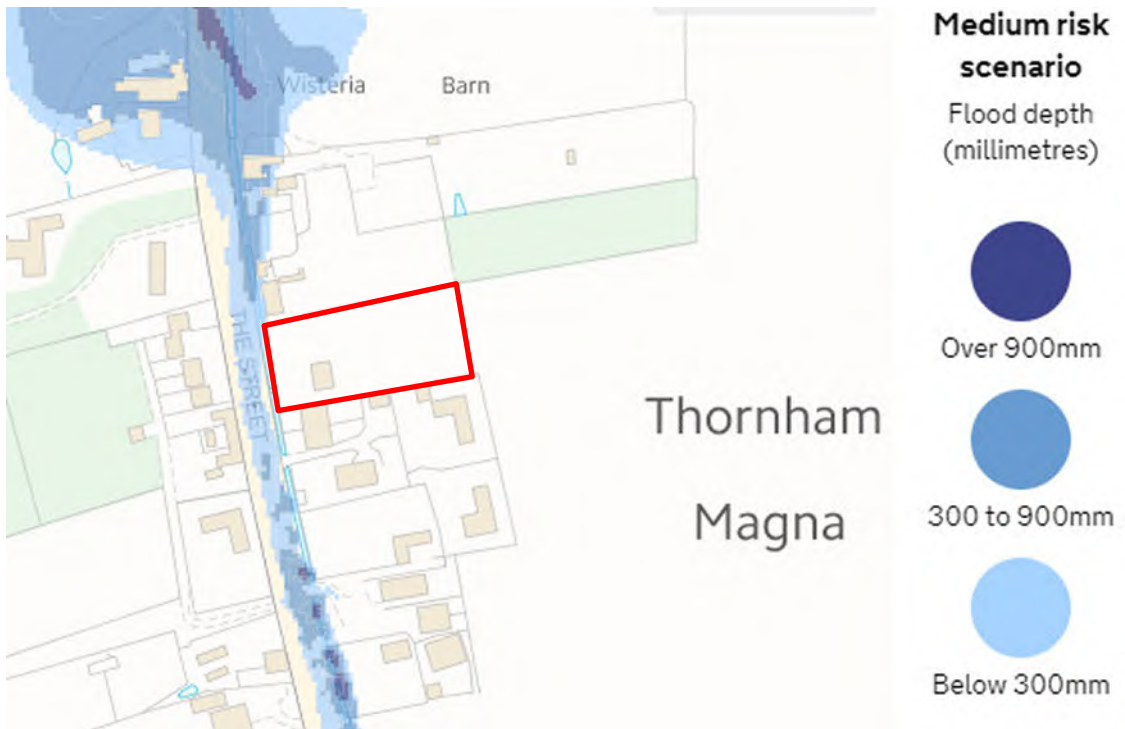


Figure 7.2 – Surface water flooding extents 1% to 3.33%

## 8. GROUNDWATER FLOODING

- 8.1. Groundwater flooding is a risk of the water table rising after prolonged rainfall to emerge above ground level remote from a watercourse. It is most likely to occur in low lying areas underlain by aquifers of high vulnerability.
- 8.2. The proposed vehicle crossing is not affected by groundwater flooding.

## 9. INFRASTRUCTURE FAILURE FLOODING

- 9.1. Infrastructure failure flooding is a risk of collapse, failure or surcharging of man-made structures and drainage systems. This could take the form of:
  - i. Reservoirs
  - ii. Canals
  - iii. Burst water mains
  - iv. Blocked sewers
  - v. Failed pumping stations
- 9.2. The Environment Agency have mapped failure of reservoirs and this indicates there are no near effects of reservoir failure, therefore the risk to the site is low.

## 10. CLIMATE CHANGE

- 10.1. The National Planning Policy Framework (NPPF) sets out how the planning system should help to minimise vulnerability and provide resilience to the impacts of climate change.
- 10.2. The climate change allowances are predictions of anticipated change for:
- i.* Peak river flow by river basin district
  - ii.* Peak rainfall intensity
  - iii.* Sea level rise
  - iv.* Offshore wind speed and extreme wave height.
- 10.3. The climate change allowances are predictions of anticipated change for Peak rainfall intensity and peak river flow allowances are:

| Applies across all of England | Total potential change anticipated for the '2020s' (2015 to 2039) | Total potential change anticipated for the '2050s' (2040 to 2069) | Total potential change anticipated for the '2080s' (2070 to 2115) |
|-------------------------------|---|---|---|
| Upper end                     | 10%   | 20%   | 40%   |
| Central                       | 5%  | 10%   | 20%   |

| River basin district | Allowance category | Total potential change anticipated for the '2020s' (2015 to 2039) | Total potential change anticipated for the '2050s' (2040 to 2069) | Total potential change anticipated for the '2080s' (2070 to 2115) |
|----------------------|--------------------|---|---|---|
| Anglian              | Upper end          | 25%   | 35%   | 65%   |
|                      | Higher central     | 15%   | 20%   | 35%   |

- 10.4. For this assessment, there is no flood level data available and therefore a reasonable assumption is that flood zone 3 with climate change (1% AEP+35%) is the equivalent to flood zone 2 (0.1% AEP) present day.

## 11. SEQUENTIAL TEST

- 11.1. The local planning authority (LPA) may require this test to see if there are any reasonably available sites in the area at a lower flood risk on which the development could take place.
- 11.2. The scope of the sequential test is set by the LPA unless this site is allocated within the local development plan.
- 11.3. This report deals with the sequential approach within the proposed site boundaries. The proposed development replaces an existing residential dwelling with two residential dwellings. The location of these dwellings are within flood zone 1. The only implication to flood risk is a safe means of access and egress during times of The Street flooding.



## 12. EXCEPTION TEST

12.1. The Exception Test is a method to demonstrate and help ensure that flood risk to people and property will be managed satisfactorily, while allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available. The exception test is required for this development.

### Flood Resilience and Resistance Measures

12.2. An effective way to protect the building is to raise the habitable floor level by 600mm above the predicted flood level including for climate change; this allows for a confidence risk in the determination of the flood level, due of the lack of specific flood level data. Based on the predicted flood level (including for future climate change) of **39.12m AOD**, the minimum proposed finished habitable floor level is **39.72m AOD**.

### Safe Access and Egress

12.3. Based on the design flood level and the topographical survey, the flood water depth including for climate change in 100 years, is predicted to be 1.07m on The Street.

12.4. The FD 2320 guidance document relating to Flood Hazard Ratings has been used to assess the ratings at the site, based on these flood depths. The guidance shows that the hazard to people classification for the development, is likely to range from 'Danger for some' (including children, the elderly and the infirm) to 'Danger for all' (includes the emergency services). A safe access route is therefore required during a flood scenario.

12.5. During a flood event, the flood water will on The Street, access will not be possible. A safe access option is to the east onto open ground, as shown on plan in **Appendix D**.

### Flood Emergency Evacuation Plan

12.6. As the site access is located within flood zone 3, then an emergency flood plan is required.

12.7. An emergency flood plan deals with matters of evacuation and refuge and demonstrates that people will not be exposed to flood hazards. The site owner should develop an emergency flood plan that includes receiving flood warnings and evacuating the site prior to the flood event. During a flood event, safe access/egress will be available to the east of the site via the safe access route outlined previously.

12.8. The site owner should sign up with the Environment Agency to receive 24 hour Flood Warnings to enable safe evacuation before a flood event occurs (Floodline- 0345 988 1188).

## 13. IMPACT ON THE FLOOD PLAIN

13.1. Based on the flood plain extent including for climate change, the proposed non-habitable building is proposed within flood zone 3. The footprint of this building will impact on the available flood plain volume.

13.2. The volume lost due to the development will be mitigated for on a level for level basis in accordance with Environment Agency guidance, by the localised reduction of ground levels within the driveway which is outside the flood extent, as shown on plan in **Appendix D**.

## 14. SUMMARY

- 14.1. It has been demonstrated that the site access is within Flood Zone 3, in an area at high risk of flooding.
- 14.2. Table 11.1 summarises the probability of the site flooding from the five key sources as listed in PPS25.

| Source                 | Description                  | Risk         |            |
|------------------------|------------------------------|--------------|------------|
| Fluvial                | Rivers                       | Flood Zone 3 | (>3.33%)   |
| Tidal                  | Seas                         |              |            |
| Pluvial                | Surface Water                | low          | (<1%)      |
| Groundwater            | Aquifers                     | Very Low     | -          |
| Infrastructure failure | Reservoirs<br>Blocked Sewers | Very Low     | (Very Low) |

Table 11.1 – Flood Risk Summary

- 14.3. Following the standing advice from the Environment Agency and the implementation of the flood mitigation measures the development will be safe for its lifetime without increasing flood risk elsewhere.
- 14.4. Based on the Environment Agency requirements, the Exception Test is required to be undertaken and it has been demonstrated that the risk to the site users and the property will be managed satisfactorily with the implementation of the proposed flood mitigation measures.
- 14.5. The predicted flood level derived from the flood maps and topographical survey is 39.12m AOD for flood zone 3 with climate change.
- 14.6. Finished floor levels will be set at **39.72m AOD**, providing a 600mm confidence risk above the flood level, with flood resilient construction provided below this level, subject to structural assessment.
- 14.7. Site users can seek safe refuge to the east of the site.
- 14.8. The loss of food plain storage due to the proposed development is compensated within the site.
- 14.9. As long as maintenance of new and existing drainage systems are correctly carried out, the risk of flooding and the subsequent risks from infrastructure failure or pluvial means, is very low.
- 14.10. The Environment Agency accepts that extreme floods will occur, and it will never be possible to eliminate flood risk altogether.
- 14.11. It is considered that the risk of flooding to the site has been adequately considered and therefore development of the site does not pose an unacceptable flood risk either to occupants of the site or to others off site.

## 15. LIST OF APPENDICES

- Appendix A** - Location Plan
- Appendix B** - Topographical Survey
- Appendix C** - Proposed Layout
- Appendix D** - Proposed Site with Flood Mitigation

FLOOD RISK ASSESSMENT

# APPENDIX A

Location Plan

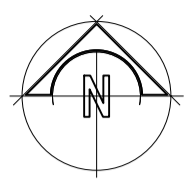


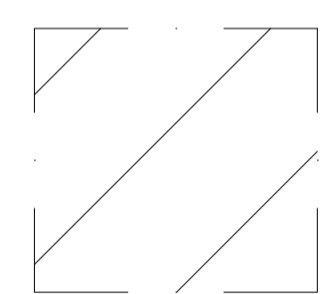
FLOOD RISK ASSESSMENT

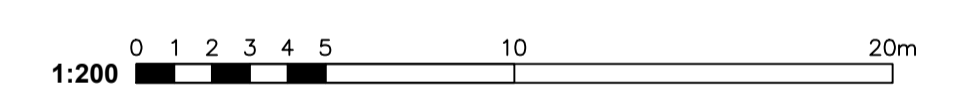
## APPENDIX B

Topographical Survey

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 Do not scale from this drawing. Use only figured dimensions. If in doubt, ask.  
 All dimensions are to be checked on site.  
 Any discrepancies should be reported immediately to the Architect.



 Approx. Line of flood plain taken from the Environmental Agency.



| DATE     | REV | DESCRIPTION         | DRAWN |
|----------|-----|---------------------|-------|
| 15.09.20 | A   | Amended to comments | AP    |

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Project  
 The Bungalow  
 The Street  
 Thornham Magna, IP23 8HB

Client  
 Abbey Lane Properties

Drawing Title  
 Existing Site Plan

Drawing Status  
 Planning

Scale 1:200 Paper Size A1 Date June 2020 Drawn AP

Drawing Number 3934 71 Drawing Rev A

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**FLOOD RISK ASSESSMENT**

**APPENDIX C**

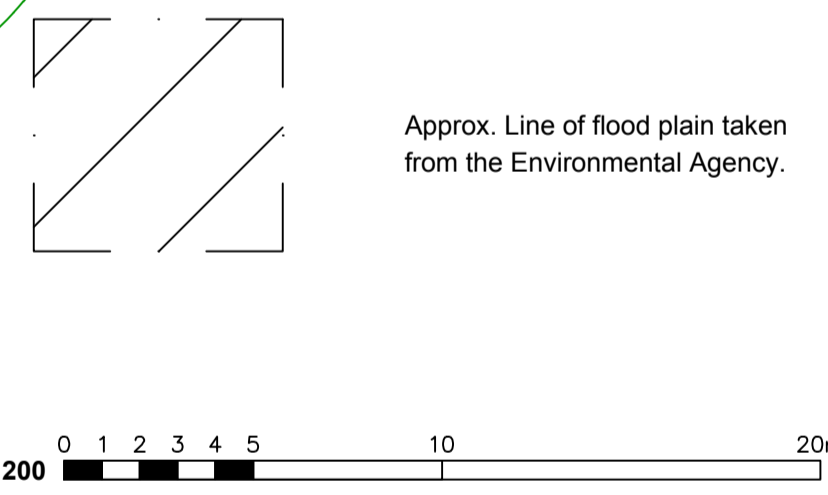
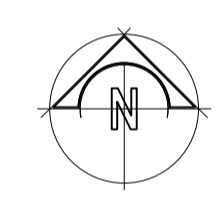
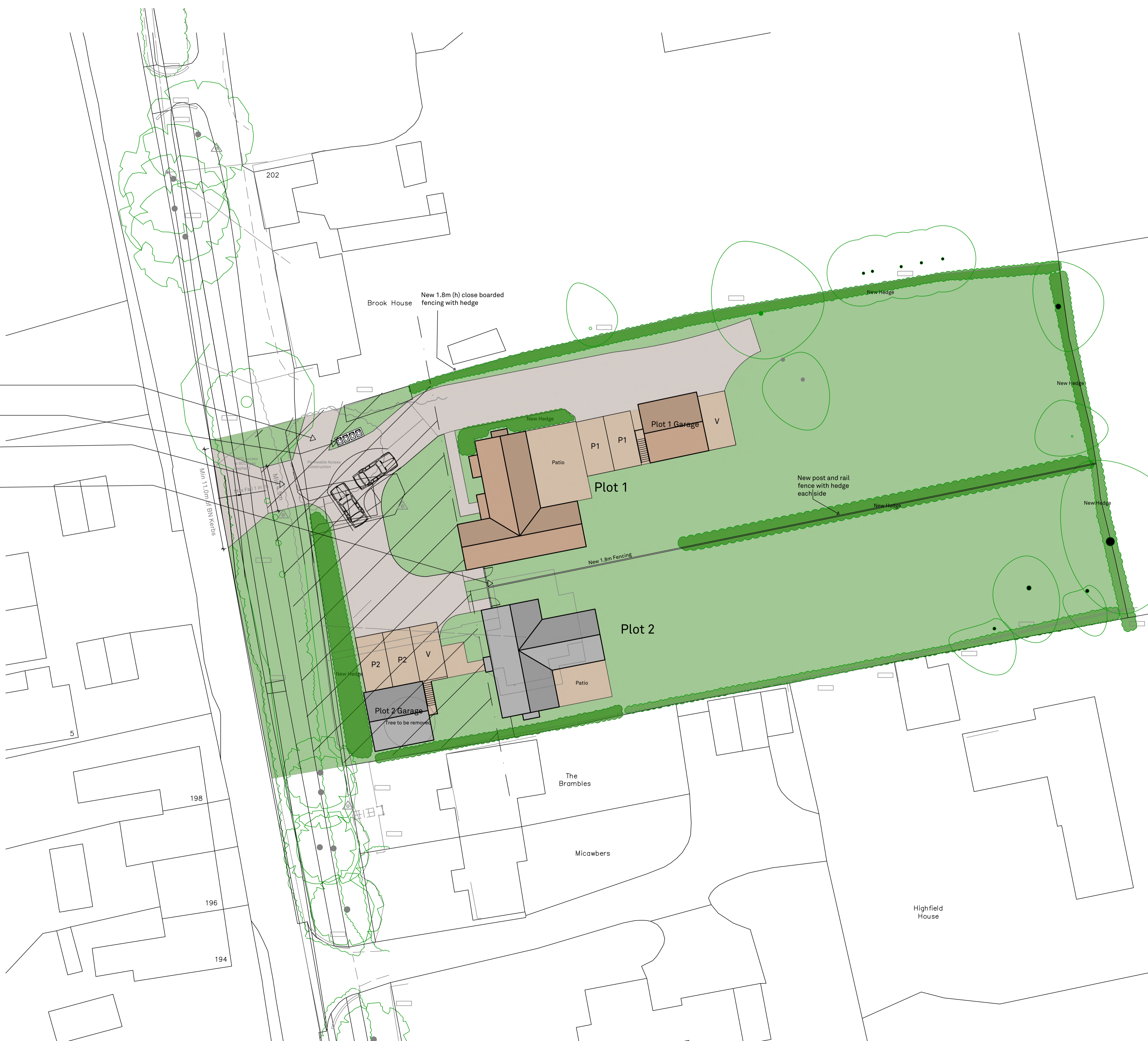
**Proposed Layout**



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 All dimensions are to be checked on site.  
 Any discrepancies should be reported immediately to the Architect.

**Proposed Sustainability & Ecological Measures:**  
 New Native Hedgerow  
 Car Electrical Charging Points  
 Ground Source Heat Pumps  
 Low Energy/ Renewable Generation Equipment

Access to neighbouring property  
 Bin collection point  
 Access approved under DC/19/01558  
 Denotes position of existing bungalow to be demolished



| DATE     | REV | DESCRIPTION             | DRAWN |
|----------|-----|-------------------------|-------|
| 03.09.20 | C   | Amended to comments     | AP    |
| 05.08.20 | B   | Amended to comments     | AP    |
| 24.07.20 | A   | Plot 2 Parking adjusted | AP    |

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Project:  
 The Bungalow  
 The Street  
 Thornham Magna, IP23 8HB

Client:  
 Abbey Lane Properties

Drawing Title:  
 Proposed Site Plan  
 Option 3

Drawing Status:  
 Planning

Scale: 1:200  
 Paper Size: A1  
 Date: July 2020  
 Drawn: AP

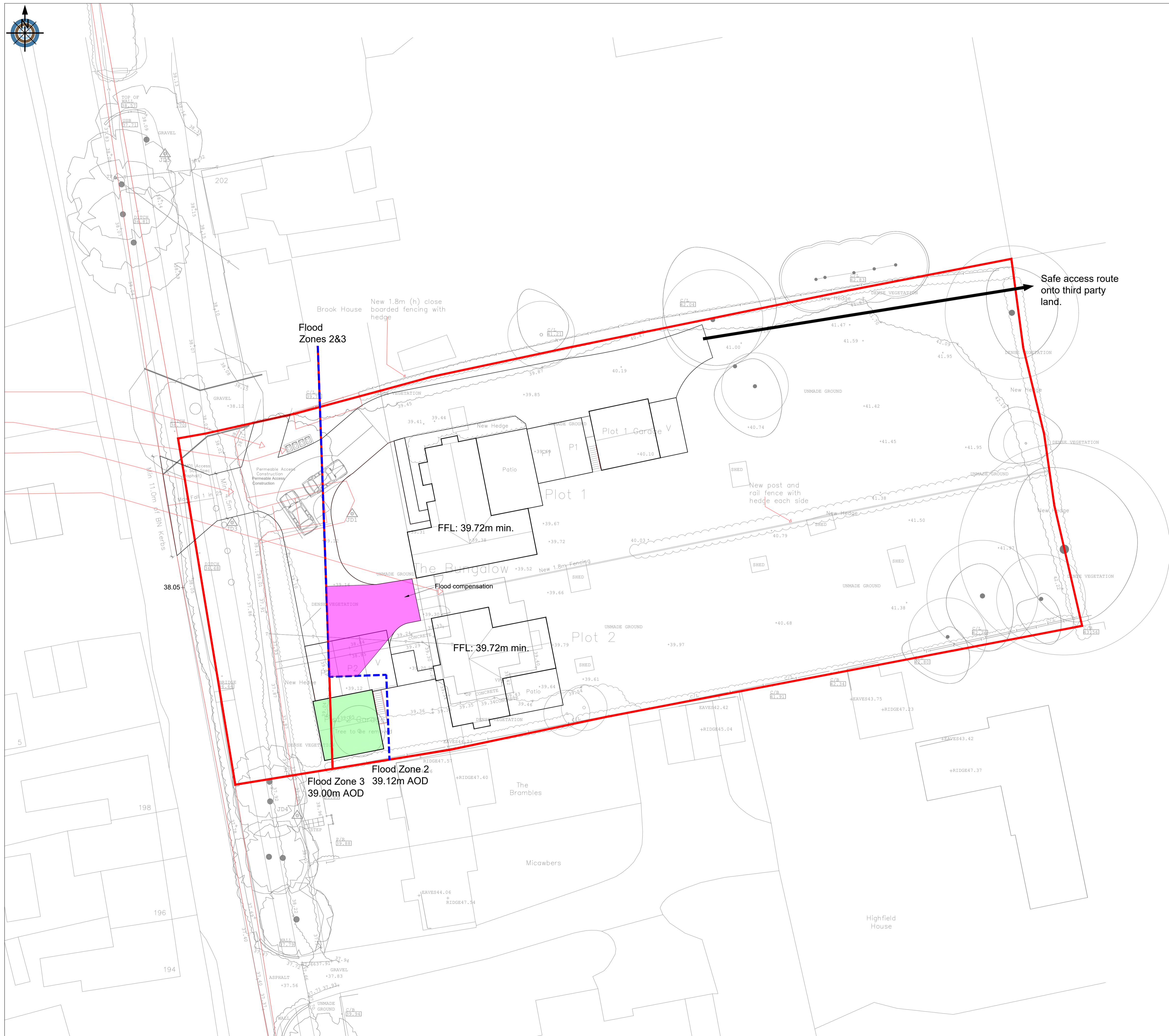
Drawing Number: 3934 66  
 Drawing Rev: C

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FLOOD RISK ASSESSMENT

## APPENDIX D

Proposed Layout with Flood Mitigations



- NOTES:**
1. This drawing is to be read in conjunction with GHB series 211/2020 drawings and documents and any other relevant project team documents.
  2. Preliminary Issue - Any work undertaken before approvals are received (in writing) are at risk of abortive works.
- P1. This drawing has been prepared solely for the purpose of obtaining a Planning Consent based on information available and planning requirements at the date of issue only.
- P2. This drawing is not to be used for construction or detailed pricing purposes.

|   |                 |  |             |
|---|-----------------|--|-------------|
| P2  |                 | Revision Date  | Description |
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|  <b>GHBullard &amp; Associates LLP</b><br>Civil and Traffic Engineering Consultants                    |                 | 27 Barton Road,<br>Thurston,<br>Suffolk,<br>IP31 3PA |             |
| T: (01359) 235071<br>F: (01359) 231138<br>W: <a href="http://www.ghbullard.co.uk">http://www.ghbullard.co.uk</a><br><small>Partnership No. OC38830, Registered in England and Wales</small> |                 |  |             |
| Client: <b>Abbey Lane Properties Ltd.</b>   |                 |  |             |
| Project: <b>The Bungalow, Thornham Magna</b>  |                 |  |             |
| Drawing Title: <b>Proposed Site Plan Layout with Flood Mitigation</b>   |                 |  |             |
| Scale:  |                 | <b>1:200 @ A1</b>                                    |             |
| Date:   | <b>OCT 2020</b> | Drawn:   | <b>JWT</b>  |
|   |                 | Checked:   | <b>JAH</b>  |
| DWG Reference: <b>211-2020.DWG</b>  |                 |  |             |
| Status: <b>FOR INFORMATION</b>  |                 |  |             |
| Drawing Number:   |                 | <b>211/2020/02</b>                                   | Revision:   |
|   |                 |  | <b>P1</b>   |
| <small>P# = Preliminary, C# = Construction, AB# = As Built</small>  |                 |  |             |



**PLOT 3 AND 4  
THE BUNGALOW, THE STREET,  
THORNHAM MAGNA, SUFFOLK**

**FLOOD RISK ASSESSMENT  
ADDENDUM**

Date:

November 2021

GHB Reference:

312/2021/FRA ADD

Revision:

P2

Status:

PLANNING

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## 1.0 INTRODUCTION

- 1.1. This Flood Risk Assessment Addendum is being submitted to accompany a planning application for the development of Plots 3 and 4 at The Bungalow, Thornham Magna, Suffolk. A site location plan is shown in **Appendix A**.
- 1.2. The report is produced for the sole use by Abbey Lane Properties Ltd.
- 1.3. This Addendum report should be read with reference to the Flood Risk Assessment report (Ref:211/2020/FRA P2 dated October 2020) submitted to support the approved Planning Application (Application Ref: DC/20/04979) for the development of Plots 1 and 2 at the same site location.
- 1.4. The report includes a review of commercially available flood risk and Environment Agency (EA) data indicating potential sources of flood risk to the site.
- 1.5. The information provided within this report is based on the best available data currently recorded or provided by a third party. The accuracy of this report is therefore not guaranteed and does not obviate the need to make additional appropriate searches, inspections and enquiries.
- 1.6. The National Planning Policy Framework (NPPF, February 2019), Section 14 (Meeting the challenge of climate change, flooding and coastal change), Paragraph 155 states that:  
*“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.”*
- 1.7. The NPPF recommends the Environment Agency (EA) Flood Maps as a starting point for Flood Risk Assessment. An extract from the EA Flood maps is reproduced in Figure 1.1 below.



Figure 1.1 – Environment Agency Flood Map (Rivers and Seas)

- 1.8. The Environment Agency has produced standing guidance for developments dependent on their size and location. As can be seen from Figure 1.1 above, the west margin of the site is located within Flood Zones 2 and 3 and the extent of the flood zones are the same as that considered within the Flood Risk Assessment (FRA) report undertaken for Plots 1 and 2 (Ref: 211/2021/FRA P2) at the same site location. Therefore, the FRA report undertaken for Plots 1 and 2 is still relevant to this development application with any exceptions or additional matters discussed in this Addendum report.

## 2. PROPOSED DEVELOPMENT

- 2.1. The proposal comprises the development of two dwellings (Plots 3 and 4) and associated garages, access road, parking areas and the construction of a garage for Plot 2. The dwellings and garages are located to the east of Plots 1 and 2 approved under planning application (Ref: DC/20/04979). Refer to **Appendix B** for the existing site layout plan and **Appendix C** for development proposal.

## 3. FLUVIAL FLOOD RISK

- 3.1. The FRA for the site area gives the level of Flood Zone 2 as 39.12m AOD, which is indicated on the proposed layout drawing in **Appendix D**, along with the site topography.
- 3.2. It can be seen from the drawing in **Appendix D** that the proposed dwellings and garages are located within Flood Zone 1. The west margin of the site area is located within Flood Zones 2 and 3, which has an impact on the safe means of access and egress to the site during times of 'The Street' flooding.

## 4. PLUVIAL FLOOD RISK

- 4.1. The Environment Agency mapping showing the surface water flood risk relating to the site is the same as that outlined in the Flood Risk Assessment report.
- 4.2. The risk of overland flooding from the adjacent sites considered to be low; overland runoff would only potentially occur from the east due to the sloping topography. Any overland flow would likely be shallow in depth and would follow the site contours to the watercourse at the west as currently occurs. Flow paths through the site area should be maintained as indicated on the drawing in **Appendix D**.
- 4.3. The proposed dwelling floor levels will be set 150mm above the surrounding ground levels which will be locally contoured to deflect water away from the dwelling thresholds.

## 5. EXCEPTION TEST

- 5.1. The Exception Test is a method to demonstrate and help ensure that flood risk to people and property will be managed satisfactorily, while allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available. The exception test is required for this development.

### Safe Access and Egress

- 5.2. The FRA advises that based on the design flood level and the topographical survey, the flood water depth including for climate change in 100 years, is predicted to be 1.07m on The Street.

- 5.3. The FD 2320 guidance document relating to Flood Hazard Ratings has been used to assess the ratings at the site, based on this flood depth. The guidance shows that the hazard to people classification for the development, is likely to range from 'Danger for some' (including children, the elderly and the infirm) to 'Danger for all' (includes the emergency services). A safe access route is therefore required during a flood scenario.
- 5.4. A safe access option is available to the east onto open ground, as shown on the plan in **Appendix D**.

**Flood Emergency Evacuation Plan**

- 5.5. As the site access is located within Flood Zone 3, then an emergency flood plan is required.
- 5.6. An emergency flood plan deals with matters of evacuation and refuge and demonstrates that people will not be exposed to flood hazards. The site owner should develop an emergency flood plan that includes receiving flood warnings and evacuating the site prior to the flood event. During a flood event, safe access/egress will be available to the east of the site via the safe access route outlined previously.
- 5.7. The site owner should sign up with the Environment Agency to receive 24 hour Flood Warnings to enable safe evacuation before a flood event occurs (Floodline- 0345 988 1188).

**6. SUMMARY**

- 6.1. It has been demonstrated that the site access is within Flood Zone 3, in an area at high risk of flooding.
- 6.2. Table 6.1 summarises the probability of the site flooding from the five key sources as listed in PPS25.

| Source                 | Description    | Risk                  |                   |
|------------------------|----------------|-----------------------|-------------------|
| Fluvial                | Rivers         | Flood Zone 1, 2 and 3 | (<0.1% to >3.33%) |
| Tidal                  | Seas           |                       |                   |
| Pluvial                | Surface Water  | Low                   | (0.1%-1%)         |
| Groundwater            | Aquifers       | Very Low              | -                 |
| Infrastructure failure | Reservoirs     | Very Low              | (Very Low)        |
|                        | Blocked Sewers |                       |                   |

*Table 6.1 – Flood Risk Summary*

- 6.3. Following the standing advice from the Environment Agency, the development will be safe for its lifetime without increasing flood risk elsewhere.
- 6.4. The proposed dwellings and garages are located in Flood Zone 1.
- 6.5. The site access is located within Flood Zone 3 and based on the Environment Agency requirements the Exception Test is required to be undertaken; it has been demonstrated that the risk to the site users will be managed satisfactorily with the provision of the safe access route to the east. It is also recommended that the site users sign up with the Environment Agency to receive 24 hour Flood Warnings.

- 6.6. In accordance with government policy, SuDS should be used on site where possible and surface water drainage should be carried out in a sustainable way.
- 6.7. As long as maintenance of new and existing drainage systems are correctly carried out, the risk of flooding and the subsequent risks from infrastructure failure or pluvial means, is very low.
- 6.8. The Environment Agency accepts that extreme floods will occur, and it will never be possible to eliminate flood risk altogether.
- 6.9. It is considered that the risk of flooding to the site has been adequately considered and therefore development of the site does not pose an unacceptable flood risk either to occupants of the site or to others off site.

## 7. LIST OF APPENDICES

- Appendix A** - Site Location Plan
- Appendix B** - Existing Site Layout
- Appendix C** - Development Proposal
- Appendix D** - Proposed Layout Drawing



**FLOOD RISK ASSESSMENT ADDENDUM**

**APPENDIX A**

**Site Location Plan**

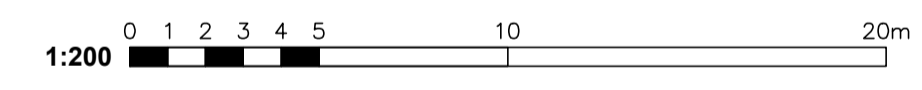
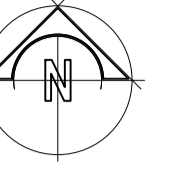


FLOOD RISK ASSESSMENT ADDENDUM

## APPENDIX B

Existing Site Layout

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 Do not scale from this drawing. Use only figured dimensions. If in doubt, ask.  
 All dimensions are to be checked on site.  
 Any discrepancies should be reported immediately to the Architect.



| DATE | REV | DESCRIPTION | DRAWN |
|------|-----|-------------|-------|
|      |     |             |       |
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Project  
**The Bungalow**  
 The Street  
 Thornham Magna, IP23 8HB

Client  
 Abbey Lane Properties

Drawing Title  
 Existing Site Plan

Drawing Status  
 Planning

Scale 1:200 Paper Size A1 Date Sept 21 Drawn AJC

Drawing Number 3934-81 Drawing Rev /

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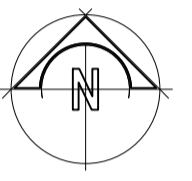
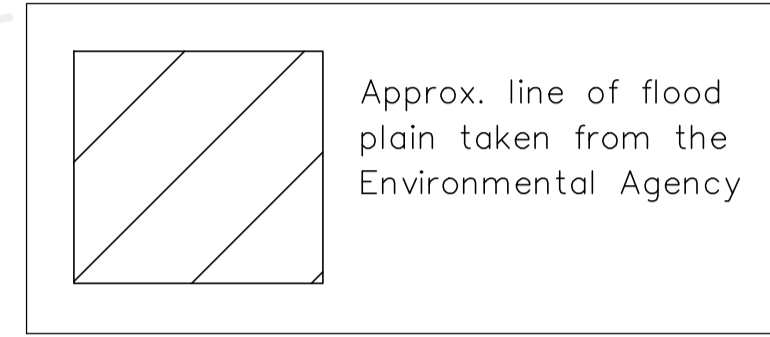
FLOOD RISK ASSESSMENT ADDENDUM

## APPENDIX C

Development Proposal

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 Any discrepancies should be reported immediately to the Architect.

Proposed Sustainability & Ecological Measures:  
 New Native Hedgerow  
 Car Electrical Charging Points  
 Air Source Heat Pumps  
 Low Energy/ Renewable Generation Equipment  
 Approx. 165m New Hedge



Approximate locations for solar panels

Red line indicates area of new application for Plots 3 & 4 along with Garages

Driveway and parking to be permeable

New 1.8m (h) close boarded fencing with hedge

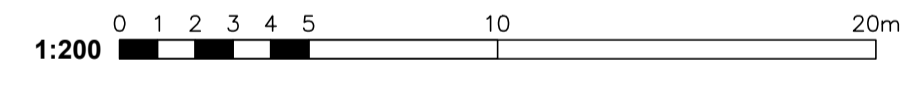
Plots 1 & 2 Approved under application DC/20/04979

Access to neighbouring property

Bin collection point – extended to include Plots 3 & 4

Access approved under DC/19/01558

Denotes position of existing bungalow to be demolished



| DATE | REV | DESCRIPTION | DRAWN |
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Project  
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Drawing Title  
 Proposed Site Plan

Drawing Status  
 Planning

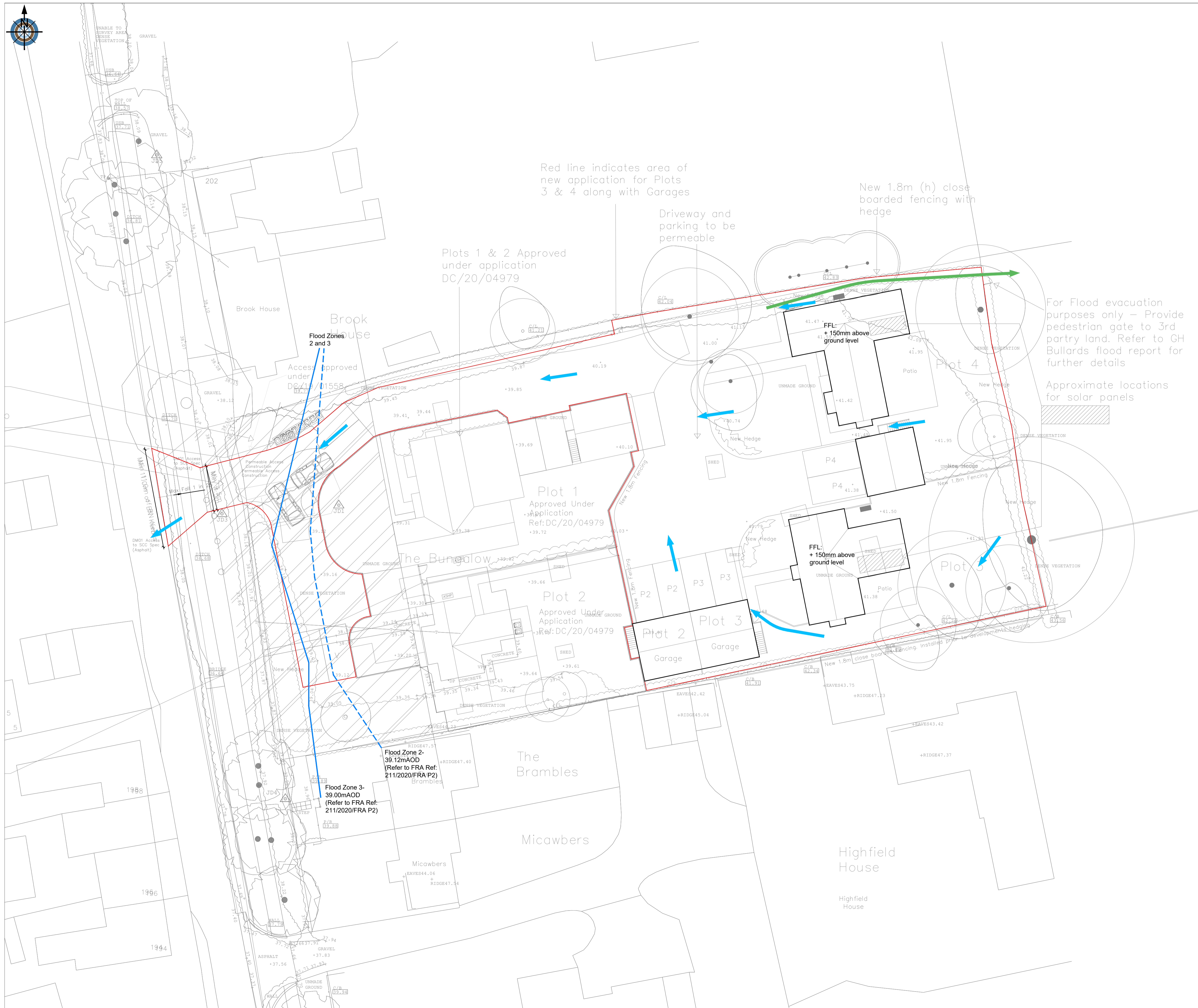
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Drawing Number 3934-82 Drawing Rev /

FLOOD RISK ASSESSMENT ADDENDUM

## APPENDIX D

Proposed Layout Drawing



- NOTES:**
1. This drawing is to be read in conjunction with GHB series 312/2021 drawings and documents and any other relevant project team documents.
  2. Preliminary Issue - This drawing is not to be used for construction or detailed pricing purposes. Any work undertaken before approvals are received (in writing) are at risk of abortive works.
  3. This drawing has been prepared solely for the purpose of obtaining a Planning Consent based on information available and planning requirements at the date of issue only.

**Legend-**

- Site Boundary
- Safe Access Route to the East
- Overland Flow Path to be Maintained

|   |            |  |
|---|------------|--|
| <b>P1</b>   | **/**/**   | Initial Issue  |
| Revision  | Date       | Description  |
| © Copyright   |            |  |
| <b>GHBullard &amp; Associates LLP</b><br>Civil and Traffic Engineering Consultants  |            |  |
|   |            | 27 Barton Road,<br>Thurston,<br>Suffolk,<br>IP31 3PA |
| T: (01359) 235071<br>F: (01359) 231138<br>W: <a href="http://www.ghbullard.co.uk">http://www.ghbullard.co.uk</a><br><small>Partnership No. OC38830, Registered in England and Wales</small> |            |  |
| Client:   |            |  |
| <b>ABBEY LANE PROPERTIES LTD.</b>   |            |  |
| Project:  |            |  |
| <b>PLOTS 3 AND 4,<br/>THE BUNGALOW,<br/>THORNHAM MAGNA</b>  |            |  |
| Drawing Title:  |            |  |
| <b>FLOOD RISK ASSESSMENT ADDENDUM<br/>PROPOSED SITE LAYOUT</b>  |            |  |
| Scale:  |            | <b>1:200 @ A1</b>                                    |
| Date:   | Drawn:     | Checked:   |
| <b>NOV 2021</b>   | <b>JWT</b> | <b>JAH</b>   |
| DWG Reference:  |            |  |
| <b>312-2021.DWG</b>   |            |  |
| Status:   |            |  |
| <b>FOR INFORMATION</b>  |            |  |
| Drawing Number:   |            | Revision:  |
| <b>312/2021/02</b>  |            | <b>P1</b>  |
| <small>PH = Preliminary, CF = Construction, AB# = As Built</small>  |            |  |