

06 JUL 2015

Proposed Development
at
Paradise Farm, The Causeway,
Clophill, Beds. MK45 4BA

Flood Risk Assessment

July 2015

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FLOOD RISK ASSESSMENT

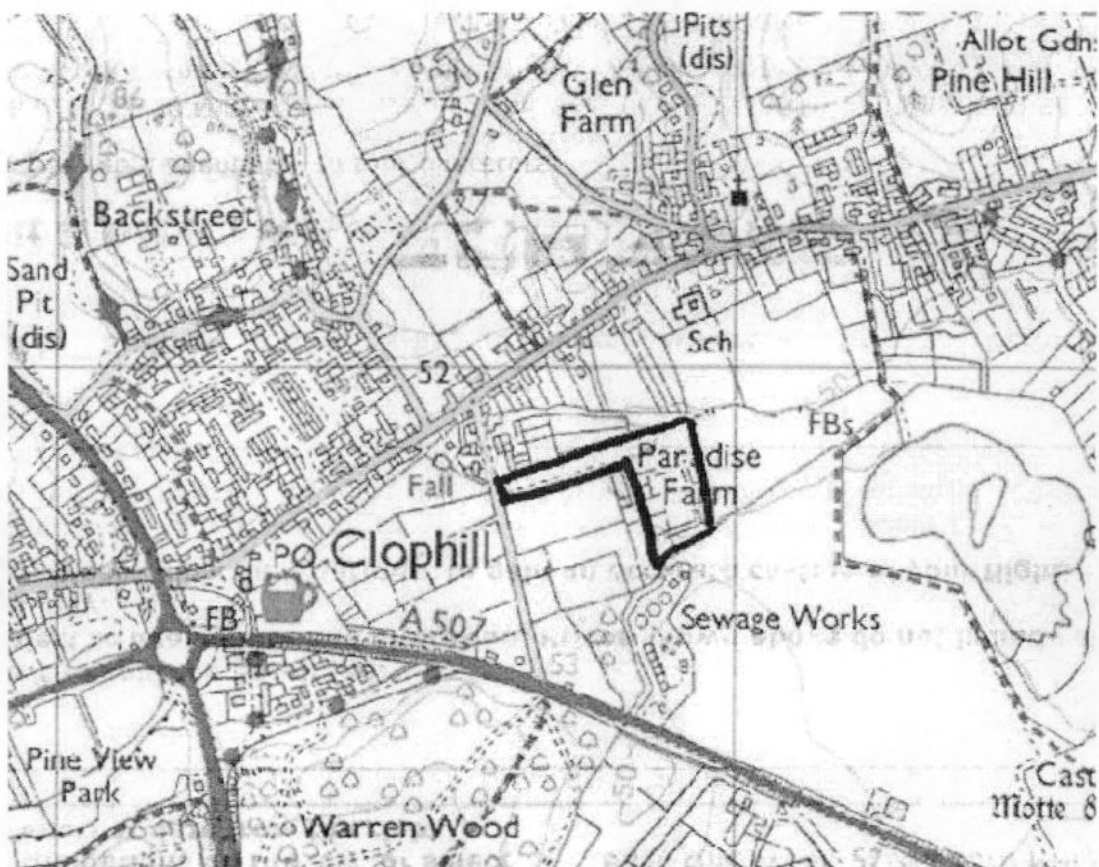
Paradise Farm, The Causeway, Clophill, Beds. MK45 4BA

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1. **INSTRUCTIONS**

- 1.1 I was appointed by Mr. Michael Gumble to prepare a Flood Risk Assessment for a site at Paradise Farm, The Causeway, Clophill, Beds MK45 4BA
- 1.2 The FRA has been prepared in support of a planning application to be submitted to Central Bedfordshire Council for the use of the land as a gypsy caravan site. The location of the site is shown on the plan below and on the aerial view on the following page.

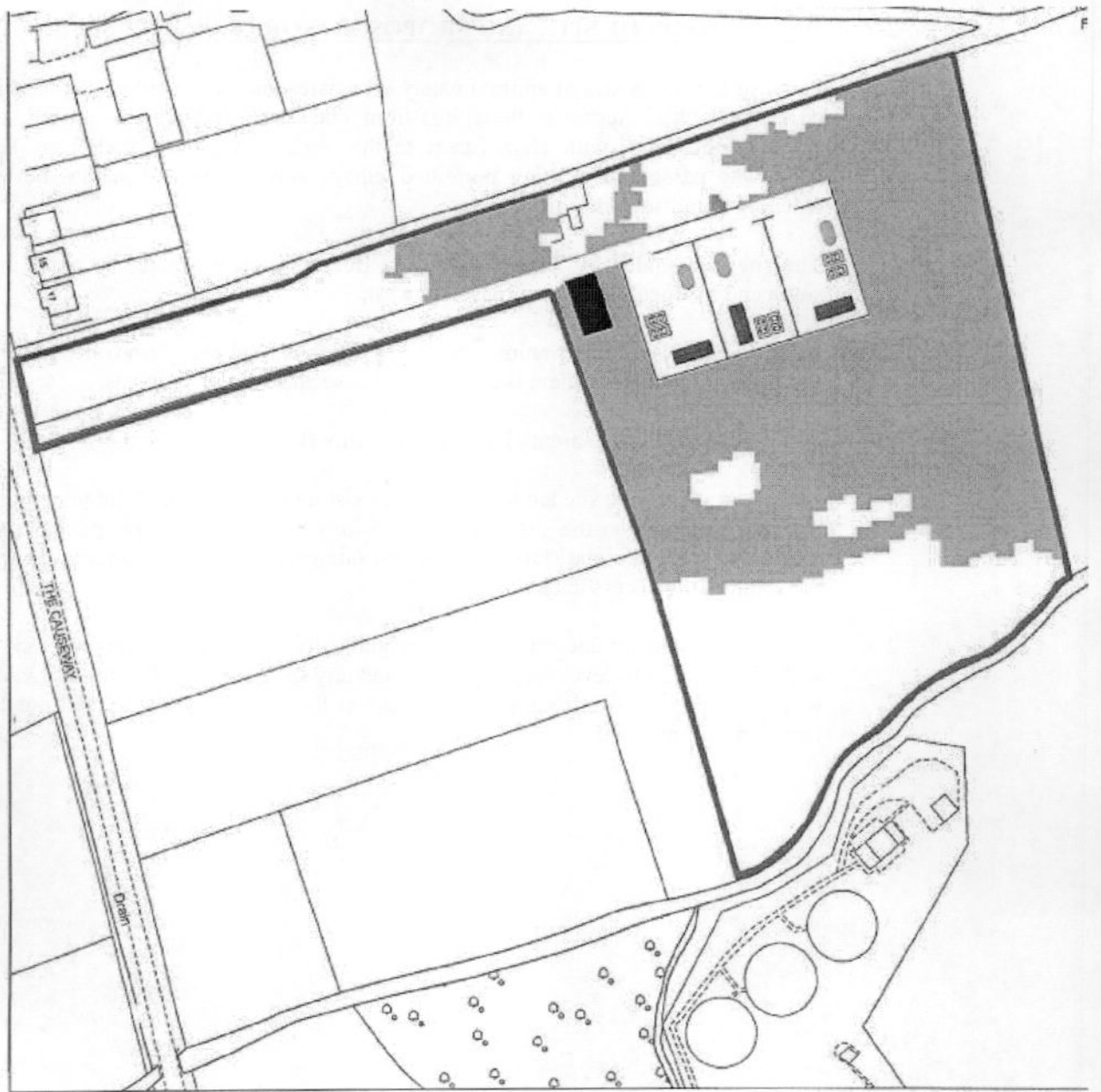




- 1.3 This report considers the flooding risk associated with the site in the light of National Planning Policy Framework and Technical Guidance. It establishes the flood risk at the site, ascertains the impact of development of the site on that flood risk and its affect on others and determines any mitigation measures which may be required to take account of the flood risk

2. DESCRIPTION OF SITE AND PROPOSED WORKS

- 2.1 Paradise Farm is a site of approximately 2 hectares and is located on the eastern edge of Clophill. Access to the site is from The Causeway, which connects the A507 to the south with High Street to the north. An access road from The Causeway passes an existing permitted gipsy caravan site and stables before reaching Paradise Farm.
- 2.2 The site is bounded by Internal Drainage Board watercourses to the north and south and by open fields to the east and west.
- 2.3 Paradise Farm is a former animal sanctuary which is now being renovated. At the northern end of the site there is an existing house and 3 static caravans.
- 2.4 Photographs of the site are included as Appendix B to this document.
- 2.5 The proposals for the site are to replace the existing static caravans and to upgrade the site, as shown on the site plan on the following page. The three pitches will each have space for one static caravan and one tourer on a hardstanding area to the south of the access track.
- 2.6 The site is currently uneven, and it rises gradually to the south. Some regrading will be necessary to level the living area, and any spoil required for this regrading will be taken by lowering the higher areas at the south of the site, and not by importing fill material.



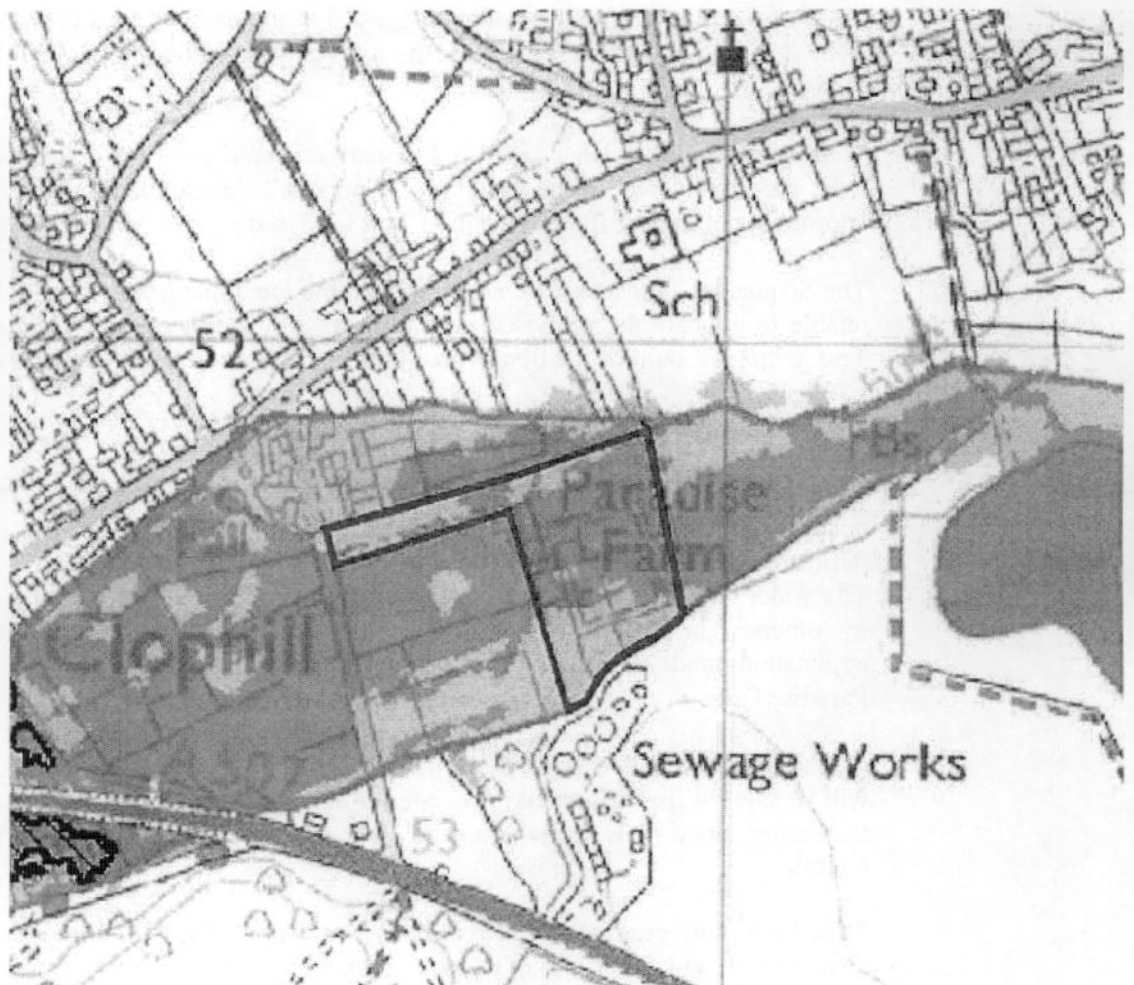
3. NATIONAL PLANNING POLICY FRAMEWORK

- 3.1 The NPPF, March 2012, is a key part of the Government's reforms to make the planning system less complex, more accessible, and to promote sustainable development. It replaces most of the Planning Policy Guidance Notes (PPG's) and Planning Policy Statements (PPS's)
- 3.2 The underlying principle in the NPPF is a presumption in favour of sustainable development promoting positive planning, where Local Planning Authorities should approve without delay proposals that accord with the development plan.
- 3.3 Flood risk and coastal change policies can be found in paragraphs 94, 100 – 108 of the NPPF with technical guidance setting out how these policies should be implemented contained in the *Technical Guidance to the National Planning Policy Framework* also dated March 2012.
- 3.4 Local Planning Authorities should “*adopt proactive strategies to mitigate and adapt to climate change taking full account of flood risk, coastal change, and water supply and demand considerations*”(Para 94)
- 3.5 Government policy is 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*” (Para 100).
- 3.6 Local Plans “*should be supported by strategic flood risk assessment and develop policies to manage flood risk, 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*” (Para 100).
- 3.7 The NPPF retains the Sequential and Exception Tests. In drawing up Local Plans, LPAs “*should apply a sequential, risk based approach to the location of development*” (Para 100).
- 3.8 Planning applications in flood risk areas should be supported by a site-specific flood risk assessment. This should demonstrate 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 emergency planning, and it gives priority to the use of sustainable drainage systems*”(Para 103).

- 3.9 The *Technical Guidance to the National Planning Policy Framework* retains key elements of Planning Policy Statement 25 and of the Minerals Policy Statements and Minerals Planning Guidance Notes which are considered necessary and helpful in relation to these policy areas. The retention of this guidance is an interim measure pending a wider review of guidance to support planning policy.
- 3.10 With regard to flood risk –
- “areas at risk of flooding” means land within Flood Zones 2 and 3 or land within Flood Zone 1 which has critical drainage problems and which has been notified to the local planning authority by the Environment Agency.
 - “flood risk” means risk from all sources of flooding – including from rivers and the sea, directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems, and from reservoirs, canals and lakes and other artificial sources.
- 3.11 Table 1 of the Guidance Notes deals with the definition, appropriate uses, flood risk assessment requirements, and policy aims of the 4 flood zones –
- | | |
|-----------|---------------------------|
| Zone 1 – | Low Probability |
| Zone 2 – | Medium Probability |
| Zone 3a – | High Probability |
| Zone 3b – | The Functional Floodplain |
- 3.12 Table 2 of the Guidance Notes contains the Flood Risk Vulnerability classification.
- 3.13 Table 3 of the Guidance Notes contains the Flood risk vulnerability and flood zone compatibility data.
- 3.14 Section 6 of the Guidance Notes refers to a site-specific flood risk assessment which is carried out by, or on behalf of, a developer to assess the risk to a development site and demonstrate how flood risk from all sources of flooding to the development itself and flood risk to others will be managed now, and taking climate change into account. There should be iteration between the different levels of flood risk assessment.
- 3.15 It should identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account. Those proposing developments should take advice from the emergency services when producing an evacuation plan for the development as part of the flood risk assessment

4. **FLOOD RISK INFORMATION**

- 4.1 The Floodmap currently published by the Environment Agency for this area is shown below. The dark blue area shows the extent of the floodplain taking account of flood defences, and it represents the contour of the flood which has a 1 in 100 or greater annual probability of flooding (i.e. greater than 1%). The light blue represents the additional area having a 1 in 1000 or greater annual probability of flooding (i.e. greater than 0.1%).



- 4.2 It can be seen that according to the current Agency floodmap the centre of the site is within the 1% flood contour but the whole of the southern part of the site, some small areas to the north, and most of the access track are within the 0.1% contour

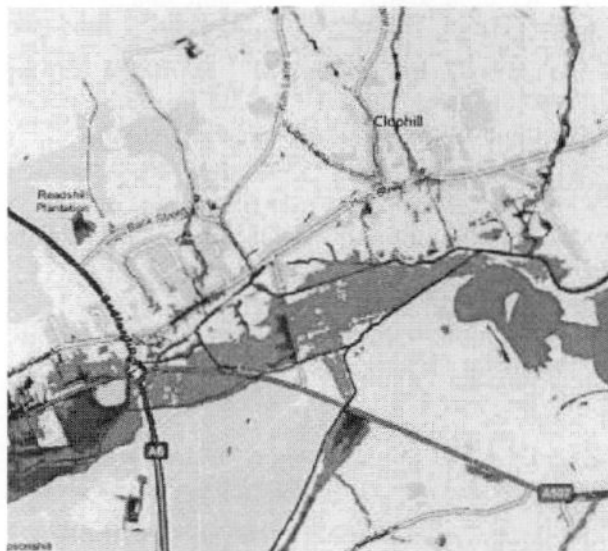
- 4.3 The watercourses to the north and south of the site are the responsibility of the Bedfordshire & River Ivel Internal Drainage Board, so I have also contacted the IDB for detailed flood levels and information at this site. The response received from the IDB is included as Appendix A to this FRA. It shows that the flood plain of the IDB watercourses 156 and 175 is the same as indicated on the Environment Agency published floodmap.
- 4.4 No modelled flood levels or Historic Flood outlines are available from either the Environment Agency or the Internal Drainage Board.
- 4.5 The flood outlines would therefore suggest that the caravan area is within Flood Zone 2 – Medium Probability, after the regrading described in para 2.6 has been carried out.
- 4.6 “*Caravans, mobile homes and park homes intended for permanent residential use*” are considered to be “Highly Vulnerable” development, which is only appropriate in Zone 2 if the Exception Test is passed
- 4.7 The Sequential Test would demonstrate that the local planning authority has been unable to allocate the proposed development in accordance with the Sequential Test, taking account of the flood vulnerability category of the intended use.
- 4.8 For the Exception Test to be passed –
- (a) It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared.
The wider benefits of the development as a gipsy traveller site will be dealt with by others. The matter has already been considered, and accepted, for the application made for the existing gipsy caravan site on the access track to Paradise Farm
- (b) A site-specific flood risk assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.
- This FRA will consider (in Section 5) the vulnerability of the users of the development and the effects of the development on flood risk elsewhere.
- 4.9 The availability of safe access for residents is considered in Section 7.
- 4.10 The Environment Agency data also shows that the site is not at risk of flooding from “reservoirs or other artificial sources”.

5. **FLOODPLAIN STORAGE AND CONVEYANCE**

- 5.1 The physical effects on others resulting from development within the floodplain principally consist of the loss of floodplain storage – requiring floodwater to move elsewhere – and obstructions to flow which can restrict conveyance and cause increases in water levels behind the restriction.
- 5.2 There are 3 existing static caravans on the site, and the proposal is to reposition and replace these. The new caravans will be set with their thresholds raised sufficiently above flood level to ensure that the residents remain safe. They will also be securely tethered so that they are stable in a major flood event.
- 5.3 As described in para 2.6 any regrading of the site will involve the movement of spoil from the south part of the site to the proposed caravan area to the north, which will provide level for level compensatory storage.
- 5.4 With these conditions there can be no loss of flood storage and no effect on flood conveyance, there is therefore no increase in the flood risk to others as a result of the proposed works

6. **SURFACE WATER DRAINAGE**

- 6.1 A caravan site does not adversely affect the surface water drainage in the area. Only the small areas of the mobile home supporting slabs are impermeable, and all surface water continues to be discharged directly to the ground. The hardstandings will be totally permeable.
- 6.2 The Environment Agency “Risk of flooding from Surface Water” plan, shown below, repeats the flooded area from the floodmap and therefore raises no additional issues.



7. **SAFE ESCAPE AND EMERGENCY SERVICES**

- 7.1 The Technical Guidance require the effects of introducing further persons into the floodplain to be evaluated, both in terms of the opportunities for safe escape and the implications for the Emergency Services.
- 7.2 Since the static caravans themselves are elevated above flood level there is no direct danger to the occupants.
- 7.3 The proposed caravan area is outside the limits of the 1% design flood so that safe escape is possible, this has already been discussed and accepted for the permitted caravan site on the access track, as follows –

Area to be assessed	The Causeway
Depth of flooding (d)	Maximum 150 mm (from surveyed levels)
Velocity of flow (v)	Say 0.5 m/sec (ponded water on flood limits)
Debris factor (DF)	0.5 (Depth below 250 mm)

$$\begin{aligned} \text{Flood Hazard Rating HR} &= d \times (v+0.5) + DF \\ &= 0.65 \end{aligned}$$

This value of HR is within the range in the Tables of FD2320 for which the Degree of flood hazard is *Very Low Hazard - Caution*

8. CONCLUSIONS

- 8.1 This FRA refers to a planning application for the use of a former animal sanctuary on the east side of Clophill as a 3 pitch gipsy caravan site, The site already contains 3 static caravans, which would be replaced and repositioned. There is an existing permitted gipsy site on the access track to Paradise Farm.
- 8.2 The site is uneven, and rises gradually to the south. Some regrading will be necessary to level the living area, and spoil required for this regrading will be taken from the higher areas, and not by importing fill material.
- 8.3 The site is bounded by Internal Drainage Board watercourses to the north and south and by open fields to the east and west.
- 8.4 According to the current Environment Agency floodmap the centre of the site is within the 1% flood contour but the whole of the southern part of the site, some small areas to the north, and most of the access track are within the 0.1% contour. This has been confirmed by the IDB.
- 8.5 The caravan area will be within Flood Zone 2 – Medium Probability, after the regrading has been carried out.
- 8.6 “Caravans, mobile homes and park homes intended for permanent residential use” are considered to be “Highly Vulnerable” development, which is only appropriate in Zone 2 if the Exception Test is passed. The wider benefits of the development as a gipsy site have already been considered, and accepted, for the application made for the existing gipsy caravan site on the access track to Paradise Farm
- 8.7 The new caravans will be set with their thresholds raised above flood level to ensure that the residents remain safe. They will also be securely tethered so that they are stable in a major flood event. Since they will replace existing caravans there can be no loss of flood storage and no effect on flood conveyance, there is therefore no increase in the flood risk to others as a result of the proposed work
- 8.8 A caravan site does not adversely affect the surface water drainage. Only the small areas of the caravan supporting slabs are impermeable, and all surface water continues to be discharged directly to the ground.
- 8.9 The caravan area is outside the limits of the 1% design flood so that safe escape is possible, this has already been discussed and accepted for the permitted caravan site on the access track for which the Degree of flood hazard is *Very Low Hazard - Caution*

APPENDIX A

INTERNAL DRAINAGE BOARD RESPONSE

graham fryer

From: Trevor Skelding <Trevor.Skelding@idbs.org.uk>
Sent: 30 June 2015 15:50
To: gfryer@talktalk.net
Subject: RE: Land adjacent to 17, The Causeway, Clophill, MK45 4BA
Attachments: Causeway.pdf

Graham

Please find attached a plan indicating the Board's district and flood zones 2 & 3 relative to your site. Currently I am unaware of any planned improvement works to the adjacent watercourses.

Regards

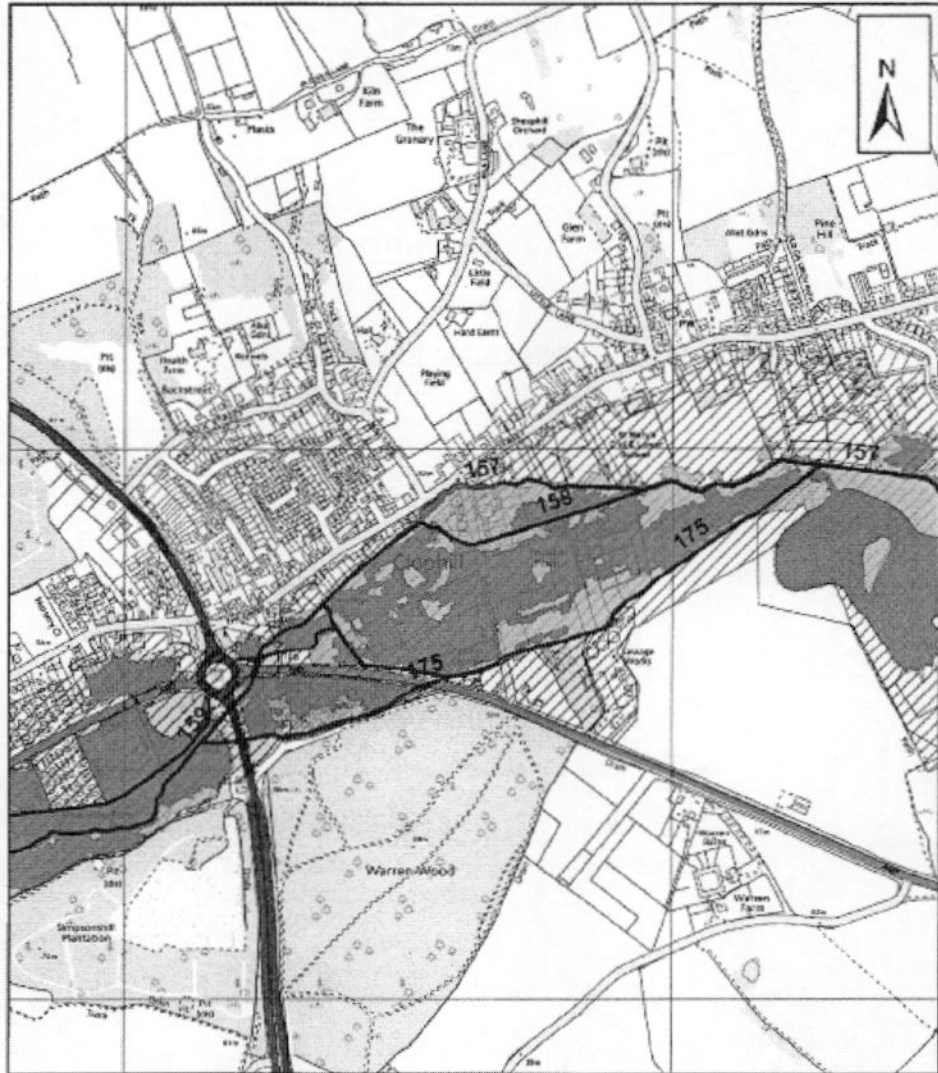
Trevor Skelding MSc IEng MICE
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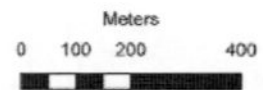


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Scale 1 = 10,000

Legend

- IDB Watercourse
- Flood Zone 3
- Flood Zone 2
- IDB District**
- BOARD**
- ▨ Bedfordshire and River Ivel



The Causeway

www.idbs.org.uk

APPENDIX B

Photographs of Existing site



Photo No 1

Access track to The Causeway, with existing house and static caravan

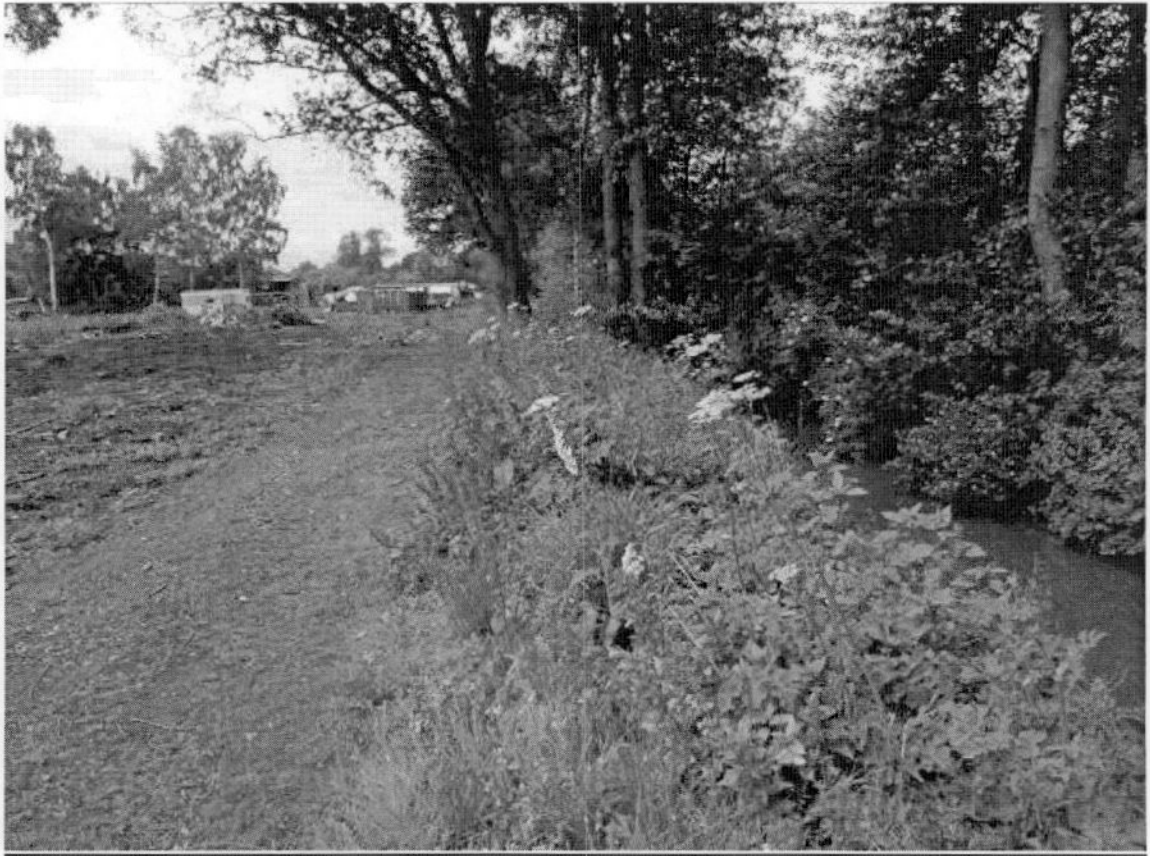


Photo No 2

View of the site and the river, looking west



Photo No 3

View of the site, towards higher ground to the south