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NATIONAL PLANNING POLICY FRAMEWORK march 2012 - FLOOD RISK

FLOOD RISK ASSESSMENT

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HOLBEACH HOSPITAL,
BOSTON ROAD,
HOLBEACH,
SPALDING,
PE12 8AQ



DC Architectural Services ltd

Architectural and Planning Services

The Barn, Partney Mill, Spilsby, Lincolnshire, PE23 4PE
Tel. No: 05601 500536 Mobile: 07776227893
E-mail - dcarchitectural@btconnect.com

Director: David Biggadike ACIOB MaPS Company Secretary: Samantha Biggadike

NATIONAL PLANNING POLICY FRAMEWORK - FLOOD RISK

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NATIONAL PLANNING POLICY FRAMEWORK - FLOOD RISK

FLOOD RISK ASSESSMENT

1.1 Introduction

"DC Architectural Services Ltd" have been commissioned to prepare a Site-Specific Flood Risk Assessment to accompany a submission to the Planning Authority seeking consent for the construction of 8 bedrooms and garden room, at Holbeach Hospital, Boston Road, Holbeach, Spalding, Lincolnshire. PE12 8AQ

1.2 Objective

1.1.1 The objective is to comply with National Planning Policy Framework (NPPF), published by National Government in March 2012. These state that it is a matter for applicants to investigate the potential Flood - associated risks relating to individual development proposals. The purpose of this Flood Risk Assessment is therefore to:

- Demonstrate whether the project is likely to be affected by flooding from any source, either now or in the future.
- Satisfy the Local Planning Authority that the development would be safe and, where possible, reduces the flood risk overall.
- Demonstrate whether the flood risk will be increased elsewhere.
- Demonstrate the measures proposed to deal with the identified flood effects and risks.

2.1 Planning Application

2.2 Planning Application

2.1.1 This document is to support a Full Planning Application for 5 bedrooms on first floor in connection with existing facilities.

3.1 The Application Site

3.2 Application Site

3.1.1 The site is part of Holbeach Hospital and is located on pavement and lawn adjacent to Hospital. The site totals an area of 1.6 hectares. The site is bounded by open fields and scattered buildings to all sides (refer Appendix D). The site is level being in open fenland at a height of 3.567m ODN (refer to site plan at Appendix A).

4.1 Proposed Development

4.2 Development

4.1.1 The development is for 5 Bedrooms on the first floor. Appendix B shows an illustrative layout of the proposed development. Appendix C shows the existing site.

5.1 Assessment of the Risk

5.2 Assessment of the Risk

There are four areas to consider in the context of this:

5.2.1 Coastal

The Environment Agency Flood maps identify the area to be in a Zone 3 which shows that the area, taking into account flood defences, a medium risk of between 1:100 (1%) and 1:30 (3.3%) annual probability of flooding in any one year.

The South Holland District Council Strategic Flood Risk Assessment identifies the location of the site as Zone 3.

5.2.2 Main River

The Environment Agency identified the site, without taking into account existing defences, as having a less medium chance of flooding in any one year. The nearest EA river is the River Welland.

5.2.3 Ordinary Water Course

The site is surrounded by series of drainage ditches which form part of the overall system of draining this typical low lying area of South Holland. The flood risk maps identify these ditches as a potential source of flooding. A detailed study of the map and our field investigation reveals that the EA map is accurate in assessment in relation to flood extent and levels.

5.2.4 Evaluation of the Risk

Flooding of the Site

Evaluation		1 Low 5 High Risk					Magnitude				
		1	2	3	4	5	1	2	3	4	5
Land		/						/			
Water				/					/		
Sea				/			/			/	
Drains		/					/				

Flooding Elsewhere

Evaluation		Risk					Magnitude				
		1	2	3	4	5	1	2	3	4	5
Land		/					/				
Property		/					/				

The risk is evaluated as **Low**

5.2.5 Land

The site lies to the east of the existing village centre. The change is on a parcel of land bounded by farmland shown on aerial photograph (Appendix D) and detailed on the location plan in Appendix E.

The land lies on typical flat fenland countryside. Its position means that it will not be subject to rapid inundation from higher land and is not subject to flood flows from elsewhere.

5.2.6 Risk Conclusions

Having identified the site in relation to the South Holland District Council SFRA and EA predictions, the site is confirmed as Zone 3.

Zone 1 Low Probability

Definition

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

Appropriate uses

All uses of land are appropriate in this zone.

FRA requirements

For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a FRA. This need only be brief unless the factors above or other local considerations require particular attention. See Annex E for minimum requirements.

Policy aims

In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage techniques.

6.1 Flood Risk Matrix

6.2 Flood Risk Matrix

6.1.1 The flood risk matrix in Appendix F identifies non residential development of less than 250 square meters in Zone 3 as requiring a flood risk assessment. Consultation with the EA is not required. EA standard advice applies.

7.1 Sequential Test

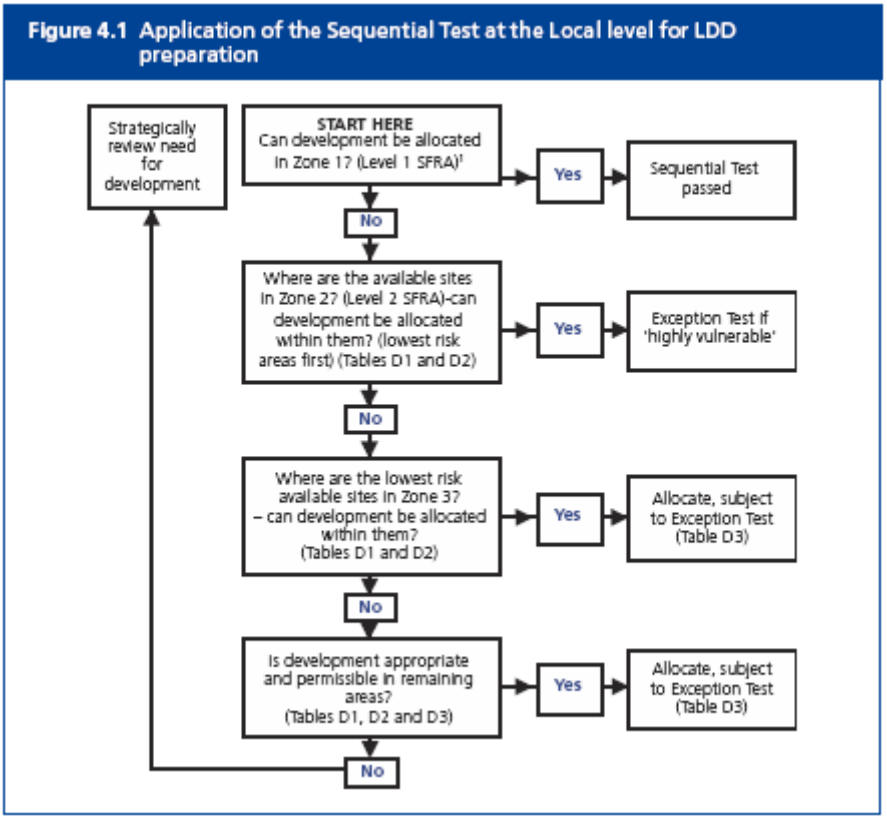
7.2 Sequential Test

7.2.1 This risk-based approach endeavors to place development that is most vulnerable away from areas that are at most risk.

7.2.2 This development falls into EA Zone 3: medium probability risk of flooding. This information is to be used in applying the test.

7.2.3 When applying the test as figure 4.1, the proposal passes the test being in Zone 3; more vulnerable use category is considered compatible.

Figure 4.1 Application of the Sequential Test at the Local level for LDD preparation



The above figure demonstrates the compatibility of the proposal within Flood Zone 3 and passing of the sequential test. Subject to exemption test if highly vulnerable.

The above figure of 4.1 demonstrates the compatibility of the proposal within flood Zone 2 and passing of the sequential test.

This development falls into SFRA Zone 3 probability of flooding. This information is to be used in applying the test. When applying the test, the availability of suitable alternative sites in Zone 1 will need to be considered and as the nearest Zone 1 land is 6.0km from the site in and unsustainable location remote from the site where , the location of facilities within the hospital it is imperative and it is clear that there is no other option. The proposed site is the only logical location on the site where the management structure is required to operate the existing site use already in place. When assessed against table D,2 the proposal falls into use category; more vulnerable. This is considered appropriate where the development category and the application site is concerned.

Table D.2: Flood Risk Vulnerability Classification

Essential Infrastructure	• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk, and strategic utility infrastructure, including electricity generating power stations and grid and primary substations.
Highly Vulnerable	• Police stations, Ambulance stations and Fire stations and Command Centres and telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent.[19]
More Vulnerable	• Hospitals. • Residential institutions such as residential care homes, children's homes, social services 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.[20] • Sites used for holiday or short-let caravans and camping, **subject to a specific warning and evacuation plan**.
Less Vulnerable	• Buildings used for: shops; financial, professional and other services; restaurants and cafes; hot food takeaways; offices; general industry; storage and distribution; non–residential institutions not included in 'more vulnerable'; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment plants. • Sewage treatment plants (if adequate pollution control measures are in place).
Water-compatible Development	• Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel workings. • Docks, marinas and wharves. • Navigation facilities. • MOD defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, **subject to a specific warning and evacuation plan**.

8.1 Exemption Test

8.2 Exemption Test

8.2.1 The appropriate designate in table D3 would indicate an exemption test is not required.

Table D.3[22]: Flood Risk Vulnerability and Flood Zone 'Compatibility'

Flood Risk Vulnerability classification (see Table D2)		Essential Infrastructure	Water compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone (see Table D.1)	Zone 1	✔	✔	✔	✔	✔
	Zone 2	✔	✔	Exception Test required	✔	✔
	Zone 3a	Exception Test required	✔	✗	Exception Test required	✔
	Zone 3b 'Functional Floodplain'	Exception Test required	✔	✗	✗	✗

8.2.2 Exception test as more vulnerable in above is required as below

8.2.3 the development provides wider sustainability benefit being the provision essential community hospital facility.

8.2.4 The proposal is on 'developable or developed land' being part of the hospital development area in the South Holland Development Plan.

8.2.5 Proposal is demonstrable as 'acceptable' and the drainage solution is provided.

8.2.6 The proposal passes the exception test as above

9.0 Existing Drainage

9.1 Existing Drainage

9.1.1 The site is virtually entirely 1m permeable surface the majority being the first floor of an existing building. The site is drained by uncontrolled discharge directly into the existing system and to the IDB drain to the north of the site refer to plan in Appendix C.

10.0 SAFE EGRESS/ACCESS

10.1.1 The site will be registered with the Environment Agency Flood Line Warning Service prior to completion and safe procedure included in the site manual in the event of a flood event requiring emergency evacuation the route will be established on an incident by incident basis and persons withdrawn to. However the most likely open route will be the A17

11.1 Effect of the Proposal

11.2 Effect of the Proposal

11.2.1 The existing site of circa 4.5 ha is made up of parking, grass and buildings. This is drained by uncontrolled run-off into soakaways and to IDB watercourse, the grass areas have no positive drainage.

11.2.2 The proposal is to retain the existing buildings and parking and build a new first floor area– an indicative layout is shown at Appendix B.

11.2.3 The application is for planning permission at this stage, a detailed drainage solution is not proposed as it utilized the same footprint and drainage system as existing.

11.2.4 The NPPF seeks to provide post-development run off at greenfield rates. A further 30% should be added to projected run-offs to allow for climate change.

11.2.5 The effect of the proposal will be to neutral probability of flooding due to the nil additional run off from the site being achieved.

11.2.6 As the footprint is on existing 1m permeable area there is no additional off site run off.

12.1 Flood History

12.2 Flood History

12.1.1 From available information there does not appear to be any record of flooding to this site in recent years. The storm events in 2007 had no significant effect.

13.1 Assessment of the Actual Risk and Its Implications on the Site

13.2 Assessment of the Actual Risk and Its Implications on the Site

13.1.1 It is clear that the site is located in Zone 3 as identified in the EA data and the SFRA. The actual risk is identified as medium and its implication for the site should not prevent a planning application being approved.

14.1 Climate Change

14.2 Climate Change

14.1.1 Currently the assumption is that climate change will impact on global sea levels and impact subsequently on surge tides and an increase in significant storm events. The future risk is therefore increased. The design of any new drainage system should have a 30% allowance for climate change.

15.1 Mitigation Measure

15.2 Mitigation Measures

15.2.1 Given the Zone 3 medium risk of the site there are no specific mitigation measures required apart from provision of an adequate drainage system.

15.2.2 It is recommended that the project proposals are drained, with roof water being discharged to existing surface water drainage system discharging into the IDB piped yke to the north of the site refer to Appendix H. As there is medium risk of the site being flooded, there are no particular measures proposed after the management of surface water flows and compliance with Environment Agency standing advice.

15.2.3 The proposal is that the floor level be set no lower than existing floor level ie 6.810m ODN

15.2.4 Flood resilience techniques are not required. The premises if not already are advised to register for the EA early warning service.

15.2.5 Refuge, the entire first floor area of 850 square meters will provide refuge in the event of becoming trapped being over 2.0m higher than the 2115 projected flood level. See Appendix I

16.1 Environment Agency

16.2 Environment Agency

Hazard mapping - breaching.

> year 2115 0.5% (1 in 200) chance event

> year 2115 0.1% (1 in 100) chance event

The site is not affected by breaching for the present day (2006) scenarios.

Environment Agency predictions of flood depth are predicted to be depth of 0.25 – 0.5 m

On single storey proposals must use the 0.1% event 2115 the floor levels are to be set at 6.850m ODN which is level with existing the general ground levels to the perimeter of the proposals are 2.960 – 3.050 m ODN which complies to the level requirement in EA recommendations, in any event this is an extension to an existing building which has an adequate first floor for refuge as Appendix I with a level of 6.810m ODN

Appendix J contains Environment Agency predictions

17.1 Pollution

17.2 Existing

The existing site is predominately open ground and hospital buildings and there is no anticipated significant pollution effects not already controlled by good practice.

18.1 Proposed Drainage

18.2 Proposed Drainage

18.1.1 It is our conclusion that the development complies with NPPF and passes, or is not required to pass, the sequential and exemption tests and should therefore be permitted with the condition of a detailed drainage scheme to be submitted for approval before of development.

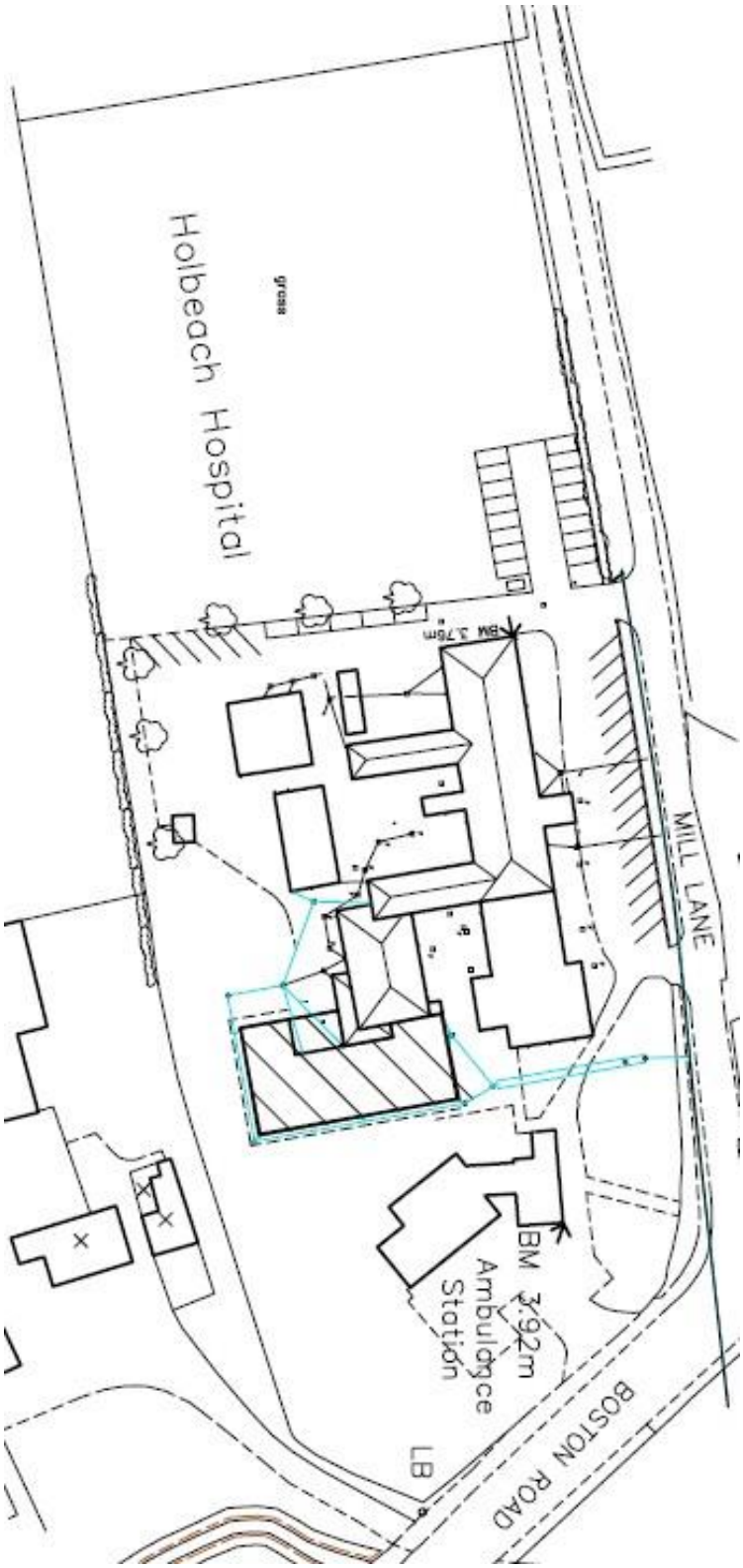
18.1.2 The proposal is to drain the new extension into existing drainage system and ultimately into the piped IDB drain that runs West East on the Northern boundary of the site. A new collector pipe will run round the new extension and discharge into linier attenuation tank by turbosider and discharge via a pumped outlet to control the outfall rate to agricultural rates of 1.4l/s (to be agreed with IDB). A schematic scheme is shown in Appendix G

19.1 Conclusion

19.2 Conclusion

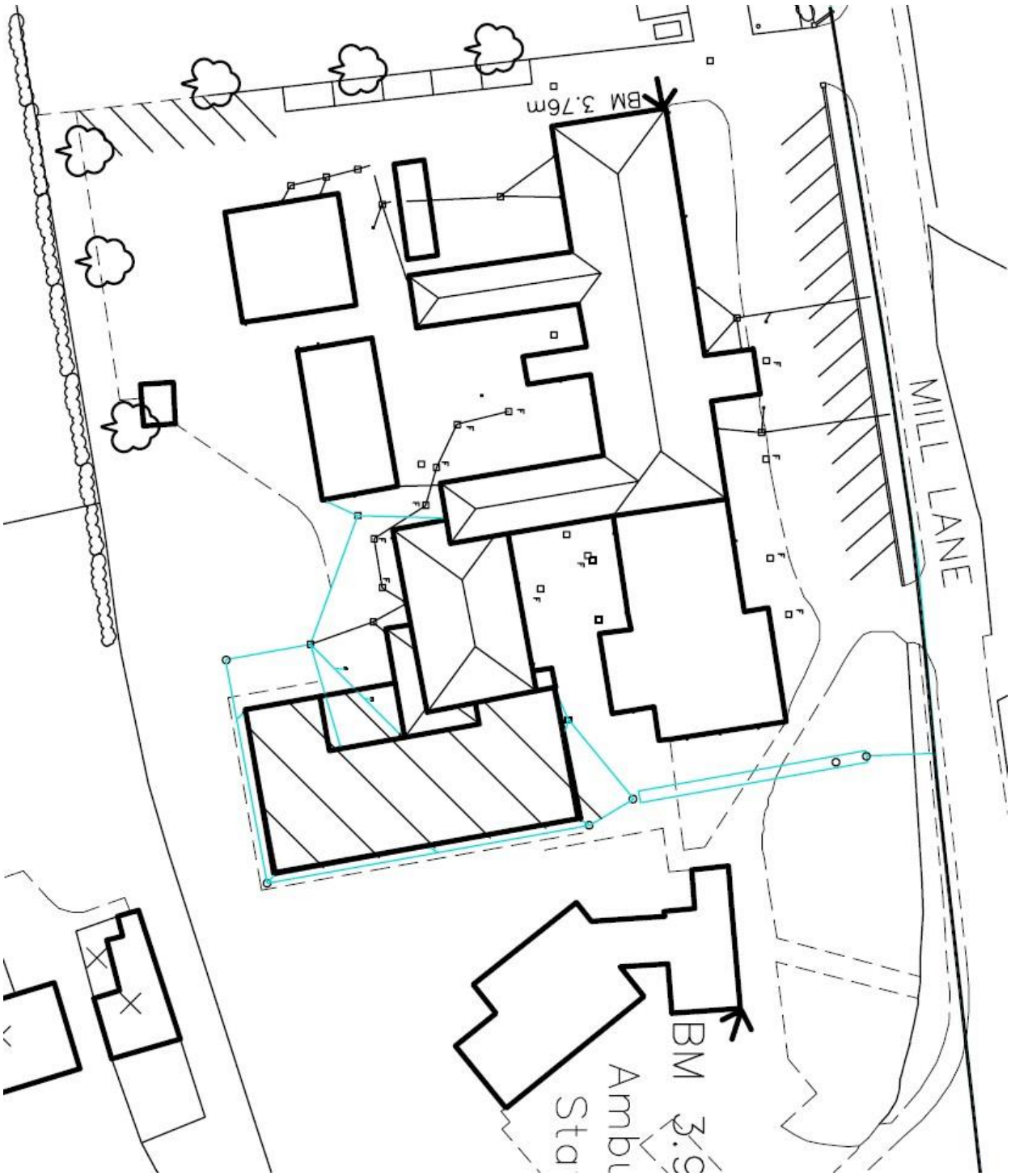
19.1.1 It is our conclusion that the development complies with NPPF and passes, or is not required to pass, the sequential and exemption tests and should therefore be permitted with the condition of a detailed drainage scheme to be submitted for approval before of development.

Appendix A



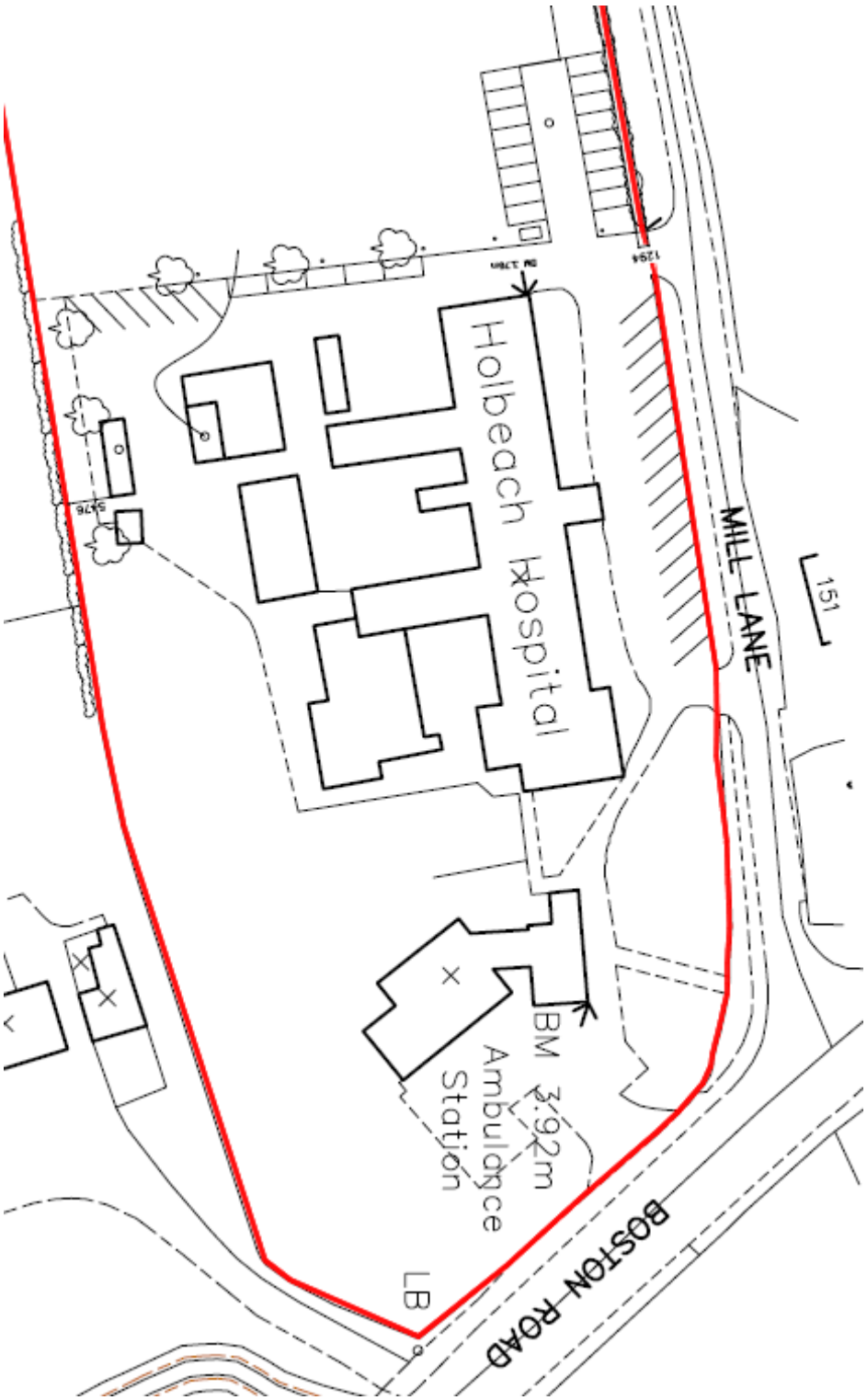
Site plan

Appendix B



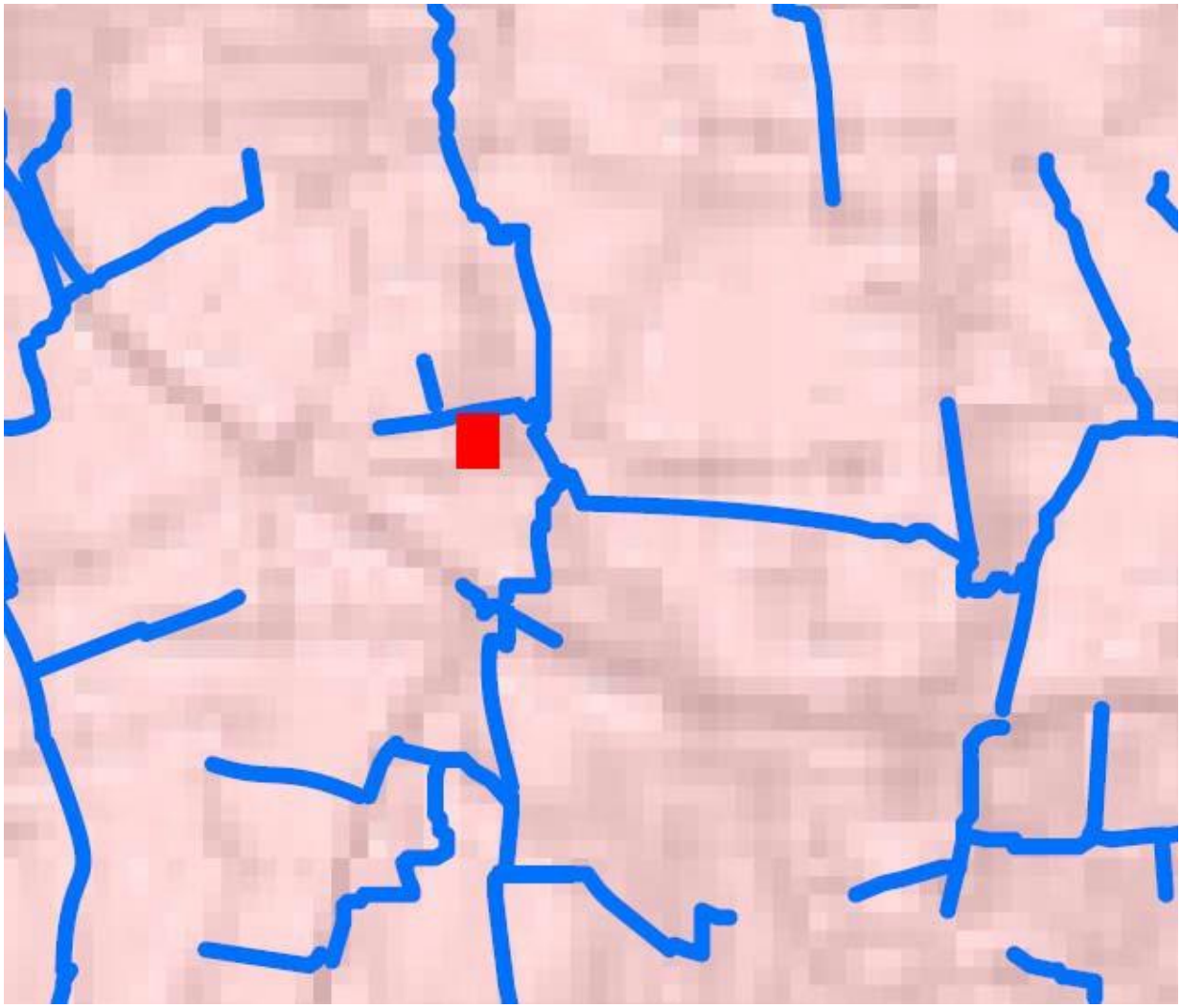
Proposed site layout

Appendix C



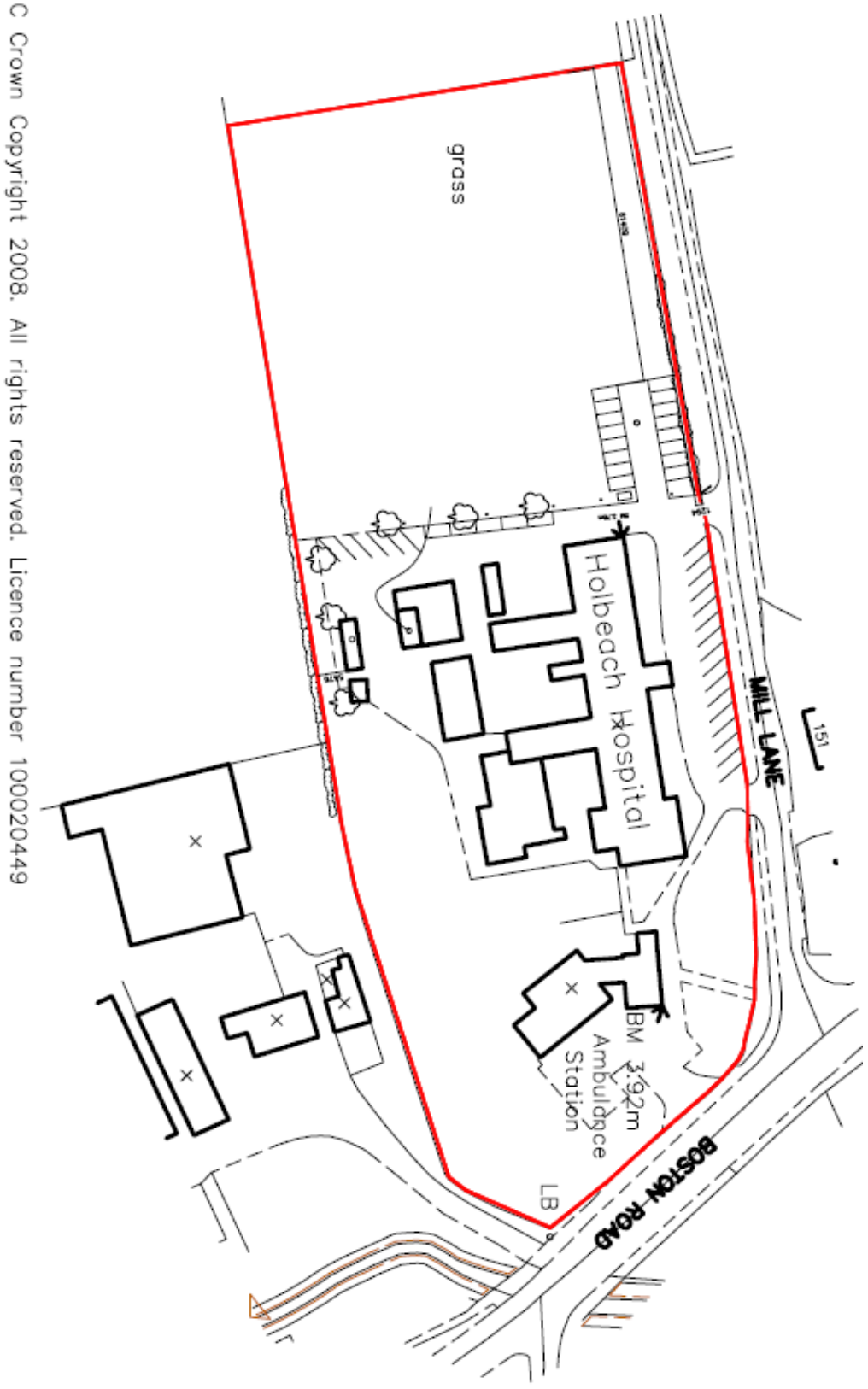
Existing Site Plan

Appendix D



IDB Asset Map Red is Site Location

Appendix E



Location Plan

Appendix F

Environment Agency

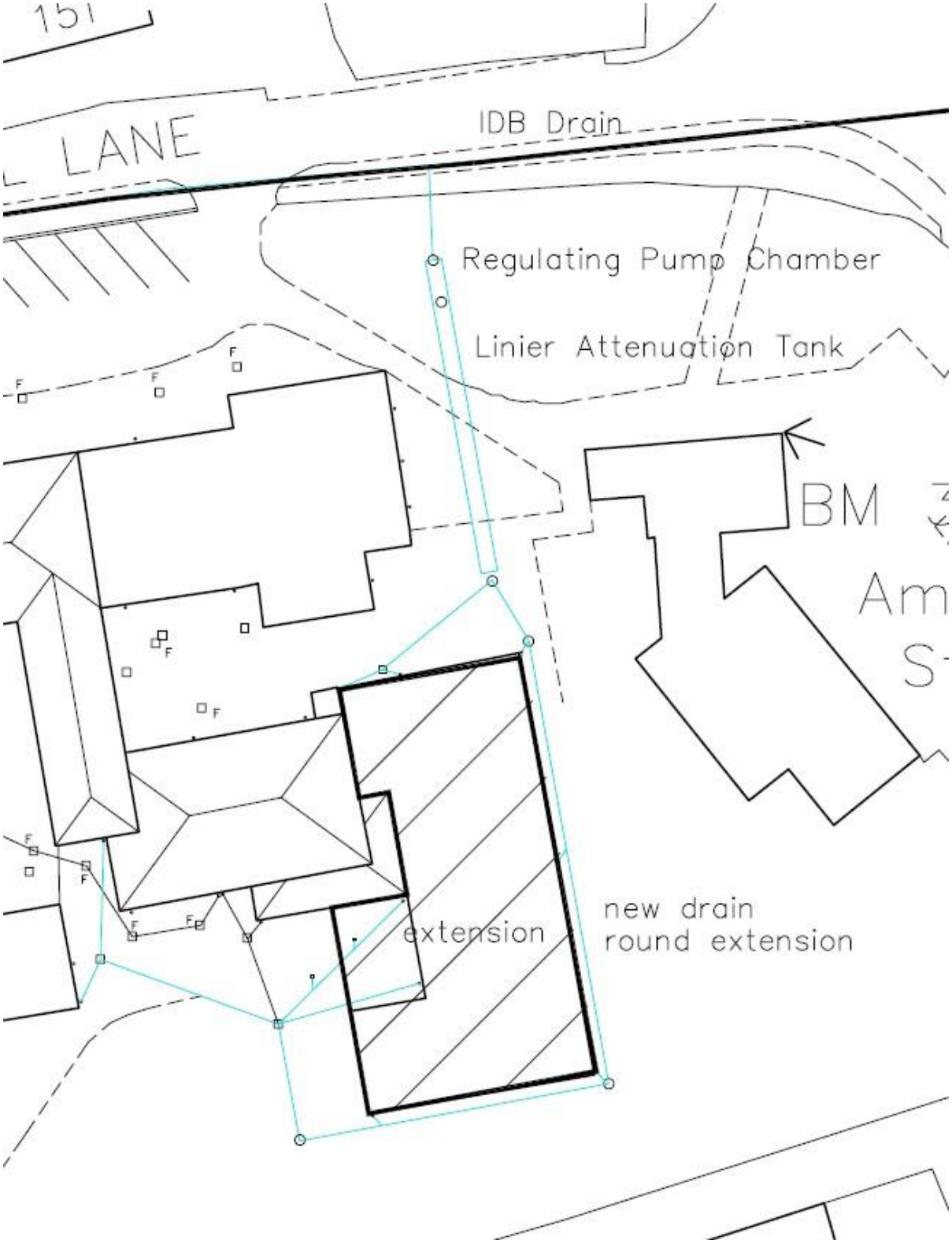
Development and flood risk: when to consult the Environment Agency

March 2007

A1 Development category	B1 Development (including boundary walls etc.) within 20 metres of the top of a bank of a Main River	C1 Includes culverting or control of flow of any river or stream	D1 Within Flood Zone 3	E1 Within Flood Zone 2	F1 Within Flood Zone 1
A2 Householder development and alterations	B2 Consult EA Note	C2 Consult EA with FRA showing design details of any culvert or flow control structure proposed	D2 No consultation - see standard comment Note	E2 No consultation - see standard comment Note	F2 No consultation - No EA Advice
A3 Non-residential extensions with a footprint of less than 250m²	B3 Consult EA Note	C3 Consult EA with FRA showing design details of any culvert or flow control structure proposed	D3 No consultation - see standard comment Note	E3 No consultation - see standard comment Note	F3 No consultation - No EA Advice
A4 Change of use FROM Water Compatible TO 'Less Vulnerable' development	B4 **Only** consult EA if site also falls within Flood Zone 3 FRA Required	C4 No consultation - no EA advice	D4 Consult EA with FRA	E4 No consultation - no EA advice	F4 No consultation - No EA Advice
A5 Change of use RESULTING IN 'Highly Vulnerable' or 'More Vulnerable' development	B5 **Only** consult EA if site also falls within Flood Zone 3 or 2. FRA Required	C5 No consultation - no EA advice	D5 Consult EA with FRA	E5 Consult EA with FRA	F5 No consultation - No EA Advice
A6 Operational development less than 1 hectare	B6 Consult EA	C6 Consult EA with FRA showing design details of any culvert or flow control structure proposed	D6 Consult EA with FRA and Sequential Test Evidence (and where required confirm Exception Test has been applied)	E6 Consult EA with FRA and Sequential Test Evidence (and where required confirm Exception Test has been applied)	F6 No consultation - No EA Advice
A7 Operational development of 1 hectare or greater	B7 Consult EA	C7 Consult EA with FRA showing design details of any culvert or flow control structure proposed	D7 Consult EA with FRA and Sequential Test Evidence (and where required confirm Exception Test has been applied)	E7 Consult EA with FRA and Sequential Test Evidence (and where required confirm Exception Test has been applied)	G7 Consult EA with FRA

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Appendix G



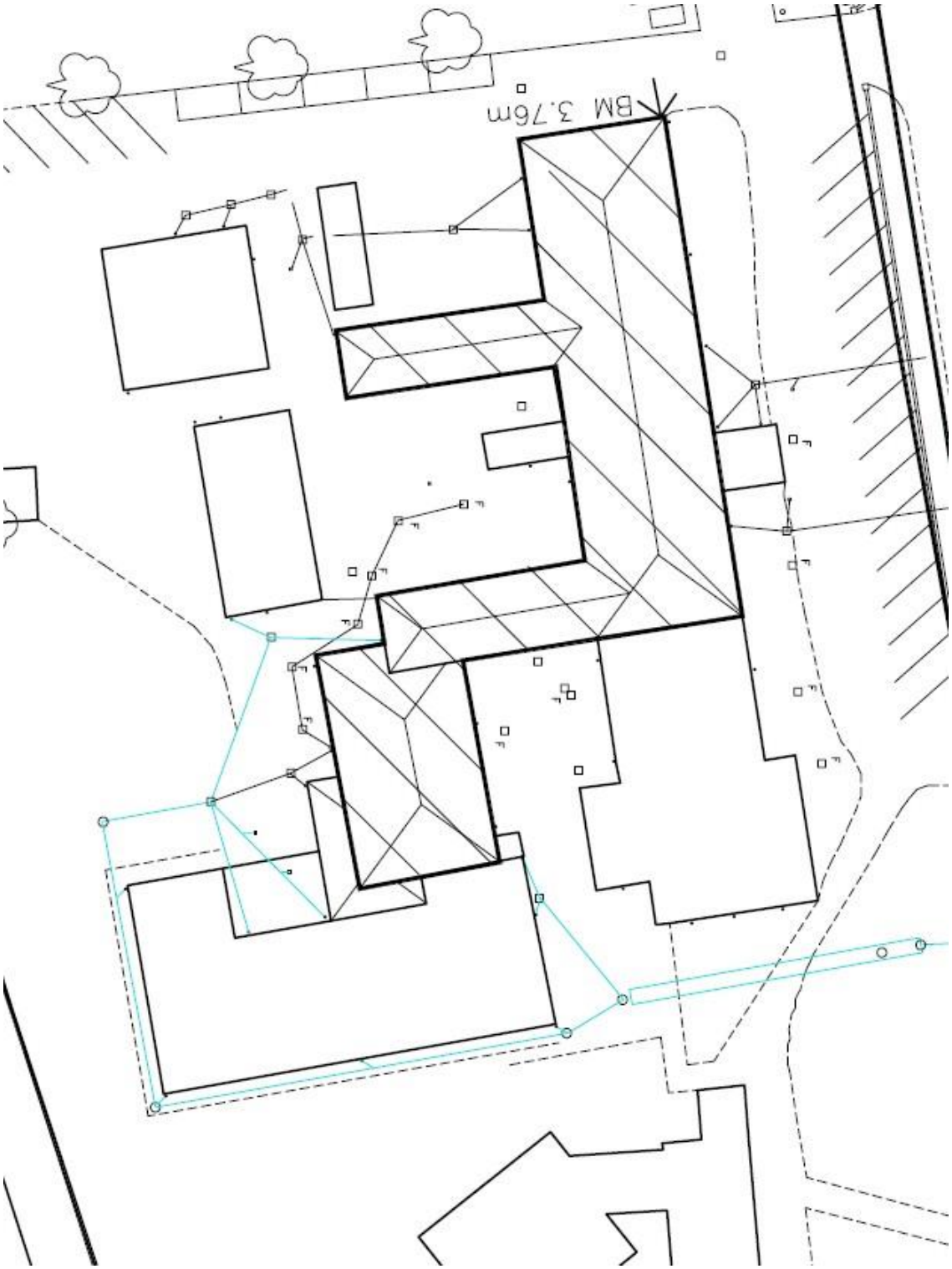
Schematic Drainage Layout

Appendix H



Residual Hazard 2055

Appendix I



First Floor Refuge Shaded Area