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FLOOD RISK ASSESSMENT

HEREFORDSHIRE COUNCIL PLANNING SERVICES DEVELOPMENT CONTROL	
- 8 DEC 2010	
To	
Ack'd	File

Development :

ON LAND AT STRAIGHT MILE HOUSE, HOLME LACY ROAD,
ROTHERWAS, HEREFORD, HR2 6JP.

2nd December 2010

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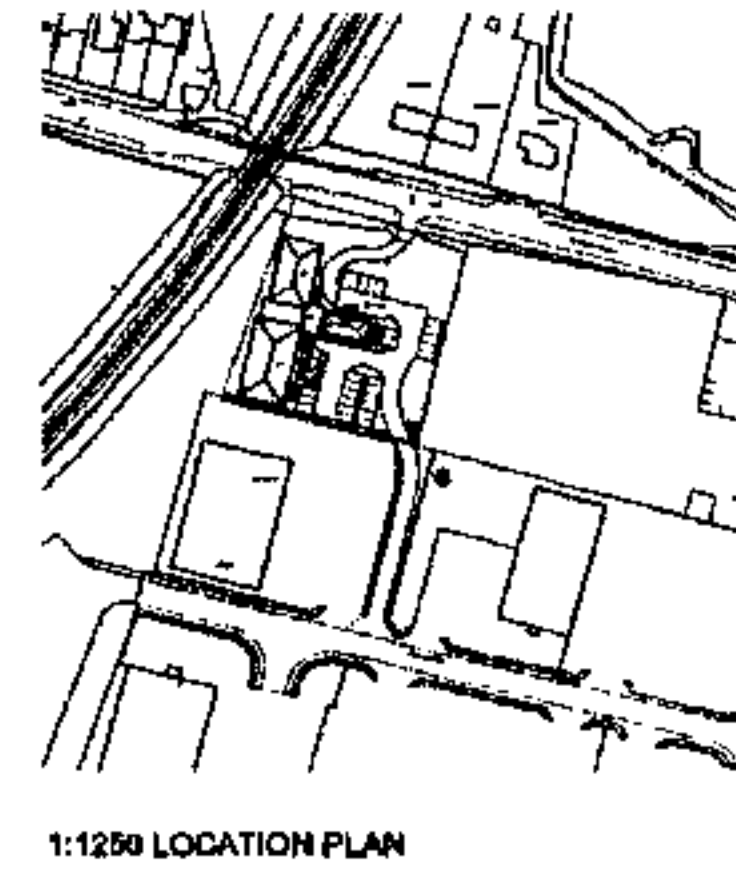
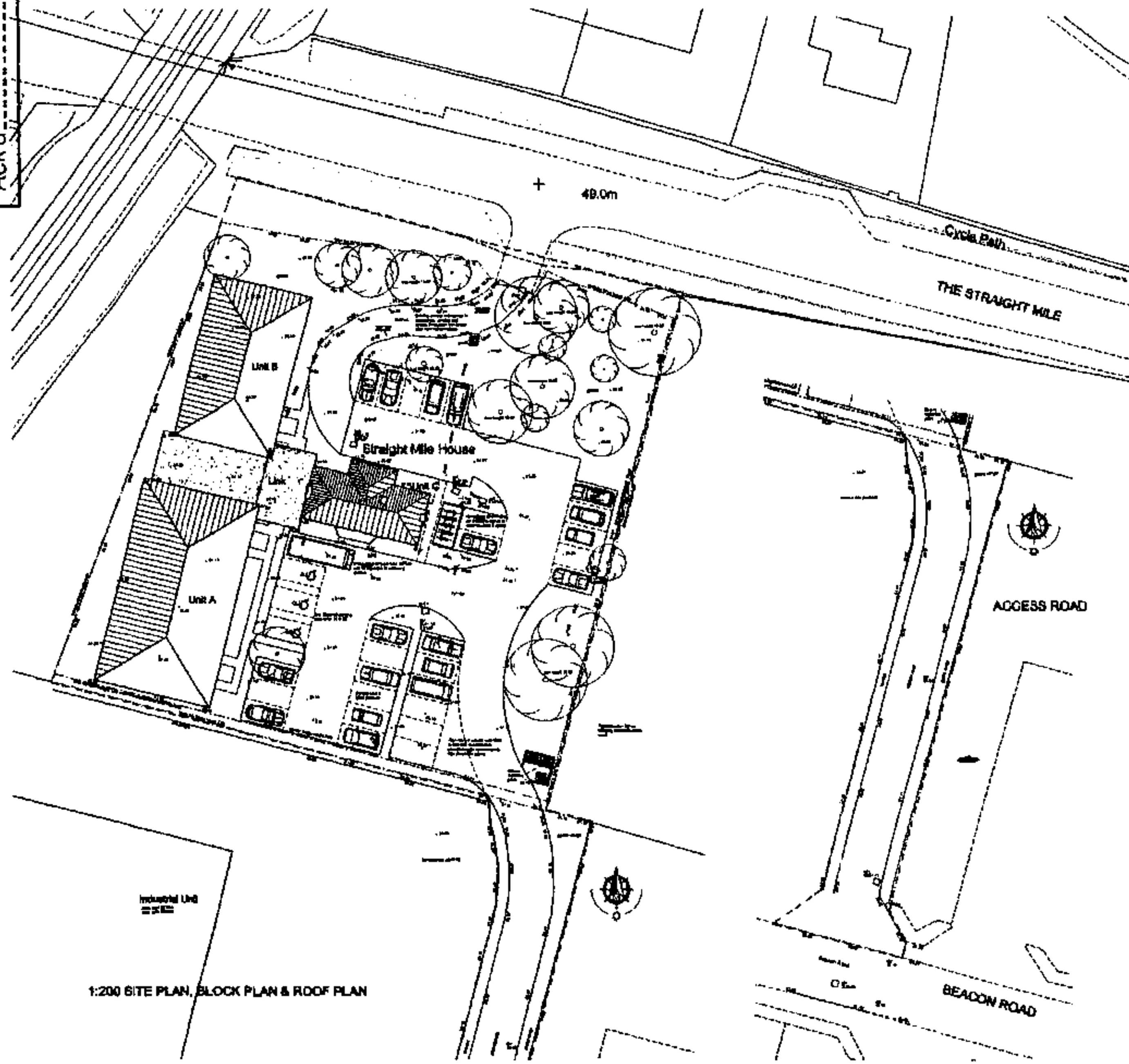
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Geographical Location

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<p>Architect: H&R House, Incorporated For: Woodstock Trading Ltd ARCHITECTS The Woodstock Company, Suite 100, Highway 104, St. John's, NL A1B 1X6 Tel: (506) 421-3899 Fax: (506) 421-3878 Email: info@h&rhouse.com Web: www.h&rhouse.ca</p>	<p>Proposed Site Plans Location: Block 8 Block Plans</p> <p>Open: Oct 10 Close: 1:00 P.M. 2000 Site Plan Section 2, 3, 4, 5</p>
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Site Plan and Process

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**PROPOSED ERECTION OF TWO INDUSTRIAL UNITS ON LAND AT
STRAIGHT MILE HOUSE, HOLME LACY ROAD, ROTHERWAS,
HEREFORD, HR2 6JP.**

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DESK TOP STUDY ON FLOOD RISK ASSESSMENT

The proposal the subject of this assessment is to erect two industrial units for storage and office purposes, together with parking areas and access onto Holme Lacy Road.

Definition of Flood Hazard

The site of the proposed development lies within Flood Zone 3 as defined by the Environment Agency (EA) and as indicated in the Agency's Flood Zones with an annual (**high probability**) of flooding for 1 in 100 years event (1%) or greater from rivers (River Wye), (with no flood defences present).

However the land is situated within an area covered by the **Drainage and Flood Management Strategy -Hereford Council- Rotherwas Futures**. According to the Flood Management Strategy 100 year + climate change the site could be subject to a modelled flood depth of between 0.1m and 0.25m, which would be within DEFRA guidelines.

Accordingly the Agency would consider the site and any buildings may be at a high risk of flooding as set out in detail in PPS 25. The land would therefore be appropriate for less vulnerable uses as set out in Table D.2. in this zone of mature existing residential development.

In letter to the applicant's agent the EA advised that although the site was previously shown as being wholly located in Flood Zone 3, the high risk Flood Zone, the most recent modeling as shown in the recently produced Rotherwas Flood Management Strategy indicates part of the land could be within Flood Zone 2.

Likelihood of Flooding

The EA have advised that the modelled flood level for this land is 51.68 AOD including climate change allowance.

There is no anecdotal evidence from any source that the application land has ever flooded

The application site is located about 350m south from the source of possible flood, the River Wye.

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Levels

The application site has an approximate area of 0.74ha, with Straight Mile House sited in the centre of the land. The area has site levels ranging from 51.22 AOD to the north, 51.36 AOD to the south, 51.04 AOD to the east and 51.16 AOD to the west. The access onto The Straight Mile to the north has a level of 49.00 AOD or thereabouts.

The EA have advised that the finished floor level of the proposed units should be set at 0.600m above the 1 in 100 year event, plus climate change. This would give an ffl of 52.28 AOD. Such level would be on average 1.1m above the existing average ground level, which the local authority may consider excessive, and they will accordingly rule on this aspect.

It is relevant here to bring to attention the status of the modelling method used in this strategy which may well be suitable for a scoping scenario but not for an individual site.

If such modelling proposals as they affect this site are credible, it would indicate that Holme Lacy Road, where it abuts the site, would be inundated to a depth of over 2.5 metres. Clearly this scenario needs resolving satisfactorily, as it is confirmed this road has never flooded at this point.

Offsite Impacts

Resulting from this development it will be possible to achieve an attenuation of the surface water run-off from the site using an appropriate SUDS scheme. Subject to ground porosity testing a sealed or filtration block paving system will be the basis of any appropriate scheme, to be sited minimally over the parking and access areas and other "hard paving". Such detail will be subject of condition and detail by the local authority, particularly of the outfall arrangements.

Compensation

Whilst this proposed development lies within the modelled Flood Zone 3/2 there is no reference in the strategy document of the need to install compensation facilities particularly bearing in mind the position of the fronting road at a substantially lower level.

The need for compensation can therefore be considered de minimus. This element will be the subject of agreement by the local authority.

Residual Risk

In order to take account of the possible extent of modelled flood risk as described earlier, it would be proposed, in view of the circumstances as regards such risk, based on the historic modelled flood levels, that the industrial units be a subscriber to the EA Flood Watch initiative, and also to evacuation procedures (to be part of the buildings operating and general manual advice), generic details of which are supplied by this company and enclosed with the study.

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The development will also be the subject of the latest appropriate flood resilience measures as referred to above, with all details to be agreed with the local planning authority, for incorporation into the design details. In the event of a modelled flood scenario occurring, the occupants of the units will be given sufficient notice through the flood watch initiative to vacate the site, through the procedures described elsewhere in this assessment.

Safe ingress/egress

The question of a dry access has historically been achieved and established for the adjacent development, and for Straight Mile House, and subject to the agreement of the local authority will prove adequate with the measures outlined.

In view of the fact that the local authority have designated the land within which the site is located as a regeneration area, it is considered that the implementation of the **Sequential and Exception procedure** as outlined in PPS 25 does not apply, provided the relevant criteria as contained in the Flood Management Strategy (see above) are complied with.

Of particular relevance is the matter of **emergency procedure** which advises that new and existing businesses will be encouraged to sign up to the EA Floodlines Warning Direct, which notifies flood warnings by phone, text, or e-mail. This initiative is an aspect this company actively encourages where any proposal is sited within Flood Zones 3 and 2. Further, that such businesses should ensure they are familiar with the emergency entry and exit routes from their site in the event of flood.

Further advices include that the drainage and flood management strategy (referred to throughout this assessment) should be consolidated into a document for issue to all users of the proposed industrial buildings, the subject of this document, in the form of a short easily understood document. It will contain the latest flood maps emergency exit routes and key flood and drainage infrastructure, and provide links to where more detailed information can be found on protecting their property.

The Flood Evacuation Management Plan (Strategy) should also identify the flood level that will initiate the evacuation of people and vehicles, and any subsequent closure of buildings and car parks, and that this will occur when the access/egress is still dry to avoid an unacceptable risk to the occupants

Information signing should include the location of all emergency accesses.

It should also be noted that the application site is situated on land which has the highest elevation within the Strategy Area.

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Emergency Plans Responsibility

It is also stated in the PPS25 Practice Guide that these responsibilities lie with the local authority to make sure that everything is done to safeguard lives and property. Extracts below reinforce this. See extracts below

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- 7.31 X Where there are emergency planning issues such as evacuation plans, the LPA should work with the Environment Agency and emergency planning officers, and where necessary, emergency services and LRFs (see paragraph 2.57).

7.28 The LA's emergency planning officer should be able to provide advice to developers producing an evacuation plan. Local Resilience Forums (see paragraph H11, PPS25) should take account of flood risk, including the resilience of emergency infrastructure required to operate during floods.

7.29 There is no statutory requirement on the Environment Agency or the emergency services to approve emergency plans. The LPA is accountable via planning condition or agreement to ensure that plans are suitable. This should be done in consultation with local authority emergency planning staff.

7.30 The Pitt Review (2007) identified the importance of accurate information on the flood risk and vulnerability of essential infrastructure (e.g. water treatment works) to allow for effective emergency planning. Any new development proposals involving essential infrastructure will need to involve Local Resilience Forums (LRFs) to ensure they are kept up to date. The SFRA

I am of the opinion therefore that this proposed development within a mature developed neighbourhood, can be considered to be satisfactorily managed, and accord with the applicable criteria as laid down in PPS 25, provided the advices in this desk top study are complied with, particularly those contained within the Management Plan as appropriate.

CONCLUSION

The site is afforded protection to a level generally described in PPS 25, and it is unlikely that any meaningful inundation will occur to prejudice the development. In view of the circumstances as regards a slight flood risk as described in this study, it is proposed as outlined earlier to utilise appropriate flood resilience building simulation and implementing the Flood Watch provision supplied by the EA.

In view of all the factors considered in this appraisal I consider they are wholly reasonable and are in line with those contained in PPS 25 as relevant.

Flood Evacuation Procedures

Remember the 3 Bs

Be prepared

Be vigilant

Be careful.

It is recommended that all companies who could be threatened by flooding use best practise procedures to protect their staff and property from the effects of a possible flood.

Detailed below are the steps we recommend to set up a flood risk evacuation plan and also to educate staff in the proper procedures to follow.

Subscription to the Environment Agency's flood watch scheme is free and in many cases the EA can warn interested parties of possible flooding up to six hours in advance.

But it is essential for flood wardens to be given responsibility for taking a vigilant pro-active role in monitoring flood situations at all times by keeping in touch with the Environment Agency when there is a threat of possible flooding in the area. Information posters on flood evacuation should be displayed in prominent positions within staff quarters to make staff constantly aware of what to do should there be a flood alert.

Staff Responsibilities and Training

Flood Wardens and Duty Managers should be nominated and should be responsible for monitoring flood warnings in the area and notifying staff of any danger.

It is the **Duty Manager's** role to raise the alarm, and direct and oversee the work of flood wardens. He/she should ensure the Flood Plan is up to date and all staff are versed in its contents. It is also important that any flood alarm system or flood defence systems are tested regularly to ensure they work. The Duty Manager should ensure information about flood safety procedures to be followed by staff and visitors is posted and that flood wardens and all staff are aware of the procedures and flood safety.

The role of **Flood Wardens** is to help shut down the business, put flood defences in place, and safely evacuate staff during a flood situation. They must be comfortable and familiar with their role. Training for flood wardens and duty managers will be more detailed than training for general staff and should be repeated on a regular schedule. It will most likely involve talking through relevant information and flood procedures. This will include how to inform other staff about flood warnings, designated evacuation routes, a checklist of actions to protect the business and shut it down safely, measures to protect stock, equipment, vital records and other assets. If flood protection products are used, flood wardens must be trained on how to use them.

In a flood it is the responsibility of **every member of staff** to ensure they do not place themselves or any other person at risk.





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Environment Agency's Flood Warning Codes

	Flood Watch: Flooding is possible. Be aware! Be prepared! Watch Out!- To: _____ Ack'd _____ File _____
	Flood Warning: Flooding of homes, businesses and main roads is expected. Act now!
	Severe Flood Warning: Severe flooding is expected. Imminent danger to life and property. Act now!
	All Clear: All Clear is issued when flood watches or warnings are no longer in force. Flood water levels receding. Check all is safe to return. Seek advice.

Flood Preparation Plan (Flood Watch)

The Flood Preparation Plan is activated on receipt of the Flood Watch warning from the Environment Agency, or from other sources, e.g. TV, Radio, local contacts. Flooding is possible, and the situation could worsen, so:

- Watch water levels on nearby roads in case overtopping does occur.
- Ring Floodline on 0845 988 1188 to confirm time and height of predicted flood levels.
- Make sure you have what you need to put your flood evacuation plan into action.
- Consider when to implement Evacuation Plan.
- Be ready to move important equipment, such as computers, above flood level upon receipt of a flood warning.
- Keep a store of plastic bags (grocery bags are fine) to place around the legs of furniture when you receive a flood warning.
- Identify a suitable location for evacuation of vehicles to higher ground.
- Consider the height at which goods are fixed, stored or displayed - the higher the goods, the less chance of damage.
- Copy vital hard copy and electronic records and store them in a safe place. This includes financial and insurance records, product lists, formulas and specifications, staff, customer and supplier databases and staff files.
- Obtain or construct sandbags or other items to protect lower lying entrances to the site.

Evacuation Plan (Flood Warning)

The flood evacuation plan should be implemented when a Flood Warning is received. Flood Warning means flooding is now expected, so put your flood evacuation plan into action. The actions are as with Flood Watch plus:

- Move vehicles to other locations. Flooding may be expected in less than 2 hours so with a large number of vehicles on site this may have to be implemented sooner, or smaller vehicles (cars, vans) moved before larger vehicles (trucks etc).
- Move valuables and other items to safe locations such as upper floor, attic space or other locations. Put sandbags or flood boards in place.
- Turn off gas and electricity (Figure 3 shows locations).
- Initiate evacuation of the premises.
- Escape route should be dry but follow the recommended route (Figure 4).

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Evacuation Plan (Severe Flood Warning)

The flood evacuation plan should be implemented as a matter of urgency when a Severe Flood Warning is issued. Severe Flood Warning means severe flooding is now expected. The actions are as with Flood Warning plus:

- Be prepared to lose power supplies - gas, electricity, water, telephone
- Power cuts are common during a flood so carry a torch with you if at night (torches to be available).
- Co-operate with emergency services and local authorities
- Security procedures - Lock windows, doors and set the alarm.
- Try to keep calm, and to reassure others, and evacuate the site
- Live electricity and gas can be extremely dangerous. Turn off gas and electrical appliances immediately and always turn off building services before water enters the building.

The local council Emergency Planner and the county's Emergency Planning Department/Civil Protection Unit can help you determine the conditions under which a flood evacuation would be necessary, and offer advice.

Additional items to consider:

- Consider how flood wardens and Duty Managers would communicate with each other during an evacuation. Two-way radios can facilitate this process in case mobile telephone networks fail.
- You may wish to identify flood wardens with special shirts, caps or other equipment.

All Clear

An all clear will be issued when flood watches or warnings are no longer in force.

- Flood water levels receding.
- Check all is safe to return.
- Seek advice.

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PROPERTY FLOOD RESILIENCE MEASURES

It is recommended that the following measures should be considered, in consultation with the area building control department:

1. Use of dry-proofing and wet-proofing building materials where appropriate. Lime plaster or cement render rather than conventional gypsum plaster.
2. Water resistant coatings for external walls.
3. Standard moveable flood barriers should be available for doors, windows, air bricks and any other apertures in exterior walls. There should be a regime under health and safety precautions that after flooding all external protectors must be removed at the earliest opportunity. (a) for ventilation to dry out any moisture (b) to make sure that any heating vents are not blocked when the heating is switched back on.
4. In certain cases the question of low level windows should be considered.
5. Non-return valves should be considered for sewers to prevent back-flow.
6. Electrical wiring feeding low level points and switches should drop from the ceiling rather than be fed from floor level. Switches and points may need to be raised.
7. Cracks to doors and render should be repaired to reduce water seepage.
8. Use of concrete floors rather than timber
9. Location of boilers and electrical white goods above the possible flood level
10. No chipboard or MDF , instead using plastic and metal alternatives .

It is recommended that all property owners/developers seek further advice from the government sponsored web-site, www.odpm.gov.uk . This gives comprehensive details on all flood protection provisions which are recommended.

It is vital that before applying for planning permission all aspects of flood protection be discussed with the relevant authorities. This will save time and further expense should these details not be covered within the planning application.

EA Response to Client

Mr. David Andrade

Our ref: SV/2010/104813/01-L01

Straight Mile House

Your ref: na

Rotherwas

Date: 09 November 2010

Hereford

HR2 6JP

HEREFORDSHIRE COUNCIL
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- 8 DEC 2010

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Dear Mr. Andrade

**PREDEVELOPMENT ENQUIRY IN RELATION TO A PROPOSED
INDUSTRIAL DEVELOPMENT AT STRAIGHT MILE HOUSE, HOME LACY
ROAD, ROTHERWAS, HEREFORD, HR2 6JP**

I refer to your email of the 4 November in relation to the proposed development on the above site. I have the following comments to offer at this time. I will provide more detailed comments upon receipt of specific location plans and layout.

Flood Risk: This site would appear to be located in Flood Zone 2, which is the medium risk zone and is defined for mapping purposes by the Agency's Flood Zone Maps. This is land where the indicative annual probability of flooding is between 1 in 100 and 1 in 1000 years from river sources (i.e. between 1% and 0.1% chance in any given year).

Dependant on the specific location there may be a portion of the site located in Flood Zone 3, the high risk zone. This cannot be confirmed without detailed site plans.

The site was previously shown as being wholly located in Flood Zone 3, the high risk Flood Zone. However, the most recent flood modeling, as shown in the recently produced Rotherwas Flood Management Strategy.

Sequential Test: PPS25, paragraph 14 states that 'a sequential risk-based approach to determining the suitability of land for development in flood risk areas is central to the policy statement and should be applied at all levels of the planning process.' The aim of the Sequential Test is to steer new development to areas at the lowest probability of flooding (Zone 1); (paragraph 17).

Only where there are no reasonably available sites in Flood Zones 1 or 2 should decision-makers consider the suitability of sites in Flood Zone 3, taking into account the flood risk vulnerability of land uses and applying the Exception Test if required (see Annex D5 of PPS25).

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Providing the LPA are satisfied on the Sequential Test we would make the following comments on the FRA. We note that the proposed development lies within designated employment land and would envisage that the LPA would consider the Sequential Test to be satisfied in this instance.

Flood Risk Assessment (FRA): You will be required to submit, with any formal planning application for this site, a FRA which fully addresses the risk of flooding to the site. The FRA should be in accordance with Annex E of PPS25 and must be appropriate to the scale and nature of the proposed development.

The basis for your FRA will be the 'Rotherwas Drainage and Flood Management Strategy' which was recently produced to look at flood risk across the whole Rotherwas employment site. This document, which should be available from the Council's planning office, will help to inform your own, site specific, FRA.

In this instance we would require the following information:

1. A ground level survey to Ordnance Datum showing the modelled 1 in 100 year (1% annual probability) river flood level, relative to proposed site levels. A Location plan indicating the development footprint will also be required
2. A cross-section of the site showing finished floor levels and road levels, or other relevant levels relative to the source of flooding, and anticipated water levels and associated probabilities. Ideally finished floor levels should be set at least 600mm plus climate change (30% increase, in line with PPS25) above the 1% flood level.
3. Dry pedestrian access on land no lower than the 1% flood level plus climate change (30%, in line with PPS25). Looking at the Flood Zone 3 map in the Drainage and Flood Management Strategy it would appear that this can be achieved. This will need to be confirmed in your FRA.
4. Provision for suitable means of surface water disposal including SuDS.
5. An assessment of the risks posed to the site including that based on modelled and historic flood data and risks associated with any increase in surface water run off from the site.

Flood Management & Evacuation: We do not normally comment on or approve the adequacy of flood emergency response and flood evacuation procedures accompanying development proposals, as we do not carry out these roles during a flood. Our involvement with this development during an emergency will be limited to delivering flood warnings to occupants/users if they sign up to the Flood Warnings Service.

PPS25 and the associated Practice Guide (*paragraphs 7.23 to 7.31*) place responsibilities on LPAs to consult their Emergency Planners with regard to specific emergency planning issues relating to new development. In all circumstances where warning and evacuation are significant measures in contributing to managing flood risk, we will expect LPAs to formally consider the emergency planning and rescue implications of new development in making their decisions.

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The Flood Evacuation Management Plan should identify a flood level that will initiate evacuation of people and vehicles, and any subsequent closure of the building/car park. This trigger level should be when the access/egress is still 'dry' i.e. flood-free, to avoid any question of what is an acceptable level of flood risk to occupants.

Flood Proofing: The Environment Agency recommends that in areas at risk of flooding, consideration be given to the incorporation into the design and construction of the development of flood proofing measures. These include removable barriers on building apertures such as doors and air bricks and providing electrical services into the building at a high level so that plugs are located above possible flood levels. Additional guidance, including information on kite marked flood protection products, can be found on the Environment Agency web site www.environment-agency.gov.uk under the 'Managing Flood Risk' heading in the 'Flood' section.

Pollution Prevention: Developers should incorporate pollution prevention measures to protect ground and surface water. We have produced a range of guidance notes giving advice on statutory responsibilities and good environmental practice which include Pollution Prevention Guidance Notes (PPG's) targeted at specific activities. Pollution prevention guidance can be viewed at: <http://www.environment-agency.gov.uk/business/444251/444731/ppg/>

I trust the above is of assistance to you at this time. Feel free to contact me to discuss further if necessary.

Yours sincerely

HEREFORDSHIRE COUNCIL PLANNING SERVICES DEVELOPMENT CONTROL
8 DEC 2010
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Mr. Graeme Irwin

Senior Planning Officer

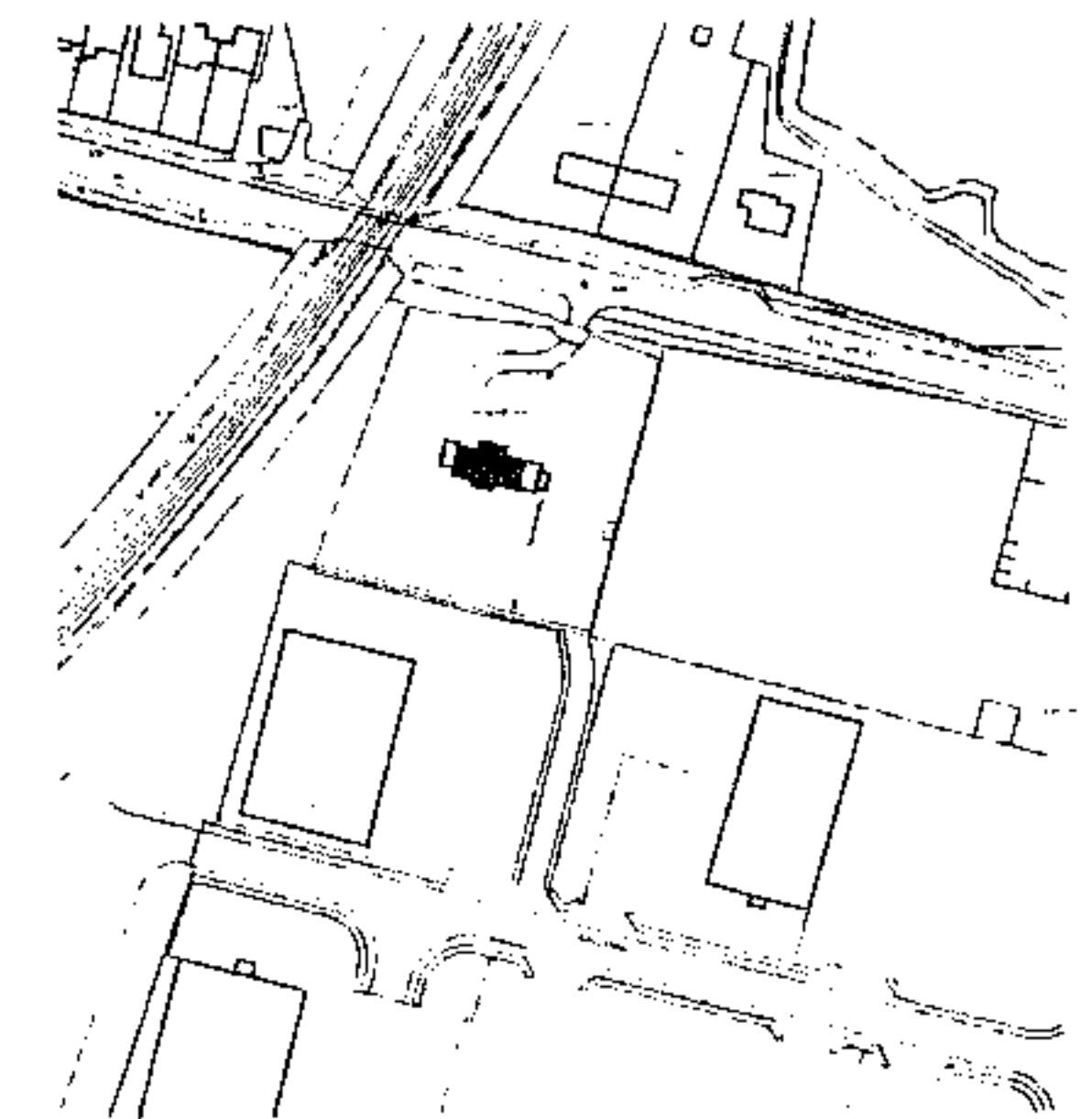
Direct dial: 01743 283579

Direct e-mail: graeme.irwin@environment-agency.gov.uk

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1:200 SITE PLAN, BLOCK PLAN & ROOF PLAN



1:1250 LOCATION PLAN

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Straight Mile House, Hereford
for
Woodstock Trading Ltd

The Warehouse, Gwynne Street, Hereford, HR4 9DP
Tel: (01432) 360 938 Fax: (01432) 267 389
Email: info@architas.co.uk Web: www.architas.co.uk

Revisions

Existing Site Plans
Location, Block &
Roof Plans

Date: Oct 10 Status: Planning

Scale: 1:200 & 1:1250

Dwg No: Wdst.2.300 rev