

TOWN AND COUNTRY PLANNING ACT 1990

PROPOSED INDUSTRIAL DEVELOPMENT
AT
TOP MOOR, WATERBEACH
CAMBS.

FLOOD RISK ASSESSMENT

November 2006

1 Reference: 1124/FRA

FLOOD RISK ASSESSMENT
OF
FLOODING RISKS
AT
TOP MOOR, WATERBEACH, CAMBS.

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1.0 INTRODUCTION

- 1.1 This flood risk assessment has been prepared in accordance with the recommendations contained in **Planning Policy Guidance Note 25 “Development and Flood Risk”** (PPG25) in accordance with The Environment Agency’s Policy requiring Flood Risk Assessments to accompany planning submissions.

2.0 EXISTING SITE DETAILS AND PROPOSED DEVELOPMENT

- 2.1 The site has lies adjacent to the A10 trunk road. The site is presently partly occupied and is used as a waste recycling facility and aggregate retail business. The site centroid is at TL 48766 68906. Refer to **Appendix A** for location.
- 2.2 The proposed development is for an additional waste recycling building, office facilities, parking and circulation areas. The total new impervious area is proposed at nominally 33376m². Surface water will drain via formal piped drainage systems with appropriate pollution controls to a flow control pump station with residual capacities held within a balancing meadow.
- 2.3 The site lies wholly within the Waterbeach Level Internal Drainage Board area and the Board’s Byelaws will apply.

3.0 FLOOD LEVELS AND FLOOD RISKS

- 3.1 The proposal site is shown by the Environment Agency to be within an area of indicative tidal flood risk subject to the failure of existing public flood defences. Refer to **Appendix B** for Environment Agency Indicative Flood Map.
- 3.2 The site has normal ground levels ranging between 2.49m and 3.65m Ordnance Datum Newlyn (ODN). Refer to **Appendix F** for the site survey.

- 3.3 The Environment Agency advises that the Great Ouse Design Simulation Model (GODSM) predicts a maximum flood level for the Old West River at Hermitage Marina, Twenty Pence Road, Wilburton at 3.275m ODN.
- 3.4 Using the Environment Agency's 'Extreme Tide Levels For Use in Section 105 Surveys' model, a maximum flood cell level of 2.57m ODN is given. The 2.57m ODN contour is shown red on the attached contour map. The contour presents a close approximation to the Environment Agency's indicative flood mapping for the area. The contours are sourced from Ordnance Survey NEXTmap Data. Refer to **Appendix C** for flood cell calculation output sheets and **Appendix F** for contour plan with site plan overlaid.
- 3.5 The Environment Agency currently advises that, to allow for potential climate changes, an allowance of plus 0.30m should be added to all predicted flood levels. The resultant level of concern becomes 2.87m ODN.
- 3.6 To provide similarity with existing buildings, highways and circulation areas, the new building will have minimum ground floor levels not less than 2.90m ODN.

4.0 SURFACE WATER DRAINAGE OF THE SITE.

- 5.1 It is intended to discharge surface waters via formal piped drainage system to the adjacent Waterbeach Level Internal Drainage Board drain.
- 5.2 The Board have suggested that discharges to the Board's drain should be limited to approximately 1.1 lts/s/ha.
- 5.3 The Environment Agency currently advise that the methodology for establishing greenfield runoff rates and associated balancing volumes should be that contained within the Defra/Environment Agency R&D Technical Report W5-074/A/TR/1 Revision C titled 'Preliminary rainfall runoff management for developments', referred to in this document as 'W5-074'

5.4 Using the methodology defined by W5-074, the following greenfield runoff rates and associated balancing storage volumes have been calculated: -

Return Period	Lts/s/Ha	Adjusted Storage Volumes
1:1	1.24	470.90m ³
1:30	3.41	1439.30m ³
1:100	5.12	2030.00m ³

Refer to **Appendix D** for calculation output sheets.

5.5 The W5-074 design discharge rate exceeds that required by the Internal Drainage Board. A comparison using FEH rainfalls to accumulate with a 1.1 ltr/s/Ha constant discharge rate, results in a storage requirement of 2823m³. Although both design capacities result in a nominal 8 day drain-down period, the W5-075 discharge rates allow for a more rapid recovery from the more extreme rainfall events and the balancing volume is unlikely to be exceeded by subsequent rainfall events during the drain-down period. If the Board remain with their requirement for a maximum discharge rate of 1.1 lts/s/Ha, which is a rule of thumb, rather than accept the latest design methodology, it is recommended that the associated balancing volume is increased to 3500m³ to accommodate secondary rainfall events. Refer to **Appendix D** calculation output sheets.

6.0 CONCLUSIONS

6.1 Guidance for the requirements in undertaking a Flood Risk Assessment is contained in Planning Policy Guidance Note 25, Appendix F. Paragraph F.3 indicates the general requirements that should be considered for all Flood Risk Assessments irrespective of the size of the site and each requirement is commented upon as follows: -

F3.1 A location plan is included with this assessment together with plans that show the site in more detail with site levels to Ordnance Datum.

- F3.2 The attached plans show existing ground levels that will be generally maintained.
- F3.3 Internal Drainage Board Area
- F3.4 The source of potential maximum flooding is tidal, which is commented upon.
- F3.5 The Environment Agency's indicative flood plain map is attached to this assessment.
- F3.6 Not Applicable.
- F3.7 An assessment of flooding probabilities and trends is included.
- F3.8 Site levels are provided.
- F3.9 The new buildings, circulation and access roads are to be constructed to be above predicted flood risk.
- F3.10 Not applicable.
- F3.11 Not Applicable.
- F3.12 Not Applicable
- F3.13 Not Applicable.
- F3.14 An allowance of plus 0.330m above the predicted maximum flood level has been included allow for potential climate changes.
- F3.15 Not Applicable.

- 6.2 Surface water discharge rates will be constricted to either the requirements of the Internal Drainage Board or to the design standards of W5-075. The discharges from the development will be by pumping at the appropriate rate in conjunction with the necessary balancing storage volumes. The balancing meadow will have an emergency gravity overflow to allow surface waters to discharge in the event of the design parameters being exceeded.
- 6.3 Sufficient land area is available to construct flow attenuation and balancing storage structures.
- 6.4 It is unlikely that tidal or fluvial flooding levels, to the 0.5% return period criteria given by PPG25, will be able to effect the operation of the proposals or present associated dangers to persons within the operating areas.
- 6.5 This assessment demonstrates that the development proposal will not be within the flood risk concerns given by PPG25 and Draft PPS25

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