FLOODING & DRAINAGE ASSESSMENT

CHURCH FARM HOLIDAY VILLAGE
CHURCH LANE
PAGHAM

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1.0 INTRODUCTION

1.01 Following instructions from A&M Architectural Partnership LLP on behalf of Bourne Leisure Ltd on 21 July 2010, CoDA Structures have undertaken an initial assessment of flooding and drainage issues in relation to a proposed extension to Church Farm Holiday Village, Pagham.

1.02 The site is a holiday village comprising of static caravans, mobile homes, a caravan owners building, various sports facilities, a shop, an entertainments building and a swimming pool.

1.03 It is proposed to extend the caravan owners building with a new lounge and associated toilet and catering facilities.

1.04 The Ordnance Survey coordinates for the centre of the site are 488410 mE and 97390 mN.

1.05 The total site area is approximately 7.6 hectares in area.

1.06 The local authority is Chichester District Council.

1.07 A site location plan (Fig 1) is attached in Appendix A.

1.08 A site topographical survey (Fig. 2) is attached in Appendix B.

1.09 A site aerial photograph is attached in Appendix C.

2.0 FLOODING ISSUES

2.01 The Site

The site is located to the southwest of Pagham as shown on the site location plan (Fig 1) attached in Appendix A.

The English Channel is approximately 100m to the southeast of the site, White Creek estuary lie adjacent southern most point of the site and Pagham Lagoon borders the eastern boundary in the southern sector of the site.

The main area site generally slopes down in elevation towards the southeast site. Levels range between 1.77m AOD to 4.4m AOD.

Site levels in the area of the proposed extension to the caravan owners building are typically 2.60m AOD and the existing building finished floor level is 2.80m AOD.

Ordnance Survey maps indicate that there may be a watercourse / drainage ditches on the site but these do not appear to be on the site topographical survey. The

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watercourse / drainage ditch is indicated on the site location plan (Fig. 1) attached in Appendix A.

The site topographical survey local to the proposed extension (Fig. 2) is attached in Appendix B.

2.02 Flood Zone Classification

The site appears to be located within Flood Zone 3a on the indicative Environmental Agency (EA) flood plain map. This zone comprises land assessed as having a 1:200 (0.5%) or greater annual probability of tidal flooding in any year. However, flood defences are indicated to be present to the west and south of the site.

A copy of the flood zone map (Fig. 3) from the EA website is attached in Appendix D.

The EA have been approached to provide tidal and fluvial flood levels adjacent the site and to provide details/ levels of the flood defences that are in place. A response is currently awaited.

The Pagham East Head Coastal Defence Strategy report appears to recommend a 'hold the line' solution for the next 100 years for this length of coastline.

Copies of correspondence with the EA are attached in Appendix E (awaited).

Due to the size of the site and as the site potentially falls within the indicative tidal flood zone of the English Channel, a flood risk assessment for the proposed extension on the site is therefore required.

2.03 Sources of Flood Risk

The following table shows a summary of the forms of flood and the potential issues in relation to the site that require further assessment.

Flood Source	Applicable	Comment
Fluvial	✓	Whites Creek estuary and Pagham Lagoon lies adjacent to the site.
Tidal	✓	The English Channel lies approximately 100m to the southeast of the site.
Run Off	✓	Potential for run off from surrounding areas.
Groundwater	✓	Relatively high groundwater levels are a possibility in this location.
Sewers	✓	Public sewers are likely to be present in Church Lane.
Reservoirs, Canals, etc.	X	There are no reservoirs or canals in close proximity of the site.

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The proposed development is at risk of fluvial and / or tidal flooding based on the EA indicative flood map.

Due to the sites location near to a watercourse and the sea groundwater should be taken into consideration as a source of flood risk particularly in periods of high water / high ties when the groundwater table can rise.

2.04 Sequential Test and Exception Test

The risk-based Sequential Test should be applied at all stages of planning. Its aim is to steer new development to areas at the lowest probability of flooding.

As the proposal is an extension to already developed land it is considered that the Sequential test need not be undertaken.

Table D2 of PPS25 (which categorises land use) indicates the proposed extension is categorised as a 'less vulnerable' land use.

From the flood zone maps and flood levels provided by the EA the site is identified as being Flood Zone 3a.

Table D3 of PPS25 indicates the land use is 'less vulnerable' development is considered appropriate in Flood Zone 3a. Therefore the Exception Test is not required.

2.05 Flood Risk Assessment

The site appears to be located within Flood Zone 3a on the indicative EA flood plain map. This zone comprises land assessed as having a 1:200 (0.5%) or greater annual probability of tidal flooding in any year. However, flood defences are indicated to be present to the west and south of the site.

The EA have been approached to provide tidal and fluvial flood levels adjacent the site and to provide details/ levels of the flood defences that are in place. A response is currently awaited.

The Pagham to East Head Coastal Defence Strategy appears to recommend a 'hold the line' solution for the next 100 years for this length of coastline.

The proposed extension does increase the impermeable area on the site and therefore surface water run off. However, as the increase is small the increase to flood risk to the wider catchment in this location is considered negligible.

The effect of groundwater as a flood source is not known to be an issue at this location. As groundwater at this location is likely to be in direct hydraulic continuity with the river and / or sea so groundwater levels are only likely to rise in time of fluvial and / or tidal flooding.

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From the inspection of the topographical survey and OS maps, the development does not appear to be at risk from the inundation of flood waters from overloaded sewers adjacent the site. It would appear that flood waters would run past the site along Church Lane to the west.

2.06 Effect of Development on the Wider Catchment

The increase in impermeable area on the site is so small it is considered the effect on the wider catchment in this location is considered negligible.

2.07 Flood Risk Mitigation

Whilst the proposed extension is in a Flood Zone 3a area it is on already developed land and the proposed extension is a 'less vulnerable' land use.

Subject to receipt of information from the EA, the site may well be protected from flood from existing flood defences.

The site is an area where a 'hold the line' flood defence strategy is recommended.

The proposed extension finished floor level should be set at a minimum of 150mm above existing ground level and at least at the same floor level of the existing building.

Due to topographical levels, the site does not appear to be at risk from the inundation of flood water from the overloaded sewer adjacent to the site.

3.0 DRAINAGE

3.01 Public Sewers

An extract of the public sewer records local to the site has been requested from Southern Water. A response is currently awaited.

A copy of the public sewer records obtained in attached Appendix F (awaited).

3.02 Foul Sewer

Foul drainage on the holiday park is routed to a pumping station approximately in the centre of the site. It is assumed that foul water is discharged to a public foul or combined sewer in Church Lane adjacent to the site.

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3.03 Surface Water

Site surface, where positively drained, is believed to be discharged into Pagham Lagoon. However, site services records indicate that hardstanding areas are not positively drained to the sewer and surface water simply discharges onto grassed areas.

3.04 Recommendations

Foul water from the proposed extension can be discharged to the existing foul system on the site. The foul flows generated from the extension are not considered to have any capacity issues on the existing system.

It appears that surface water from the proposed park extension can be discharged to ground using porous paving or informal or formal soakaways.

Signed: [redacted]
J Lawrence B Eng C Eng M I Struct E

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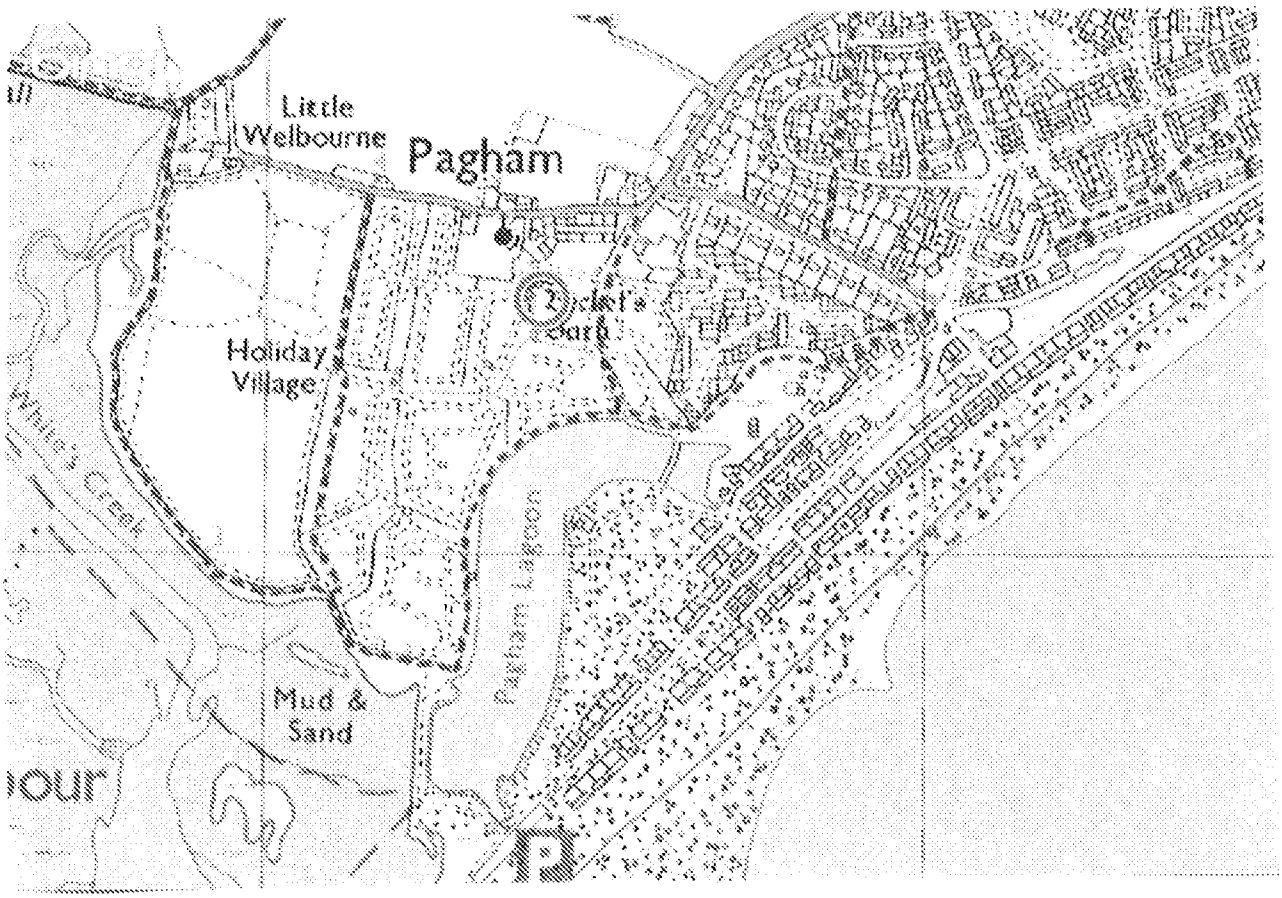
APPENDIX A

SITE LOCATION PLAN (FIG. 1)

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CoDa Structures
Consulting Civil & Structural Engineers
No 2 Harewood Yard
Harewood
Leeds LS17 9LF
[redacted]

Project	Church Lane Holiday Park Pagham			
Title	Site Location Plan			
Drawn JL	Date 07.10	Drg. No. 6806/Fig1	Rev. -
Scale NTS	Checked JL		



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APPENDIX B

SITE TOPOGRAPHICAL SURVEY (FIG. 2)

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APPENDIX C

SITE AERIAL PHOTOGRAPH

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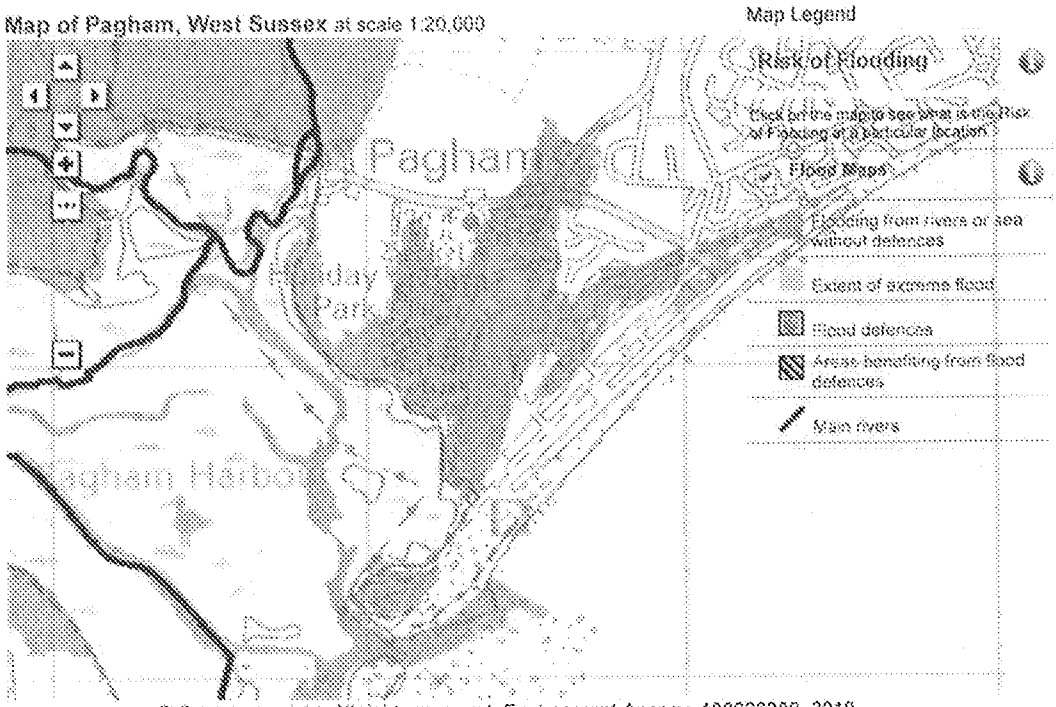
APPENDIX D

INDICATIVE FLOOD PLAIN MAP (FIG. 3)

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CoDa Structures
Consulting Civil & Structural Engineers
No 2 Harewood Yard
Harewood
Leeds LS17 9LF
[redacted]

Project	Church lane Holiday park Pagham			
Title	Environment Agency Indicative Floodplain Map			
Drawn JL		Date 07.10	Drg. No. 6806/Fig3	Rev. -
Scale 1:20000		Checked JL		



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APPENDIX E

CORRESPONDENCE WITH THE ENVIRONMENT AGENCY
(Awaited)

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APPENDIX F

EXTRACT FROM THE PUBLIC SEWER RECORD
(Awaited)

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