

**SUTTONS SITE, CROPPER ROAD, BLACKPOOL, FY4 5LB**

**FLOOD RISK ASSESSMENT  
FINAL REPORT V1.2**

**August 2021**

Report Title                    **Suttons Site, Cropper Road, Blackpool, FY4 5LB**  
Flood Risk Assessment  
Final Report v1.2

Client                            Breck Homes Ltd  
Eden Land and Development Limited

Date of issue                    26 August 2021

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## 1 INTRODUCTION

### 1.1 Purpose of Report

Weetwood Services Ltd ('Weetwood') has been instructed by Breck Homes Ltd and Eden Land and Development Ltd to prepare a Flood Risk Assessment (FRA) report to accompany a detailed planning application for the proposed redevelopment of Suttons Site, Cropper Road, Blackpool ("the site").

The assessment has been undertaken in accordance with the requirements of the revised National Planning Policy Framework (NPPF) updated on 27 July 2021 and the National Planning Practice Guidance (NPPG) updated on 24 June 2021.

An assessment of surface water drainage and a preliminary surface and foul water drainage scheme is presented in the accompanying Drainage Assessment report.

### 1.2 Structure of the Report

The report is structured as follows:

- **Section 1** Introduction and report structure
- **Section 2** Provides background information relating to the site, the development proposals, ground conditions, existing site access arrangements and the flood zone designation
- **Section 3** Presents national and local flood risk and drainage planning policy
- **Section 4** Assesses the potential sources of flooding to the site
- **Section 5** Presents flood risk mitigation measures based on the findings of the assessment
- **Section 6** Presents a summary of key findings and the recommendations

### 1.3 Relevant Documents

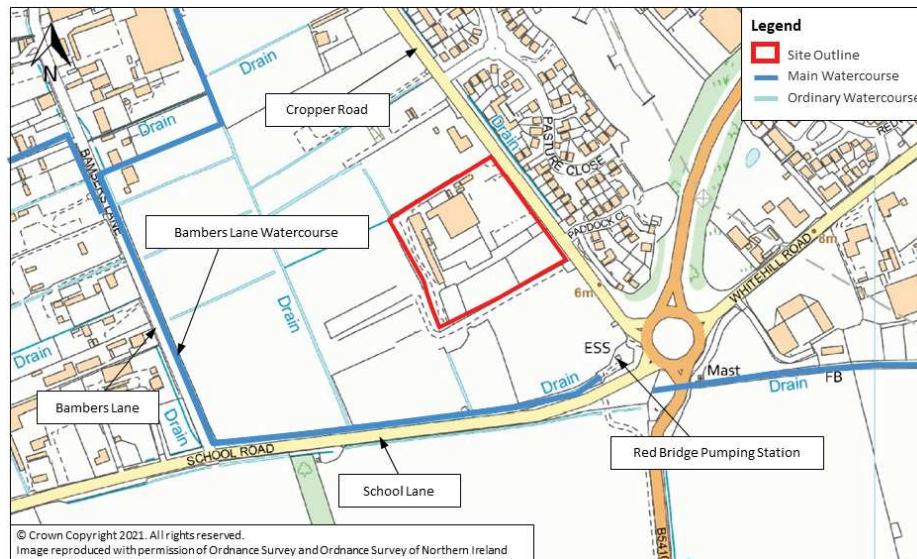
The assessment has been informed by the following documents:

- Strategic Flood Risk Assessment - Fylde Borough Council, November 2011
- Red Bridge Pumping Station Hydraulic Modelling Study, Weetwood, July 2020

## 2 SITE DETAILS AND PROPOSED DEVELOPMENT

### 2.1 Site Location

The approximately 1.9 hectare (ha) site is located west of Cropper Road, Blackpool at Ordnance Survey National Grid Reference SD 344 327, as shown in **Figure 1**.



**Figure 1: Site Location**

### 2.2 Existing and Proposed Development

The site is occupied by a garden centre and associated businesses.

The site is allocated for residential development in the 2018 Fylde Council Local Plan (site HSS5 Cropper Road West, Whitehills). The proposals are for the construction of a local centre and 65 residential dwellings with associated access and public open space (**Appendix A**).

The NPPG classifies residential development as More Vulnerable to flood risk.

### 2.3 Waterbodies in the Vicinity of the Site

Waterbodies within the vicinity of the site are presented in Error! Reference source not found.1.

Bammers Lane Watercourse flows in a southerly and then easterly direction to the west and south of the site. The watercourse is pumped at the Red Bridge pumping station approximately 120 south-east of the site. There is a complex network of drainage channels in the vicinity of the site which drain into Bamber Lane Watercourse.

Bammers Lane Watercourse is a designated main river. All other watercourses in the vicinity of the site are ordinary watercourses. The Environment Agency carries out maintenance, improvement and construction work on main rivers to manage flood risk. Lead local flood authorities, district councils and internal drainage boards carry out flood risk management work on ordinary watercourses.

## 2.4 Ground Conditions

According to the Soilscape soils dataset produced by the Cranfield Soil and AgriFood Institute<sup>1</sup>, soil conditions at the site and within the surrounding area are Fen peat soils.

British Geological Survey mapping of surface geology<sup>2</sup> indicates that the site is underlain by peat and mudstone bedrock (Kirkham Mudstone Member).

According to the MAGIC website<sup>3</sup> the mudstone bedrock is designated a Secondary B aquifer whilst the superficial peat deposits are designated as unproductive. The site is not shown to be located within a designated groundwater source protection zone.

## 2.5 Site Levels

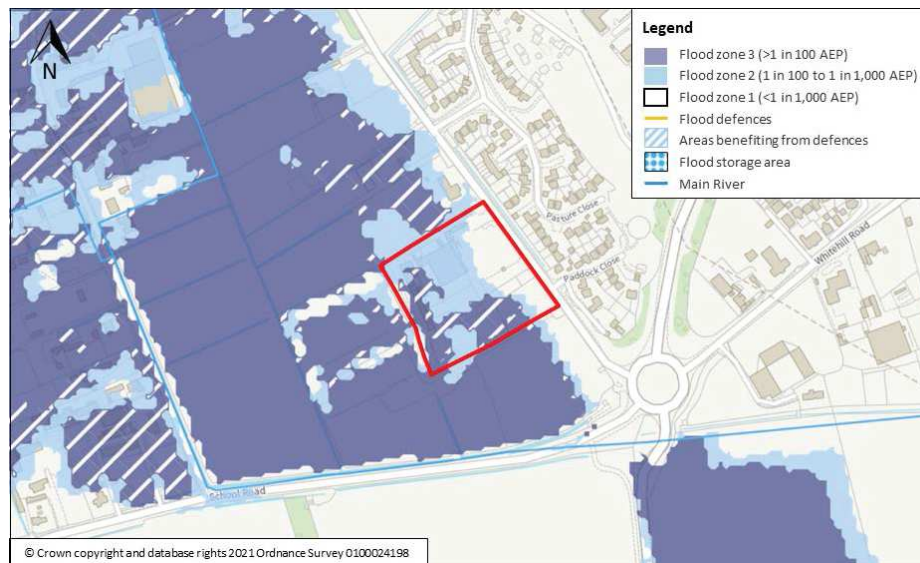
A topographic survey of the site has been undertaken by SurveyEng Ltd and is provided in **Appendix B**. Site levels are shown to gradually fall from east to west from approximately 4.5 m AOD adjacent to Cropper Road to 3.4 - 3.8 m AOD along the western boundary.

## 2.6 Access and Egress

Access and egress to the site is provided via Cropper Road to the north-east of the site. According to the topography survey in **Appendix B**, levels along Cropper Road adjacent to the site vary from 4.5 to 5.2 to m AOD.

## 2.7 Flood Zone Designation

The Environment Agency Flood Map for Planning (Rivers and Sea)<sup>4</sup> (**Figure 2**) indicates the site to be principally located in flood zone 3 and flood zone 2, with a small area along the sites eastern boundary located flood zone 1.



**Figure 2: Flood Map for Planning**  
Source: gov.uk website; Accessed: July 2021

<sup>1</sup> [www.landis.org.uk/soilscape/](http://www.landis.org.uk/soilscape/)  
<sup>2</sup> <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>  
<sup>3</sup> <https://magic.defra.gov.uk/MagicMap.aspx>  
<sup>4</sup> <https://flood-map-for-planning.service.gov.uk/>

Flood zones refer to the probability of river and sea flooding. Table 1 of the NPPG defines flood zones as follows<sup>5</sup>:

- Flood zone 1: Low Probability. Land having a less than 1 in 1,000 annual probability of river or sea flooding
- Flood zone 2: Medium Probability. Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding
- Flood zone 3a: High Probability. Land having a 1 in 100 or greater annual probability of river flooding or a 1 in 200 or greater annual probability of sea flooding
- Flood zone 3b: Functional Floodplain. Land where water has to flow or be stored in times of flood.

The flood zones shown on the flood map in the vicinity of the site are defined by the predicted extent of flooding during the present day 1 in 100 (non-tidal rivers), 1 in 200 (tidal rivers and sea) and 1 in 1,000 (rivers and sea) annual exceedance probability (AEP) events. The zones do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding.

Where an area benefits from formal flood defences providing a minimum standard of protection, the defended area may be indicated as an area benefiting from flood defences. However, not all areas are shown as such, and unless specifically indicated, the Flood Map for Planning conservatively shows land at risk of flooding in the absence of flood defences.

A small area in the south-western part of the site is shown to benefit from the presence of flood defences, although no flood defences are understood to be present.

Flood zone 3b (functional floodplain) is not separately distinguished on the Flood Map for Planning but is usually identified by local planning authorities in their SFRA's. The boundary of flood zone 3b is normally defined as land that would flood during the present day 1 in 20 AEP event, although definitions may vary particularly in some districts and in urban areas.

The flood extents presented on the Flood Map for Planning are based on a hydraulic modelling study undertaken by Mott Macdonald in 2018.

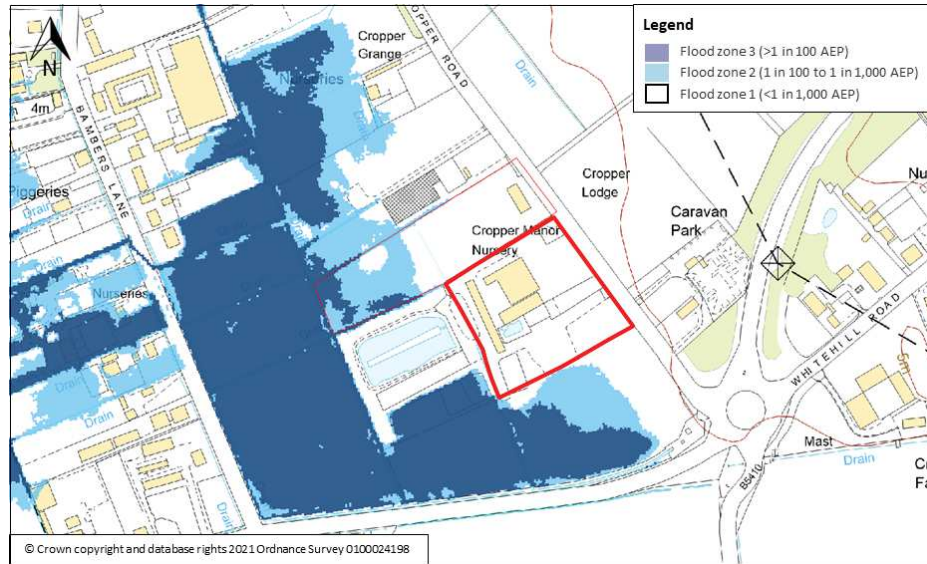
To improve the mapping of fluvial flood risk from the local watercourse/drain network in the vicinity of the site, Weetwood has undertaken detailed site specific hydraulic modelling based on an update to the 2018 model<sup>6</sup>. The modelling was submitted to the Environment Agency for review and was duly approved in October 2020.

The outputs of the Red Bridge Pumping Station Modelling Study are discussed in **Section 4.3** of this report. However, the revised Flood Map presented in **Figure 3** demonstrates that based on the best available information, the site is entirely located within flood zone 1.

<sup>5</sup> <https://www.gov.uk/guidance/flood-risk-and-coastal-change#flood-zone-and-flood-risk-tables>

<sup>6</sup> Red Bridge Pumping Station Hydraulic Modelling Study, Weetwood, 2020.





**Figure 3: Revised Flood Zones**

Source: Red Bridge Pumping Station Hydraulic Modelling Study (2020)

### 3 PLANNING POLICY AND GUIDANCE

#### 3.1 National Planning Policy and Guidance

The NPPF sets out government's planning policies for England and how these are expected to be applied. The NPPF seeks to ensure that flood risk is taken into account at all stages in the planning process and is appropriately addressed.

Footnote 55 of the NPPF states that a site-specific flood risk assessment should be provided for all development in flood zones 2 and 3 [whilst] in flood zone 1, an assessment should accompany all proposals involving: sites of 1 ha or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.

NPPF paragraph 159 states that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk but accepts that where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere. The policy of seeking to direct development away from areas at highest risk of flooding is implemented through the application of the sequential test (NPPF paragraph 161).

Paragraph 162 of the NPPF states that if it is not possible for a development to be located in zones with a lower risk of flooding, taking into account wider sustainable development objectives, the exception test may have to be applied. The need for the exception test will depend on the flood zone of the site and the vulnerability of the development proposed (as set out in Annex 3 of NPPF and NPPG Tables 2 and 3).

NPPF paragraph 164 states that application of the exception test for development proposals at the application stage should be informed by a site-specific flood risk assessment. For the test to be passed it should be demonstrated that: the development would provide wider sustainability benefits to the community that outweigh the flood risk; and 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.

NPPF Paragraph 165 states that both elements of the exception test should be satisfied for development to be permitted.

NPPF paragraph 167 states that development should only be allowed in areas at risk of flooding if it incorporates sustainable drainage systems (SuDS) unless there is clear evidence that this would be inappropriate. NPPF paragraph 169 states that applications for major developments should incorporate sustainable drainage systems to appropriate operational standards and with maintenance arrangements in place unless there is clear evidence that this would be inappropriate.

Non-statutory technical standards for sustainable drainage published by DEFRA in March 2015 set out how surface water runoff generated during the present day 1 in 30 and 1 in 100 AEP rainfall events and for events exceeding the present day 1 in 100 AEP event should be managed, how peak runoff rates should be restricted and how runoff volumes should be controlled.

#### 3.2 Local Planning Policy and Guidance

Policy CL1: Flood Alleviation, Water Quality and Water Efficiency of the Fylde Council Local Plan states:

*“All new development is required to minimise flood risk impacts on the environment, retain water quality and water efficiency, and mitigate against the likely effects of climate change on present and future generations. This will be achieved by:*

- a) *Ensuring that development incorporates the most sustainable form of managing surface water, subject to the requirement for approval from the drainage authority. This will be expected to be investigated and confirmed as part of any planning application submission. It will be necessary to attenuate any discharge of surface water through the incorporation of sustainable drainage systems (SuDS), following the SuDS hierarchy. This would be greenfield run-off rate on greenfield sites. On previously developed land, surface water betterment will be expected. The preference will be for no surface water to discharge to the public sewer, directly or indirectly, if more sustainable alternatives are available. The priority options for the management of surface water are set out in detail in the Infrastructure Delivery Plan.*
- b) *Supporting the retrofitting of SuDS in locations that generate surface water run-off.*
- c) *Improving water efficiency standards by minimising the use of potable mains water in new development and incorporating measures to recycle and conserve water resources.*
- d) *Ensuring that new development is directed away from areas at high risk of flooding and incorporating appropriate mitigation against flooding in areas of lower risk.*
- e) *Ensuring that watercourses, which require watercourse consent are protected from encroachment and adverse impacts and that water quality is maintained and improved.*
- f) *Seeking to maximise the potential of the Green Infrastructure network within developments to reduce the risk of flooding.*
- g) *Ensuring that new development does not adversely affect the quality of surface and groundwater resources in Source Protection Zones and where possible contributes towards improving it.*
- h) *Ensuring there is no risk of pollution to controlled waters from land contamination on previously developed sites.*
- i) *Ensuring that the layout of new sea defences and coastal protection measures are of an appropriately robust design and are fit for purpose.*
- j) *Ensuring that wherever necessary land is identified to be used for wetland or flood storage through negotiation with landowners.*

*Developer contributions will be required for the provision and maintenance of SuDS, where this is not provided as part of the development. Contributions will be made through Section 106 agreements or the Community Infrastructure Levy (CIL), as set out in policy INF2.*

*Developer contributions will be required for the repair or replacement of the sea defences and coastal protection measures and the maintenance of the sand dunes system. Developer contributions will be made through the CIL. Where appropriate, the Council will permit developers to provide the necessary infrastructure themselves as part of their development proposals, rather than making financial contributions.”*

### **3.3 Environmental Permitting and Land Drainage Consent**

Under the Environmental Permitting (England and Wales) Regulations 2016 an Environmental Permit for Flood Risk Activities<sup>7</sup> is required from the Environment Agency for any permanent or temporary works, including works:

- In, over or under a designated main river
- Within 8 m of the top of bank of a designated main river or of the landward toe of a flood defence (16 m if it is a tidal main river or a sea defence).

In addition, any permanent or temporary works within the floodplain of a designated main river may also require an Environmental Permit for Flood Risk Activities. A permit is separate to and in addition to any planning permission granted.

Land drainage consent may be required from the lead local flood authority or drainage board for work to an ordinary watercourse.

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<sup>7</sup> <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits>

Undertaking activities controlled by local byelaws also requires the relevant consent.

### **3.4 Legislation Originating from the European Union**

The Water Framework Directive (WFD) provides a legal framework for the protection, improvement and sustainable use of inland surface waters, groundwater, transitional waters, and coastal waters across England, and seeks to:

- Prevent deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters
- Achieve at least 'good' status for all waterbodies by 2015
- Promote the sustainable use of water as a natural resource
- Conserve habitats and species that depend directly on water
- Progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment
- Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants; and
- Contribute to mitigating the effects of floods and droughts.

The WFD applies to any proposed development which has the potential to impact on a waterbody. Where this is the case, the Environment Agency may require evidence demonstrating that the proposed development does not compromise the aims of the WFD.

## 4 REVIEW OF FLOOD RISK

### 4.1 Sequential Test and Exception Test

The site has been allocated for residential use within the Fylde Council Local Plan and therefore satisfies the requirements of the Sequential Test. This report addresses the second part of the Exception Test.

### 4.2 Historical Records of Flooding

The Environment Agency historic flood map<sup>8</sup> and recorded flood outlines database indicates there is no record of historic flooding at the site.

### 4.3 Fluvial Flood Risk

Outputs from the approved 2020 Red Bridge Pumping Station Hydraulic Modelling Study presenting the maximum extent and depth of flooding at the site for the present day 1 in 100, and 1 in 1,000 annual exceedance probability (AEP) events and the 1 in 100 AEP event plus 36%, 46% and 71% climate change are provided in **Annex A**. Peak flood levels are presented in **Table 1**.

The outputs confirm that the site would not flood during any of the aforementioned events.

**Table 1: Site Flood Information**

AEP Event	Max Level (m AOD)
Present day 1 in 100	2.94
1 in 100 plus 36% climate change	3.17
1 in 100 plus 46% climate change	3.23
1 in 100 plus 71% climate change	3.35
Present day 1 in 1,000	3.26

A pump failure scenario has also been considered to assess the residual risk of flooding associated with a failure of the Red Bridge pumping station during the 1 in 100 AEP event plus 36% climate change.

During a pump failure, a relief culvert would activate when water levels exceed 2.39 m AOD. The model output provided in **Annex B** indicates that the site would not flood in the event of a pump failure.

### 4.4 Flood Risk from Surface Water

The Flood Risk from Surface Water map (**Figure 4**) indicates that the site is at a Very Low risk of flooding from this source.

<sup>8</sup> <https://data.gov.uk/dataset/76292bec-7d8b-43e8-9c98-02734fd89c81/historic-flood-map>



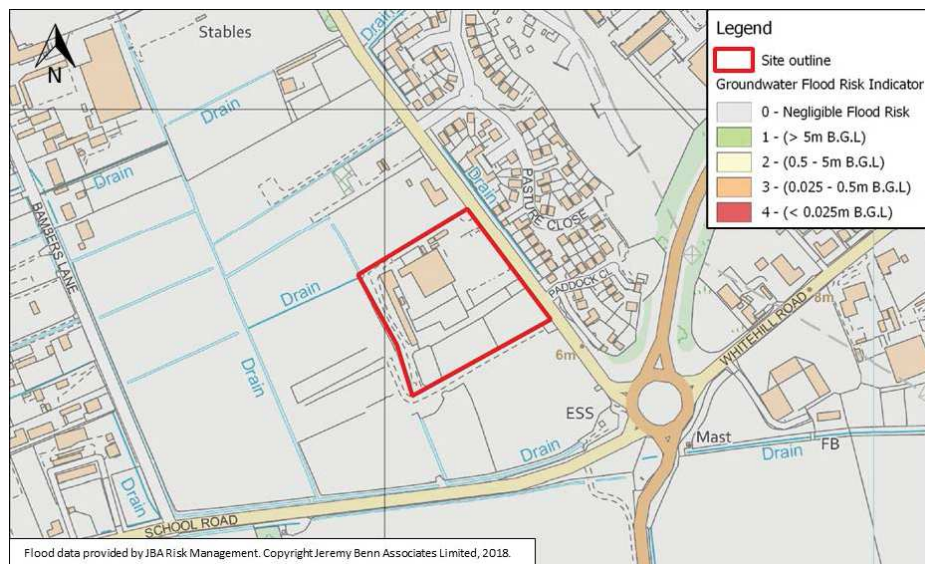
**Figure 4: Flood Risk from Surface Water**  
Source: gov.uk website; Accessed: July 2021

#### 4.5 Flood Risk from Reservoirs, Canals and Other Artificial Sources

There are no canals or other impounded waterbodies located within the immediate vicinity of the site. The Flood Risk from Reservoirs map indicates that the site is not at risk of flooding from such sources. The site is therefore not assessed to be at risk of flooding from reservoirs, canals or other artificial sources.

#### 4.6 Flood Risk from Groundwater

The JBA Groundwater Flood Risk Indicator map (Figure 5) indicates that the site and the surrounding area at negligible risk of groundwater emergence.



**Figure 5: JBA Groundwater Flood Risk Indicator Map**  
Source: Blue Sky Maps; Accessed: July 2021

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## 5 FLOOD RISK MITIGATION MEASURES

The risk of flooding to the proposed development will be mitigated through the implementation of the measures proposed within the following section of this report.

- Finished floor levels should be set at a minimum of 3.47 m AOD and a minimum of 0.15 m above adjacent ground levels following reprofiling of the site<sup>9</sup>.

This provides a freeboard of 300 mm above the peak modelled flood level during the 1 in 100 AEP event plus 36% climate change, 120 mm freeboard for the 1 in 100 AEP event plus 71% climate change, and 210 mm freeboard above the present day 1 in 1,000 AEP event.

The above measure will, subject to the implementation of an appropriately designed surface water drainage scheme (refer accompanying Drainage Assessment report) enable any potential overland flows to be conveyed safely across the site without affecting property in accordance with the approach promoted by government policy<sup>10</sup>.

The approved Red Bridge Pumping Station Hydraulic Modelling Study indicates that the site is located within flood zone 1 and would not flood during the 1 in 100 AEP event plus 36%, 46% and 71% climate change scenarios. As such, the proposals will not increase off-site flood risk.

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<sup>9</sup> In accordance with Building Regulations Approved Document C<sup>9</sup>

<sup>10</sup> Making Space for Water, Taking forward a new Government strategy for flood and coastal erosion risk management in England, March 2005, Dept for Environment, Food and Rural Affairs

## 6 SUMMARY AND RECOMMENDATIONS

This report has been prepared on behalf of Breck Homes and relates to the proposed redevelopment of Suttons Site, Cropper Road, Blackpool.

The development site has been allocated for residential use within the Fylde Council Local Plan and therefore satisfies the requirements of the Sequential Test. This report addresses the second part of the Exception Test.

According to the Flood Map for Planning the proposed development site is located within flood zones 1, 2 and 3. However site specific hydraulic modelling, approved by the Environment Agency in October 2020 confirms that the site is actually located outside of the flood extent of the present day 1 in 1000 AEP event, and is therefore located entirely in flood zone 1. The modelling also confirms that the site would not flood during the 1 in 100 APE event including a 36%, 46% and 71% climate change allowance.

Environment Agency mapping indicates that the site is at a Very Low risk of surface water flooding and that the site is not at risk of flooding from reservoirs. The site is also assessed to not be at risk of flooding from canals or other artificial sources. The site is assessed to be at a negligible risk of groundwater flooding.

This report has demonstrated that the proposed development may be completed in accordance with the requirements of planning policy subject to the following:

- Finished floor levels to be set at a minimum of 3.47 m AOD and not less than 0.15 m above adjacent ground levels

The proposals would not impact flood risk elsewhere.



## APPENDIX A

### Development Proposals

Housing Accommodation Schedule  
 06No. 1b2p Apartments (58)  
 07No. 2b3p Apartments (65)  
 07No. 3b4p Aspect House Type (6)  
 21No. 2b4p House Types (66)  
 25No. 3b5p House Types (82)  
 Total 65No. Units

Site Area = 1.63 Hectares

**EDEN**  
 Land & Development



Cropper Lodge

A	20/07/21	Rev: Stage amended
REV	DATE	DESCRIPTION
TITLE		
PROPOSED SITE LAYOUT		
PROJECT		
CROPPER ROAD, BLACKPOOL		
DRAWING NUMBER		
CROPPER ROAD - P01		
DATE		02/07/21
SCALE		1:50
DATE		JULY 21



C	10.08.21	Site entrance amended to suit vehicle tracking.
B	23.07.21	Amended to clients comments.
A	20.07.21	Red edge amended.

REV	DATE	DESCRIPTION
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TITLE

PROPOSED SITE LAYOUT (RETAIL)

PROJECT

CROPPER ROAD, BLACKPOOL

DRAWING NUMBER

CROPPER ROAD - P01 - RETAIL

SCALE

1:250

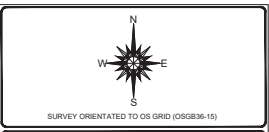
DATE

JULY 21

@ A2

## APPENDIX B

### Topographic Survey



**SURVEY LEGEND**

FEATURES	IDENTIFY ANNOTATIONS
TOP OF BANK	AT ASPHALT
BOTTOM OF BANK	B BOLLARD
SURVEY STATION	BS BOLT/STONE
TREE	BT BRUSH TELECOM IC
HEGE	CP CONCRETE PAVING SLABS
TREE CANOPY	CP CATCHPIT
BUSHES	EB ELECTRIC CONTROL BOX
VEGETATION	EL ELECTRICITY IC
	EP ELECTRICITY POLE
	ER ELECTRICITY POLE
	FF FIRE HYDRANT
	FF FIRE HYDRANT
	GA GULLY
	GH GREENHOUSE
	GV GAS POINT
	GV GAS VALVE
	IC INSPECTION COVER
	JB JUNCTION BOX
	KB KERR OUTLET
	KB KERR OUTLET
	LA LAMP HOUSE
	LA LAMP HOUSE
	LP LAMP POST/LIGHT COLUMN
	MA MANHOLE
	MP MONITOR POINT
	MP MONITOR POINT
	ND OVERHEAD CABLES
	ND OVERHEAD CABLES
	PM PAVING METER
	PM PAVING METER
	PS POCKET
	PS POCKET
	RL ROOFCING EYE
	RL ROOFCING EYE
	RL ELECTRICITY Pylon
	RL ELECTRICITY Pylon
	RV STOP VALVE / SLUCE VALVE
	RV STOP VALVE / SLUCE VALVE
	RV SOA VALVE PIPE
	RV SOA VALVE PIPE
	RV RWP RAIN WATER PIPE
	RV RWP RAIN WATER PIPE
	SM SERVICE MANHOLE
	SM SERVICE MANHOLE
	SV STOP VALVE / SLUCE VALVE
	SV STOP VALVE / SLUCE VALVE
	TL TELEPHONE BOX
	TL TELEPHONE BOX
	TL TELEPHONE POLE
	TL TELEPHONE POLE
	TPS TACTILE PAVING SLABS
	TPS TACTILE PAVING SLABS
	WA WASTE PIPE
	WA WASTE PIPE
	WC WASH OUT
	WC WASH OUT
	UTS UNABLE TO SURVEY
	UTS UNABLE TO SURVEY
	UTS UNABLE TO SURVEY
	UTS UNABLE TO SURVEY

**DISCLAIMER:**  
 ONLY MANHOLES AND SERVICES SHOWN WERE VISIBLE AT THE TIME OF SURVEY. MAN ENTRY TO SEWERS HAS NOT BEEN UNDERTAKEN. DEPTHS, PRESSURES ETC ARE MEASURED FROM GROUND LEVEL.  
 DISTANCE INFORMATION MUST BE CHECKED AND VERIFIED PRIOR TO ANY WORK COMMENCING.  
 BOUNDARIES SHOWN ARE PHYSICAL AND MAY NOT REPRESENT LEGALLY OWNED OWNERSHIP.  
 THESE BOUNDARIES ARE PHYSICAL ONLY AND ARE REPRESENTATIVE OF THE AVERAGE SPREAD. THE TREE CANOPY LAYER DENOTES THE TREE EXTREMITY.

**SURVEY NOTES**  
 ALL LEVELS ARE RELATED TO O.S DATUM (OSGB36-15).  
 ESTABLISHED AT SE1 USING THE LEGAL SMARTNET GPS NETWORK.

Area	Survey	Height
APPM	334700E	423200N
APPM	334700E	423200N
APPM	334700E	423200N
APPM	334700E	423200N
APPM	334700E	423200N

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DESCRIPTION	REV	DATE	Drawn	APPM

**SurveyEng Ltd**  
 Land Surveyors & Engineers

14 GREEN HILL WESTWOODS GATE  
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 WWW: WWW.SURVEYENG.CO.UK  
 INFO@SURVEYENG.CO.UK

**CLIENT**  
 EDEN LAND AND DEVELOPMENT

**PROJECT TITLE**  
 CROPPER ROAD, BLACKPOOL

**DRAWING DETAIL**  
 TOPOGRAPHICAL LAND SURVEY

**PROJECT ENGINEER** JLP **DATE** 26.11.2020  
**DRAWN** DH **SCALE** 1:500@A1

**DRAWING NUMBER** ELD.TS.03 **REVISION** -

**PRISM VOLUMES : PROJECTION TO Untitled**

Group	Volumes			Areas		Ave Depths	
	Cut/Material	Fill/Void	Balance	Cut/Material	Fill/Void	Cut/Material	Fill/Void
Stockpile 1	25.5104	0.0000	25.5104	51.9594	0.0000	0.491	0.000
Total	25.5104	0.0000	25.5104	51.9594	0.0000	0.491	0.000

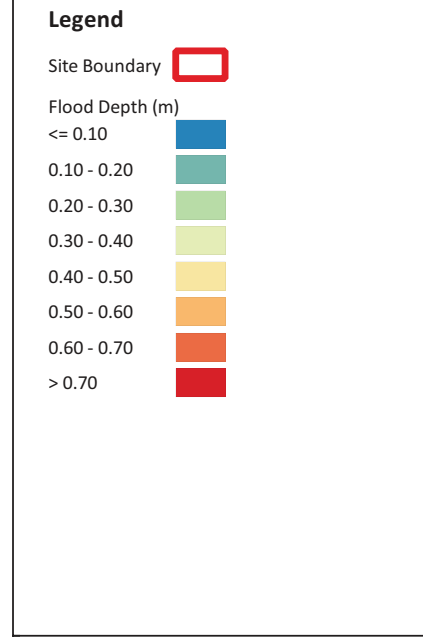
## ANNEX A

### Red Bridge Pumping Station HMS Outputs – Existing (Baseline) Scenario



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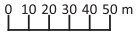


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Client: **Breck Homes Ltd**

Project Title: **Suttons Site, Cropper Road, Blackpool**

Drawing Title: **Baseline Scenario 1 in 100 AEP Event**

Map Orientation:  Scale: 

Drawn: CL Checked: JA Date: 25 August 2021


Project No: 5261 Drawing No: 3203 021 Q100 d Rev: A











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**Legend**

Site Boundary 

Flood Depth (m)

- <= 0.10 
- 0.10 - 0.20 
- 0.20 - 0.30 
- 0.30 - 0.40 
- 0.40 - 0.50 
- 0.50 - 0.60 
- 0.60 - 0.70 
- > 0.70 

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Client: **Breck Homes Ltd**

Project Title: **Suttons Site, Cropper Road, Blackpool**

Drawing Title: **Baseline Scenario  
1 in 100 + CC (36%) AEP Event**

Map Orientation:  Scale: 

Drawn: CL Checked: JA Date: 25 August 2021

Project No: 5261 Drawing No: 3203 021 Q100 CC36 d Rev: A





**Notes:**

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**Legend**

- Site Boundary
- Flood Depth (m)
- <= 0.10
- 0.10 - 0.20
- 0.20 - 0.30
- 0.30 - 0.40
- 0.40 - 0.50
- 0.60 - 0.70
- > 0.70

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Client: **Breck Homes Ltd**

Project Title: **Suttons Site, Cropper Road, Blackpool**

Drawing Title: **Baseline Scenario  
1 in 100 + CC (46%) AEP Event**

Map Orientation: Scale:

Drawn: CL Checked: JA Date: 25 August 2021


Project No: 5261 Drawing No: 3203 021 Q100 CC46 d Rev: A











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**Legend**

Site Boundary 


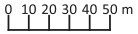
Flood Depth (m)

- <= 0.10 
- 0.10 - 0.20 
- 0.20 - 0.30 
- 0.30 - 0.40 
- 0.40 - 0.50 
- 0.50 - 0.60 
- 0.60 - 0.70 
- > 0.70 

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Client: <b>Breck Homes Ltd</b>		
Project Title: <b>Suttons Site, Cropper Road, Blackpool</b>		
Drawing Title: <b>Baseline Scenario 1 in 100 + CC (71%) AEP Event</b>		
Map Orientation: 	Scale: 	
Drawn: CL	Checked: JA	Date: 25 August 2021
Project No: 5261	Drawing No: 3203 021 Q100 CC71 d	Rev: A



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**Legend**

- Site Boundary 
- Flood Depth (m)
- <= 0.10 
  - 0.10 - 0.20 
  - 0.20 - 0.30 
  - 0.30 - 0.40 
  - 0.40 - 0.50 
  - 0.50 - 0.60 
  - 0.60 - 0.70 
  - > 0.70 

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Client: **Breck Homes Ltd**

Project Title: **Suttons Site, Cropper Road, Blackpool**

Drawing Title: **Baseline Scenario 1 in 1000 AEP Event**

Map Orientation:  Scale: 

Drawn: CL Checked: JA Date: 25 August 2021

Project No: 5261 Drawing No: 3203 021 Q1000 d Rev: A

## ANNEX B

### Red Bridge Pumping Station HMS Outputs – Pump Failure Scenario



**Notes:**

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**Legend**

- Site Boundary
- Flood Depth (m)
  - <= 0.10
  - 0.10 - 0.20
  - 0.20 - 0.30
  - 0.30 - 0.40
  - 0.40 - 0.50
  - 0.50 - 0.60
  - 0.60 - 0.70
  - > 0.70

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Client: **Breck Homes Ltd**

Project Title: **Suttons Site, Cropper Road, Blackpool**

Drawing Title: **Pump Failure Scenario  
1 in 100 + CC (36%) AEP Event**

Map Orientation: Scale:

Drawn: CL	Checked: JA	Date: 25 August 2021
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Project No: 5261	Drawing No: 3203 022 Q100 CC36 d	Rev: A
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