

# Technical Note

|              |                                                   |                                             |
|--------------|---------------------------------------------------|---------------------------------------------|
| Project:     | <b>Cheetham Hill Road Retail Park, Manchester</b> | Job No: 60323172                            |
| Subject:     | <b>Flood Risk Technical Note</b>                  | Document No: <b>60323172-WAT-001-RP</b>     |
| Prepared by: | <b>Elsbeth Fraser</b>                             | Date: <b>20<sup>th</sup> September 2018</b> |
| Checked by:  | <b>Andy Jennings</b>                              | Date: <b>20<sup>th</sup> September 2018</b> |
| Verified by: | <b>Joanne Somerton</b>                            | Date: <b>21<sup>st</sup> September 2018</b> |
| Approved by: | <b>Harriet Burrows</b>                            | Date: <b>1<sup>st</sup> October 2018</b>    |

## 1 Introduction

### 1.1 Commission

AECOM Limited (AECOM) has been commissioned by SportsDirect.com Retail Ltd. (the Client) to produce a flood risk technical note to support the planning application for proposed internal works to existing retail units (the Proposed Development) located on the Cheetham Hill Road Retail Park, in the Cheetham Hill district of Manchester.

### 1.2 Background

SportsDirect.com Retail Ltd. intends to undertake internal works to create additional retail floor space in the existing retail units, by installing elevated mezzanine floors in existing Units 1 and 2. No external works are proposed and no new built form is to be created. The Site, the existing Cheetham Hill Road Retail Park, is located centred upon National Grid Reference SD 84268 00291. A Site location plan can be found in Appendix A.

### 1.3 Scope of Services

The aim of this study is to undertake an assessment of the flood risk that is appropriate to the nature and scale of the Proposed Development. The study determines flood risk posed to the Proposed Development, and considers the requirement for mitigation measures.

The objectives of this technical note are to:

- Review existing information relating to the flood risk posed to the Proposed Development from all sources;
- Identify current flood risk and future flood risk, with inclusion of climate change allowances;
- Identify the existing surface water management arrangements in the locality of the proposed works; and
- Consider the requirements for mitigation measures to meet the requirements of the National Planning Policy Framework (NPPF)<sup>1</sup>.

### 1.4 Data Sources

Baseline conditions for the Site have been established through a desk study and through consultation with Manchester City Council (MCC) in their role as Lead Local Flood Authority, and United Utilities.

<sup>1</sup> Ministry of Housing, Communities and Local Government (2018). National Planning Policy Framework. Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/740441/National\\_Planning\\_Policy\\_Framework\\_web\\_accessible\\_version.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/740441/National_Planning_Policy_Framework_web_accessible_version.pdf)

A review of the MCC Strategic Flood Risk Assessment and Preliminary Flood Risk Assessment has been undertaken as part of this task, as well a review of other publicly available information including the Environment Agency's Flood Maps.

Data collected during the course of this assessment is described in Table 1.1.

Table 1.1 Sources of Data

| Purpose                                       | Data Source                                                                                                      | Comments                                                                                             |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Identification of Hydrological Features       | 1: 25,000 and 1:10000 Ordnance Survey (OS) mapping                                                               | Identifies the position of the Site and local hydrological features.                                 |
| Historical Land Use and Hydrological Features | Historic OS maps dating back from 1848-present <sup>2</sup>                                                      | Identify historical land use change and hydrological features over the 170 years.                    |
| Identification of Existing Flood Risk         | EA Flood Maps for Planning (Rivers and Sea) (online) <sup>3</sup>                                                | Identifies fluvial/ tidal inundation extents and historical flooding.                                |
|                                               | Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA <sup>4</sup>                             | Assesses flood risk across the Manchester area                                                       |
|                                               | Manchester City Council Preliminary Flood Risk Assessment <sup>5</sup>                                           |                                                                                                      |
|                                               | Critical Drainage Areas for Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA <sup>6</sup> | Identifies conurbation core critical drainage area.                                                  |
|                                               | EA Flood Inundation Mapping and Risk of Flooding from Surface Water (online) <sup>7</sup>                        | Provides information on the risk of flooding from reservoirs (artificial sources) and surface water. |
| Identification of Historical Flooding         | United Utilities                                                                                                 | Provides details of sewer plan and any previous foul flooding events at property address.            |
|                                               | Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA                                          | Information relating to historical flooding                                                          |
|                                               | Manchester City Council Preliminary Flood Risk Assessment <sup>8</sup>                                           |                                                                                                      |
| Surface Water Drainage                        | Manchester City Council                                                                                          | Provides details of existing surface water drainage.                                                 |
| Consultation                                  | Manchester City Council Flood Risk Management <sup>9</sup>                                                       | Flood risk, historic flooding records and mitigation requirements                                    |

<sup>2</sup> Ordnance Survey. Maps from 1848-1989. Available at:

<https://www.old-maps.co.uk/#/Map/385015/399197>

<sup>3</sup> Environment Agency. Flood Map for Planning. Available at:

<https://flood-map-for-planning.service.gov.uk/summary/525904/410996>

<sup>4</sup> Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA. Available at: <http://www.trafford.gov.uk/planning/strategic-planning/docs/manchester-salford-and-trafford-councils-level-2-hybrid-sfra-level-1-sfra-march-2011.pdf>

<sup>5</sup> Manchester City Council Preliminary Flood Risk Assessment. Available at:

<http://webarchive.nationalarchives.gov.uk/20140328165058/http://cdn.environment-agency.gov.uk/flho1211bvmm-e-e.pdf>

<sup>6</sup> Critical drainage areas for Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA. Available at: <http://www.trafford.gov.uk/planning/strategic-planning/docs/manchester-salford-and-trafford-councils-level-2-hybrid-sfra-level-1-sfra-march-2011.pdf>

<sup>7</sup> Environment Agency. Flood Risk from Reservoirs. Available at:

<https://flood-warning-information.service.gov.uk/long-term-flood-risk>

<sup>8</sup> Manchester City Council preliminary Flood Risk Assessment. Available at:

<http://webarchive.nationalarchives.gov.uk/20140328165058/http://cdn.environment-agency.gov.uk/flho1211bvmm-e-e.pdf>

<sup>9</sup> Consultation Response in Appendix E

## 2 Site Information

### 2.1 Site Location and Context

The Site is located in the Cheetham Hill district of Manchester and currently comprises an existing retail park. The Site is bounded by Queens Road to the North, Cheetham Hill Road to the East, and Elizabeth Street to the Southwest. The Site location plan can be found in Appendix A.

### 2.2 Surface Water Resources

The following local water features in close proximity to the Site have been identified through the inspection of OS 1: 10,000 mapping.

The River Irk is located approximately 750m to the southeast of the Site and flows in a southwesterly direction. The Irk discharges into the River Irwell, approximately 1.4km southwest of the Site.

No other surface water features or reservoirs have been identified in proximity to the Site.

### 2.3 Historical Land Use and Water Features

Historical mapping dating back to 1848 indicates that the primary previous land use was residential. By 1972 the Site was used as a depot, before its current use as a retail park. The primary use of the surrounding area was agricultural from 1848, gradually changing to residential by 1894.

### 2.4 Topography

Based on Ordnance Survey mapping, the Site is at an elevation of approximately 57m Above Ordnance Datum (AOD), and appears to fall generally from northeast to southwest. The River Irk to the southeast is located at approximately 30m AOD and the River Irwell to the southwest at 22m AOD.

## 3 The Proposed Development

The Proposed Development comprises the alteration of an existing building to include a new internal mezzanine floor. The mezzanine floor will have a Gross Floor Area (GFA) of approximately 4,500m<sup>2</sup> (0.45 hectares (ha)). The existing building has a current GFA of approximately 9,350m<sup>2</sup> (0.94ha). The new mezzanine floor is to be used to create additional retail floor space. The development is contained within an existing building and therefore the current footprint of the retail unit will remain unchanged and there will be no increase in impermeable area. Surface water run-off from the Proposed Development will remain as the existing scenario, as such, no surface water drainage, above that currently present on site, is proposed in respect of the development.

The existing and Proposed Development plans are shown in Appendix B and C respectively.

## 4 Flood Risk

### 4.1 Existing Flood Risk

#### 4.1.1 Tidal and Fluvial Flood Risk

There are no tidally influenced watercourses in proximity to the Site, therefore tidal flooding is not considered further.

Inspection of the Environment Agency's Flood Map for Planning (Rivers and Sea), available online, shows that the Site lies within Flood Zone 1. This indicates land assessed as having a less than 1 in 1,000 annual probability of fluvial flooding (>0.1%).

Historically, there was a watercourse located to the southern boundary of the Site, however MCC have no evidence of any culverts within the vicinity and it is thought the course of the watercourse may have been impacted by the historical clay workings in the area.

The risk of flooding to the Site from fluvial sources is considered to be low.

#### 4.1.2 Flood Risk from Surface Water

The Environment Agency's Risk of Flooding from Surface Water Map, available online, shows a small area of the Site, to the northeast of the existing building, having a low risk of flooding from surface water. Low risk equates to an annual probability of between 0.1% (1 in 1000) and 1% (1 in 100). This area corresponds with a loading area, which is likely to be positively drained. Any surface water flooding in this area would be unlikely to directly affect the Proposed Development itself.

The Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA Critical Drainage Areas plan (Error! Not a valid bookmark self-reference.1) shows that the Site is located within the Conurbation Core Critical Drainage Area (CDA).

The Town and Country Planning Order 2006<sup>10</sup> defines a Critical Drainage Area (CDA) as “an area within Flood Zone 1 which has critical drainage problems and which has been notified [to]...the local planning authority by the Environment Agency”. However, SFRAs play a key part in the identification of areas with drainage problems. The Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA states that screening for CDAs was undertaken considering both known flood risk and planned development, which could impact on surface water runoff.

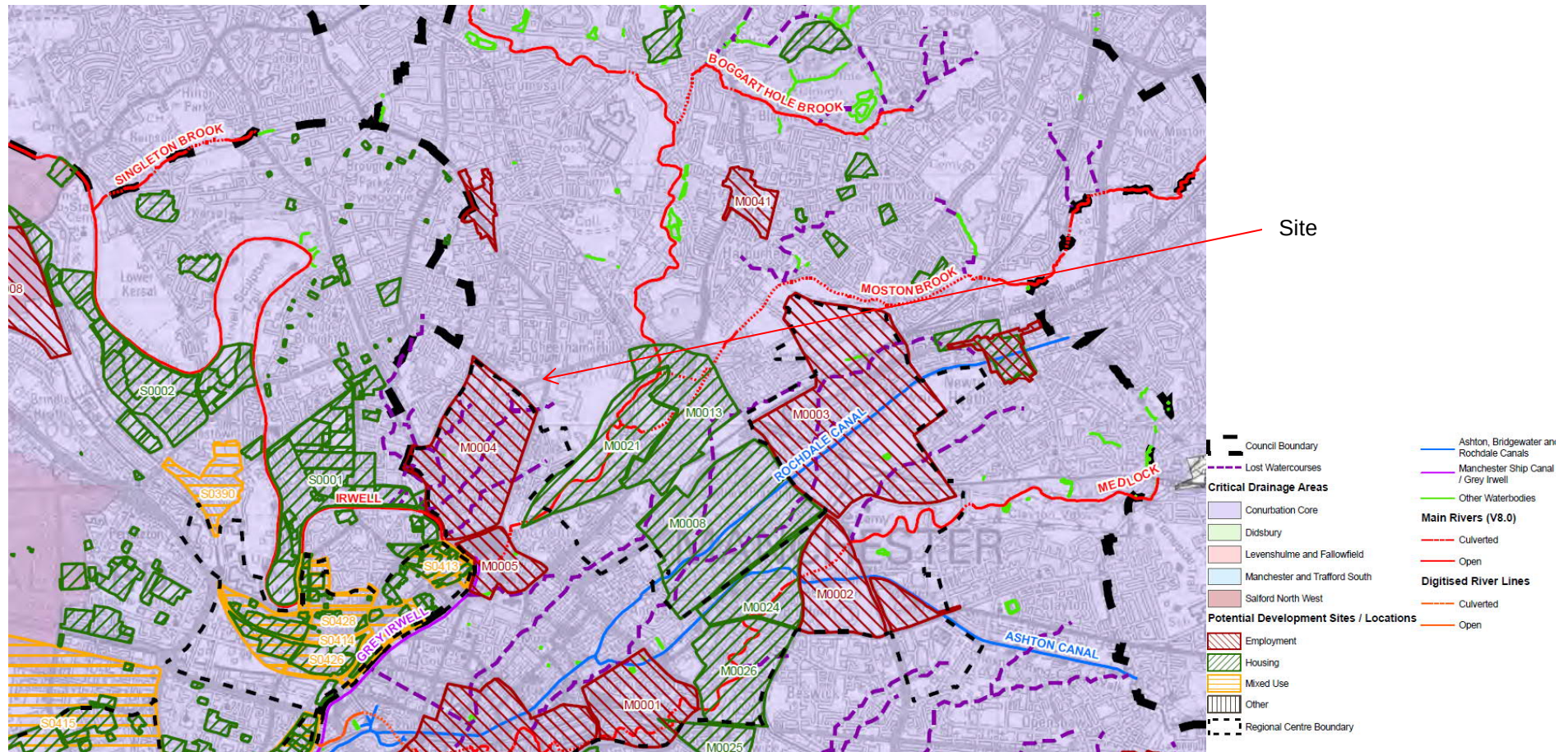
The Proposed Development Site is within the Conurbation Core CDA, as shown in Figure 4.1. The SFRA states that the Conurbation Core, covering all of central Manchester, has been designated a CDA as there is a significant focus for development in this area.

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<sup>10</sup> HMSO (2006) The Town and Country Planning (General Development Procedure) (Amendment) (No. 2) (England) Order 2006

# Technical Note

Figure 4.1 –Critical Drainage Areas for Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA



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Manchester City Council (MCC) has no records of historical flooding at the Site, as stated in the consultation response presented in Appendix E. The neighbouring Manchester Fort Retail Site has suffered from surface water flooding on a number of occasions, particularly 29<sup>th</sup> July 2013, when several retailers had to close temporarily due to surface water flooding.

Based on the information presented above the risk of flooding to the Site from surface water is considered to be low.

### 4.1.3 Flood Risk from Drainage Infrastructure

UU sewer records show that there are no public sewers within the Site (shown in Appendix D). Further information on the UU drainage infrastructure in proximity to the Site is presented in Section 5.

United Utilities (UU) records show no records of internal flooding due to overloaded public sewers at the Site. However it should be noted that from the 1st October 2011 private sewers, disposal mains and lateral drains were transferred into public ownership; it is therefore possible that a property may be at risk of internal flooding due to an overloaded public sewer which the sewerage undertaker is not aware of.

No further records of historical flood risk for the Site have been identified from the PFRA or the SFRA. Therefore the Site is considered to be at low risk from drainage infrastructure.

### 4.1.4 Groundwater Flooding

MCC records indicate that the Site has a low susceptibility to groundwater flooding. The British Geological Survey<sup>11</sup> Geology of Britain viewer shows that the Site is underlain by superficial deposits of glacial till. This may be expected to be highly impermeable, and may therefore confine any groundwater present in the bedrock geology beneath. MCC has no records of groundwater flooding affecting the Site.

### 4.1.5 Flooding from Artificial Sources

The Environment Agency Longterm Flood Risk Mapping shows the Site is not located in an area that would be affected by flooding should a breach in a reservoir occur.

There are no canals or other artificial waterbodies in close proximity to the Site therefore this source of flooding is not considered further within this assessment.

## 4.2 Flood Risk Vulnerability

The existing Site is used as a retail park and falls within the category 'Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure' as defined in Table 2 of the Planning Practice Guidance<sup>12</sup> (PPG). The Proposed Development is therefore classed as being 'Less Vulnerable' development in accordance with the PPG.

The Development will not change the nature of use of the Site. Therefore the vulnerability classification will remain as 'Less Vulnerable'.

## 4.3 Sequential and Exception Tests

The overall aim of the Sequential Test is to steer new development to Flood Zone 1. Where there are no reasonably available sites in Flood Zone 1, local planning authorities allocating land in Local Plans or determining planning applications for development at any particular location, should take into account

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<sup>11</sup> British Geological Survey, Geology of Britain Viewer. Available at: <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

<sup>12</sup> Ministry of Housing, Communities and Local Government, (2014); Planning Practice Guidance. Available at: <https://www.gov.uk/guidance/flood-risk-and-coastal-change#Table-2-Flood-Risk-Vulnerability-Classification>

the flood risk vulnerability of land uses and consider reasonably available sites in Flood Zone 2, applying the Exception Test if required. Only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in Flood Zone 3 be considered, taking into account the flood risk vulnerability of land uses and applying the Exception Test if required.

The Site is located wholly in Flood Zone 1. Therefore the Sequential Test is passed and the Exception Test is not required.

#### 4.4 Climate Change

The Environment Agency published updated climate change guidance in February 2016<sup>13</sup>. Environment Agency climate change guidance for the National Planning Policy Framework (NPPF) indicates that climate change is likely to have an impact on river flows, sea levels, rainfall intensity, wave height and wind speed.

Increased river flows are likely to result in an expansion of Flood Zones 2 and 3 bordering the Rivers Irk and Irwell. However, due to the difference in elevation, this is unlikely to reach the Site.

Increased rainfall intensity may result in an increase in surface water or sewer flood risk in the vicinity of the Site. As the Proposed Development comprises internal alteration works to an existing building the risk of flooding over the lifetime of the development is unlikely to increase as a consequence of these proposed internal changes to the retail unit. .

## 5 Surface Water Management

### 5.1 Existing Drainage

The Site is an existing retail park with existing surface water management in place. As the Proposed Development is internal to an existing building, does not impact the external footprint or Site layout there are no proposed changes to the existing surface water management. Existing drainage schemes are in place and will be unaffected by the development.

The map of public sewers provided by United Utilities is shown in Appendix D. The sewer records appear to indicate that the Site is at the head of the local sewer system. The 450mm diameter combined sewer on Cheetham Hill Road starts adjacent to the Site and flows south.

The sewer on Elizabeth Street features a head manhole adjacent to the Site, with 450mm x 600mm and 400mm x 450mm combined sewers running respectively southeast and northwest away from the Site. A plot connection sewer is shown from the Site to the 400mm x 450mm combined sewer. The buildings on the opposite side of Elizabeth Road appear to drain to a 225mm combined sewer further south, suggesting that the 400mm x 450mm combined sewer may serve only the Site.

Queens Road is shown to be served by a 300mm diameter highway drain, which commences on Queens Road.

### 5.2 Proposed Drainage

As the Proposed Development is internal to an existing building no additional surface water runoff will be generated and therefore no additional surface water management is proposed. The existing drainage systems shall be retained and shall continue to operate as they do now.

MCC has confirmed in its consultation response, presented in Appendix E, that as the proposal is to provide a mezzanine floor with no external alterations, surface water management does not need to be provided for the proposed development.

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<sup>13</sup> <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

## 6 Off-Site Impacts

As the Proposed Development is internal to an existing building and the flood risk from all sources is assessed as low it is considered there will no off-site flood impacts.

## 7 Occupants and Users of the Development

The Site is used as a retail park. The users of the Site will include members of the public and retail workers. The type of user of the Site will be unchanged. However, the number of users may increase and they may stay longer within the Site.

## 8 Residual Risk

The residual flood risk remains unchanged by the Proposed Development, as the development is internal to an existing building. There are no changes to the type of use, the vulnerability of the Site or to the surface water drainage system.

The existing identified area of surface water flooding (low risk), shown by Environment Agency mapping to affect the loading area to the northeast of the existing building, will remain as a residual risk following completion of the Proposed Development.

## 9 Flood Risk Management Measures

The Proposed Development is located in an area considered to be a low risk of flooding from all sources and comprises internal works to an existing retail unit. Based on this assessment it is considered that flood risk management measures are not required.

No additional surface water shall be generated by the Proposed Development and surface water will continue to drain via the existing UU combined drainage system in proximity to the Site. Existing surface water drainage systems should be effectively maintained, to mitigate the risk of surface water flooding.

## 10 Conclusion

The risk of flooding to the Proposed Development from all sources (fluvial, surface water, drainage infrastructure, groundwater and artificial sources) is low.

There is a low risk of surface water flooding to the northeast of the Site in the location of the loading area, however, the risk of flooding from this source will not increase as a consequence of the Proposed Development.

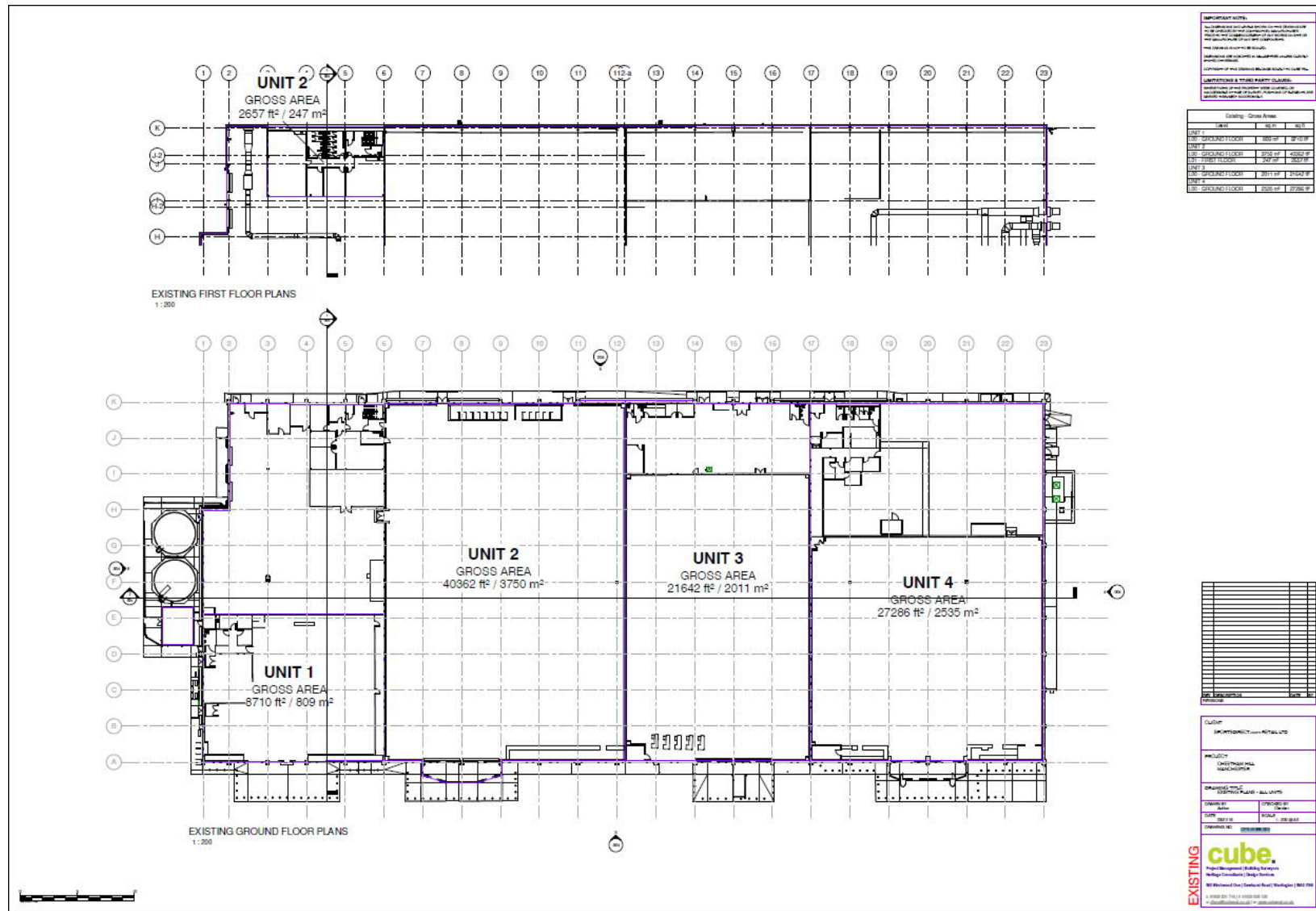
No additional surface water runoff will be generated from the Proposed Development (the building footprint and impermeable area will not increase) therefore no additional surface water management, above that provided at the current site, will be required.

As the risk of flooding from all sources is assessed as low no flood management measures are required.

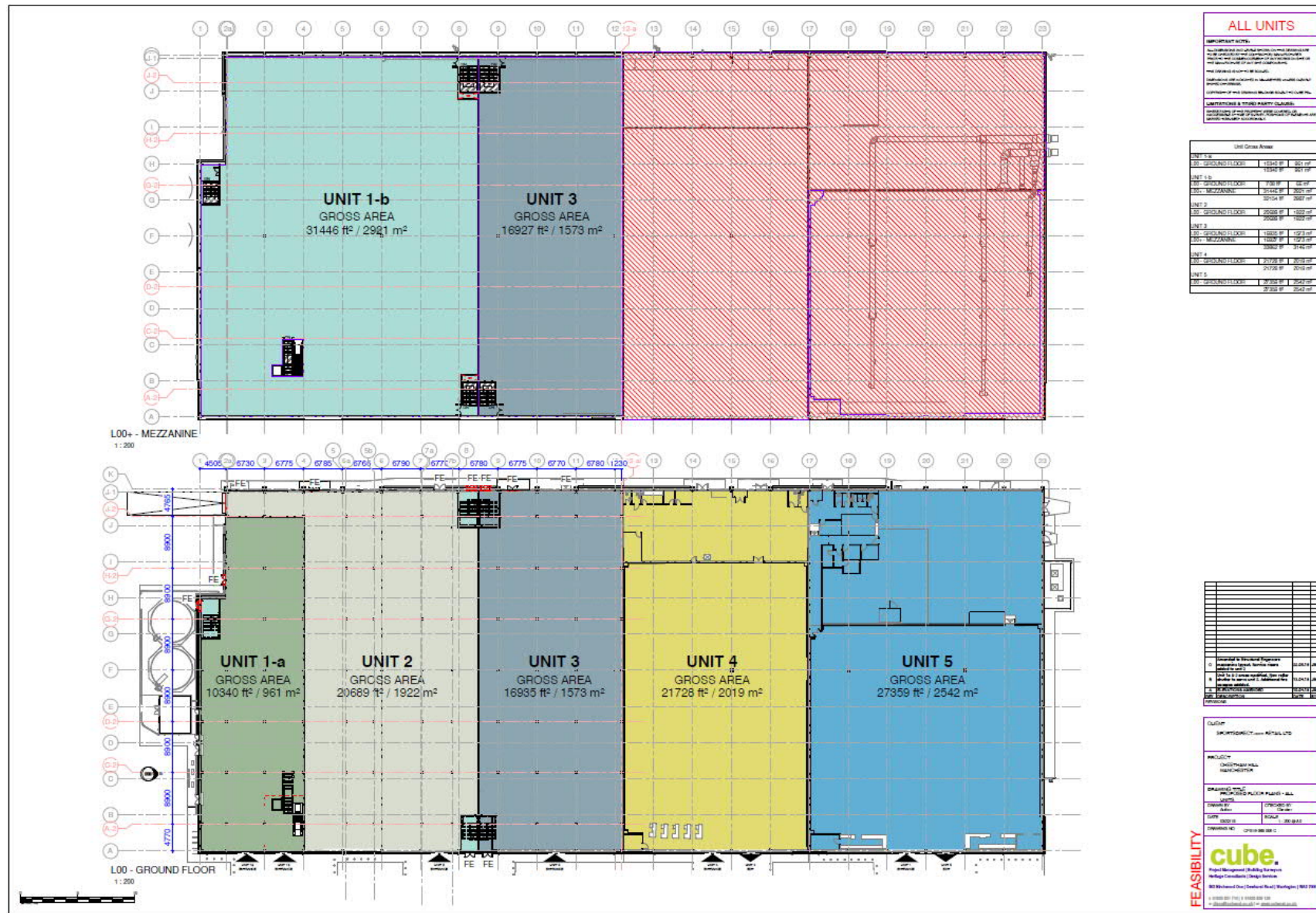
This Flood Risk Technical Note provides the evidence to demonstrate that the Proposed Development will remain safe during its lifetime and will not increase flood risk elsewhere.



## Appendix B: Existing Building Plan



## Appendix C: Proposed Plan



This figure is an extract from a map of public sewers, showing the underground sewerage network in a specific area. The map includes various labels for sewer types and sizes, such as "630 x 920", "610 x 750", "300 HD", "400 x 450", "450 x 600", "300", and "375". It also shows landmarks like "St Chad's RC Primary School", "Elizabeth House", "Manchester Fort Shopping Park", and "Car Breakers Yard". A large green-outlined rectangle highlights a central industrial or commercial site. Red lines with arrows indicate the flow direction of the sewers. The map is titled "Extract from Map of Public Sewers" and includes a disclaimer about the accuracy of the information.

**Extract from  
Map of Public Sewers**

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available.

The actual positions may be different from those shown on the plan and private pipes, sewers or drains may not be recorded.

United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown. Crown copyright and database rights [2016] Ordnance Survey 100022432.

United Utilities Water Limited 2014  
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## Appendix E: Manchester City Council Flood Risk Management Consultation

From: ☐ e.ainsworth@manchester.gov.uk on behalf of ☐ floodriskmanagement@manchester.gov.uk

To: ☒ Jennings, Andy

Cc:

Subject: Re: Cheetham Hill Road Retail Park, Manchester

Sent: Fri 14/09/2018 14:41

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Message

Cheetham Hill\_LLFA\_10092018.pdf (146 KB)

CPS 16 068 CHEETHAM HILL - 001 - ALL UNITS - SITE PLAN.PDF (401 KB)

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Hi Andy

***Details of any known flooding problems in the area and confirmation of the designated Critical Drainage Area, as well as any associated Local Flood Risk Zones***

The site is located within the Conurbation Core Critical Drainage Area, and is within Flood Zone 1. Historically, there was a watercourse located to the southern boundary of the site, but we have no evidence of any culverts within the vicinity and it is thought the course of the watercourse may have been impacted by the historical clay workings in the area.

***Historical flooding records***

We have no historical flooding records for the site but the neighbouring Manchester Fort site has suffered from surface water flooding on a number of occasions, particularly 29th July 2013 when 50% of the retailers had to close due to the flash flooding.

***Information on flooding associated with the sewer network, groundwater or other sources.***

The site has low susceptibility to groundwater flooding. Please contact United Utilities for sewer flooding incidents.

As the proposal is to provide a mezzanine floor with no external alterations we confirm that surface water management does not need to be provided for the proposed development.

Kind regards

Flood Risk Management  
 Highways Service, Growth and Neighbourhoods Directorate  
 Manchester City Council  
 Tel: 0161 219 6295  
 Email: [floodriskmanagement@manchester.gov.uk](mailto:floodriskmanagement@manchester.gov.uk)  
 Web: <http://www.manchester.gov.uk/>

POSTAL ADDRESS: Manchester City Council, Public Realm, The Neighbourhood Service, PO Box 532, Town Hall, Manchester M60 2LA

10<sup>th</sup> September 2018

Flood Risk Management  
Manchester City Council,  
Public Realm  
The Neighbourhood Service  
PO Box 532  
Town Hall  
Manchester M60 2LA

**Proposed Development: Cheetham Hill Road Retail Park, Manchester**

Dear Sirs,

AECOM has been commissioned to undertake a flood risk study for a proposed development located within the existing Cheetham Hill Road Retail Park in Manchester. The proposed development comprises the alteration of an existing building to include a new internal mezzanine floor. The new internal mezzanine floor will have a Gross Floor Area (GFA) of approximately 4,500m<sup>2</sup>. The existing building has a current GFA of approximately 9,350m<sup>2</sup>.

A location plan is enclosed.

Inspection of the Environment Agency's Flood Map for Planning shows that the site lies within Flood Zone 1. However, the Manchester City, Salford City and Trafford Councils Level 2 Hybrid SRA Critical Drainage Areas plan (SS\_4.5 dated 01/02/2011) shows that the site is within the Conurbation Core Critical Drainage Area (CDA).

Please could you provide the following information to support the progression of our flood risk study:

- Details of any known flooding problems in the area and confirmation of the designated Critical Drainage Area, as well as any associated Local Flood Risk Zones;
- Historical flooding records;
- Information on flooding associated with the sewer network, groundwater or other sources.

The development is contained within an existing building and therefore shall generate no surface water runoff. As such, no surface water management measures are proposed in respect of the development. Please could you indicate if this approach is acceptable.

Please do not hesitate to contact me should you have any questions on our proposed scope of work or data requests.

I look forward to hearing from you.

Kind regards,



Andy Jennings  
Senior Engineer  
AECOM Limited  
E: andy.jennings@aecom.com