

Flood Risk Assessment
Bishops Waltham Depot,
Lower Lane,
Bishops Waltham
Hampshire, SO32 1NR

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1.0 Introduction

- 1.1 Scott White and Hookins have been commissioned by Winchester City Council to provide a Flood Risk Assessment for the proposed development at Bishops Waltham Depot, Hampshire.
- 1.2 This report considers the flood risk to the proposed development and the impact that the development will have in relation to flooding of adjacent areas and watercourses. It considers any limits relating to flooding that are likely to be imposed to allow the development to be undertaken.
- 1.3 This report is based on information received from the Environment Agency, the Winchester Strategic Flood Risk Assessment, in addition to a desk top study. Scott White and Hookins cannot accept liability for the accuracy or otherwise of any information derived from third party sources.
- 1.4 This report is for the private and confidential use of Winchester City Council and its agents and may not be copied in whole or in part without the written permission of Scott White and Hookins.

2.0 Government Policy on Flood Risk and Drainage of Development

- 2.1 The frequency and severity of river flooding is perceived to have increased in recent years and in an attempt to mitigate the flood risk the Government published Planning Policy Statement Note 25: Development and Flood Risk (PPS25) in December 2006. PPS25 details the importance of the effective management and reduction of flood risk in the land use planning process and attempts to address the issue of climate change. This has since been updated and is set out in The National Planning Policy Framework and the supporting technical guidance.
- 2.2 Traditionally surface water run off from developments has been conveyed by pipe systems to the nearest watercourse or sewer. This tends to increase the rate and volume of the run off often leading to flooding downstream of the new development. Latest policy promotes the use of sustainable urban drainage systems (SUDS) whereby the control of run off is to be as close to source as possible. This can be achieved by utilizing techniques which mimic the natural drainage processes, the use of direct infiltration for example. The Environment Agency will, in general, seek to restrict the allowable discharge from a new development to that previously expected from the undeveloped land.
- 2.3 The requirements of the revised Building Regulations which came into force on 1st April 2002 are that adequate provision should be made for dealing with rainwater from the roofs of buildings and certain paved areas providing access to the buildings. Run off from such drainage systems are to be discharged to one of the following systems listed in order of priority:-
- A soakaway or other infiltration system
 - A watercourse
 - A sewer or drain

2.4 The revised Building Regulations were drafted to reinforce the requirements for SUDS wherever possible.

2.5 The Requirements of a Flood Risk Assessment

2.5.1 A Flood Risk Assessment is required in order to ascertain whether a development will exacerbate the risk of flooding elsewhere in the catchment or is at risk of flooding itself.

3.0 Development site

- 3.1 The proposed development is located on Lower Lane in Bishops Waltham, Hampshire.
- 3.2 The overall site area is approximately 3,900m² in area (0.39 ha) and comprises an existing industrial site. The overall site comprises a single double height light industrial unit with brick walls and corrugated asbestos roof covering, with external areas comprising hardstanding including mixed concrete, tarmac and stone chippings. See Appendix 1 for an aerial view map of the site.
- 3.3 The site is accessed from Lower Lane and is bounded by existing residential properties and greenfield space. The existing ground surrounding the site slopes towards the site such that any surface water from the surrounding slope would drain onto the existing hardstanding yard. The hardstanding itself slopes from the back of the site to the front entrance on Lower Lane.
- 3.4 The nearest watercourse to the site is a small river which is a tributary of the River Hamble, located approximately 60m to the west of the site situated on the other side of the road.
- 3.5 It is unclear exactly how the existing site drains, although due to a general lack of downpipes and the informal nature of the general site surfacing we assume the existing site discharges to the ground via infiltration.

3.6 Ground Conditions

- 3.6.1 The geology of the area is shown on British Geological Survey maps which indicates the site is underlain by Tarrant Chalk Member.

4.0 Development Proposals

- 4.1 The proposed development involves the demolition of the existing industrial unit, and the construction of a new modern steel framed building containing three units. The proposals also include an increase in the overall hardstanding area as a result of cutting into the embankments and providing retaining walls to the perimeter.
- 4.2 The proposed new building is approximately 640m² in area, containing 3 individual units each of the same area. The existing building on the site is approximately 548m², therefore as noted above this will result in an overall increase to the total impermeable area.
- 4.3 The proposed development will retain the general layout of hardstanding area as existing with additional areas where the retaining walls are to be constructed. Although the site area has increased, the existing drainage characteristics of the building and site are to remain the same.
- 4.4 With reference to National Planning Policy Framework (NPPF): Table 2, as buildings used for general industry, the flood risk vulnerability classification will be 'Less Vulnerable'.

5.0 Flood risks

5.1 River Catchment and Flooding

- 5.1.1 Based on the Environment Agency flood map the site is located in Flood Zone 1 which indicates this area has an annual probability of river flooding of less than 1 in 1000 (<0.1%). See Appendix 2 for Environment Agency flood map.
- 5.1.2 With reference to Section 4 and NPPF: Table 3, a development classified as 'Less Vulnerable' within Flood Zone 1 is deemed appropriate.
- 5.1.3 The Winchester SFRA does not identify any recorded incidents of fluvial flooding at or near the development site, and there are no historic occurrences of flooding recorded from the nearby river.
- 5.1.4 Whilst the SFRA does not identify any occurrences of flooding at the proposed development site, it does show that the site is located near to a high flood risk probability area due to the stream which is located on the opposite side of Lower Lane. Based on the flood risk maps, we would therefore conclude that although the site is located close to this stream, there is a very low risk of fluvial flooding to the site.

5.2 Overland flow from surface water

- 5.2.1 The existing site has been visually assessed for overland flows. Due to the nature and topography of the existing site and building, although not calculated, the depth of potential flow across the site is thought likely to be very small, and the general velocity over the ground will be minor.
- 5.2.2 With reference to the information provided in Appendix 4, the Government Flood Warning Information Service provide maps to indicate the risk of flooding from surface water. The information provided indicates the proposed development site is located in an area considered to be at low risk (chance of flood of 1 in 1000 to 1 in 100

year) of flooding from surface water, with some areas of the southern side of the site to be at low-medium risk (chance of flood of 1 in 100 to 1 in 30 year).

- 5.2.3 From a review of the site conditions it would appear that the surface water flooding on the site is as a result of run-off from the ground surrounding the development site which collects within the existing hardstanding yard area. The Environment Agency mapping indicates the depth of surface water flooding to be below 300mm depth and at a velocity of less than 0.25 m/s and therefore is considered to represent a low hazard.
- 5.2.4 From the Environment Agency flood map, the surface water doesn't appear to flow out onto Lower Lane, therefore we assume this is adequately dealt with through infiltration on site which supports our earlier assumptions. Given that the proposed works will result in changes to the existing hardstanding area, it is recommended that measures are incorporated into the new site drainage system to capture run-off from the surrounding areas and minimise ponding on site. This could be via the use of linear channels or gravel drains which intercept the surface water flow.
- 5.2.5 We note from the Ground Investigation Report prepared by Soils Limited and the Environment Agency mapping, that the site is located close to a Groundwater Source Protection Zone 1 (inner zone). Any provision of infiltration drainage should consider the potential contamination risk in close proximity to a groundwater source.
- 5.2.6 With reference to the indicative drainage plan provided in Appendix 4, we would recommend surface water drainage from the new building is collected and discharged via a soakaway located towards the front of the site. Given the quality of the chalk encountered during the site investigation, the soakaway should be located minimum 10m from any buildings. Given the potential risk of fuel spills from vehicles manoeuvring around the proposed yard area, the use of permeable paving is considered inappropriate. We would recommend surface water is collected via positive drainage system and discharge to soakaway via new full retention petrol interceptor.

The soakaway should be located over as large an area as possible to replicate the existing drainage characteristic of the site.

5.2.7 Final design of the soakaways should be undertaken at final detailed design stage, based upon BRE Digest 365 testing as recommended within the Soils Limited Ground Investigation Report. The Environment Agency should be consulted with regards the provision of and location of soakaways.

5.2.8 Based on the extent of the works and proposed SUDs system on the development site, we would therefore conclude the site areas are at low risk of flooding due to surface water and overland flow.

5.3 Local flooding of surface water sewer

5.3.1 The SFRA does not identify historic occurrences of sewer flooding within the vicinity of the proposed development site.

5.3.2 The new development will connect to new sustainable drainage and it is therefore not deemed to be at risk of this type of flooding or will increase the risk of flooding for surrounding areas.

5.4 Groundwater flooding

5.4.1 The SFRA holds records of flooding incidents that have occurred to properties located on the other side of the road opposite the proposed development site, and also notes that a Groundwater Flooding report was produced for the Bishops Waltham area in 2000-2001. The report however has not been located and therefore we are unable to comment on its content. The SFRA does note that some properties were affected by flooding during November 2006 as a result of prolonged heavy rainfall. There are however no records of groundwater flooding within the SFRA occurring at or near the

development site and it is therefore concluded that the site is not at risk of groundwater flooding.

- 5.4.2 The nature of groundwater flooding is such that it tends to affect areas at lowest level. The position and level of the site is such that groundwater flooding is not considered to be a risk, although it should be noted the proposed development will not increase the risk of groundwater flooding elsewhere.

6.0 Conclusion

- 6.1 The proposed developed area of the site is located wholly within Flood Zone 1 and is considered appropriate for this type of development.
- 6.2 The proposed development includes the demolition of an existing industrial use building and the construction of a proposed new building with associated hardstanding external areas. This will result in an increase of hardstanding on site.
- 6.3 The proposed development will include a new surface water drainage strategy dealing with surface water at source via infiltration and replicating the current surface water drainage of the site. A formal drainage solution designed to current standards will provide an improvement on the existing situation and therefore reduces the risk of surface water flooding on site and to surrounding areas.
- 6.4 Final design should be based upon BRE Digest 365 infiltration testing on site, and the solution discussed and agreed with statutory authorities and the Environment Agency.

Appendix 1



Aerial View of Site, Image from Google Maps

Appendix 2

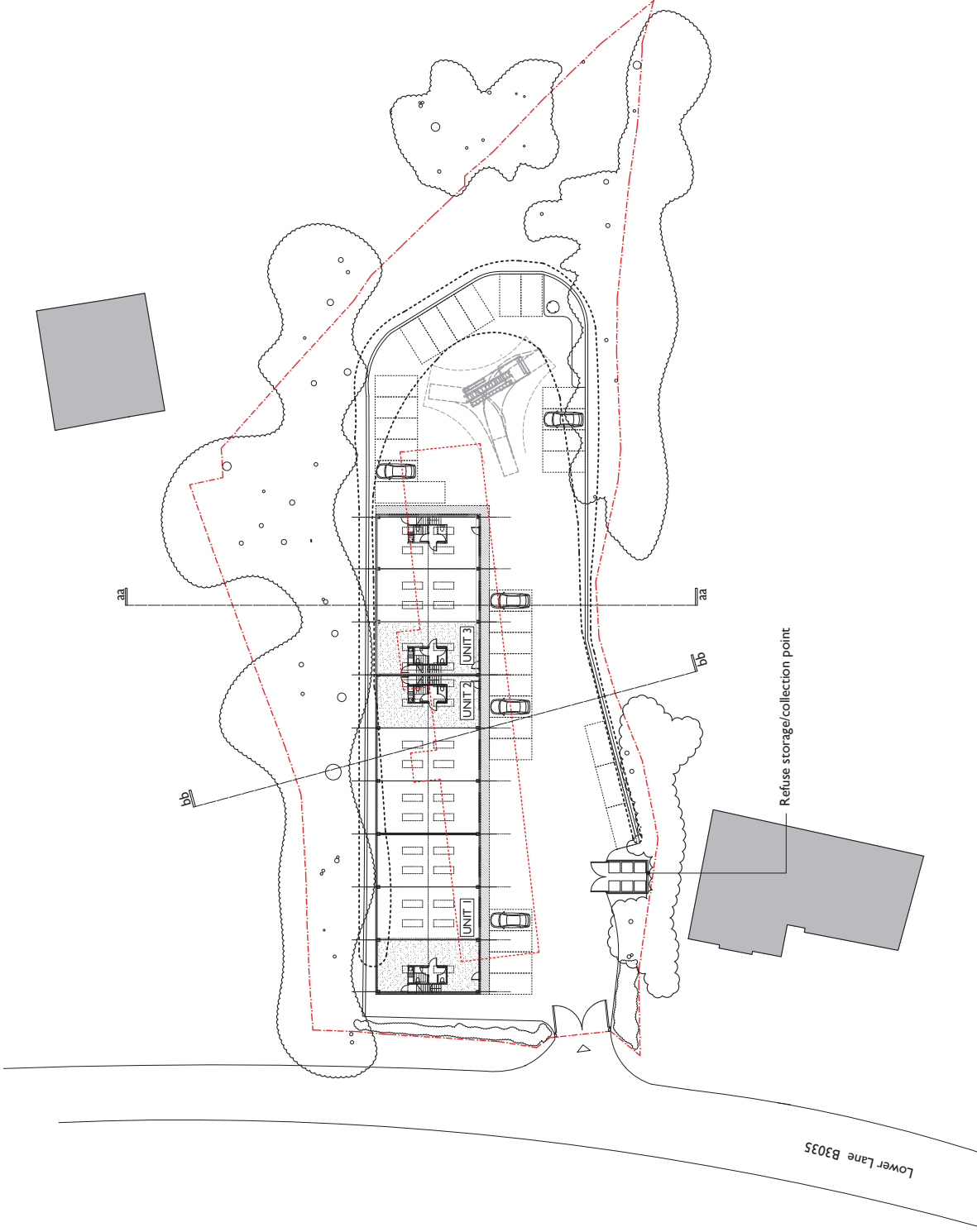


Surface Water Flood Risk Map taken from the Environment Agency website

Appendix 3

Proposed Site Plan

Commercial Unit Schedule	
Unit 1	Ground Floor = 206 sqm / 2217 sqft Mezzanine = 71 sqm / 764 sqft
Unit 2	Ground Floor = 206 sqm / 2217 sqft Mezzanine = 71 sqm / 764 sqft
Unit 3	Ground Floor = 206 sqm / 2217 sqft Mezzanine = 71 sqm / 764 sqft
Parking	
Unit 1	2 x staff 1 x lorry 2 x customer parking incl. repair bays in 3 x additional bays
Unit 2	2 x staff 6 x additional bays
Unit 3	2 x staff 13 x Additional bays
<p>--- Excavating and retaining required</p> <p>□ Mezzanine</p> <p>▨ Pedestrian route</p> <p>--- Outline of existing building</p>	



0 | Proposed Site Plan 1:500

Status: Preliminary
Scale: 1:500 @ A3

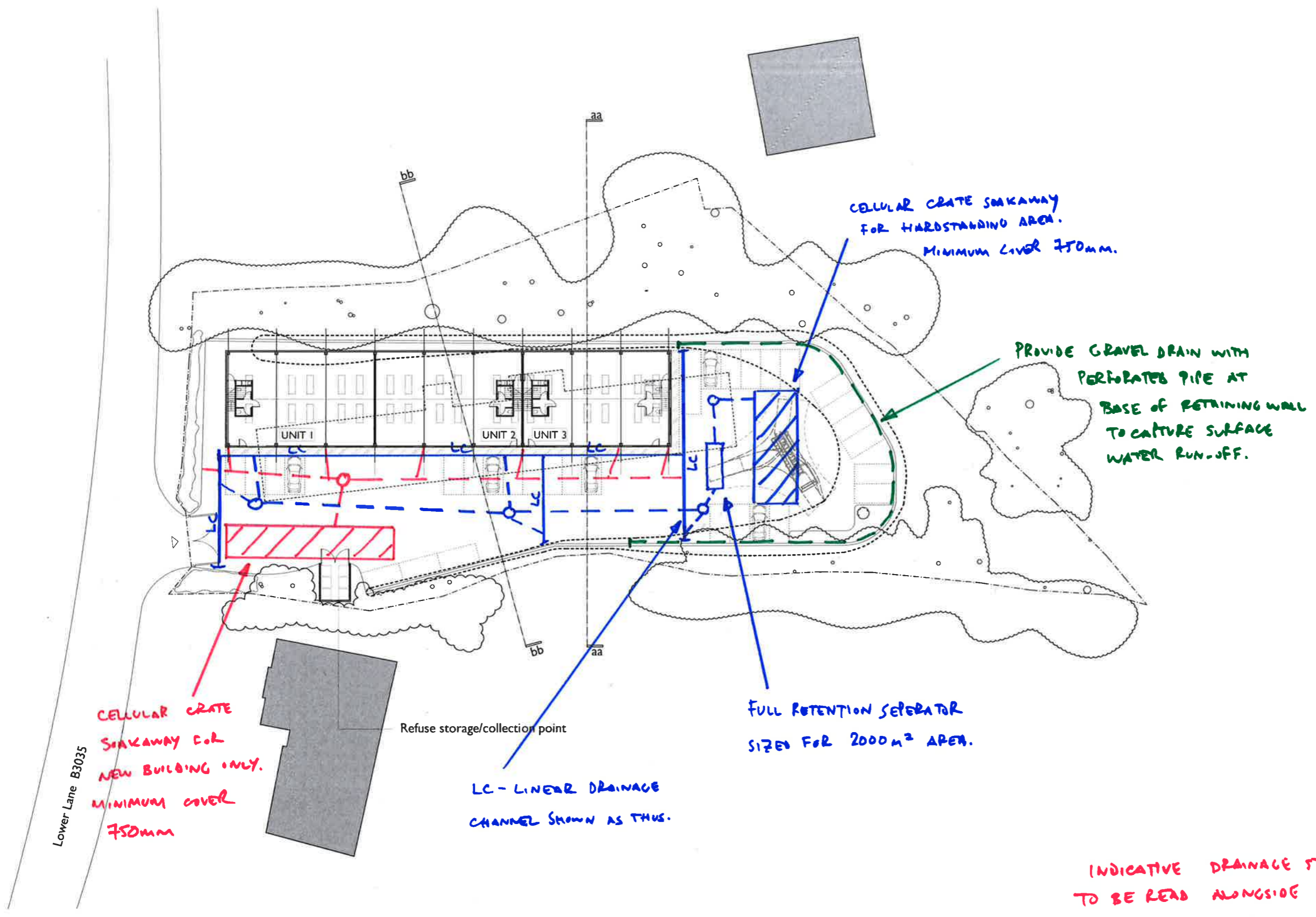
NOTE: This drawing is to be scaled for planning purposes only

Drawing: Proposed Site Plan
Dwg No: 168-SK-00
Date: 22.09.2016

Project: Bishops Waltham Depot
Address: Lower Lane, Bishops Waltham
Client: Winchester City Council

Appendix 4

Indicative Drainage Plan



Commercial Unit Schedule

Unit 1
Ground Floor = 206 sqm / 2217 sqft
Mezzanine = 71 sqm / 764 sqft
Unit 2
Ground Floor = 206 sqm / 2217 sqft
Mezzanine = 71 sqm / 764 sqft
Unit 3
Ground Floor = 206 sqm / 2217 sqft
Mezzanine = 71 sqm / 764 sqft

Parking

Unit 1
2 x staff
1 x lorry
2 x customer parking incl. repair bays in
3 x additional bays
Unit 2
2 x staff
6 x additional bays
Unit 3
2 x staff
13 x Additional bays

- Excavating and retaining required
- Mezzanine
- ▨ Pedestrian route
- Outline of existing building

INDICATIVE DRAINAGE STRATEGY TO BE READ ALONGSIDE FLOOD RISK ASSESSMENT. W01523.

0 | Proposed Site Plan 1:500



Status: Preliminary
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Project: Bishops Waltham Depot
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NOTE: This drawing is to be scaled for planning purposes only

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Client: Winchester City Council

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