

Proposed ALDI Food Store, March

Sustainable Drainage Strategy

Ref: 3727 313 Date: April 2021





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by:			Drainage and Infrastructure
Signed:		Signed:	
Date:	15/04/2021	Date:	15/04/2021



1. Introduction

- 1.1 Stirling Maynard has been commissioned by ALDI Ltd to provide a drainage strategy to accompany a full planning application for a proposed ALDI foodstore located in March, Cambridgeshire.
- 1.2 The content of this report is intended solely for the purpose for which it was commissioned, and the findings of this assessment should not be used for any other purpose without the written consent of the originator.
- 1.3 Information received from Third Parties reproduced or appended to this report has been taken as being supplied in good faith. The accuracy of such information has not been verified.

2. Site Description

- 2.1 The site is located off Hostmoor Avenue, March, Cambridgeshire at OS Landranger Reference TL 40188 98083 and is situated approximately 2 km north-west of March Town Centre. Access to the site is gained via Hostmoor Avenue, to the west of the site.
- 2.2 The site area measures approximately 0.86ha and comprises of two separate commercial/ light industrial premises. The site is set in a commercial area of Mach, surrounded by various businesses, including a Tesco Superstore to the south that includes a petrol filling station. A site location plan is contained in **Appendix A**.
- 2.3 A topographical survey of the site shows that levels across the site fall from the north to the from a level of approximately 3.8m AOD to 2.9m AOD at the site entrance, a copy of the Topographical Survey can be found in **Appendix C**.
- 2.4 A Geo-Environmental Report prepared by Brownfield Solutions Ltd in November 2020, contained in **Appendix D**, indicates that generalised ground conditions encountered comprise (top down):
 - Made ground (generally granular) encountered from ground level to between 0.20m and 1.45m bgl.
 - A layer of gravelly sand of variable depth and thickness identified at shallow depth to a maximum of approximately 1.90m bgl.
 - Natural strata predominantly of firm to stiff clay down to a depth of 10.45m bgl. The base of this strata was not proven during the investigation.
 - No visual or olfactory evidence of contamination.
 - Groundwater (perched) between 0.51m and 4.90m bgl.
- 2.5 Infiltration testing was undertaken and found infiltration rates to be in the range of 2.22x10⁻⁶m/s to 2.36x10⁻⁶m/s and is considered to be poor. Due to this, utilising infiltration on this site is unlikely and alternative means of disposing of surface water will be looked at.
- 2.6 An Anglian Water asset map obtained for the area, contained in **Appendix H** of this report, shows a 150mm diameter foul water sewer, running west to east, in Hostmoor Avenue, and North to South in Martin Avenue. The sewers converge at the junction of the two roads and continue in an easterly direction.



- 2.7 The Anglian Water asset map also shows a surface water sewer of unknown diameter in Martin Road running north to south, joining a 900mm diameter sewer in Hostmoor Avenue, which runs in a westerly direction. According the asset map, the sewer turns in a northerly direction to the south of the site, crossing the south western corner of the site, discharging into the adjacent watercourse.
- 2.8 A GPR utility survey, carried out in May 2020, shows that the existing site discharges both surface and foul water to Anglian Water sewers in Hostmoor Avenue and Martin Avenue respectively. A copy of this survey, together with the Anglian Water asset map for the area can be found in **Appendix H**. The utility survey did not find the portion of the surface water sewer shown to cross the site.

3. Surface Water Drainage Strategy

- 3.1 The hierarchy for dealing with surface water drainage, as described in Building Regulations and in accordance with the principles of Sustainable Drainage, is as follows:
 - Discharge via soakaway or other infiltration system, where practicable.
 - Discharge to a watercourse, where practicable, possibly subject to a limited rate of discharge.
 - Discharge to a surface water sewer, possibly subject to a limited rate of discharge.
- 3.2 The site is formed of two brownfield premises, comprising of light industrial buildings with hardstanding throughout. Currently the site discharges surface water, collected via gullies and a piped system into the Anglian Water sewer network at an unattenuated rate.
- 3.3 As mentioned previously, the Geo-Environmental Assessment Report confirmed the use of infiltration is unlikely due to rates being in the range of 2.22x10⁻⁶m/s to 2.36x10⁻⁶m/s.
- 3.4 There is an open watercourse in the vicinity of the site, however it lies outside of the boundary of the proposed development.
- 3.5 There is an Anglian Water surface water sewer in Hostmoor Avenue that currently serves the outfall from the existing site. It is proposed to utilise this existing connection into the sewer for the proposed development. The sewer discharges into the open water course mentioned above approximately 50m downstream of this connection.
- 3.6 Typically, Aldi Stores have a design life of 25 years and, in this instance, the anticipated end of life would be around 2045. With reference to guidance on climate change allowances given on the GOV.UK web site, the total percentage change in peak rainfall intensity allowance anticipated for the 2050's (2040 to 2069) is 20%, for the upper end allowance. An allowance of 20% climate change will be used for estimating the attenuation volume required.
- 3.7 Using the hierarchy for dealing with surface water drainage, it is proposed to discharge the roof water into a filter drain, then into a swale before discharging into the Anglian Water surface water sewer via a buried attenuation tank located under the car parking. An indicative drainage layout showing the proposed surface water drainage scheme is contained in **Appendix E**. The vast majority of the car park will be drained via permeable paving located within parking bays.



- 3.8 Due to levels on site there will be a need for channel drains. Where possible, subject to levels, these components will discharge via a SuDS feature before entering the attenuation tank.
- 3.9 The following measures are to be incorporated into the drainage design:
 - A filter drain, a swale, and permeable paving.
 - The site will require approximately 400 cubic metres of storage for all events up to the 1 in 100-year rainfall event plus 20% for climate change. The calculation for this volume can be found in **Appendix F** of this report.
 - Permeable block paving The coarse aggregate sub-base will provide some storage within the 30% voids of the sub-base, providing approximately 40m³.
 - Buried attenuation tank this will provide approximately 360m³.
 - In events greater than the 1 in 100-year rainfall event plus 20% for climate change, the site will be designed to allow surface water to flow towards the western boundary of the site and away from the building. In the event of flooding and overtopping of the kerbs at the western boundary during extreme rainfall events, any surface water will flow into the adjacent watercourse.
- 3.10 The proposed surface water drainage system will remain in private ownership. Maintenance will be the responsibility of ALDI Ltd, in accordance with the Operational Maintenance Specification for ALDI Store Drainage Systems in **Appendix G**. All SuDS components will be maintained by ALDI UK and shall follow the Operation and Maintenance requirements as set out in the CIRIA SuDS Manual 753.
- 3.11 Going through the Non-statutory technical standards for sustainable drainage systems standard by standard:
 - S1 Not applicable.
 - S2 Not applicable.
 - S3 The proposed SuDS scheme will reduce the surface water discharge rate to 5l/, much less than the current unrestricted rate.
 - S4 Not applicable.
 - S5 As mentioned for S3, the discharge rate will not exceed 5l/s. For events up to and including the 100-year including climate change, attenuation will be provided on site in the form of porous subbase underlying permeable paving, a swale and buried attenuation tank, totalling approximately 400m³. The calculation of this estimated volume can be found in **Appendix F**.
 - S6 Not applicable.
 - S7 All surface water events, up to and including the 100-year including climate change, will be stored within SuDS components, making sure that flooding does not occur on any part of the site, or off the site, for these events.
 - S8 All surface water events, up to and including the 100-year including climate change, will be stored within SuDS components, making sure that flooding does not occur in any part of a building or utility plant within the development.



- S9 For events greater than designed, levels on the site will shed water away from the building and towards the parking bays, minimising the risk to people and property.
- S10 For design life of the proposed development, 25 years, it is likely that all SuDS components will still be fully functioning at the end of the development's life. Together with regular maintenance, as set out in the maintenance specification, there should be no reason that the structural integrity of any of the components fail.
- S11 All components as part of the SuDS system will be of a suitable nature and quality for their intended use.
- S12 Due to the nature of the development as a food retail store, the unloading of goods vehicles will have to be undertaken. The loading bay for the store is designed to be at a lower level, via a dock leveller, so that when HGVs reverse to the store delivery access door, the bed of the vehicle is at finished floor level. As the base of this dock leveller is lower than the building, a pump is required to remove surface water from that area and up into the proposed surface water drainage network. To eliminate the need for additional flow control devices, the pump will be located at the end of the drainage network and be used to reduce the flow to 5I/s prior to discharging surface water from the site.
- S13 An outfall is proposed into the Anglian Water sewer and will meet their requirements without being prejudicial to the structural integrity and functionality of the sewerage system.
- S14 All work will be approved by Anglian Water.

4. Foul Water Drainage

- 4.1 It is proposed to discharge foul water to the public foul water sewer in Martin Avenue. It is proposed to utilise the connection that currently serves the existing site.
- 4.2 An indicative drainage layout showing the proposed foul water drainage scheme is contained in **Appendix E** of this statement.
- 4.3 Most of the foul drainage will remain in private ownership. Maintenance would be the responsibility of ALDI Ltd, in accordance with the Operational Maintenance Specification for Aldi Store Drainage Systems in **Appendix G**.



5. Conclusions

- 5.1 The main risks of flooding to the development or resulting from the development relate to the surface water drainage from the site.
- 5.2 The proposed development will reduce the existing rate of discharge to 5l/s. The current sites discharge surface water to the public surface water sewer at an unrestricted rate with no attenuation on site.
- 5.3 It is proposed to utilise the existing connections into the public sewers for both foul and surface water.
- 5.4 The proposed surface water drainage system for the site includes a filter drain, swale, permeable paving and an attenuation tank accommodating the critical 1 in 100 plus climate change rainfall event.
- 5.5 The proposed drainage strategy is consistent with adopted local Policy LP14 Part (B) which sets out the local drainage policy criteria.



Appendices



Appendix A





SUBJECT TO SITE SURVEY, CONFIRMATION OF LEGAL BOUNDARIES, SITE CONSTRAINTS & HIGHWAYS

THE HARRIS GROUP LTD DOES NOT ACCEPT LIABILITY FOR ANY DEVIATION FROM OUR DRAWINGS OR SPEC IFIC ATIO N

APPLICATION SITE AREA (RED LINE) 8,662 SQM; 2.14 ACRES; 0.86 HECTARES

	- Rev	d d -m Date	іт-уу	Description				Rev By	 Chk'd By	
	Projec	t Title	PROPOSED ALDI FOODSTORE HOSTMOOR AVENUE MARCH TRADING PARK MARCH PE15 0AX							
	Client		ALDI STORES LIMITED - CHELMSFORD							
	Status		PLANNING							
	Scale		1:1250		Drawing Size A3					
	Date		01.0	5.20	Drawn By	JPG	Check	ked		
	Drawir	ng Title	LOCATION PLAN							
	Job-D	wg No	29	909-	СН	E-1	00	Rev	-	
100m	2 St. Johns North, Wakefield, WF1 30A t. 01924 291800 Carvers Warehouse, 77 Dale Street, Manchester, M1 2HG t. 0161 2388555 The Old Rectory, 79 High Street, Newport Pagnell, MK16 8AB t. 01908 211577 101 London Road, Reading, RG1 5BY t. 010 Gees Court, St Christophers Place, London, W1U 1JJ t. 0207 4091215									



Appendix B





Appendix C

