

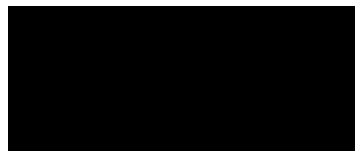
Report No:	Date:
DW1705-A	6th July 2018
Project:	
HB Villages – Coppice Side Swadlincote SuDS / Drainage Strategy	
Client:	
HB Villages	

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Report status:

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Date: Rev B – 20th February 2019

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Appendices

Appendix A - Topographical Survey & Sewer Records

Appendix B - Flood Maps

Appendix C - Current Site Proposal & Stormwater Storage Calculations

1.0 Introduction

- 1.1 It is proposed to provide new assisted living accommodation on the site off Coppice Side, Swadlincote.
- 1.2 This assessment considers the previous drainage from the site, the proposed site requirements and the application of sustainable methods of drainage.
- 1.3 This assessment has been prepared following an instruction by Mr Steve Jordan on behalf of HB Villages Limited.

2.0 Existing Site and Watercourse / River System

- 2.1 The site is approx. 3,950m² in size and lies to the West of Coppice Side. The site predominantly falls West to East and also to the North with a maximum drop in level of approximately 9m.
- 2.2 The site is currently undeveloped and covered with grass, vegetation and trees. The historical maps indicate previous development but the site has been effectively undeveloped for more than 5 years. Refer to the Topographical Survey in Appendix A.
- 2.3 The Public Sewer records from Severn Trent indicate an Adopted 225mm dia. Combined sewer in Coppice Side and a 450mm dia. Surface water sewer running close to the site boundary in Coppice Side. Refer to the Sewer Records in Appendix A.
- 2.4 The site is shown to be in Flood Zone 1, above any localised 1 in 1000-year river or stream flood events, as shown on the Environment Agency Flood Map for Planning and as such a site specific Flood Risk Assessment is not needed as the site is also well below 1 Ha in size. The flood map is contained within Appendix B.
- 2.5 The risk from surface water flooding is indicated as Low, as shown on the extract from the Environment Agency website in Appendix B.

3.0 Proposals, New Drainage and Ground Conditions

- 3.1 The proposed site will have new buildings and car parking with a new site entrance off Beauvale Drive. There will also be communal gardens. The current site proposal is contained in Appendix C.

The proposed hard surface area will be approximately:-

New Buildings	- 633 m ²
Road & Car Parking	- 656m ²
Other Hardstanding Areas	- 333m ²

Total Drained Area - 1,622m²

- 3.2 The Phase 2 site investigation report indicates a depth of made ground and clay soils overlying mudstone.
- 3.3 Ground percolation tests were not carried out as the mudstone was found at shallow depths and would therefore prevent the use of soakaways.

4.0 Sustainable Drainage Options

- 4.1 We have considered the full range of sustainable drainage options for the site, which are listed as follows:-
- a) Watercourses are currently discounted due to there being none in the vicinity of the site.
 - b) Surface Water Sewers are a definite option as the Adopted Surface Water Sewer exists in Coppice Side.
 - c) Soakaways – The underlying strata is expected to be unsuitable for any type of soakaway drainage due to the clay soils and shallow depth to mudstone.
 - d) Rainwater Harvesting – We examined the overall benefit of rainwater harvesting on the scheme but the very limited potential use for harvested rainwater, together with there being zero effect upon the amount of water entering the underground system during wet conditions has led us to discount this as an option.
 - e) Permeable Surfacing – We have used this on several schemes previously and looked closely at the merits of using the system on this scheme. However, due to the inability to ‘discharge’ any surface water into the ground, any water passing through the permeable paving would require collection via perforated land drains to discharge into the main site system, but, Severn Trent would not accept ANY water from land drainage and therefore permeable paving cannot be used on this site. Should ST accept water from the land drains it would still result in the same volume of water leaving the site and therefore this should be discounted as an option.
 - f) Swales – We have examined the potential for the incorporation of a Swale into the scheme, but this was discounted due to the size of the scheme but more importantly the ground conditions and site topography.

5.0 New Drainage Proposals

- 5.1 Foul and surface water drainage within the site will be kept separate. They will discharge into the adopted Combined and Surface Water Sewers close to the site boundary.
- 5.2 The surface water discharge from site must be limited to prevent overloading the existing sewers and is restricted to 'Greenfield Runoff' values. For 1 in 100 year event this is calculated at 4.6 l/s for a 1 in 100 year event.
- 5.3 The proposed 'hard' drained area is approx. 1,622m².
- 5.4 Surface water will be attenuated in an underground tank, with the flow to the surface water sewer restricted to 5 litres / second in accordance with common practice, as restricting below this level is generally not practicable.
- 5.5 The attenuation will be calculated based upon a 1 in 100-year storm event plus 40% increase to allow for Climate Change. Storage calculations are contained in Appendix C.
- 5.6 Based upon the site area of 3,950m² and a 'drained' area of 1,622m² the attenuation provided will be approximately 75m³ and will comprise a 'crate' system under the access road. The 'top water' level in the attenuation must be kept well below the lowest proposed building level and therefore the attenuation tank cannot be sited in the car park area.