

**Proposed Surface Water
Drainage Strategy
Proposed Care Home and
Additional care units
Highfields, West Hill
East Grinstead**

NJP Consulting Civil & Structural Engineers
20 St Andrews Crescent
Cardiff
CF10 3DD

T: 029 2072 9500
E: info@njpuk.com

Proposed Surface Water Drainage Strategy

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Proposed Drainage Strategy

1.0 Introduction

1. NJP Consulting Civil and Structural Engineers (NJP) has been commissioned by Igloo Care Ltd and EQ Care East Grinstead ('the client') to provide a Drainage Strategy and Flood Risk Assessment in relation to a planning application for a proposed care home and additional care units on the site of a former dwelling at Highfields West Hill, East Grinstead KT15 1HH
- 2 This report provides a desk study review of the proposed drainage strategy based on:
 - Site Plan 1045.HSLP-001-A (Appendix 1)
 - Topographical survey (Appendix 2)
 - SuDS Manual C753 CIRIA 2015
 - Defra SuDS Non- statutory technical standards for sustainable drainage systems March 2015
 - Ground Investigation window logs Ref 243123 dated 26 November 2024 (Appendix 3) and brief report section 4.0 below

2.0 The Site

- 2.1 The proposed development site was previously occupied by a large dwelling associated parking, swimming pool and outbuildings. The car facility was demolished circa 2018 and returned to soft landscaping comprising rough grassland and trees. The Site developed area is approximately 0.480 Ha.
- 2.1 The centre of the site has a sloping plateau with a low point of 116.2m AOD at the west of the site, rising to over 124.0m AOD on the eastern boundary. North of the central plateau the site slopes steeply down to West Hill.

3.0 Existing Surface and Foul Water Sewers

- 3.1 There are numerous manholes located close to the existing building but no positive connection to existing adopted sewers has been proven at the time of writing,
- 3.2 There is a combined sewer in West Hill highway in close proximity to the proposed access.

4.0 Summary of Site investigation report

- 4.1 All three boreholes encountered made ground from 0.70 to 1.20mbgl overlying silty clays and clayey silts which give way at depth to extremely weak (friable and poorly cemented) clayey siltstones of the Lower Tunbridge Wells Sand.

No groundwater was encountered during drilling and the boreholes which were to depths of 6m (WS1 and WS3) and 4m (WS2) were dry on our return visit this week.

The soils are particularly fine grained and readily break down and as such are unlikely to be suitable for soakaways. Whilst in the more fissured siltstones water infiltration may be possible, such materials are likely to quickly degrade on contact with water.

Guidance from Kent County Council on construction soakaways in deposits of the Lower Tunbridge Wells Sand states that The use of (soakaways in) this material should, however, be seriously questioned because the soil is easily eroded and could lead to surface collapse.

Given the location of the site at the top of a hill and the materials found in the boreholes it would be prudent to seek an alternative method of disposal of surface water rather than soakaways.

Rachel Foord BSc (Hons), MSc, MCSM, CGeol, FGS



www.compassgeotechnical.co.uk

Rachel@compassgeotechnical.co.uk

01455 213 311 (Midlands)

01255 830 034 (Essex)

07860 465 331 (Mobile)

01455 213 969 (Fax)

Registered Office: 13 Willow Park, Upton Lane, Stoke Golding, Warwickshire, CV13 6EU.

Registered in England: 2805575

5.0 Suitability of surface water disposal methods

Table 1

Surface Water Method of Disposal in order of preference	Suitability Description	Method Suitable? (Y/N)
Infiltration to Ground	Not viable refer to 4.0m above and Appendix 3	N
Discharge to surface water	No watercourse. Nearest watercourse is approximately 450m to the south west, adjacent Hurst Farm Road with no corridor to access the watercourse	N
Discharge to sewer	The nearest suitable sewer for connection is a combined sewer located in West Hill	Y

6.0 Proposed Surface Water Drainage Strategy and Water Quality

6.1 The SUDS system proposed will control the water at source in accordance with current best practice and National Planning Policy Guidelines and the CIRIA SUDS Manual 2015. Reference has also been made to the Environment Agency Guidance for storm intensity, climate change allowance and rainfall allowances advises:

- 3.3% annual exceedance rainfall event Upper end allowance use 35% climate change allowance.
- 1% annual exceedance rainfall event Upper end allowance use 45% climate change allowance.

6.2 For the purposes of this assessment, the FEH Method has been adopted utilising the HR Wallingford online tools summarised in Table 2 below. (Appendix 5 (ii) refers)

Table 2: Surface Water Runoff from the Proposed Development = 0.480 Ha

Return Period	Flow Rate l/s
Q BAR	3.43
1 in 1 year	2.91
1 in 30 year	7.88
1 in 100 year	10.93
1 in 200 year	12.82

6.3 None of the SUDS systems will be offered for adoption and maintenance cost falls to the care home operator. Surface water will be managed from the development by use of the flow controls and cellular storage

6.4 The roofs and car park run off is connected via a traditional network directly to the cellular attenuation lined system. Hydrobrakes will serve the attenuation located in both car parks. The steep access road has a network of pipes, orifice control chambers and individual cellular storage cascading down the road. The final flow control in chamber S12 limits the final flow to less than Q Bar for all storm events up to and including the 1:100 year + 45%ccf storm duration 1440 minutes.

6.5 As the restricted flow connects to a combined sewer and Pollution Hazard levels are designated Low in the SuDS manual , Table 3 refers, no water quality improvements are required.

Table 3

Land Use	Pollution Hazard Level	Pollution Hazard Indices		
		Total Suspended Solids (TSS)	Metals	Hydro-Carbons
Residential Roof	Very Low	0.2	0.2	0.05
Residential car park	Low	0.5	0.4	0.4

7 Run Off Control

7.1 The surface water system has been designed and tested for a 1 in 2 year +45%ccf,1 in 30 year+45%ccf and 1:100+45% ccf event and appropriate attenuation provided at a discharge rate not exceeding Q Bar has been provided.

7.2 Urban Creep has not been included as there are no suitable locations for further development due to the requirement to maintain amenity gardens to suit the number of bedrooms provided. Extending south would cover areas that are already hardscape and included within the catchment areas.

Table 4 catchment areas

Item	M ²
Roof	1711
Impermeable access road and parking	2589
Total catchment to be drained	4300

8.0 Conclusions.

- 8.1 The system has been designed in accordance with current best practice for a range of storms up to and including the 1 in 100 year storm event +45%.(Appendix 5)
- 8.2 Surface water network calculations identify no flooding for all storm events including 45% climate change. (Appendix 5)
- 8.3 The discharge rate is below Q Bar. (Appendix 5)
- 8.4 A maintenance regime will be provided and the responsibility for maintenance will be with the care provider at no cost to the public. (Appendix 4)
- 8.5 Due to the requirements to protect residents with specific problems including but not limited to dementia, above ground attenuation is not preferred due to risks to residents.
- 8.6 Foul water will be a gravity system and will connect into the combined sewer in West Hill.

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APPENDIX 1

APPENDIX 2

APPENDIX 3

APPENDIX 4

APPENDIX 5

APPENDIX 6