



DRAINAGE STRATEGY FOR:

Sorbon Estates

ADDRESS:

Reading Retail Park,
Rose Kiln Lane,
Reading
RG2 0SN

Rev 01

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APPENDICES

A. THAMES WATER – SEWER RECORDS

B. DRAWING H1464/400 – SITE SURVEY

C. DRAWING H1464/410 – SCHEMATIC DRAINAGE LAYOUT

D. DRAWINGS H1464/411&412 – CONSTRUCTION DETAILS

E. MICRO DRAINAGE CALCULATIONS

F. EA FLOOD MAP

G. SUDS MAINTENANCE PLAN

1 Introduction

This report outlines the surface and foul water strategy for the proposed development and is prepared for the discharge of planning condition 8, application Ref:- 231077 at Reading Retail Park, Rose Kiln Lane, Reading, RG2 0SN. Proposals include the removal of a block paved carpark and the construction of a new steel framed building to be used as a gym with associated external works.

Planning Condition 8 listed below :-

- No development shall commence on site until a Sustainable Drainage Strategy and associated detailed design, management and maintenance plan of surface water drainage for the site using SuDS methods has been submitted to and approved in writing by the Local Planning Authority. The plan shall include:
 - i. a timetable for its implementation, and
 - ii. a management and annual maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime.

2 Public Sewer Records

Sewer records have been obtained from Thames Water. An existing public foul sewer is located to the north of the site on the opposite side of Holy Brook in Admirals Court. Some surface water sewers are shown on the records and these generally outfall to the Holy Brook. Drain's are shown on the sewer records to the west of the site and these are understood to be culverted through the development site. Refer to Appendix A – Thames Water Sewer Records.

3 Existing Drainage Network

The current carpark is positively drained via road gullies and a network of surface water sewers connected to an existing outfall. A drainage survey has been carried out which has traced all road gullies and manholes within the vicinity of the development site. No foul water has been found and the closest foul sewer is located to the rear of the existing buildings near to the Brook.

The approximate development area is 0.159Hec. Refer to Appendix B – Drawing H1464/400 – Site Survey.

4 Greenfield Run-off Calculations

Greenfield Run-off Calculations have determined that the existing site Qbar Urban value equals 0.9l/s. Q100 = 1.9l/s. Refer to Appendix E – ICP SUDS Mean Annual Flood.

The existing site is currently positively drained.

5 Environment Agency Flood Map

Based on the results of an EA flood map search the site is located in flood zone 1 and has a low probability of flooding. Refer to Appendix F – EA Flood Map.

6 Ground Conditions

- Made Ground – Medium dense and dense sandy GRAVEL to 1.4m bgl
- Made Ground - Very soft sandy gravelly CLAY to 2.6m bgl.
- Alluvium: Soft to firm low strength silty gravelly CLAY to 3.7m bgl.
- Structureless CHALK (Grade Dm) to 10.0m bgl.

Groundwater struck at 3.6m bgl, rising to 2.9m bgl after 20 minutes (Jan 2022)

7 SUDS Hierarchy

The hierarchical approach to SUDS selection has been used to help determine the most sustainable drainage technique for the site. Based on the topography of the site and the current proposed layout the following SUDS measures have been considered:

- Ponds – The size and nature of the site does not make the provision of a detention/retention pond a feasible element to include.
- Swales – The size of the site does not lend itself to the provision of swales.
- Ditches – The size of the site does not lend itself to the provision of a ditch.
- Soakaways – The Site Investigation Report has identified made ground and low permeability soils, therefore soakaways are not suitable due to low permeability.
- Permeable surfacing – The development includes replacing a carpark with a building and therefore permeable paving is excluded.
- Buried surface water storage systems – Aquacell storage wrapped in an impermeable membrane could be used to attenuate the flows.
- Discharge rainwater to a surface water sewer – A surface water sewer currently serves the site and is suitable for the connection of the proposed flows.
- Discharge rainwater to a foul/combined sewer – Not recommend and only considered as a last resort.

Having considered the above SUDS measures the following solutions are suggested:

Surface water is designed to drain to the existing surface water sewer. A hydrobrake flow restriction is proposed limiting the flow to QBar (0.9l/s). Storage is provided in Aquacell crates.

8 Proposed Surface Water Strategy

Impermeable roof areas are designed to drain by gravity to the existing surface water outfall which exists at the south eastern corner of the building. The flows are restricted using a Hydrobrake catchpit chamber to 0.9l/s. Storage is provided using Aquacell crates. Storage Calculations are provided using Microdrainage Source Control based on 1:100year +40% for climate change. Refer to Appendix C – Drawing H1464/410 – Drainage Layout and Appendix D – Drawing H1464/411 – Construction Details. Refer to Appendix E – Microdrainage Calculations.

9 Proposed Foul Water Strategy

Foul water is proposed to drain by gravity to a foul water pump chamber located to the rear of the building. A pumped rising main will be constructed to the existing foul sewer located to the north in the rear service yard area, prior to discharging to an existing pump chamber. The final outfall is via an existing pumped rising main to the public sewer to the north in Admirals Close. Refer to Appendix C – Drawing H1464/410 – Drainage Layout.

10 Surface Water Plan Implementation

The Surface water drainage plan shall be implemented during the Groundworks construction phase of the development. The outfall catchpit manhole will be constructed first and all upstream drainage including attenuation will be installed prior to the site completion.

11 SUDS Maintenance Plan

Refer to Appendix F – SUDS Maintenance Plan.