

Project: Land to the South of Romsey Avenue
Fareham

SMA Ref: 5611/SWDrainage

Subject: Surface Water Drainage Strategy

Prepared by: James O'Kelly **Date:** 17 October 2018

1.0 INTRODUCTION

- 1.1 This technical note has been prepared by Stuart Michael Associates (SMA) in reply to comments made on 5 October 2018 by Hampshire County Council acting as the Lead Local Flood Authority.

2.0 SURFACE WATER DRAINAGE

Evidence of and information on the existing surface water flow paths of undeveloped (Greenfield) sites. The spot levels on the PDF topo survey within the FRA are not visible.

- 2.1. SMA Drawing 5611.404 showing existing surface water flow paths is enclosed. For reference, the contours are at a 0.5m spacing. A copy of the topographical survey by Encompass Surveys is also enclosed.

Where infiltration is used for drainage, evidence that a suitable number of infiltration tests have been completed. These need to be across the whole site; within different geologies and to a similar depth to the proposed infiltration devices. Tests must be completed according to the BRE 365 method or another recognised method including British Standard BS 5930: 2015

- 2.2. Trail pits and infiltration testing has been undertaken across the site. Please see drawing 5611.405 and associated trial pit logs and soakaway calculations for more information.

Pipe references need to be added to the drainage layout.

- 2.3. Please see updated drainage strategy drawing 5611.402 Rev B.

32mm orifices in the pipe network are shown; this will lead to a higher risk of blockage for a system that will have road gullies. If the system is going to be offered for adoption to Southern Water or Highways a minimum of 75/100mm orifice diameter would be required.

- 2.4. The orifices have been removed as they served no purpose. Please see latest Micro Drainage calculations.

The results do not show the maximum water level within the storage structure.

- 2.5. Please see updated Micro Drainage calculations. Maximum water levels for each Micro Drainage network pipe can be seen under Results Summary. The water level in the storage structure has also been added to the drainage strategy drawing.

An infiltration rate taken at 1.5m below ground have been used for the permeable paving which will be at a shallower depth, further infiltration testing will be required.

- 2.6. Further infiltration can be done at detail design stage to confirm infiltration rates where required. If rates are found to be unfeasible closer to the surface, trenches can be incorporated into the design of the permeable paving to reach further into the ground.

The 140sqm soakaway does not meet half drain down time, the implications of this need to be considered.

- 2.7. The soakaway sizes have been revised. Please see updated drawing 5611.402 Rev B and associated calculations.

The Soakaways adjacent to Plot 43 look to be within 5m of the building.

- 2.8. The soakaway sizes have been revised. Please see updated drawing 5611.402 Rev B and associated calculations.

There are a number of soakaways in close proximity to each other. The affects of one soakaway saturating the area around another need to be considered.

- 2.9. The soakaway sizes have been revised. Please see updated drawing 5611.402 Rev B and associated calculations.

Exceedance flows are considered in the event of the pipe being non-operational. Evidence that Exceedance flows and runoff in excess of design criteria have been considered - calculations and plans should be provided to show where above ground flooding might occur and where this would pool and flow.

- 2.10. No flooding occurs for any part of the system up to an including the critical 1 in 100 year plus 40% climate change event. Any exceedance flows will follow the roads in a south westerly direction towards the infiltration basins as shown on drawing 5611.406 – Surface Water Exceedance Routes.

Evidence that Urban Creep has been considered in the application and that a 10% increase in impermeable area has been used in calculations to account for this.

- 2.11. Please see Micro Drainage calculations under 'Simulation Criteria for Storm'. In accordance with CIRIA recommendations, a 10% of additional flow has been provided to account for urban creep.

Encl. 5611.402B – 58 Dwelling Drainage Strategy

5611.404 – Existing Surface Water Runoff Flow Paths

5611.405 – Soakaway Trialpit Locations

5611.406 – Surface Water Exceedance Routes

Infiltration Testing Results

Micro Drainage Calculations