



Foreman Homes

11 January 2017.

Hampshire County Council,
The Flood and Water Management Team,
Ell Court West, 1st Floor,
Winchester, Hants. SO23 8UJ.

For the attention of Sarah Raghif.

Dear Sarah,

**Re: Land at Ranelagh Road, Havant. PO9 1NR.
Application Ref: APP/16/00379.**

Thank you for taking the time to meet with me on the 09 December 2016 regarding the above application. Together with Sam Collins of our planning department we have now compiled the information you requested, which is detailed below together with your original question.

1. No information has been provided relating to the existing drainage network for previously developed (brownfield) sites, or the existing paths of un-developed (Greenfield) sites.

Please find enclosed surface water run-off plan 14-2260-950-P1 showing water flow paths arrowed.

2. No information has been provided relating to areas that may have been affected by existing failures in the existing drainage scheme.

There are no known existing failures to the fields.

3. No evidence has been provided that the proposed drainage follows the same pattern as the existing, so as to not direct more flows to another location.

The proposed drainage scheme has been designed to flow towards the Hermitage Stream being the low point of the area.



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4. There is no information on the correct number of treatment stages in the surfacewater management train.

The surface water management train with three stages is shown in point 2.10 of the Flood Risk Assessment.

5. As infiltration is proposed for the drainage for the site, evidence must be provided that shows that a suitable number of tests have been completed across the whole site within different geology to a suitable depth (i.e similar depth of the proposed infiltration devices). The tests to be completed accordingly to the BRE365 method.

The site is not subject to infiltration. All flows are directed to the detention basin to allow evaporation. The basin is situated in the north west corner of the site.

I can confirm there are no exceedance levels for the run off.

I enclosed drawing 14-2260-500/C7 showing the connection of the detention basin overflow to the manhole situated over the culverted hermitage stream via manholes S18-S20.

6. Existing and proposed run off rate calculations need to be provided, along with evidence that these calculations have been completed in accordance with a suitable method (i.e IH124 or FEH). These calculations should demonstrate that the proposed run off rate for a one in one year event does not exceed the existing run off rates.

Calculations for existing and proposed run off rates are within Hamill Davies Limited BREEAM SUR1 calculations.

7. Existing and proposed run off volume calculations need to be provided for a one in one hundred year, 6 hour rainfall event, along with evidence that these calculations have been completed according to a suitable method. These calculations should demonstrate that, where reasonably practicable, run off volume from the development in the one in one hundred year, 6 hour rainfall event should never exceed the greenfield run off volume for the same event.

Calculations for the volume event are within Hamill Davies Limited BREEAM SUR1 calculations.



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8. Evidence needs to be provided that sufficient storage/attenuation has been provided on site to accommodate the one in one hundred year plus climate change event, without increasing the run off rate or volume on site.

Additional storage on site is within soakaways to dwellings and the detention basin. Hand written calculations from the engineer are included.

9. Evidence needs to be provided to demonstrate that exceedance flows and run off in excess of the design criteria have been considered-calculations and plans should be provided to show where above ground flooding may occur and where this would pool and flow.

The use of permeable paving, soakaways and the detention basin alleviates the possibility of exceedance flows.

10. Information on general maintenance regimes of the surface water management train including SUDS features is required, including who is undertaking it-evidence that those maintaining the drainage system are in discussion with the developer.

Maintenance procedures are shown in the Flood Risk Assessment document. The site will be handed to a Management Company appointed by the Developer to maintain all external areas fo the site including the drainage and detention basin.

I trust the enclosed is sufficient to answer the queries raised, please do not hesitate to contact me should you require any further details.

Yours sincerely,

M J Avery MCIQB
Construction Director.

c.c. David Eaves – Havant Borough Council
Sam Collins – Foreman Homes.

2.0 Flood Risk Assessment

Tidal Flood Risk

- 2.1 The site is located inland 1.8 kilometres from the sea and thus is not susceptible to Tidal Flood Risk.

Fluvial Flood Risk

- 2.2 The Environment Agency has been consulted to determine whether the site is at risk of flooding. The Floodplain Map attached, centred on land at land south of Ranelagh Road, Havant, Hampshire PO9 1NR shows that the site is outside the designated Flood Zone 3 (High Probability - flooding from a river with a 1 in 100 or greater chance of happening each year) or Flood Zone 2 (Medium Probability - flooding from rivers with up to a 1 in 1000 chance of occurring each year). The development site can therefore be designated as being within Flood Zone 1 assessed to have a less than 1 in 10000 annual probability of river or sea flooding in any year.
- 2.3 The closest sources of fluvial flooding is the Hermitage Stream 0.1km to the west of the site as shown by the EA flood map which shows that the site is not susceptible to fluvial flooding as indicated by the EA flood map.
- 2.4 Land within Flood Zone 1 is appropriate for all uses.

Groundwater Flood Risk

- 2.5 Recent site investigation works confirm Made Ground over Head Deposits over the Lewes Nodular Chalk Formation. Boreholes were excavated to 17.5m depth. Ground water was recorded at 3.2m depth and thus the site is not at risk of flooding from ground water. The Hermitage Stream also acts to limit groundwater levels because any rise in ground water levels simply increases the ground water flows into the Hermitage Stream.

Other Sources of Flood Risk

- 2.6 The topographical survey indicates a site which slopes gently from north to south with a general level of approximately 7.52m AOD on the north eastern corner of the site falling to a level of approximately 6.30m AOD on the southern boundary giving an overall fall over the site of 1.2m.
- 2.7 The new buildings will be set with finished ground floor levels a minimum of 150mm above proposed ground level. External levels have been set to follow the natural contours of the site as shown by HDL drawing no. 14-2260-950 P1. Proposed ground levels will be set

to follow the natural contours of the site to ensure that flows through the site are redirected away from properties in the unlikely event of flooding taking place from other sources such as foul, surface water or combined sewers as well as surface water sheet run off or infrastructure failure.

- 2.8 There have been no events recorded of flooding due to failure of the existing drainage regime.
- 2.9 The proposed surface water regime discharges to a detention basin and is provided with an overflow link to the adjacent Hermitage Stream via an existing piped connection.

Water Quality Management

- 2.10 The SuDS drainage system has been designed in accordance with Chapter 26 of the CIRIA SuDS manual 'Water Quality Management' and includes 3 no. pollution removal mechanisms as follows:-

- Permeable paving
- Geotextile and shingle wrapped porous pipe carrier drain
- Detention basin

SuDS Maintenance

- 2.11 Permeable paving will be maintained in accordance with the recommendations of the CIRIA SuDS Manual in the following manner:-

- The surface blocks have a design life equivalent to standard block paving.
- All paved surfaces will require occasional cleaning. In normal circumstances regular sweeping will be sufficient. Cleaning should be carried out in the Spring and after leaf fall in Autumn.
- Lighter coloured blocks may exhibit tyre marks and may require more cleaning and maintenance.
- Following routine maintenance it may be necessary to redress the surface with 2 – 4mm clean gritstone.
- Ultimately after 25 years or more areas of the laying course may become filled with silts and toxins. If this occurs the surface blocks should be uplifted and the affected areas of laying course material and geotextile disposed of. The existing sub base can be left insitu. Fresh geotextile and

