

BRE Scotland
Scottish Enterprise Technology Park
Orion House
East Kilbride
G75 0RD

T +44 (0)1355 576200
F +44 (0)1355 576210
E eastkilbride@bre.co.uk
W www.bre.co.uk

Ms S Poulter
Hyde Housing Association
6th Floor, Telecom House
121-135 Preston Road
Brighton
BN1 6AF

19 April 2017
Your Ref.
Our Ref. P108116

Dear Sarah

NEW SALTS FARM, FLOOD RISK ASSESSMENT

I refer to recent discussions with regards to the flood risk assessments for the New Salts Farm site in West Sussex. Consultants' reports have been prepared and these have been reviewed by BRE in order to form an opinion on the management of flood risk at the proposed development. The site is potentially exposed to all sources of flooding including coastal, river, surface water and groundwater.

Significant analysis of the risks has been undertaken in support of the development, with exchanges between the planning authorities and the developer since submission of the flood risk assessment (FRA) in December 2016. The range of reports and correspondence have been reviewed by BRE. It is understood that the main concerns of the planning authority focus on surface water and groundwater risks, with measures in place in order to manage coastal and river risks. The latter issues are not considered within this letter.

The proposed site development includes measures to include allowance for sea level rise of up to 96 mm and its impact on groundwater levels. This has an impact on the bioretention basin but even under the '1%AEP plus climate change' it has capacity for storage.

The design of buildings and the management of the built environment includes measures such as raised principal living level and use of sustainable drainage to help manage groundwater and surface water flood risk. At present the detailed building designs are not available and therefore this matter would need to be revisited at a later stage, however, the principle is accepted by BRE as meeting the need for resilience in flood risk areas. The detailed building design and construction would be required to meet all requirements of building regulations, any measures to manage flood risk should not compromise other aspects of performance and building use.



BRE's Quality Management System is approved to BS EN ISO9001:2008, certificate number LRQ 4001797.



INVESTOR IN PEOPLE

For the design of the bioretention basin lining has previously been proposed as a solution to comments made by West Sussex County Council regarding the effect of ground water levels. However, Hyde Housing and their consultants have undertaken geotechnical testing, which have demonstrated that there is infiltration potential in the natural soils. Removing the liner allows the infiltration potential to be used. To use as much of the infiltration potential as possible the run-off needs to be temporarily retained in the basin rather than immediately discharged to the channel. Measures have been included to allow this to function effectively, there will be no discharge to the channel for smaller more frequent storm events.

BRE considers that the proposed drainage strategy for the site appears to work under the modelling scenarios undertaken, which include allowances for climate change. The inclusion of the bioretention basin is key to the drainage strategy, but additional measures to increase the permeability of the developed ground will also help to manage surface water flood risk.

The inclusion of permeable pavements and swales are suitable SuDS devices for inclusion in the drainage strategy; both these measures are recognised SuDS measures. It is understood that neither measure was specifically included within the modelling of surface water flood risk; instead a zero infiltration assessment was included. However, well designed, constructed and maintained SuDS measures that are part of an overall system should be add further to the management of water on site. The impact of each measure on source control, site control and regional control should be considered for the SuDS system. The SuDS should be designed in accordance with the CIRIA Manual or equivalent guidance.

BRE has been provided with all the issues raised by West Sussex County Council as the Local Lead Flood Authority. This includes the concerns over surface water and ground water flood risk. Hyde Housing Association and their consultants have undertaken modelling and produced evidence to suggest that the flood risk to the proposed development and the impact of the development have been adequately addressed to date. The modelling undertaken includes climate change factors.

BRE's opinion is that the flood risk can be managed on the site using the approaches set out by Hyde Housing Association and their consultants. However, BRE would suggest some further work should be undertaken to inform detailed design development of the site and to consolidate and add to the current evidence base. The additional work would include the following:

- Surface water risk: an estimate of the storage requirements for the SUDS design and a comparison of the greenfield and developed site design hydrographs.

To support detailed discussions going forward and a full planning application a single report containing all flood risk assessment and modelling data would be useful in order to set out all flood risk on the site and the measures to manage that risk. It will also assist communication between the parties involved. BRE has provided this initial assessment based on available and supplied evidence to date in order to assist ongoing planning procedures. The review considers only the New Salts Farm development and not any neighbouring sites.

BRE has no responsibility for the site development or the modelling, design or construction of the buildings or infrastructure on the site. BRE does not carry out design work, but has used the available evidence to form an opinion on the proposed approach.

Yours sincerely

A handwritten signature in black ink, appearing to read 'S Garvin', with a long horizontal flourish extending to the right.

Dr Stephen Garvin
Director, BRE Centre for Resilience
For and on behalf of BRE
Telephone: 01355 576242
Email: garvins@bre.co.uk