

# **LAND SOUTH OF FOREST ROAD, WARFIELD, BRACKNELL (21/00592/FUL)**

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Date: 08/11/2023

## **FAO Bracknell Forest**

Aegaea have had the opportunity to review the latest documents submitted as part of the planning application. This includes;

- 24 August 2023 - Sequential and Exception Test
- 24 October 2023 – Pluvial Modelling Technical Note – 7736/03
- October 2023 - Drainage Non-Technical Note

It is acknowledged that the Environment Agency (EA) have provided comment on the application, but we question the decision made. Especially given that the site is included within Flood Zone 2 and 3. The model, The Cut (Bracknell) 2013 1D-2D ISIS – TUFLOW, is 10 years old. It is typically best practise to review the hydrology every five years. The intervening flood years are of potential importance as hydrology is non-stationary and it would be ignoring more recent data. Since the 2013 modelling was undertaken, there have been an additional 9 flood years worth of data, the software has been updated with two major releases and the underlying calculations changed substantially. Not requiring updated hydrology is contrary to the EA's own flood estimation guidelines and technical best practise documents.

This is particularly important with focus to the 1 in 30 year event, which is the new return period to determine flood zone 3b, 1 in 100 extent and the impacts of climate change. As opposed to an augmented approach especially for a major application. It is requested that the EA should be reconsulted. With focus to the modelling outputs of The Cut.

From review of the submitted information, it is still viewed that insufficient information has been provided to justify the modelling approach of the direct rainfall model / pluvial model. For example, there is an absence of Hyetographs and no discussion of losses or general detailed discussion of model build. In absence of this information how can an informed decision therefore be determined?

Techniques applied to build the model appear to not be the latest best practice ReFH as opposed to RefH2. The utilisation of ReFH as opposed to ReFH2 is a significant difference to best practise also. The update software is a substantial change from previous iterations including addition of support for runoff within urban areas and catchments, following a recommendation by CIRIA in 2015.

The pluvial model methodology is still questioned. When modelling a lumped (individual) catchment, set the storm duration to the recommended value given by the equation based on time to peak and SAAR. This equation tends not to give the critical duration (particularly when using the ReFH model), but it matches the duration that was used in the calibration of the design event for ReFH1 and ReFH2. This is set out by LIT11832 Flood Estimation Guidelines.

With focus to storm duration – efforts should be made to try a realistic range of durations for the design storm to find the critical duration at the subject site or sites by trial and error. This optimisation can be carried automatically in some hydraulic modelling packages. The critical duration is the one that gives the highest flow (or water level or storage pond volume) at the site of interest. There appears to be also no mention of seasonality in the reports submitted, this is potentially a departure from best practise based on the urbanisation of the catchment that they are modelling (for example if they are only modelling at urban catchment, did they update the urbext from the 35km catchment?) if they did, how? did they then apply the design storm duration and the seasonality to reflect the flashiness of a response?

It is recognised that improvements have been made to the Eastern Boundary and the mitigation associated with the ditch however if the model information presented as part of the planning application is insufficient or not using the latest techniques it is questioned once more how the mitigation has been determined and validated.

It is therefore concluded that upon review of the submitted information, it is still viewed that insufficient information has been provided to justify the modelling approach of the direct rainfall model / pluvial model. And as such the application does not meet the requirements of the National Planning Policy Framework.