

- Infrastructure Design
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Our Ref: 26065 / LC / 001
Your Ref:
Date: 21 December 2023

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Dear [REDACTED]

Re: West Street, Chatteris – response to LLFA comments dated 28.11.2023

Please see below our responses to Cambridgeshire County Council LLFA comments dated 28.11.2023, received in relation to the proposed residential development at Land West and South of 75 West Street, Chatteris, Cambridgeshire (planning application ref F/YR23/0940/F).

LLFA Comment 1 - *Calculations to show the performance of the system for a range of summer and winter storm durations from 15 minutes up to the 10080 minute (7 day) should be undertaken. For storm durations less than 1 hour, Flood Studies Report (FSR) rainfall data should be used. For storm durations greater than 1 hour, Flood Estimation Handbook (FEH) rainfall data should be used. FEH data must be used in these longer duration storms as it uses more up to data rainfall data and is more accurate for the purpose of modelling the future storm events over other data sources such as FSR for the larger duration storms.*

JPP Response – Calculations have now been provided to cover the full range of storm durations requested by the LLFA, using both FSR and FEH rainfall data.

LLFA Comment 2 - *It is noted that the applicant has used FEH 1999 rainfall data for the hydraulic calculations, however other FEH rainfall models supersede the FEH99 model such as FEH22, which should be utilised for the scheme.*

JPP Response – The simulations have been re-run using more recent FEH rainfall data as requested.

LLFA Comment 3 - *The MADD Factor should be set to 0 to avoid underestimating volumes entering the drainage network. Default settings assume that surface water is lost or stored elsewhere on site before entering the drainage network. A conservative approach should be taken to ensure that the proposed development provides the maximum level of storage for all rainfall events.*

JPP Response – The LLFA's understanding of the MADD factor is incorrect; the default setting does not assume surface water is lost from the network. The MADD factor is an allowance for additional storage provided by all gully pots, gully connections, private surface water pipework and inspection chambers not

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included within the model. Whilst we do not agree setting this to zero provides an accurate representation of the drainage system, we have updated the calculations to set the MADD factor to zero to show the drainage system can accommodate this request.

LLFA Comment 4 - *Total pipe volume should also be 0. If pipes have been deliberately oversized to provide storage, this volume will be taken account of in the modelling and this value should still be set to 0.*

JPP Response – This comment suggests the officer reviewing the drainage calculations is not familiar with the use of MicroDrainage software for the design of drainage systems. The total pipe volume shown in the MicroDrainage design details is the total volume provided by the pipes within the network. It is not a figure which can be edited or overwritten (nor should it be). This is not a justifiable reason for the LLFA to object to the grant of planning permission.

LLFA Comment 5 - *In accordance with the latest climate change peak rainfall intensity allowances, a climate change allowance should be incorporated into the surface water management scheme for the 3.3% annual exceedance probability rainfall event. The allowance used should be based on the lifetime of the development and therefore should include a 35% climate change allowance on the 3.3% AEP hydraulic calculations.*

JPP Response – The calculations have been updated to include the required climate change allowance to the 1 in 30-year events.

LLFA Comment 6 - *The applicant has provided hydraulic modelling for the proposed impermeable areas across the site. It is noted that the Cv values for the winter and summer storms have been input as 0.84 and 0.75 respectively. However, as the modelling is for the impermeable area, these values should be set to 1 to account for the total runoff during storm events.*

JPP Response – The calculations have been updated to include the Cv values set to 1 for both summer and winter storms, as requested.

LLFA Comment 7 - *The impermeable area does not include the detention basins. During larger storm events, the basins will fill with water and any further rainfall landing on this surface will need to be managed within the basins. Therefore, the basins must be treated as an impermeable surface in calculations.*

JPP Response – We question what national or local standards the LLFA are referring to for this requirement, as it is not something usually requested. We have however undertaken a sensitivity check to confirm this additional impermeable area can be accommodated within the basins – refer to enclosed MicroDrainage calculations ‘26065- SW MicroDrainage Simulation Results – FEH Sensitivity Check’

LLFA Comment 8 - *At present further justification is required as to the input parameters used to calculate the greenfield runoff rate. The HR Wallingford online tool states that the Soil type for the site is 1 as opposed to 0.338. The total area for the site is input at 2.099ha but stated earlier in the report to be 2.98ha*

JPP Response – The soil type has been taken from FEH parameters, and aligns with the findings of the Phase 2 Geo-Environmental Report produced by Elemental GI Ltd (report ref E23103/2a/1, provided within the appendices of the JPP FRA & Drainage Strategy report). The Phase 2 Geo-Environmental investigations show the sub-soil across the site to be clay. In-situ soakaway testing also showed very limited infiltration. A Soil type of 1 assumes highly permeable soils, which is clearly not the case for this site.

The greenfield runoff rate has been calculated using an area of 2.099ha, which is the developable area excluding the open space areas. This is in accordance with the HR Wallingford UK SUDS guidance for calculating greenfield runoff rates.

LLFA Comment 9 - *The LLFA are generally opposed to the use of grills on head walls due to increased risk of blockage, as well as increased safety risks associated with access, inspection, clearance, and maintenance. We therefore require further information to determine if they are appropriate on this site. Information including location and sizing of grills should be provided.*

JPP Response – The provision of grills on headwalls is in accordance with Water UK Code for Adoption Sewerage Sector Guidance Appendix C - Design and Construction Guidance. Please refer to the typical headwall detail provided on JPP drawing 26065-105.


LLFA Comment 10 - *The drainage layout plan provided in appendix G (Drawing number: 103, Revision B) does not match the drainage layout plan presented independently from the Flood Risk Assessment and Drainage Strategy (Drawing number: 103, Revision D). As shown on Revision D, permeable paving should be used as widely as possible as a form of source control.*

JPP Response – Please refer to the latest revision of drawing 26065-103 (revision E), enclosed.

LLFA Comment 11 - *An exceedance flow route plan has not been provided. Details of overland flow routes in the event of system exceedance or failure is required. This should demonstrate that such flows can be appropriately managed on site without increasing flood risk to occupants*

JPP Response – Please refer to enclosed JPP drawing 26065-107 which shows exceedance flow routes.

Yours sincerely,

 MEng (Hons)
Associate Director for JPP Consulting Ltd

Encl.

JPP drawing 26065-103E – Preliminary Drainage Strategy
JPP drawing 26065-104D – Drained Areas Plan
JPP drawing 26065-105C – Adoptable Drainage Construction Details
JPP drawing 26065-107 – Exceedance Flow Routing Plan
JPP FRA and Drainage Strategy Report R-FRA-26065-01-A