

Our Ref: SHF.1132.089.HY.R003

Date: 11th April 2017

Enzygo Ltd.

Dear Sir or Madam:

Re: Regulation 16 Comments on Fairford Neighbourhood Plan

The attached representation provides Enzygo Ltd.'s response to the current consultation held by Cotswold District Council (CDC) on the submission version of the Fairford Neighbourhood Plan 2016-2031 (FNP) by FTC under Regulation 16 of the Neighbourhood Planning (General) Regulations 2012; specifically, Policy FNP6 'Managing Flood Risk' and Policy FNP14 'Achieving High Standards of Design'.

Yours sincerely,

For and on behalf of Enzygo



Dr Paul Hardwick BSc(Hons) PhD FGS
Director of Water Sciences

Context

Enzygo Ltd (hereafter 'Enzygo') is a specialist environmental consulting practice with established experience and a clear understanding of the elements required for the delivery of all forms of development and major infrastructure projects. Enzygo provides specialist consultancy advice for flooding, hydrological and hydrogeological assessments, producing high quality factually based evidence, advice and modelling for residential, commercial and industrial developments.

Enzygo provided technical support on flood risk and drainage to Gladman Developments Ltd for an outline planning application (planning reference: 16/01766/OUT) for residential development of up to 92 dwellings on land off Horcott Road Fairford which was refused, but importantly not on the grounds of flood risk, as there was no objection from the relevant statutory consultee: Gloucester CC as Lead Local Flood Authority (LLFA). Nevertheless, Fairford Town Council (FTC) made representation to the Appeal Hearing (APP/F1610/W/16/3157854) on 15 March 2017 concerning its view that the development does not accord with its policy FNP6 'Managing Flood Risk'. Their view was rebutted at the Appeal Hearing by Dr Paul Hardwick of Enzygo.

This representation provides Enzygo's response to the current consultation held by Cotswold District Council (CDC) on the submission version of the Fairford Neighbourhood Plan 2016-2031 (FNP) by FTC under Regulation 16 of the Neighbourhood Planning (General) Regulations 2012; specifically, Policy FNP6 'Managing Flood Risk' and Policy FNP14 'Achieving High Standards of Design'.

FNP6 Review (Policy italicised below)

'FNP6 MANAGING FLOOD RISK

Proposals to develop land defined by the Environment Agency as lying within either Flood Zone 2 or 3, or in areas of Flood Zone that have flooding from sources other than fluvial e.g. groundwater or surface water, will be resisted.

Land in Flood Zone 1 that has high groundwater levels and holds large amounts of water in wet seasons will be safeguarded for water storage purposes. Proposals for development of this land will only be supported if they are compatible with, and do not compromise, this function.

Proposals in other Flood Zone 1 areas will be supported provided they include appropriate measures to address surface and ground water issues (which are specific to the area) and can demonstrate, using calculations based on the highest recorded groundwater levels for the area, that flooding risks (including sewer flooding) are not increased elsewhere.'

To facilitate our response, we have partitioned FNP6 into the three paragraphs as written.

'Proposals to develop land defined by the Environment Agency as lying within either Flood Zone 2 or 3, or in areas of Flood Zone that have flooding from sources other than fluvial e.g. groundwater or surface water, will be resisted.'

First, the County and Unitary local authorities are responsible for addressing local surface and groundwater flooding risk and the FNP cannot influence this responsibility. The local authorities are responsible for undertaking preliminary local flood risk assessments including groundwater, for assessing where these risks are significant, for mapping the associated risk where relevant and for developing local flood risk management plans, as required by the EU Floods Directive and Flood Risk Regulations 2009 for England. The Gloucestershire County Council Flood Risk Management Strategy (LFRMS) also in its appendix B4 records groundwater flood susceptibility not risk, and as county-wide mapping at an unusable scale for local communities.

Second, built development (i.e. housing) has by regulation to be sequentially confined to those areas within Flood Zone 1 not at risk of surface water, groundwater or other forms of flooding. However, as many alternative forms of development are acceptable in flood zones 2 and 3, FNP6 appears to specifically target residential development. Moreover, Policy FNP6 also conflicts with the site-specific *Policy FNP3 for New Homes and a Car Park at East End point iv* in that, for that location, FTC proposes to support housing development in an area identified to be at high risk of groundwater flooding¹ provided that:

iv. any developments must deal satisfactorily with issues of surface and groundwater without increasing flooding risks elsewhere

To align with the requirements of the National Planning Policy Framework and its Planning Practice Guidance, Enzygo consider paragraph 1 should be rewritten to:

"Flood risk assessments for full planning applications to develop land of 1ha or greater defined by the Environment Agency as lying within Flood Zone 1 must consider flooding from sources other than fluvial or tidal, e.g. groundwater and surface water. Flood risk assessments for land defined by the Environment Agency as lying in Flood Zones 2 and 3 must accord with the requirements of the National Planning Policy Framework and its Planning Practice Guidance."

'Land in Flood Zone 1 that has high groundwater levels and holds large amounts of water in wet seasons will be safeguarded for water storage purposes. Proposals for development of this land will only be supported if they are compatible with, and do not compromise, this function'.

¹ FNP February 2017 Para 5.17

Built development of land underlain by a 'high water table' (not defined by FNP6) and providing storage for 'large amounts of water' (again not defined by FNP6) does not compromise groundwater storage volumes. Groundwater risk can be mitigated by appropriate elevation of floor slabs above external ground levels, and incorporating an existing area of apparent flooding into a site SuDS attenuation pond can be technically justified as not compromising groundwater storage.

Incorporating a low area that has shallow groundwater flooding in winter months (which it is accepted represents temporary flood storage) into a SuDS scheme by ground uplift to create temporary (unlined base) attenuation storage which far exceeds the affected shallow flood storage volume there will be no derogation from flood plain storage or increased off-site flood risk. Where the groundwater below the base of a pond is hydraulically linked to a watercourse it will continue to provide online sub-surface storage in response to changes in stream level, and leaving the attenuation pond unlined thereby links the surface water storage with the groundwater storage. The design greenfield outfall rate from the storage will always exceed the transient groundwater movement out of a pond. Where a geomembrane liner is preferred this would also not compromise groundwater storage.

Increased ground loading onto coarse clastic material e.g. sands and gravels that does not cause displacement of ground materials will not reduce the intergranular porosity and permeability and so does not affect aquifer storage, i.e. there will be no adverse effect on storage volume and so no displacement of groundwater elsewhere.

Enzygo consider that unless FTC can provide fully justified technical evidence in support of paragraph 2 of Policy FNP6, then paragraph 2 should not be included.

'Proposals in other Flood Zone 1 areas will be supported provided they include appropriate measures to address surface and ground water issues (which are specific to the area) and can demonstrate, using calculations based on the highest recorded groundwater levels for the area, that flooding risks (including sewer flooding) are not increased elsewhere.'

Enzygo note that the British Geological Survey, Environment Agency and LLFA do not hold groundwater flood risk mapping for this area. The available mapping is of flood susceptibility- which simply highlights a potential hazard in a locality and therefore a requirement for further investigation. Consequently, the evidence base for localised groundwater flooding is poor, and unlikely to be available when outline planning permission is sought, although it would be appropriate for full planning applications.

Since site SuDS can be designed to ensure that the risk to off-site receptors is either the same as pre-development or provides a betterment, then the site will not increase flood risk elsewhere. The sewer flooding issue is negated in flood risk terms by the requirement for the utilities undertakers to agree foul sewer connection and no new development will be permitted to discharge surface water to foul. It is for the utility undertaker to maintain its own sewer assets in suitable condition and provide any additional capacity required. It is also

not incumbent on the developer to assess whether the utility has an issue with sewer flooding. Therefore, Enzygo consider that paragraph 3 of Policy FNP6 should not be included.

FNP14 Review (Policy Italicised below)

FNP14: ACHIEVING HIGH STANDARDS OF DESIGN

'Development proposals will be supported, provided their design has had regard to the following key principles, as relevant and appropriate:

15. It is not appropriate for existing ground levels to be raised to accommodate surface flooding designs or attenuation systems in new developments, as this would increase flood risk to others.

16. Other than in exceptional circumstances, existing land contours should be maintained and the final scheme should reflect those original contours. Justified hydrological reasons are not, on their own, sufficient; of greater importance is the visual impact of increased land levels, an impact which must be positive and not detract from the quality of the adjacent landscape / townscape.'

In Enzygo's view there is no logic behind the argument that necessary ground reprofiling (that ensures positive site drainage to an attenuation pond outfall and does not detrimentally affect visual aspects of a development) will increase flood risk to others. The SuDS attenuation facility captures and controls all the site runoff that pre-development ran off the site in an uncontrolled manner. Since SuDS attenuation also takes account of climate change, there is in fact a small but demonstrable reduction in long term off-site flood risk, although single developments cannot be expected to solve all the flooding issues in a larger settlement. Enzygo consider that criteria 15 should be removed, and that criteria 16 should either be modified to accommodate our concerns or be removed.