**HYD1107-Weaverham-RDN-TH-TN001**

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BETTS HYDRO
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**HYD1107 WEAVERHAM**

**TECHNICAL NOTE 001 – FLOOD RISK AND DRAINAGE**

Dear Toby,

This technical note has been prepared to provide a summary regarding residential development of the site from a flood risk and drainage perspective.

## Flood Risk

The site is located within Flood Zone 1 on the Flood Map for Planning (Figure 1 overleaf) and is at low flood risk from fluvial and tidal sources. There are some ordinary watercourses in the woodland area to the northeastern corner of the site's boundary, these are tributaries of the River Weaver and at low-level relative to the development area resulting in low flood risk.

There are some areas of medium and high surface water chance of flooding identified on the Flood Map for Planning and in the future climate change scenarios on the Long-Term Flood Risk maps. These will be more accurately defined by developing a direct rainfall model to determine the flood risk based on a site-specific model that will incorporate more accurate topographical information and accurate climate change requirements for the design life of the proposed development.

There is no risk to the development area from reservoir flooding identified on the Long-Term Flood Risk maps.

The Strategic Flood Risk Assessment 2016 indicates groundwater flood risk varies from <25% to >75% across the site with an area to the southern corner being at greater risk, however there is no anecdotal evidence of flooding from this source. The lower areas of the site are not proposed for residential development but instead are to remain woodland.

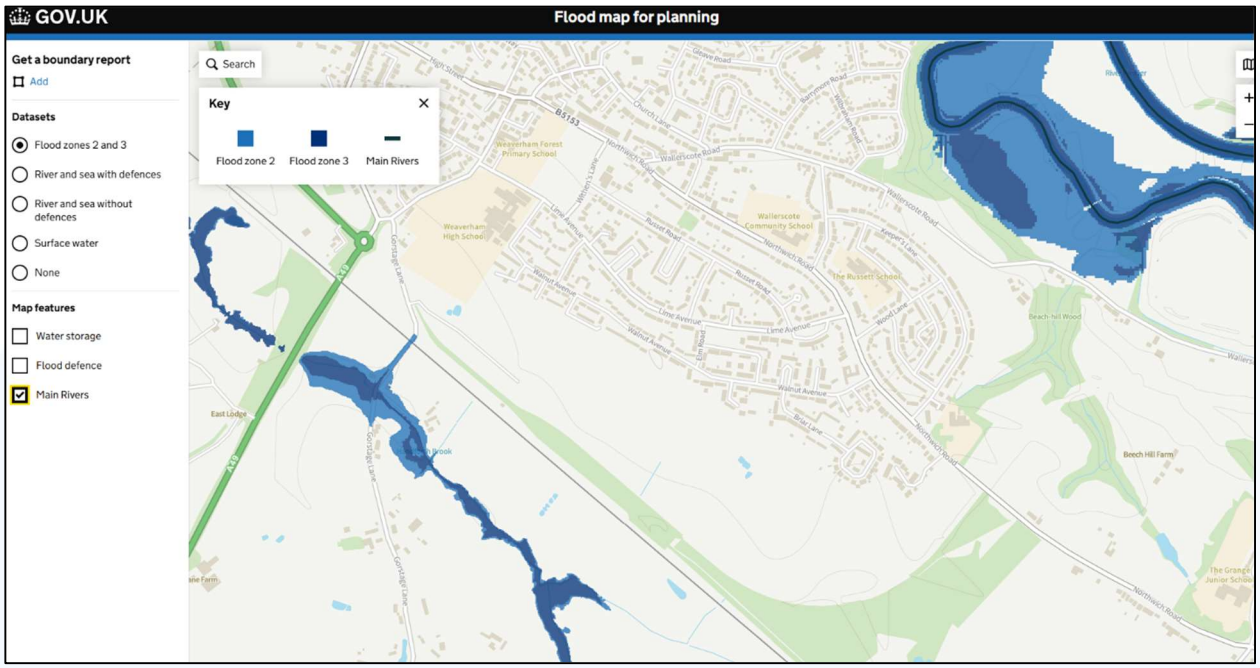


*Figure 1 – Flood Map for Planning (May 2025)*

**Drainage**

There are tributaries of the River Weaver to the northeast of the site and whilst there is no residential development currently proposed to the north of Northwich Road this does present an outfall opportunity for the surface water runoff for around 50% of the development area as these watercourse are at low-level relative to the development area. There are also land drainage systems serving the western and southwestern parts of the site which will be used to serve the remainer of the development area and would allow the existing drainage situation to be mimicked in terms of destination, but with restricted peak rates of runoff resulting in betterment for large storm events reducing flood risk downstream.

The British Geological Survey indicates the ground to be Till, Sands and Gravels over Mudstone so infiltration drainage solutions are likely to be very limited.

Sustainable drainage systems should be used where appropriate and, in this instance, there is scope for a range of solutions including permeable paving for private drives, raingardens, swales, detention basins and ponds. The specific solutions proposed will need to be in part topography driven but opportunities to maximise biodiversity, amenity and water quality should be fully explored.

Where possible, stormwater storage provision for extreme storms should be provided in surface-based SuDS like detention basins rather than below ground piped systems. Storage will be provided for the 1 in 100-year return period event with an appropriate allowance for climate change.

The foul water generated by the development is likely to require a pumped solution but further discussions with United Utilities will be necessary to establish the preferred point of connection.

**Summary**

The flood risk to the site can reasonably described as low from all sources with the exception of surface water and groundwater which vary.

The groundwater risk is limited and subsurface and is often encountered during construction phases of development and is dealt with by dewatering and appropriate construction methods.

The surface water risk is varied with the Environment Agency mapping showing that whilst the majority of the site is at low-very low chance of flooding there are some areas of medium and high chance. A site-specific direct rainfall model is being constructed to determine the extent of surface water flood risk enabling areas of greater risk more accurately to be avoided.

Drainage of surface water should be to watercourse mimicking the existing drainage regime but at restricted greenfield runoff rates with stormwater storage being provided for the 1 in 100-year return period within surface-based sustainable drainage features where at all possible.

There are no flood risk or drainage reasons why the proposed site cannot be developed for residential use.

I trust the above is clear, however should you have any queries or require clarification please do not hesitate to contact me to discuss further.

Yours sincerely

*Richard D. Nicholas*

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