

6th October 2021

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**YOUR REF: CAS-140006-N1S4****WREXHAM COUNTY BOROUGH COUNCIL REF: P/2020/0110 and P/2021/0111****NORTH AND SOUTH OF LANE FARM ROSSETT ROAD TREVALYN
FLOOD RISK**

This is a response to comments made by NRW relating to flood risk posed to and by the proposed development on land north and south of Lane Farm, Rossett Road, Trevalyn.

NRW's comments relating to flood risk can be summarised into three elements:

1. Clarification on whether flood velocity for the properties complies with the tolerable threshold of 0.15 m/s outlined in Table A1.15 of TAN15.
2. Increase in flood risk to properties bordering the site
3. Detailed design/construction drawings of the flood storage area to be submitted unless this can be conditioned by the planning authority

These 3 points are addressed in turn below.

1. Flood Velocity

A plan of flood velocity in the 1 in 1000 year (0.1% AEP) event with a 25% blockage at Chester Road bridge is shown on enclosed drawing no. HYD554/139/C. The plan shows that there are no flood velocities greater than 0.15m/s that affect properties and no velocities greater than 0.30m/s affecting any property access. This is in compliance with Table A1.15 of TAN15. The majority of flood velocity within the site is less than 0.15m/s.

2. Increase in Flood Risk to Others

NRW identified an isolated area of increased flood risk to one of the properties on the western boundary of the southern parcel of land, showing an increase of up to 50 mm in flood depth in the garden of that property.

As advised by NRW, Betts Hydro has investigated options to remove this increased flood risk. undertaken further. To this end, Betts has made changes to road levels within the proposed development to facilitate the flow of flood water away from the adjacent housing.

This has had the impact of reducing the increased flood risk in the adjacent garden. Although not removed it completely, it is shown that for the majority of that property, flood risk is reduced. There is also a reduction in flood risk to the neighbouring property and the public highway (Trevalyn Way).



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Figure 1 shows the depth difference plan from the previous model submitted to NRW with the planning application. It shows an increase in flood depth to the property adjacent to the western boundary of the site. Figure 2 shows the depth difference plan from the updated model with improvements. It demonstrates that for the majority of the adjacent property, flood risk is reduced and flood risk over a wider area to the west of the site is also reduced. It should also be noted that the resolution of the model computational grid is 3m and so is not refined enough to definitely say the increase in flood risk has crossed the property boundary.

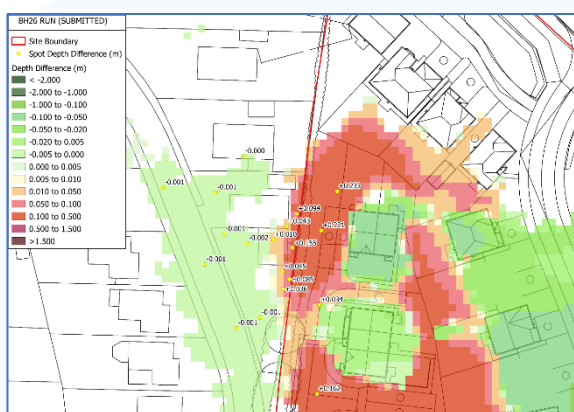


Figure 1: Previously submitted depth difference map showing increase in flood risk to others

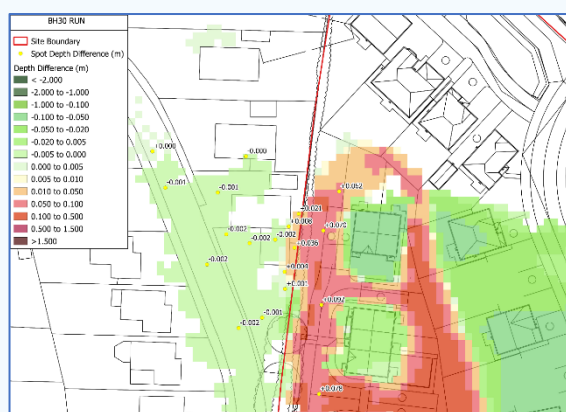


Figure 2: Updated depth difference plan showing reduction in flood risk to others

Furthermore, there are reductions in flood risk to others elsewhere, including properties to the north of the site, as shown in Figure 3.

The existing flood depth plan for the 1 in 1000 year (0.1% AEP) event with 25% blockage at Chester Road bridge is shown on Drawing no. HYD554/133/A. Flooding is shown to housing to the north of the site. Drawing no. HYD554/137/C shows the proposed flood depth in the 1 in 1000 year (0.1% AEP) event with a 25% blockage at Chester Road bridge. There is no flooding in the northern parcel and to the housing north of the site. Drawing no. HYD554/405/B shows the depth difference (impact to others) for the whole site and beyond. It shows that flood risk is reduced to land and housing to the north and west of the site.

In view of the fact that it is a marginal isolated increase in flood risk at the property boundary and that flood risk is mostly reduced to that property and other properties in the wider area, it is our opinion that this should not be considered justification to object to this development.

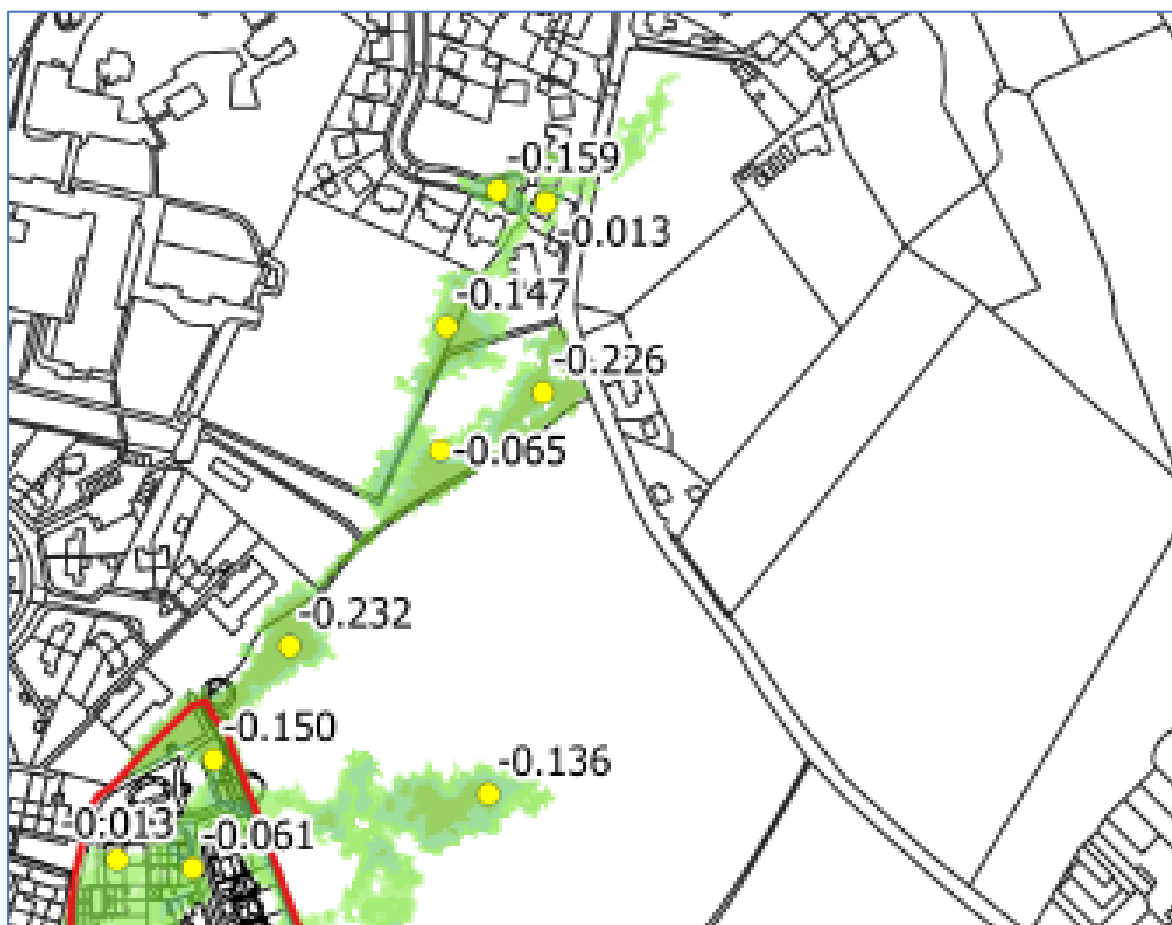


Figure 3: Reduction to flood risk to properties north of the site

3. Flood Storage Area Detailed/Construction Drawings

The flood storage area has been incorporated into our proposed development ground model and into the 1D/2D hydraulic model. It has been demonstrated that this is a workable solution. This matter can be conditioned, and detailed design and construction drawings will be supplied to the planning authority for approval before construction begins.

Conclusions

We believe that the works undertaken to reduce flood risk and the overall reduction to flood risk to the surrounding area and properties is sufficient to justify approval of this development.

We have also demonstrated that flood velocity is below the tolerable threshold set out in Table A1.15 of TAN15.



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It has been demonstrated that the flood storage area is a workable solution. The supply of detailed design and construction drawings for the flood storage area will be supplied and can be conditioned as part of planning approval.

I trust you will find the above of assistance, however, if you have any queries or require further information, please do not hesitate to contact me.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Dominic Kearney', is displayed on a light yellow rectangular background.

Dominic Kearney BEng(Hons) MSc PhD GMICE
Principal Hydraulic Analyst
BETTS HYDRO

Enc. Drawing no. HYD554/133/A
Drawing no. HYD554/137/C
Drawing no. HYD554/139/C
Drawing no. HYD554/405/B

