11th July 2024

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Castle Green
Unit 20
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LL17 0LJ

LAND EAST OF TAN Y BONT, MAIN ROAD, RHOSROBIN, WREXHAM

Flood Risk and Drainage Technical Note/Addendum Letter

We have been instructed by 'Castle Green', referred to hereafter as 'The Client' to undertake a technical review of the Flood Consequence Assessment and Drainage Management Strategy (REF: *HYD574_TAN.Y.BONT.RHOSROBIN_FCA&DMS_FINAL_3.1_CON)* that was approved for the wider planning approvals at the site above. The purpose of this note is to review the previous assessment and confirm whether the statements and conclusions made are still valid, up-to-date, and relevant to support the current submission. Where changes have been made since the previous assessment, either to the nature of the development itself or due to mapping/data, then these will be identified within this letter.

SITE CONTEXT

The development site is located off Tan y Bont, (Main Road), Rhosrobin, Wrexham. The nearest Ordnance Survey National Grid Reference is E: 333085, N: 352580 and the nearest postcode is LL11 4RP. The wider site was formerly undeveloped however is subject to planning approval for residential development, of which the earlier phases are already under construction. The wider site approval covered 15.75ha, although this Technical Note will focus on the much smaller Phase 3 area which is where the proposed plot-substitutions will be located.

DEVELOPMENT PROPOSALS

As noted, the wider site is already subject to planning approval for residential development. This approval included the Phase 3 area, which will now be subject to a further planning application consisting of some additional plots and plot substitutions, extract in **Figure 1** (**Appendix A**).



Figure 1: Planning Layout Rev X extract (Castle Green)

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The approved FCA&DMS report was to support the construction of 219no. residential dwellings across the entire site, with a reserved matters application (REF: *GWE P/2021/0135)* for 189no. residential dwellings. The new proposals are for an additional 20 dwellings and some plot substitutions within Phase 3, which means the overall number of units will now increase from the reserved matters approved 189no. to 209no. units (still less than the 219no. considered as part of the original FCA&DMS prepared and approved).

FLOOD RISK REVIEW

A full site-specific Flood Consequence Assessment and Drainage Management Strategy (*REF: HYD574_TAN.Y.BONT.RHOSROBIN_FCA&DMS_FINAL_3.1_CON*) was prepared to support the wider site proposals including Phase 3. This report was approved as part of the planning approval (REF: *GWE P/2021/0135*), granted in February 2021. This approved document has been considered as part of this review, against the current available mapping data to understand whether the conclusions are still valid.

It should be noted that no additional consultations have been undertaken to obtain additional flood risk information as part of this technical review and this summary is based on the available mapping and datasets only. A summary table of flood risk from key sources is noted below.

SOURCES OF FLOOD RISK	SUMMARY OF POTENTIAL RISK (Based on current datasets)
Fluvial	Very Low Risk – Low Risk
Surface Water/Pluvial	Very Low Risk - Low Risk
Tidal	Very Low Risk
Artificial Sources (Sewer/ Reservoirs/Canals)	Very Low Risk
Groundwater	Very Low Risk

Table 1 – Current Flood Risk Summary

When considering flood risk from a variety of sources including fluvial, tidal, surface water, groundwater, and sewer, it can be stated that the conclusions made in the approved FCA and Drainage Strategy are still relevant and up to date. Meaning the proposed alterations within Phase 3 will be at very low flood risk from the key flood sources and the focus as with the earlier assessment is on appropriate surface water management to ensure the proposals themselves do not increase flood risk elsewhere.

DRAINAGE MANAGEMENT STRATEGY

In terms of the proposed drainage strategy, the previous study has identified the existing drainage regime which serves the site along with the proposed surface and foul water management options to serve the wider proposals. The recent approval for the site was supported by a standalone drainage strategy (*REF: HYD574_TAN.Y.BONT.RHOSROBIN_FCA &DMS_FINAL_3.1_CON)*, which was followed up with detailed drainage design work as part of a separate SAB application. This approved work has been considered as part of this technical note, along with the recently updated drainage simulations to reflect the proposed alterations to the future development.

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Surface Water Management:

The approved drainage strategy was to drain the entire site to ground utilising a range of infiltration techniques across the site (depending on the varying onsite test results). Methods of infiltration proposed within the overall drainage strategy included permeable surfacing (in private non-adopted areas), below ground pipework for conveyance and a larger infiltration basin to ultimately deal with discharge to ground. The location of this infiltration basin was confirmed through onsite ground investigation, to offer the best opportunity for discharge to ground within the wider site.

Based on the updated planning layout, there will be 20no. additional plots and plot substitutions predominantly within the Phase 3 area, taking the overall plot numbers from the approved 189no. dwellings up to 209no. units. It should be noted that this number of units is still a reduction in comparison to the already approved FCA.

The proposed impermeable areas across the entire site were assumed, as part of the approved FCA&DMS, to be approximately 4.30ha (66% of the development area). Subsequent detailed design work was undertaken in support of the SAB application which refined the impermeable areas to 3.322ha. Due to the current planning proposals for 209no. units, the new proposed site wide impermeable area is 3.305ha (impermeable areas in **Appendix B**). This is a reduction in comparison to both the original assumed area in the approved FCA&DMS and the detailed design simulations carried out as part of the SAB application.

In terms of surface water management, there are no proposals to change the current approved drainage proposals. The surface water drainage system proposed will need to be sized to contain up to and including the 1 in 100yr return period storm event with a 40% allowance for climate change. The approved drainage design undertaken to support the previous SAB application has been re-simulated to account for the updated planning layout submitted. As a result, it has been determined that the size/capacity of the approved infiltration basin is still appropriate to deal with the required attenuation. Due to the updated planning layout, there was however a need to upsize 2no. of the existing drainage pipes in the north-western corner of Phase 3 to account for two additional units entering this drainage run at this point. These two drainage runs have been simulated with an increase in pipe diameter from 150Ø to 225Ø and show that the proposed drainage will be appropriate to deal with the surface water run-off generated by the new proposals at this location. The updated design simulations have been included in **APPENDIX C**.

Foul Water:

The previous approval for the site was supported by a standalone drainage strategy which also considered appropriate foul water management (*REF: HYD574_TAN.Y.BONT.RHOSROBIN_FCA&DMS_FINAL_3.1_CON)*. The overall foul water drainage strategy is to connect foul water generated onsite into the public foul water sewer crossing the site. There are not proposed alterations to the proposed foul water drainage strategy because of the proposals. While there is a small increase in number of units and impermeable areas, the proposed plot substitutions are typically for dwellings of smaller capacity than that which previously occupied the same Phase 3 area. It is understood that design works can show there is sufficient capacity in the foul water drainage infrastructure to deal with the proposals in this instance.

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CONCLUSIONS

This Technical Note confirms that the findings of the approved Flood Consequence Assessment and Drainage Management Strategy Report remain valid, and the conclusions and recommendations can be relied upon.

To summarise the overall principles of the proposed drainage strategy also remain relevant, in terms of outfall location, and discharge rate. Although the new planning layout shows an additional 20no. units on the site, there has been a small reduction in impermeable areas and the design simulations have shown that the approved infiltration basin onsite is still sized sufficient to cater for the proposals. There was a need to increase two small lengths of surface water drainage pipework to accommodate for a change in loading although the updated simulations show that once upsized the overall drainage infrastructure is appropriate to serve the new development proposals in this case.

I trust the above clarifies the development proposals and their impacts associated with flood risk and drainage. If you require anything further, please do not hesitate to contact me on the details provided below.

Yours sincerely,

K Halliday

Kirsty Halliday BSc (Hons) MCIWEM
Associate
BETTS HYDRO

APPENDICES

Appendix A – Planning Proposals
Appendix B – Impermeable Areas Plans
Appendix C – Drainage Design Simulations extracts

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APPENDIX A – PLANNING PROPOSALS

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