

Technical Note

Project Land South of Westwells Road, Neston, SN13 (GB)
Subject Objection to Planning - Flood Risk Management
Ref. David Palmer CEng FICE
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1 Executive Summary

A Data Centre is proposed on land known as Donkey Field, south-west of Westwells Road, near Corsham.

The National Planning Policy Framework (NPPF) requires that all development should be protected from flood risk for all events up to the Design Flood Event, for the lifetime of the structure, and must demonstrate that there is no increase in flood risk off site. The NPPF further states that, ideally, all development should aim to have a positive impact in terms of flood risk off site.

The applicant has failed to demonstrate the *Baseline*, pre-development, flood mechanism for a range of flood events up to the Design Flood Event. A responsible application would have defined the baseline flood mechanism on a catchment-wide basis, making use of 2D hydrological modelling. *This has not been carried out.*

Having defined the *Baseline* flood condition, a robust application would have defined the impact of proposed development by creating a catchment-wide, With-Scheme hydrological model, using 2D hydrological modelling. This would have informed the applicant as to the extent to which flood risk management measures were required to mitigate the impact of additional run-off resulting from the proposed development. *This has not been carried out.*

The previous assessment stage would have allowed the applicant to identify and, more importantly, test and demonstrate, the appropriateness of specific, sustainable flood risk mitigation measures. As before, the use of 2D, catchment-wide, hydrological modelling would have allowed the applicant to demonstrate that the proposed development results in no increase in flood risk off site. *This has not been carried out.*

It is not clear why the applicant has elected not to carry out such basic and well-established methods of assessing flood risk. It is possible that the applicant was lulled into some false sense of security as the proposed development site is defined as Flood Zone 1 for River and Coastal flooding. Unfortunately, the application fails to identify that the development site is defined as an area of Very High pluvial (surface water) flood risk, with areas of the site at the same level of risk as functional plain for areas of fluvial flood risk.

Whatever the reasons for the shortcomings of the proposed flood risk management strategy, it is very clear that ***the applicant for the Data Centre has failed in their responsibility to demonstrate that there will be no increase in off-site flood risk as a result of the proposed development.***

The applicant has failed to meet the requirements of the NPPF and the Lead Local Flood Authority (LLFA) and, as a result, the scheme, in its current form, cannot be considered suitable for consent.

2 Introduction

As the author of this Technical Note, I am a Chartered Engineer and a Fellow of the Institution of Civil Engineers. I have 37 years of experience in Flood Risk Management and have played a lead role on some of the UK's largest and most challenging developments. Since 2016, I have been the Water Group Director at consulting engineers, Buro Happold.

It is important to state that the views expressed in this Technical Note are my own and do not represent a Buro Happold position in any way.

The observations recorded in this Technical Note are based on my review of the following documents:

- Flood Risk Assessment, Hydrock, 10th May 2024;
- Drainage Strategy, Hydrock, 13th May 2024;
- Design & Access Statement, Hale, May 2024;
- Proposed Masterplan drawing, Hale, May 2024;
- Response to Drainage and Flood Risk Concerns of the Community, Stantec, 11th September 2024;
- Wiltshire Council Level 1 Strategic Flood Risk Assessment, JBA Consulting, November 2024; and
- Sequential test, Savills, April 2025.

My observations of each of these documents are described in the following sections.

3 Flood Risk Management

3.1 Flood Risk Assessment

The Flood Risk Assessment (FRA), dated 10th May 2024, prepared by Hydrock appears to be incomplete. The FRA focus on little beyond the over-simplified assumption that the site is defined as Flood Zone 1 by the Environment Agency (EA) Flood Maps for Planning and that the National Planning Policy Framework (NPPF) defines all land uses as suitable within such a designated area.

Whilst the EA Flood Maps for Planning show the site to be in Flood Zone 1 for *fluvial* flood risk, the predominant source of flood risk to the site is *pluvial* (surface water) flooding. The FRA fails to fully understand the implications of this.

According to the surface water flood maps provided via link on the Wiltshire County Council website, the site includes areas affected by surface water flooding between 01.% and 1%, and between 1% and 3.3%. Whilst the terminology differs between fluvial and pluvial risk, the % risk is the same as that defined for Flood Zone 2 and Flood Zone 3 from rivers and coastal. This is shown below:



Figure 1 – Surface water flood map, Westwells, EA ©

The NPPF now requires site vulnerability to be defined by the predominant source of flood risk, which, at this location, is surface water. This revision to the NPPF occurred in December 2023. It is not unreasonable to assume that an FRA dated May 2024 would have reflected the latest national guidance.

This is a very significant omission on the part of the applicant and it could explain why they have given so little gravitas to the issue of flood risk.

The FRA fails to demonstrate an understanding of the sensitivity of pluvial flood risk in the Westwells area. The EA mapping shows areas at risk of flooding up to the 1 in 30 year event. This is equivalent to functional floodplain for fluvial flooding. This is the highest level of flood risk. There is nowhere in the FRA where this risk is acknowledged. Significant areas are shown to be at risk of flooding during the 1 in 100 year pluvial event. The applicant has failed to demonstrate that they understand the vulnerability of the Westwells residential area, defined as more vulnerable under the NPPF, situated, as it is, at the downstream extent of the Donkey Field catchment.

Given the omission described above it is perhaps understandable that the FRA fails to demonstrate one of the most fundamental requirements of any development with respect to flood risk. That is, that there shall be no increase in flood risk off site.

The FRA is clearly a quickly written document, authored with little regard for research outside of a cursory glance at the EA website for planning. The FRA fails to mention historical flood events in the area, a standard inclusion in any FRA, and specifically fails to reference the significant flood event of 18th/19th September 2014.

The most immediate and obvious impact of a development such as the proposed data centre is the impermeable areas that are created. The very significant increase in impermeable area will completely change the hydrological regime and is likely to result in very significant increases in surface water runoff at the site.

The fundamental flaw of the FRA and the associated Drainage Strategy is the failure to *demonstrate* that there will be no increase in flood risk off site. As a minimum, it could be expected that a rain-on-grid hydraulic model be created in order to accurately define the pre-development, Baseline, flood condition, which could then be compared to the fully modelled With-Scheme scenario. This modelling should have been carried out for the Design Flood Event, which would include an appropriate allowance for climate change.

There is no evidence that 2D, catchment-wide hydrological modelling has been carried out. It should have been. Without this, it cannot be demonstrated that the proposed development will not increase flood risk off site.

It should be noted that the EA information that is included in Appendix C of the FRA under EA-Consultation, does not represent *consultation* of any kind. The EA is simply providing publicly available information under the Freedom of Information Act 2000.

No evidence has been provided that any consultation has been carried out with the EA, with regard to flood risk. This is another significant omission for a development of this scale and sensitivity. The lack of consultation with the EA is a most unusual omission for an application of this sensitivity.

3.2 Drainage Strategy

As discussed above, the proposed development consists of a very significant roof area and other areas of hardstanding, such as access roads and parking. These areas will result in a very significant increase in surface water run-off from the site. In short, the insertion of a 7.37ha development on a site already defined as Very High (pluvial) Flood Risk, is likely to have a very significant increase in surface water flood risk.

This risk has not been quantified. 2D, catchment-wide modelling is required to identify the risks associated with increase run-off.

Whilst the *FRA* makes no reference to the mitigation measures for this increase in site runoff, the *Drainage Strategy* states that the primary mitigation will be that *all rainwater should be collected for re-use as part of the development's cooling system*. Should these water reuse tanks be full, then the development will rely entirely on infiltration.

Whilst rainwater re-use represents the upper, most beneficial, end of the SUDs hierarchy, it can only be considered mitigation in terms of flood risk if vast areas of rainwater storage/attenuation have been included within the development proposals, which they do not appear to have been.

The water demand for such a development will be largely consistent throughout its operation. The opposite is true of rainfall. Rainfall patterns are changing in the UK, as there are around the globe. Rainfall events have become more extreme, with rain falling in shorter, more intense patterns.

The changing pattern of rainfall makes it less suitable as a source of water supply for developments of this nature. During a major rainfall event, of say 1 in 20 or 30 years, the development will simply not be able to cater with the volume of additional runoff that has been generated on site. The challenge will not be how to re-use this water, but how to safely discharge it offsite, without the risk of increased flooding downstream.

One of the major flaws of this application is that there is simply insufficient detail to support the stated design proposals. Has the applicant considered the impact of back-to-back significant rainfall events? Have they considered what will happen if a rainfall event occurs when their water re-use tanks are already full, or partially full, and the ground is inundated from the earlier rainfall event? What would have happen then?

There is no way on knowing what applicant's intention is and, accordingly, no way of understanding where the additional runoff will go. A quick review of the topography will show that the additional runoff can only flow towards the residential area of Westwells.

Is it the applicant's intention to constantly monitor weather warnings and ensure water reuse tanks are emptied ahead of all predicted rainfall events? We cannot possibly know, as there is no detail provided. There is no evidence that the applicant has given it any consideration.

What is known, is that the Donkey Field site and downstream area of Westwells is an area of known flood risk and is defined as Very High (pluvial) Flood Risk in accordance with the NPPF. Were the scheme to go ahead, there would be up to 7.37ha less land unavailable for infiltration to ground. The impact in terms of flood risk downstream has not been modelled on a catchment-wide basis. The impact could be enormous.

Quite simply, the applicant has failed to demonstrate the robustness of their intended flood risk mitigation measures.

3.3 Hydrock Technical Note (September 2024)

The purpose of the *Hydrock Technical Note (TN)*, dated 11th September 2024, is *to provide further rationale behind the proposed drainage strategy and respond to concerns from the local community*.

As we have seen, the Hydrock Drainage Strategy states that the primary mitigation for the increase in runoff will be that *all rainwater should be collected for re-use as part of the development's cooling system*. It is noteworthy that the Hydrock Technical Note of September 2024 makes reference only to *infiltration*. There is no mention of rainwater reuse. There is a lack of consistency across the suite of application documents relating to flood risk.

The *FRA*, *Drainage Strategy* and *TN* all fail to provide the detailed calculations to demonstrate that water re-use and ground infiltration are robust mitigation measures for dealing with the significant increase in surface water runoff that will result from the proposed development.

The Hydrock *TN* (11th September '24) is of particular concern and the following points are noted:

- The main *Drainage Strategy* report states that the development will mitigate surface water flood risk by making use of the water (for cooling) within the building. This *Technical design note* (TDN) makes no reference to that. It refers only to infiltration.
- The Introduction does not state what the purpose of the TDN is. It merely seeks to assure the reader of the competence of the author. It is noted that the author is not a Chartered Engineer. There is no evidence that the TDN has been reviewed and signed off by a Chartered Engineer.
- Paragraph 2 of Section 2 states that, whilst infiltration testing will be required, it will be *not undertaken prior to planning approval due to its intrusive nature, cost and changes that may occur within the planning process*.

This is an extremely surprising statement from a professional consultant. It is not acceptable for an applicant to seek permission for a *highly vulnerable* structure in an area defined as *very high (pluvial) flood risk* to use cost as a reason for not carrying out the necessary site investigation tests required to prove the robustness of their own proposals. This statement suggests a lack of respect for the environment and local community.

This is the one of the primary weaknesses of the application. The applicant has not demonstrated, through appropriate site investigation works, that their design intent is implementable and will ensure compliance with the NPPF and requirements of the LLFA.

Planning Authorities are unable to condition design strategies that have not been demonstrated to be robust and implementable. It should also be noted that it is very common for designs to demonstrated through thorough site investigation works.

It is unacceptable for an applicant to use costs as a reason for not carrying out appropriate site investigation works.

- Para' 3 describes extensive analysis of the buried structures but states that this cannot be shared due to the nature of the MoD. This sounds highly questionable and is not a reasonable position for an applicant to take. It is a matter of fact that many details of these underground structures have been obtained by local residents.
- Throughout, the TDN is poorly written and it is often hard to understand what the author is attempting to explain. The following is one, such example: *It is noted that whilst concern has been raised through comments of the public as to the differences between the Hydrock drainage strategy in support of application PL/2024/05527 and that of the previous application 18/09884/OUT produced by RSK*. This is not a sentence.
- The author notes the *already stressed surface water network with complicated ownership and stakeholder considerations* but fails to demonstrate that there will no reduction on this stressed infrastructure. Again, it is the failure of the applicant to demonstrate that the enormous impermeable areas provided will not increase flood risk off site.
- Condition 1b, *The LLFA notes that the drainage strategy is largely reliant on infiltration, we require an explanation as to why a FoS of 2 is adequate when considering the size of the site & potential flood risk in the event of infiltration failure/issues*, allows me to infer that the LLFA is far from satisfied and has, in fact, fundamental concerns regarding the robustness of the Drainage Strategy. The Drainage Strategy states that rainwater reuse will be the primary flood risk mitigation. This technical addendum to the Drainage Strategy states that the development is *largely reliant on infiltration*. How can the LLFA and LPA be clear

on the applicant's intention? Whatever their intention, it is entirely unsupported by detailed calculations and appropriate site investigation.

- Condition 1c, *The applicant shall submit a plan showing overland exceedance routes for flows in excess of the 1 in 100 year plus climate change (40%) rainfall event, that minimise the risk to people and property.* This is something that the applicant must do as part of the planning application, before consent is granted. It is fundamental to demonstrating compliance with the NPPF. It cannot be a condition.

It is imperative to note that the applicant has not even demonstrated the flood mechanism for the Baseline (Pre-development) and the With-Scheme scenario for events up to and including the Design Flood Event.

This is an extraordinary omission from the application.

- The author states that *The granting of the permission will enable the works necessary to further develop the design. In turn this will provide the additional details requested by the Lead Local Flood Authority which are otherwise unobtainable at this point in time.*

This is disingenuous on the part of the applicant. There has been nothing stopping the additional analysis and design-proofing being carried out by the applicant. The only thing that has stopped the applicant doing what is required to demonstrate that the proposed development does not increase flood risk off site is a lack of technical understanding and, an apparent, desire to spend as little as possible ahead of the planning determination.

- The author concludes that *This demonstrates that a fully robust system will be implement, with all variables considered though an enforced, robust system that holds the developer accountable.*

No such demonstration has been provided. There is no technical content in the TN.

3.4 Sequential Test

A Sequential Test is required for the proposed development under the NPPF and the requirements of the LLFA. It is consistent with the lack of diligence with the wider flood risk management that such an assessment had not been provided until April 2025.

Having read the Sequential Test (ST) thoroughly, it is not clear that the author has significant experience in flood risk management. Specific comments are provided below:

- Clause 1.3 – The author states that Council's Drainage Officer supports the application. In fact, the conditions proposed by the Drainage Officer show the significant concern that the council has regarding flood risk. Their proposed conditions highlight the gaps in the application. Infiltration data is required to demonstrate the appropriateness of the infiltration strategy. This should not be a condition. Items should only be condition once suitable confidence has been provided to demonstrate that the strategy is deliverable.

The council rightly highlights the need for mapping of exceedance flood risk. The applicant has not even mapped the impact of the Baseline condition or the Design Flood Event. This is something that should be provided with the application. Without such mapping it is not possible to demonstrate compliance with the NPPF.

- Clause 2.4 – The author writes that *the proposal will continue to support and grow this significant positive impact on the local and regional economy.* This is an unsubstantiated comment and not the primary purpose of the Sequential Test.
- Clause 2.8 – The author points to the suitability of geographic locations including Slough, Park Royal, Hayes and London Docklands. When reading such a statement, it is immediately apparent why Westwells is such a wholly unsuitable location.

- Clause 3.2 – The author confirms their lack of understanding with regard to the primary concerns around flood risk. The issue relates not to the risk to the data centre itself, but the risk that the data centre represents for areas downstream. The degree of failure to understand the flood risk at this location is very clear and very concerning in equal measure.
- Clause 3.3 – The author writes that *the entirety of the site sits within Flood Zone 1. This is factually incorrect.* The proposed development is situated within an area defined as *Very High (pluvial) Flood Risk*, in accordance with the NPPF. The NPPF requires that the site is assessed for the predominant source of flood risk, which is surface water. Their own flood map confirms this, they have failed to understand the requirements of the NPPF. There are areas at risk up to the 1 in 30 year event, which would be the surface water equivalent of *functional floodplain (FZ3b)* and significant areas at risk during the 1 in 100 year event.
- Clause 3.7 – The author states that *the 2014 flood event that affected the southeast end of Westwells Road was in part impacted by the construction works on the P2 Data Centre that were in progress at that time.* This is not substantiated. No drainage calculations or records are provided to substantiate this.
- Clause 3.30 – The author writes that *based on the above experience and Ark's intimate knowledge of the site the same strategy is to be employed for the proposed development and there is no reason for it to be any less successful.* The author fails to understand how sites upstream benefit from those downstream in terms of flood risk. Donkey Field is the most downstream of the green/brownfield sites identified. The surface water risk is therefore significantly higher, as is the risk to the Westwells area immediately downstream of the Donkey Field.
- Clause 4.3 – The author states that *any 'reasonably available' site must be one that could operate as an extension to the Spring Park Campus and, inherently, therefore must be directly adjacent to it.* Whilst the potential benefit in clustering is recognised, this basic assumption has skewed and compromised the value of the ST assessment. It is well established that it is possible for data centres to operate efficiently outside of clusters. The author has ensured that the Sequential Test process is heavily prejudiced from the outset.
- Given the skewed nature of the assessment, it is not surprising that some of the sites identified were discounted without due technical consideration. It is immediately apparent to any observer that Parcels 1, 2 and 6 are not suitable options as they contain either residential land use or are relatively new development. The fact that 50% of the options identified can be discounted without any analysis or consideration undermines the process.
- Parcel 3 is discontinued, in part, due to the loss of trees. No one wants to lose trees, especially mature trees. It was galling to read this knowing that a number of mature trees at Donkey Fields had already been felled, without the benefit of planning permission or the approval of WCC, it would appear. It is also stated that Parcel 3 contains areas at risk of surface water flooding. This is acknowledged but Parcel 3 is upstream of Donkey Field and does not border more vulnerable land uses, in the way that Donkey Fields does. Sites that are further upstream are typically less sensitive to flood risk because there is a greater area downstream within which to mitigate impacts of increased runoff.

Parcel 3 is a less sensitive site than Donkey Field in terms of flood risk.

- The author writes that Parcel 4 is unscreened from Green Belt and National Landscape west of Bradford Road. This requires further explanation. A data centre at Donkey Field will be visible and impactful in terms of negative visual impact to far more people than any development at Parcel 4. It is stated that Parcel 4 is considered unlikely to be approved by WCC, but this statement is, typically, provided with no substantiation. It is important to note that Parcel 4 is significantly less impacted by surface water flood risk than Donkey Field. Parcel 4 is also significantly upstream of Donkey Field and does not border more vulnerable land uses, as Donkey Fields does.

Parcel 4, like Parcel 3, is a less sensitive location than Donkey Field in terms of flood risk.

- When considering Parcel 5, the author makes appropriate reference to the detrimental environmental impacts. The proposed development will have a detrimental environmental impact in any of the sites identified, not least Donkey Field. The applicant has failed to meet the basic requirement for 10% Biodiversity Net Gain at Donkey Field. There is no significant surface water flood risk at Parcel 5.

In flood risk terms, Parcel 5 is the best performing of any of the sites, including the proposed site at Donkey Field.

An even-handed Sequential Test would have recommended Parcels 3, 4 and 5 for further consideration.

The Sequential Test report comes across as hastily written and relatively un-informed in terms of flood risk management expertise. The conclusions are largely unsubstantiated and, in places, technically incorrect.

The report repeats the mistake that the proposed development is entirely within Flood Zone 1. This lack of understanding of the requirements of the NPPF is extremely concerning and is why the application is not fit for consent.

The selection of suitable, alternative sites is compromised by the predication that data centres must be developed in clusters. It is accepted there are benefits to clustering development of this nature. It is demonstrable that it is not a pre-requisite.

Parcels 1, 2 and 6 were so immediately unsuitable that their inclusion in the report undermined the validity of their inclusion within the assessment.

In terms of flood risk, which the Sequential Test is designed to minimise, ***Parcels 3, 4 and 5 all perform better than the proposed development site at Donkey Field.***



Figure 2 – SW flood risk map from WCC website

3.5 Summary & Conclusion

This Technical Notes summarises the significant flaws and gaps in the proposed flood risk management strategy for the Data Centre at Donkey Field, Westwells.

The shortcomings in the proposed flood risk management strategy are numerous. The primary failings are summarised as follows:

- The FRA and associated documents fail to identify that surface water is the predominant source of flood risk at the site and that the site is defined as Very High (pluvial) Flood Risk in accordance with the NPPF;

- The FRA states that there is no history of flooding in the Westwells area. This is indicative of the applicant's lack of understanding of flood risk in the Westwells area;
- The FRA and associated documents fail to identify that there are significant areas of the site that are affected by surface water flooding with an annual return probability of between 01.% and 1%, and between 1% and 3.3%. Some areas of the proposed site have the same floor risk as functional flood plain, due to the risk associated with surface water flooding;
- The application fails to map the Baseline flood condition with catchment-wide, 2D hydrological modelling. The pre-development flood mechanism has not, therefore, been demonstrated by the applicant and is unlikely to be fully understood as a result;
- The application fails to map the With-Scheme flood mechanism using catchment-wide, 2D hydrological modelling. The post-development flood mechanism has not, therefore, been demonstrated by the applicant and is unlikely to be understood, as a result;
- The application fails to map the With-Scheme With-Mitigation flood mechanism using catchment-wide, 2D hydrological modelling. The post-development flood mechanism has not, therefore been demonstrated by the applicant and is unlikely to be understood as a result;
- The applicant's flood risk mitigation is not clear. The FRA makes no reference to the primary flood risk mitigation strategy. This is an extraordinary omission. The Drainage Strategy states that the primary mitigation will be that *all rainwater should be collected for re-use as part of the development's cooling system and, when these tanks are full, infiltration will provide sufficient flood risk mitigation*. This statement is not demonstrated by hydrological modelling. It is a statement made without any backup.
- The infiltration strategy is not supported by sufficient site investigation tests. Only two infiltration tests have been carried out and these yield inconsistent results. The application states that further testing has not been carried out in order to avoid unnecessary costs at this stage. This is not an acceptable reason for the applicant not carrying out appropriate due diligence;
- The application fails to comply with Wiltshire County Council's Detailed Technical Check List;
- The Sequential Test includes no hydrological analysis and does not comply with the requirements of the NPPF;
- The Sequential Test fails to identify that three of the six alternative sites (Parcels 3, 4 & 5) are less sensitive to flood risk than the proposed site at Donkey Field and should therefore be subject to further analysis.

The shortcomings of the flood risk management strategy are so significant that they cannot be dealt with through the application of Planning Conditions. The unknowns are so great that, at this stage, there is a significant risk that the proposed strategy is undeliverable and the conditions could not be discharged.

The applicant has:

1. Failed to identify and understand the sensitive flood risk nature of the proposed development site and the area of Westwells;
2. Failed to demonstrate that there will be no increase in flood risk off site, for all events up to and including the Design Flood Event of 1 in 100 years, plus a 40% allowance for climate change; and
3. Failed to demonstrate the robustness of the proposed flood risk mitigation measures through an appropriate programme of site investigation works.

It is concluded that the application fails to meet the requirements of the NPPF and the requirements of the Lead Local Flood Authority and cannot be considered suitable for consent.