EVIDENCE ON THE WATER ENVIRONMENT

By Dr. Alan Thompson C.Geol., FGS, MRTPI

on behalf of:

The Mockbeggars Residents' Steering Group

in respect of:

Mockbeggars Farm, London Road, Budletts Common, Uckfield

Date:

7th January 2024

PINS ref:

APP/C1435/W/23/3330872

Local Planning Authority ref:

WD-2022-0648-MAO

SUMMARY

My name is Dr. Alan Thompson, a former resident of Uckfield with qualifications and experience in geology and hydrogeology, including a degree in physical geography and geology and PhD in geomorphology. I am a Chartered Geologist (C.Geol.), Fellow of the Geological Society of London (FGS) and Chartered Town Planner (MRTPI), with almost 40 years' professional research and consultancy experience. I was recently involved in providing evidence to the Downlands Farm Public Inquiry, strongly opposing that development on geological and hydrogeological grounds. I have been providing specific support to the Mockbeggars Residents Steering Group since September 2023.

My concerns relate to various aspects of the water environment at Mockbeggars Farm, including groundwater conditions within and surrounding the site, surface water drainage and flood risk. They relate, in particular, to the inadequacy of information on these matters provided by the Appellant and to the fact that they have consistently failed to address the likely impacts of the proposals on areas beyond the site boundary. My concerns also relate to what I consider to be the unjustified acceptance of the situation by Wealden District Council's Drainage Engineer, who seeks to rely on pre-commencement planning conditions rather than objecting to the outline application.

I will provide evidence to show that groundwater conditions directly adjacent to the proposed development site are substantially different from those assumed by the Appellant (based on a single borehole much further away) and that these are such that the proposed infiltration solution for dealing with surface runoff from the site is most unlikely to be feasible. I will also present evidence to show that the risk of surface water flooding directly adjacent to the site is already high and that this could well be exacerbated by the development proposals, even allowing for the proposed drainage solutions.

In addition, I will identify serious concerns relating to the potential impacts of the proposed SUDS schemes on Mockbeggars Farmhouse, including the prospects of damaging an area of grazing vegetation which is important to the smallholding and of potentially causing subsidence to the buildings by lowering the local groundwater table.

My contention is that it would be inappropriate to leave these matters to be dealt with at a later stage. They could easily jeopardise the 'deliverability' of the proposed scheme and therefore need to be addressed fully as part of the outline application, and as part of this Appeal. That cannot be done, on the basis of the wholly inadequate evidence currently available, and the Appeal should therefore be dismissed.

INTRODUCTION

1. My name is Dr. Alan Thompson, a former resident of Uckfield with qualifications and experience in geology and hydrogeology, including a degree in physical geography and geology and PhD in geomorphology. I am a Chartered Geologist (C.Geol.), Fellow of the Geological Society of London (FGS) and Chartered Town Planner (MRTPI), with almost 40 years' professional research and consultancy experience. I was recently involved in providing evidence to the Downlands Farm Public Inquiry, strongly opposing that development on geological and hydrogeological grounds. I have been providing specific support to the Mockbeggars Residents Steering Group since September 2023.

2. My present concerns relate to various aspects of the water environment at Mockbeggars Farm, including groundwater conditions within and surrounding the site, surface water drainage and flood risk. They relate, in particular, to the inadequacy of information on these matters provided by the Applicant and what I consider to be the unjustified acceptance of the situation by Wealden District Council's Drainage Engineer, Mr. Graham Kean.

3. I will use the formal consultation response from Mr. Kean, dated May 2022, as a framework for expressing my concerns. These are set out below under the following sub-headings:
    - Groundwater Information
    - Surface Water Flooding
    - SuDS (Sustainable Drainage Systems)
    - Planning Conditions Required

GROUNDWATER INFORMATION

4. In his response to the application, Mr. Keane observed that "***there is no reliable site-specific information on groundwater***". This is patently evident from a review of the Applicant's submissions. Their Flood Risk Assessment, produced by Glanville Consultants and issued on 17th January 2022 notes, at para. 5.11, that the SFRA (Strategic Flood Risk Assessment, produced by Wealden District Council) shows that *"the proposed development site is within an area of groundwater concern"*. **Figure 1**, below, confirms this to be the case.

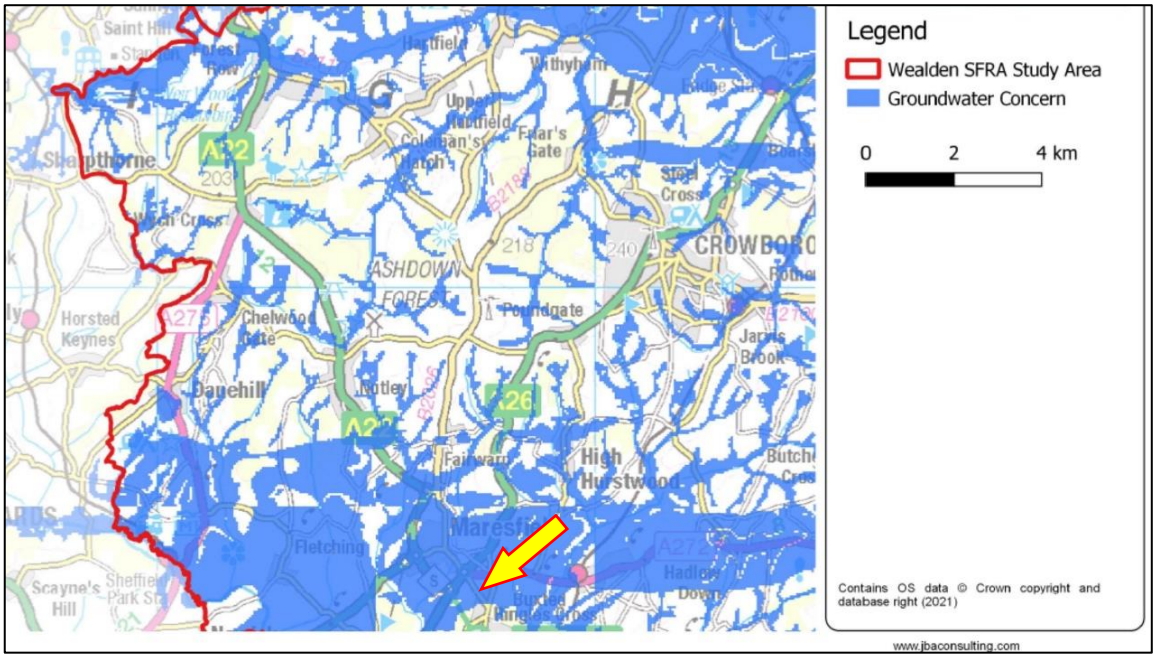


Figure 1, Extract from Wealden District Council's SFRA (2022 edition), showing areas of groundwater concern. The yellow arrow indicates the approximate location of Mockbeggars Farm.

5. Reference to the SFRA document reveals (at para. 134) that the areas of groundwater concern are based on data provided by East Sussex County Council and that they show where geological and hydrogeological conditions indicate that groundwater might emerge or impact basements or subterranean infrastructure. Appendix F to the SFRA explains that the areas of concern are derived from British Geological Survey mapping of areas where the water table may be less than 3m below ground level.

6. Para. 135 of the SFRA notes that *"it is expected that the areas of groundwater concern can be used to help to identify areas for assessment*" and that, as part of such an assessment, they should be used "*in combination with other information, for example local data or historical data*". Para. 136 of the SFRA helpfully explains that *"In the north of Wealden, a sandstone geology acts as a secondary aquifer with the potential to hold water within the rock. During high water table periods these areas are at risk of groundwater flooding to basements and at the surface*". Para. 137 of the SFRA notes that "*Groundwater flood risk is considered the most prevalent source of flood risk across Wealden and as such, special consideration of this should be made as part of development management decisions within the District*".

7. Taking these various points into account, it is surprising to see that the Appellant's consultants did not investigate the matter further. Instead, as indicated in paragraph 6.8 of their Flood Risk Assessment, they merely observed that "*no basements are proposed for dwellings within the development. Therefore, the only possibility of groundwater affecting the proposed development would be if groundwater emerges from the surface*". To address the latter possibility, they rely on a single existing borehole, as recorded by the British Geological Survey (BGS) and located some 350m north (at Black House Farm), to suggest that groundwater is at a depth of 10m below ground level.

8. As observed by Mr. Kean, this does not provide '*reliable, site-specific information'*. Far more importantly, it actually provides very misleading information. This is not least because other existing boreholes are available from BGS records in the area, giving a very different picture. One of these (Reference TQ42SE5), located just 100m away from Black House Farm at grid reference 547030,123480, reveals that groundwater was struck at a depth of only 1.5m and rose to a depth of 1.0m within 15 minutes. This is much more in line with the general expectations for the area given by the SFRA but was not reported in the Appellant's Flood Risk Assessment, despite being readily available within the public domain. It clearly demonstrates the inadequate, selective nature of the Appellant's evidence.

9. Much closer at hand, simple observations at Mockbeggars Farmhouse itself also reveal a very different and far more relevant picture. The farm building includes an old cellar in which groundwater is present throughout the year, at a depth of less than 1.8 metres below ground level (see photographs 1 and 2, below). The cellar was clearly designed with this in mind, having an open well in the floor and deliberate gaps between the lower course of bricks to allow groundwater to flow into the cellar, and a drainage channel constructed around the edge. The constant flow and evaporation of groundwater would have provided a natural means of cooling and storing food, prior to the advent of refrigeration. For this to have been effective all year round, the implications are that groundwater levels are likely to remain at or above the floor of the cellar during the summer as well as the winter months, as indeed is normally the case (confirmed by the present owner).





The cellar at Mockbeggars Farmhouse in September 2023. The yellow arrow indicates the surrounding ground level. Groundwater can be seen in the drainage channel around the edge of the cellar, even at this time of year.

10. In the winter, when the water table is higher still, sand is periodically washed-in by the flow of groundwater (as seen more clearly in photograph 3, below). This is explained by the presence of 'running sand' beneath the surrounding land, as confirmed by recent shallow excavations adjacent to the property. There is also a well adjacent to the property, as shown in photograph 4, where groundwater levels can easily be measured. In January 2024, the water in this well was just 52cm below ground level.



(left) **Detail of sand washed into the cellar by flowing groundwater.**

(below) **The water well adjacent to Mockbeggars Farmhouse.**



11. Taken together, these various lines of evidence point to the fact that, in complete contradiction of the claim made in paragraph 6.9 of the Appellant's Flood Risk Assessment, groundwater flooding clearly **is** an issue that needs to be taken into account – not only in terms of its effect on the proposed development, but also in terms of the potential effects of the development on adjoining land (which have not even been considered by the Appellant). Such issues are of fundamental importance to the overall feasibility of the development and therefore need to be addressed at the outline stage, rather than being left for detailed design.

SURFACE WATER FLOODING

12. In his second observation, Mr Kean observes that "***there are no records of flooding close to this location within the Council's land drainage database***". That is rather surprising, given that local residents tell me that they have been regularly reporting flooding to the database over the last two years, including flooding of London Road in this area. Even if Mr. Kean's statement were accepted, once again it does not paint a complete picture. More specifically, it does not take

account of the Environment Agency's mapped distribution of flood risk within the immediately surrounding area and is therefore misleading. **Figure 2**, below, taken from Appendix G of the Appellant's Flood Risk Assessment, reveals a '*High risk of surface water flooding*' within the land adjoining Mockbeggars Farmhouse, directly adjacent to the proposed development. This is not just theoretical – actual flooding in these areas, and elsewhere around the farm buildings, has been observed this winter (for example).

13. As with the groundwater issues noted above, this is another example of where the applicant has focused only on issues which might affect the proposed development and has completely overlooked the potential impacts of the development on adjoining land. Given that the development site slopes steeply down to this area of flood risk (as shown by the elevation mapping in **Figure 3**, below), it is inevitable that, without adequate mitigation, surface runoff from the site will exacerbate the risk of flooding in this area, and on the adjoining section of the London Road. Whilst Mr. Kean does not comment on this directly, he does note the necessity for pre-commencement planning conditions relating to the suitability and adequacy of mitigation measures, i.e. SUDS. Further comments on this are made in the following sections.

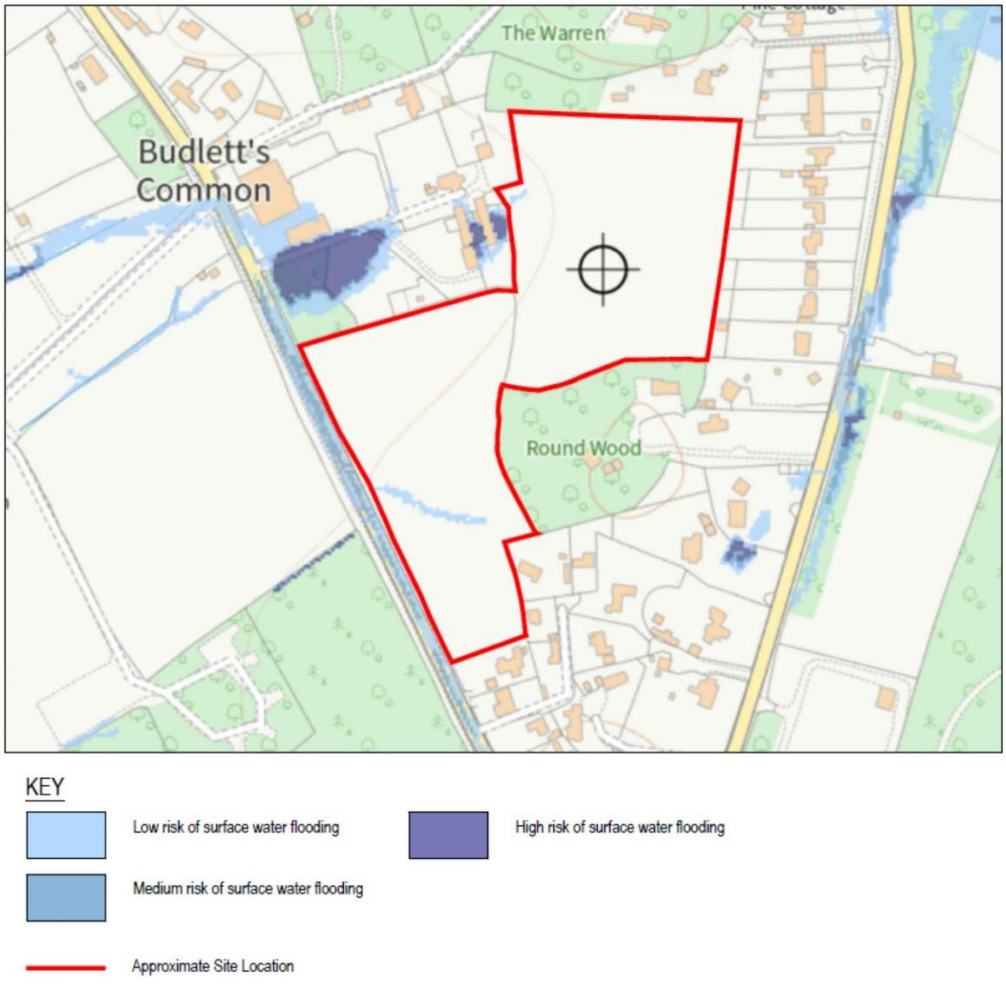


Figure 2, Extract from the Environment Agency's Surface Water Flood Risk mapping (taken from Appendix G of the Appellant's Flood Risk Assessment)

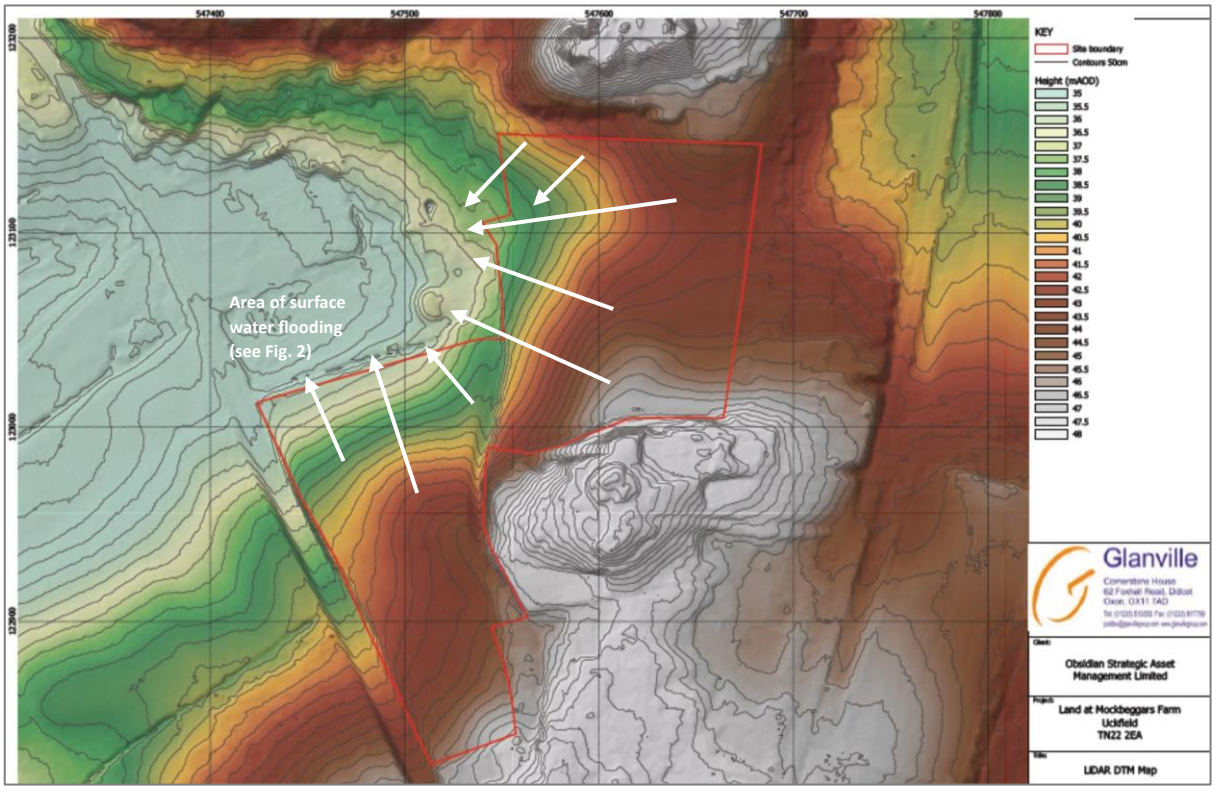


Figure 3, LiDAR Digital Terrain model of the site and adjoining areas (taken from Appendix B of the Appellant's Flood Risk Assessment). White arrows added to indicate generalised surface water drainage directions, based on the topography.

SUDS

14. With regard to SUDS, Mr. Kean's letter observes that "***Infiltration is the first recommended drainage method in the SUDS hierarchy and the underlying mapped geology of the site suggests that this is possible solution for this site***". This is a very generalised statement, based purely on the fact that the site is underlain by the Ardingly Sandstone – a permeable rock formation which is capable of storing and transmitting groundwater. Whilst that is true, Mr. Kean's observation does not take account of any reliable information on groundwater levels (since no such information was provided by the Applicant – see paragraphs 4 to 11, above). Once account has been taken of the true height of the water table, at least within the lower parts of the site (where the two infiltration basins would be), it is no longer reasonable to assume that infiltration is likely to be a feasible solution for the disposal of surface water runoff from this site. In all probability it will NOT be a feasible solution – especially during the winter months.

15. In recognition of this uncertainty, Mr. Kean's letter notes that "***No on-site testing to BRE Digest 365 has occurred to establish the actual infiltration rates (if any) to confirm this. This solution will also require groundwater monitoring for the winter season (6 months) to show that a 1.0m vertical separation can be achieved between the base of the soakage features and the highest groundwater level recorded***".

16. In the event of infiltration not being feasible, the Appellant's alternative solution (Option 2) would be to replace the infiltration basins with seasonal attenuation ponds, with water being retained here during heavy rainfall events and released via an existing 'private drainage network' of pipes and ditches to existing watercourses (and eventually to the Shortbridge Stream) at an attenuated rate, no greater than the equivalent greenfield run-off rate. As observed by Mr Kean, "***there is no information as to the condition and size of this private system and as to whether it has the capacity to deal with the proposed flows from the site***". Mr. Kean also observes that there is uncertainty regarding its ownership.

17. In common with all other aspects of the water environment, the Appellant's flood risk assessment makes no attempt to consider the potential impacts of this drainage solution beyond the boundaries of the site. These could be significant and need to be addressed. By capturing all surface water runoff from the site, the attenuation ponds would intercept water which, at present, either runs off naturally onto the land beyond the site boundary or soaks naturally into the sand below the surface.

18. In the case of the northern-most attenuation pond, this would have direct implications for Mockbeggars Farmhouse and the smallholding which surrounds it. That land includes a small wetland area (seen in photograph 5, below), which forms an important part of the smallholding and is used as a grazing area by the animals and geese. If surface runoff and groundwater were to be intercepted by an attenuation pond directly 'upstream' of this feature, it would begin to dry up and deteriorate, in terms of grazing quality.



19. The interception of runoff in this area could also deplete the amount of recharge to the groundwater system in the vicinity of the farmhouse itself. As noted earlier, the farmhouse cellar extends below the water table and, by design, has flowing groundwater within it for most if not all of the year. Although the original purpose of that system for cool storage is no longer needed, any lowering of the water table here could lead to drying-up and shrinkage of the clay within the Lower Tunbridge Sand which lies beneath the building. That, in turn, could give rise to subsidence of the building. No consideration of this potential impact has been given by the Appellant.

20. A further implication of the second SUDS option, given the uncertainties about the existing private drainage system and ditches is that, if the system is unable to cope, it could lead to flooding of the London Road and of Spring Cottage, located on the other side of that road.

PLANNING CONDITIONS REQUIRED

21. Given the considerable uncertainties, as outlined above, relating both to the nature of groundwater and surface water flooding characteristics at this site and to the feasibility, or otherwise, of the proposed drainage solutions, Mr Kean's letter concludes that: "***No development shall take place until full details of the surface water drainage scheme have been submitted to***

and approved in writing by the local planning authority". This type of pre-commencement planning condition (which is echoed by the comments from East Sussex County Council, as the Lead Local Flood Authority) is a fairly standard response to an outline application, such as this, but it relies on the assumption that an adequate solution will have been identified by the Appellant by the time that reserved matters are dealt with.

22. More specifically, item (iv) of the proposed conditions confirms that the submitted details should "***Provide evidence by means of site-specific testing during the 6 month winter period that groundwater levels are such that a 1.0m vertical separation can be achieved between the base of any infiltration devices and the highest groundwater level measured***". Given that the main 'infiltration devices', i.e. the infiltration basins, are located on the lowest points of the site, adjacent to its western boundary, and that groundwater levels in that area are likely to be very close to the surface I would suggest that such separation, during the winter months, is most unlikely to be feasible.

23. In view of the uncertainties, and of their significance in relation to the overall feasibility and 'deliverability' of the proposed development, in my view it would be inappropriate to leave these matters to be dealt with at a later stage. They need to be addressed fully as part of the outline application, and as part of this Appeal.

CONCLUSIONS

24. A recurring theme within the various lines of evidence examined above is that the Appellant has consistently failed to consider the potential impacts of the proposed development beyond the site boundary. Both surface water and groundwater provide 'pathways' and mechanisms by which changes in one area can have impacts in another area, downstream (or 'down-gradient') of the site concerned. A variety of potentially serious impacts have been identified beyond the site boundary, none of which have been seriously examined (if at all) by the Appellant.

25. For his part, Wealden District Council's drainage engineer, Mr. Kean, has identified a number of inadequacies in the Appellant's proposals, including the lack of reliable, site-specific groundwater information, the lack of infiltration testing and the need for further details of the proposed drainage scheme to be approved. He is content for these inadequacies to be addressed as reserved matters and by the use of pre-commencement planning conditions.

26. **My contention is that it would be inappropriate to leave these matters to be dealt with at a later stage. They could easily jeopardise the 'deliverability' of the proposed scheme and therefore need to be addressed fully as part of the outline application, and as part of this Appeal. That cannot be done, on the basis of the wholly inadequate evidence currently available, and the Appeal should therefore be dismissed**.