**ELFORD PARISH COUNCIL**

**Elan Homes, Seven Acre Site – Analysis of Storm Water Drainage Facilities for the Site**

**DRH/JO/EHFR 12/04/2023**

**REPORT INDEX**

**Page**

**Title Page ………………………………………………………………………………………………………………………… 1**

**Index ………………………………………………………………………………………………………………………. 2**

**Preface ……………………………………………………..**. ………………………………………………………………………. **3**

**Executive Summary** …………………………………………………………………………………………………………….. **4-5**

**Main Report**

**1.0 Introduction ………………………………………………………………………………………………………………… 6**

**2.0 Critical Undrained Area of Site Issue – ‘blind ditch’……………………………………………………. 6-7**

**3.0 Application of Planning Condition 14 - 17/01379/OUTM ………………………………………….. 7-10**

**4.0 Potential storm flows onto the undrained area of the site/blind ditch ……………………… 10-13**

**5.0 Storm Design Approval including the ‘as-built’ Balancing Pond …………………………………. 13-14**

**6.0 Solution to ‘blind ditch’ - Undrained Area Issues ………………………………………………………. 14**

**7.0 Planning Condition Sign Off ………………………………………………………………………………………. 15-16**

**8.0 Conclusions ……………………………………………………………………………………………………………….. 16 -17**

**9.0 Recommendations ……………………………………………………………………………………………………… 17**

**Appendix A –** Email from STW confirming control of drainage design process ……………………… **18**

**Appendix B –** List of engineering concerns established for forwarding to STW ……………………… **19-22**

**Elan Homes, Seven Acre Site – Analysis of Storm Water Drainage Facilities for the Site**

**Preface**

The intention of this report is to draw a line under protracted exchanges of emails and reports with the three statutory bodies involved in authorising the development:

* Lichfield District Council (LDC) (LA) – Local Planning Authority (LPA)
* Staffordshire County Council (SCC) (LA) – Local Lead Flood Authority (LLFA)
* Severn Trent Water (STW) – Statutory Water Authority for the region (SWA)

As a Parish Council we had some serious reservations about the evolving situation on this development in the village. We fortunately had the resources of a Chartered Civil Engineer and an Incorporated Civil Engineer who both committed significant time to analysing the details of the storm drainage facilities for the site, at least as far as the available information allowed. This left questions unanswered. Despite many requests, information was difficult to obtain and despite Freedom of Information requests only incomplete and in some case erroneous information was obtained.

The whole process was at risk of becoming a battle with the LA’s at the cost of the actual aim which was to principally validate the competency of the storm drainage for the site. Consequently the Parish Council has decided to draw a line under all requests and produce this summarising report that will act as a ‘Position Statement’ on what has been established over the last six to nine months for use should any of our concerns prove to be a real problem. I would state here that the LLFA engineer has been particularly helpful to us and a credit to his Authority.

The principal concern led on from the refusal of the LPA to pursue works that would provide a competent outfall for the lowest point on the site. The need for such a facility would seem pretty obvious but it is asserted by the LPA that it is undeliverable due to their own poorly written planning condition.

We as a Parish Council made our views crystal clear during consultation on the proposals the principal points were that:

* the development should not threaten the village with additional flood risk;
* ALL storm water should be discharged directly to the river;
* an existing flooding situation at the rear of No s 10-20 The Beck caused by a ‘blind ditch’ should be remedied by the development.

The ‘blind ditch’ is located at the lowest point on the site and is without any form of storm water outfall as it has been for years. For any competent storm drainage of the whole site an outfall had to be located to drain that area. This matter was discussed for many years and was well known by all involved, including the developer. It was from the absence of this outfall provision that all later issues evolved. There are several other potential flooding threats to the undrained area of the site as the storm network has to use flood attenuation to control the storm discharge to the river.

**Executive Summary**

**1.0** The report sets out the basis of the Parish Councils (PC) concerns which increased in number as the search for information developed. It was the refusal of the LPA to take formal enforcement action that finally brought matters to a head.

**2.0** There is much that was unorthodox with the way Elan Homes developed and submitted data for planning approval as the Director responsible for Planning at the LPA has stated. Details normally completed and agreed prior to a physical start on site are still not completed. This report should be read against that backcloth – Highway works are still not finally approved, no Section 104 Agreement has yet been substantively agreed and the storm outfall required at the start of the job has only just been completed.

**3.0** The lack of any form of storm outfall on the site was clear from the first day the development was proposed. The first Flood Risk Assessment (FRA) highlighted the importance of the management of storm water on the site. It also emphasised the fact that the location of the ‘blind ditch’ was the most ‘at risk’ location for flooding on the site.

**4.0** The failure to enforce relates to Condition 14 included in the original approval and hinges on the use of just one word ‘should’. The intent of the condition is unequivocal but the LPA appears to have capitulated on a strict legal interpretation, a matter contested by our own legal advice and not supported by the LLFA. (See Section 3)

**5.0** Actions against Climate Change dictate that housing developments have to contain the release of storm water to rivers to the level of the site discharge pre-development. This required that Elan had to regulate discharge to the river and balance the excess water on site. The original planning approval resolved the matter of the ‘blind ditch’ by sensibly locating the balancing pond at the lowest point of the site. This solution would have provided for a simple single point of discharge and would have competently drained the whole site by gravity. The developer subsequently changed the location of the balancing pond at the ‘Reserved Matters’ stage and moved it topographically uphill creating several problems, which were completely of their own making and therefore should be for them to resolve while delivering the benefits of the first approval.(See Section 4)

**6.0** The rate of storm water run-off of the site is critical to establishing the volume of water that has to be stored on site. Our engineers had concerns both about the methodology employed to calculate the attenuation volumes and about the changes in permeability for the site post development. (See Section 4)

**7.0** Throughout our search for information we were referred back to the planning portal to obtain information but the information identified for the balancing pond did not match what had been built on site. We still do not have complete data on approvals for the balancing pond, which has had at least four incarnations. As this is crucial to establishing the attenuation volumes of storm water we found the matter particularly frustrating and disappointing. (See Section 5)

**8.0** Being positive we offer our view on the best solution to the issue of the ‘blind ditch’ and the lack of an outfall allowing the removal of an inevitable flood risk at the lowest point on the site. This is totally in line with the Condition 14 requirements. (See Section 6)

**9.0** The planning condition sign off has been a particular issue of frustration as we were unable to obtain the approved documents on which the planning condition compliance should have been based. The information we do have indicates that the sign off for drainage has been carried out using incorrect planning conditions. The principal significance of this is that, if correct, Elan do not have an adequate sign off of conditions due either to lack of submitted data or lack of competent ‘due process’, either way they could still technically be held to account for non-compliance with the planning conditions. The issue of due process would of course be a problem for the LPA. (See Section 7)

**10.0** Having chased STW for answers on the status of this site we initially had incorrect information stating that there were no agreements in place with STW. We acknowledged that this was most unlikely and pursued the matter. Subsequently we established that they have a Section 106 permitting connection to the foul system but, as is the norm for Elan, they are still working on the Section 104 Agreement for adoption of the drainage system. The S104 Agreement should have been in place long ago agreeing the details of the system with just the twelve month maintenance period outstanding but it has yet to be completed. Given the email from STW attached, Appendix A, and the lack of detailed data being obtained from the LPA, we are comfortable leaving the matter of competence of the storm system to the STW engineers. We have, however, provided STW with our findings from the data that we were able to retrieve and giving us concern. (See Section 5 and Appendix B)

**11.0** There is a critical point which follows from the decisions being made by Elan relating to the retained Maintenance Contract responsibilities which will ultimately revert to be responsibilities of the new residents of the site. To protect those people the LPA and LLFA have to ensure that the solutions agreed are robust and minimise exposure to future risks both physical and legal. All residents should be made aware of the facts prior to them signing to take on those responsibilities.(See Para 3.15)

**12.0** Finally, we commend the report to LDC and SCC and trust that all questions raised will be adequately considered and appropriately dealt with in order to protect the village from any negative impacts of the development. We request that a pumped facility be provided to avoid a potential threat of flooding from the section of Elan’s site currently without a storm outfall and not competently drained. (See Sections 8 and 9)

**Main Report**

**1.0 Introduction**

**1.1** This report is intended to be a document to assist anyone who considers that they have been adversely affected by the Elan Homes Development with regard to storm water drainage. The Executive Summary sets out the principal terms of reference regarding what is covered by the report. It is rather lengthy and perhaps a little repetitive but it is hopefully all encompassing.

**1.2** Following many months of investigation we are now in a position to summarise our findings and produce what is effectively a ‘Position Statement’ on critical issues related to the storm drainage position and associated flood risk. This process would have been simplified had it been easier to have secured the necessary planning approval information. However, following receipt of an email from STW confirming that a Section 106 Agreement is in place and a Section 104 Adoption Agreement is being progressed and monitored, contrary to previous information from STW, several matters have now been clarified. As a result we are to notify STW of the matters that have been giving us concern on the wider storm drainage network which we can then leave to them to resolve as necessary - see Appendices A and B.

**2.0 Critical Undrained Area of Site Issue – ‘blind ditch’**

**2.1** There is an outstanding issue of the ‘blind ditch’ treatment to the rear of Nos 10-20 The Beck which forms part of Elan’s site and which remains their responsibility as landowner. It is an inappropriate structure to retain on the site as:

* The ditch has caused flooding for many years due to the lack of any form of storm outfall;
* it lies at the lowest topographical point on the site – principal flooding risk area of site;
* the flood risk at that location was made clear in the developers own Flood Risk Assessments (FRA)
* the geology of the site indicates that it has an impermeable substrata of mudstone making the use of ground infiltration systems for storm water disposal inappropriate – proven by water standing in the ditch for weeks;
* the initial planning approval 17/01379/OUTM included a Condition 14 that stated that a ‘land drain’ should be provided on the site boundary where it is considered that there is risk of waterlogging adjacent property;
* the Land Drainage Act states that storm water cannot be discharged onto adjacent ground to the detriment of that land;
* Clearly as the site forms the top of a hill there is no way that a competent storm disposal system can be provided without the lowest point on the site having some form of storm outfall to take water off site and to avoid problems for adjacent land owner.

**2.2** The fact is that the ‘landowner’ of the site inherited the flooding problem on purchase of the site and any potential nuisance is theirs to resolve, in this case with a satisfactory drainage solution. **When better than the total redevelopment of the site?** Ground infiltration solutions will not work on the site, as stated by the developers own FRA, meaning that unless some form of operational storm outfall is provided in this area there is both an unarguable flood risk and it will create inevitable saturation of lower ground thereby creating waterlogging of adjacent gardens. If permitted without a competent storm outfall the developer would be in contravention of Condition 14 of the original planning permission.

**3.0 Application of Planning Condition 14 - 17/01379/OUTM**

**3.1** The failure of the LPA to require Elan Homes to provide a ‘land drain’ at the location of the ‘blind ditch’ is the crux of our concern. The location is the lowest topographic point on the site, the most critical in terms of flooding as identified in the developers FRA and a location without any form of storm outfall. There are several points we would make to set the context of why this enforcement action should take place:

* There is an unequivocal and essential practical need for the managed control of storm water at this point.
* Planning Condition 14 was included in the original planning approval to address any issue like this that arose;
* Planning conditions are not written to be ignored, they have a purpose to ensure compliance with an identified requirement, why else write them?
* Planning assistants are not lawyers nor are Local Authority Flood Engineers so the critical nature of the difference being argued by LDC between the use of ‘should’ and ‘shall’ is both unjust and flawed as a lawyer would use the word ‘must’ in preference to either should or shall if was a pure legal matter– that is in plain English guides but planners and engineers are not lawyers!
* Legal advice indicates that: the words are different but similar and both can require action although ‘should’ is closer to guidance than ‘shall’. However, it is not conclusive that using ‘should’ is fatal to enforceability- perhaps there is case law on the matter as it is not an uncommon issue?

**3.2** The clause related to the need for a competent ‘land drain’ anywhere on the site boundary where there was a risk of waterlogging adjacent property. Considering the use of ‘should’ in this context could be considered more appropriate as it pertained to a potential need. That was a requirement to be determined when the site conditions dictated not a demand for a ‘land drain’ around the whole site boundary. At the time the condition was written there was no problem on the boundary at the ditch location as there was to be a balancing pond located at that very point hence there was no certainty that it would be required. It was the developers own unilaterally changed location for the balancing pond that created the problem at the location of the ‘blind ditch’.

**3.3** Now returning for a moment to the legal aspects of the interpretation of ‘should’ and ‘shall’ and bearing in mind the professionals acting here are not trained lawyers:

* Looking at the government circular on use on planning conditions in permissions it often uses ‘should’ for ‘must’ and does not guide against use of should or give its use as an example of an unenforceable condition.
* Perhaps Lichfield DC as LPA can cite the legal authority/ruling that is relied upon or explain why ‘should’ in the relevant condition they wrote expresses no duty or obligation capable of enforcement and is no more than guidance to be ignored at the developer’s whim?

**3.4** It is patently obvious that any argument to resist the necessary action dictated by Condition 14 is nothing but a blatant attempt to avoid responsibility for works that are necessary and were intended to be provided under that condition should they be proven to be technically necessary.

**3.5** Next we come to the reason that Condition 14 was drafted, it was included by a competent technical engineer specifying what in his opinion ‘might’ be necessary to prevent nuisance to adjacent owners from the development. Remember at this point that the ditch problem was resolved by the location of the balancing pond. The engineer was also aware that there were potential storm water problems across the site due to the lack of ANY existing storm drainage outfall anywhere on the site.

**3.6** The County Council as the LLFA made two important points to the LPA during the consultation process and we quote for absolute clarity:

* ***“The proposed development will only be acceptable if the following measures …… are implemented and secured by way of planning conditions in the planning permission”***
* ***“Where new development will be directly adjacent to existing and it is deemed necessary a land drain perimeter drain should be installed to prevent future disputes about garden waterlogging”***

**3.7** Both statements are clear and both therefore unequivocal in intent. The use of the words – **“will only be acceptable”** are very clear and forceful way to ensure that the action specified is carried out. This comment itself raises two key questions:

* Planning conditions are there to ensure that the action is undertaken, why bother writing write them otherwise?
* Why then would the LPA intentionally write a specific planning condition that could not be enforced if needed?

**3.8** We all know what was intended, we all know what is justified and if the developer relies on splitting hairs and using what is no more than a blatant evasive tactic to avoid meeting their statutory obligations, it should be treated as such and dismissed. We are sure that anyone reading this with any common sense would see the developer’s stance as evasive and certainly unsupportable.

**3.9** Next we come to the condition wording itself, any postulation that there is doubt in its intended meaning or application is completely incorrect as the previously raised points on the use of ‘should’, ’shall’ or ‘must’ demonstrate, the intended need is clear and the justification unequivocal.

**3.10** The condition uses the words “and it is deemed necessary”. The necessity for the land drain is unarguable even the developer cannot, nor have they argued that it is not needed they have only raised two points both patently meant to avoid doing the necessary work:

* that it was a pre-existing problem which they are not bound to resolve with their development. While that in itself is very questionable it does not remove their requirement to resolve it as the ‘landowner’ it became their nuisance when they bought the site;
* that the use of one word prevents them from having to meet their statutory obligation under Condition 14 – no constructive or objective reason just a bit of questionable semantics.

**3.11** Neither point in our view relieves a competent or moral contractor from meeting their obligations under Condition 14 nor invalidates that condition or the opportunity to enforce it.

**3.12** A relevant aside here relates to the developer intimating that a ‘land drain’ and a ‘swale’ were the same entity. This is a further smoke screen to avoid providing a competent solution to the ‘blind ditch’. Elan’s insistence that they have provided a ‘land drain’ with the provision of their modified ditch demonstrates an acknowledgment to accept that a facility is needed but they fail to grasp the difference between a ‘Swale’ and a ‘Land Drain’. The two mechanisms are in fact provably and fundamentally different **and a swale requires permeable sub-strata which this site does not have as they have admitted in their FRA**. It seems Elan will use everything, justified or not, to avoid putting in a competent drainage solution which would prevent the village having flooding problems in the future. It appears that they are happy to leave an incompetent ditch in a lost corner of the site at its lowest topographic point and with no outfall and in a now severely restricted location. Their development has in fact materially changed both the configuration of the ditch and its accessibility for the worse and they must take responsibility for their changes. The irony is that the ‘land drain’ solution solves many of the problems they have created with their modified ditch and at a lower cost but it appears that Elan Homes do not work that way as their main storm outfall to the river demonstrated. It was delivered appallingly late and at a significantly increased cost when set against a deliverable alternative.

**3.13** Then there is the issue of who deems the works necessary and that is most certainly NOT the developer bound by the condition. Technically it is the LPA but they do not have staff qualified to make the judgement so sensibly it should be the LLFA engineers who specified the requirement. The engineer that drafted the condition undoubtedly intended the developer to comply if there was a need for a competent ‘land drain’ which by definition has to have an outfall, **and of course there is a need!** His words were not written for the High Court but to give effect to very reasonable action to remedy any potential nuisance. It was then very diligently transcribed by the LDC planning assistant again in good faith and in compliance with the LLFA request. The strength of feeling of the LLFA is clear from their initial statement which states **“that the development will only be acceptable”** if the land drain is provided. Without the land drain the development is clearly unacceptable to them. The LLFA have also verbally confirmed that this is their stance on the matter. Now all the LLFA need is for the LPA to stand up to Elan Homes and to take enforcement action which will require them to comply. Should Elan decide to challenge the issue then it may be a good opportunity to establish some helpful Case Law on a matter that could benefit those who face immoral arguments based on questionable semantics. We contend as a PC that it should not take lawyers to write competent planning conditions it but it should take sensible judges to determine sensible ‘intent’ into account and rule accordingly. All this said the word ‘should’ does not prevent Elan from providing the land drainage facility to competently drain their site nor does it stop LDC requiring them to remove a clear nuisance under the Land Drainage Act 1991.

**3.14** Elan also contends that there will be minimal quantities of storm water reaching the ditch area but this not correct as they have ignored overland flows. It is also demonstrated by the developer’s own ‘incompetent’ drawings for the ditch (see Para 8.0 of Appendix B):

* The area drained reaches up to plot 13, they indicate Plot 8 and their calculations ignore overland flows on permeable ground which will in practice be present – just Elan saying they are not there does not change that fact that they are;
* The drawings show contours that relate to the pre-development levels these have been radically changed and give a completely false picture of the landform;
* The geology means that ground infiltration is inappropriate for the site and the gradients and impermeability factors for the finished site are much worse than the original field – the developers own FRA and actual experience of the site tells us that;
* there is no storm water outlet in that location the only way water is lost is through the saturation and waterlogging of adjacent property contrary to the intent of Condition 14;
* during severe storms the overland flows will undoubtedly be significant, flow in faster and will be completely impounded.

**3.15** In conclusion to the issue of enforcement of Condition 14 we believe that:

* the legal position taken on the enforceability of the LPA’s own condition is not conclusively compromised by the use of ‘should’ in place of ‘shall’ and neither should it be;
* the need for a ‘land drain’ and not a ‘swale’ is proven by the geology position for the site and the lack of an existing storm outfall – thanks to Elan’s design choices 18% of the site has no storm outfall and is completely undrained;
* there is already a proven nuisance from storm water flooding the ditch at storm intensities well below the design storm intensity of a 1in100 year +40% - the developer has materially changed the topography and run-off characteristics of the site for the worse;
* Condition 14 was written to resolve issues precisely like the position present at the location of the ‘blind ditch’ now the original pond location has changed. Its enforcement is essential to ensure that a competent drainage solution for the site is delivered and that the village is not detrimentally affected by the development.

**4.0 Potential storm flows onto the undrained area of the site/blind ditch**

**4.1** The storm water in the ditch was run-off from an agricultural field with substantial topsoil, about 450mm deep. The field had a moderate gradient with the topsoil permeability being restored annually by ploughing or ‘deep tining’ meaning that the run-off hydrograph would have been low profile with discharge generally taking days not hours. While the run-off from the developed impermeable areas, being 31% site area, have been diverted from the ditch, much of the permeable area has not, leaving about 18% of the permeable area of 69% of the site draining via overland flow to the ‘blind ditch’ in the undrained area of the site. That, coupled with the significant change in gradients of the area local to the ditch and the general shallowing of topsoil on all permeable areas means the volume of flow, if lower, will be faster and more concentrated. These changes were not reflected in design calculations as all permeable areas were ignored by the design system used. That does not mean that the run-off is not there, it most definitely is and those overland flows will end up in an undrained area of the site. The decreased ‘time of concentration’ will also produce run-off volumes in hours rather than days creating the ideal conditions for ‘flash flooding’.

**4.2** The above links in to the basic design criteria employed by Elan - IH 124 which totally ignores run-off from permeable ground. It has optional factors to allow for the site changes to permeable ground, absorbency, gradient etc. but there is no evidence that these moderating factors have been applied. Notwithstanding this, the IH 124 process actually also states that **‘IH 124 is inappropriate for sites with less than 50% impermeable area’** in this case the impermeable area is 31% too low to justify its use. The alternative and more appropriate design systems take a more balanced approach to the ‘permeable areas’, given their importance at 69% of the site area and a topography that has steep slopes and critically less permeability than the undeveloped site. This will mean not only will the storm pipe capacities be under-estimated but more importantly that the attenuation volumes will have been underestimated along with their attendant flood risk. Any underestimation of the attenuated volumes creates additional flood risk to the undrained and lowest area of the site, as demonstrated by the overland flood route shown on the developers own drawings. (TSE\_ENG\_160)

**4.3** Consequently, the flow rate and speed from the permeable areas will vary significantly from the site as a field and the overland flows will drain partly to the lowest point on the site (estimated at 18% of the site) and the remainder into the storm drainage network via the pond/ surrounding ground, verge and bank areas via the road gullies. None of this water has been allowed for in the storm design. The developer asserts that the flow volume to the ‘blind ditch’ will be drastically reduced and while it will be reduced to an extent in volume it will arrive at the lowest point much faster and at much higher flow rate. Certainly the volume will still be well above the absurdly low figure of 0.01% claimed by the designers in their report. The overland flow will physically exist whatever Elan assert. All trapped water in the undrained area can do no other than soak into adjacent topsoil, waterlogging it contrary to Condition 14. A competent drainage system should involve all storm water being disposed of through a functional outfall and in this case directly to the river in the regulated way conditioned by the PP.

**4.4** As part of the consultation procedure we requested that no water should be allowed to enter the village from the site as the village already has a managed flood risk and we did not want the flood risk to increase. This logical and sensible stance coupled with the elevated height of the site and location next to the river, dictated that all storm water should be discharged directly to the river. We assumed that this critical requirement was and is the stance taken with the developer whose planning approval requires that they release a controlled flow of just 8.5 l/s maximum making any other discharge elsewhere contradict that condition. It is disappointing that the Environment Agency (EA) did not emphasise this in their feedback as it is their pumping station that keeps the village free of flood water at times of flood. The EA will be statutorily interested in any discharges above the 8.5 l/s conditioned. (See Para 7 Appendix B)

**4.5** As stated earlier the original approved application 17/01379/OUTM removed the problem of the ‘blind ditch’ and the lack of an outfall at that lowest point on the site. This satisfied us as a PC when it was approved. Subsequently, and to avoid having to cut a deep sewer out to the river, the developer moved the pond location higher up the site. This unilateral decision isolated a significant area of the site from being able to be drained by gravity and created several attendant problems:

* It left an area of site without a gravity storm water outfall – the developer does not propose a permanent pumped solution but it is understood that they have proposed an emergency relief system of tankers being brought in at any time of flood threat (of questionable merit);
* it reintroduced the flood risk of the ‘blind ditch’, which was removed by the indicated pond location in the originally approved planning approval;
* it dictated that two properties (Plots 4 and 5)had to be excessively elevated to enable the buildings and drives to be drained by gravity significantly steepening the topography of the land directly adjacent to the ditch;
* it left an overland flow flood risk from some 18% of the site that will result in storm water draining to the ‘blind ditch’ – the permeable areas have been ignored as generators of run-off which is factually not what will happen in practice, this has not been assessed competently by the design parameters used;
* it has created a very difficult and restricted location for an extended ditch which has been substantially and materially changed (see below);
* it created the need for there to be two balancing facilities rather than one;
* it created the need for two control mechanisms within the storm system rather than one.

**4.6** The drawing for the ditch, a structure materially changed by the developer, state that the storage volume is 27 m3 however this disregards the fact that the ditch is on a slope and when impounding it will not retain a standing volume much over a third of that volume at most – unless the principles of physics and geometry are re-written. (See Para 8.0 Appendix B)

**4.7** The ditch also has:

* Banks that are too steep and do not comply with the developers own specified standards as most of the bank gradients on site do not – this steepness decreases run-off times and concentrates flow volumes;
* very restricted access for maintenance and without any access berms to meet H&S requirements for maintenance / emergency workers at the critical time of flooding;
* very steep adjacent ground made all the steeper because of the need to elevate the adjacent houses to make their drainage work by gravity;
* no form of storm water outfall.

**4.8** There are several other potential threats to the undrained area of the site and The Shrubbery as identified in Appendix B but given their importance they are amplified here:

* Potential underestimation of the attenuated flow volumes and inadequate storage with attendant release of water both above and below the balancing pond.
* The spill level of the pond releases overflowing water into the undrained area of the site – development water.
* The lowest level of the pond bank is less than the spill invert level of the pond by-pass overflow meaning the overflow will not work – again spillage flow will be into the undrained area of the site – development water.
* The flood route map coupled with the ditch catchment plan show that the overland flow will reach up as high as Plot 13 and given the changed nature of the permeability factors and localised steeper gardens the peak rate of flow for the design storm will create short term high levels of flow – potential ‘flash flooding’..
* The house gullies to Plots 4/5, if not prevented from taking reverse flow will, when the pond is impounding, drain water into the undrained area of the site via overland flow – that is if the drain outfalls upstream of the top hydro-brake. If the outfall is below the hydro-brake a considerable flow will bypass the balancing pond and could flood The Shrubbery.
* If the balancing capacity below the balancing pond is inadequate The Shrubbery will flood – no drawings of the lower balancing facility have been made available.

**4.9** All of these matters are of concern to the PC as any manifestation of the attendant problems may not be experienced for many years but they may exist unless the main storm drainage design is checked for competence. It will be for STW to establish between now and at the time of adoption if any of the potential threats exist and threaten adjacent property. If they do it will be for Elan Homes to remedy them. The adoption process is in hand but has not been completed and there will then be 12 month maintenance period after the Agreement is agreed and signed.

**5.0 Storm Design Approval including for the ‘as-built’ Balancing Pond**

**5.1** The potential aspects of flooding risk from the development relate to the storm drainage design and is assessed by Staffordshire County Council (SCC) as Lead Local Flood Authority (LLFA). The LLFA comments are fed into the planning process through the consultation process of Lichfield District Council (LDC) acting as the Local Planning Authority (LPA). The LPA controls the planning process and enforce the application of the prescribed ‘Conditions’.

**5.2** Initially we, the PC, relied on the fact that all site storm water had to drain directly to the river and assumed that meant that ALL storm water and that it would be overtly conditioned to be discharged directly to the river. Certainly we expected the whole site to be competently drained removing all potential risk of flooding to the village from the site. In the event the developer, **despite there being no stated volume of storm water that need not be discharged direct to the river**, disputed the need to drain all storm water to the river. They based their argument on having no need to remove pre-existing problems of flooding! It appears that the LPA do not feel that they are able to enforce a critical planning condition they drafted and related to the waterlogging of adjacent owners property. As the Local Parish Council we do not agree with that stance and have explained why in Section 3 of this report.

**5.3** The whole planning process seems particularly ‘light touch’ for a site where the storm water control was stated to be such an important aspect of the site development by the developers own submission through the original FRA report. We did express clear requests for storm water control to avoid extending flooding risk within the village and feel that our views were adequately expressed throughout both the consultation stage of the planning process and verbally to Elan during the early build period.

**5.4** The balancing pond as built does not comply with the layout in either the original FRA approved or the Revised FRA 2019. There is a detailed layout on drawings ENG 110 Rev A dated August 19 and a drawing No ENG\_290 dated 2019 with detailed construction sections and associated calculations for the pond as shown in the approved Rev FRA drawings. We had to assume that, as the latter drawing has been furnished to us as the ‘Approved’ drawing that it was the version of the balancing pond that should have been built. **It is not**, but we were unable to find any approved details for the ‘as built’ pond against which the apparent sign off has been made.

**5.5** However, on drawing ELF-ER-001 dated May 2019 is a different layout again, it is a single pond but an extended pond layout. Then in December 2022 another layout appears in the form of a general layout drawing ELF-MCD-001 Rev A, again showing a different and potentially smaller pond layout. No detailed construction drawings have been provided for this later change; nor are there revised calculations to justify the apparent pond size reduction; nor is there hard evidence of its subsequent approval. We believe that this layout may match the balancing pond as constructed. If details do exist we could not obtain a copy and if there are no details then it is difficult to see how any planning conditions can have been signed off for the drainage design as it is impossible to say what approved design the LPA should sign off against? It may be that STW have amended documentation but planning approval should also have been obtained?

5.6 In the light of Appendix A we will rest on the ‘due process’ of STW to ensure that adequate approvals were obtained for use through their own sign off arrangements to verify system competence and complete ‘as built’ drainage compliance.

**6.0 Solution to ‘blind ditch’ - Undrained Area Issues**

**6.1** Now assuming that Condition 14 can be enforced (see Section 3) and is enforced it will be for the developer to provide a competent ‘land drain’, including pumped outfall, along the route of the ‘blind ditch’ to prevent waterlogging of adjacent property. We are dependent on the LPA for this enforcement action but the LLFA fully endorse the need for the land drain and the storm outlet.

**6.2** The solution is relatively simple, it would have been simpler if the pond had been left in that location, but the construction of an oversize land drainage pipe with rock infill on the line of the ‘blind ditch’ with a pumping chamber at its lower end and a competent pumping facility and rising main to pump the water up to the balancing pond would resolve the problem. The need for a pumping facility is unfortunate but it is a function of the developers design choices. To put the matter into perspective the land drain represents just 5 % of the site boundary not an onerous requirement yet critical thanks to decisions made by the developer when moving the pond to a hydraulically inappropriate position. Without this facility the adjacent land will continue to be saturated by the impounded water as it has nowhere to go. This is clearly and unarguably contrary to the intent of Clause 14 of their planning approval and an existing nuisance.

**6.3** This above solution would provide a sensible and competent end result:

* the ditch will be filled removing a major blot on the landscape;
* the gardens to Plot 4 and 5 could be regraded and re-included within the gardens of the two properties;
* it will reduce the complexity and cost of the Maintenance Contract for the site and introduce more certainty of competent practical management for the area;
* the pumping facility can be managed through the Maintenance Contract with much more long term confidence and certainty much than the ditch proposal.

**6.4** It is the only solution left if the developer is to leave the site fully and competently drained and not leave a significant liability in the laps of the new owners on the site who will otherwise inherit the flood risk of the current arrangements and potential legal challenges in the future. I would ask here if all owners are aware of their culpability for future damage and property value loss if any problems do arise?

**7.0 Planning Condition Sign Off**

**7.1** We have investigated this matter and after much consideration believe that the planning conditions for drainage have not been reliably signed off and while it could be a paper exercise to put right it means that some critical drainage ‘Conditions’ have not yet been formally signed off and could be re-opened for debate.

**7.2** We are a little unclear on the issue of ‘sign off’ for the drainage conditions as we understood that they cannot be signed off until the system is complete and confirmed to be in compliance with planning conditions and approved drawings. As STW have to carry out that exercise and it still has to be done how can any of the drainage conditions have been competently discharged? Surely if STW on inspection find that the system does not comply and will not adopt the system then surely the LPA cannot have said that the system has been competently provided? Perhaps we could ask for guidance on this matter as it is a critical point for the householders?

**7.3** The LPA say that the drainage has been signed off by virtue of compliance with Conditions 7 and 9 of their detailed Reserved Matters approval yet they are specific conditions:

* Condition 7 relating to the removal of a small section of drainage from the adoption schedule;
* Condition 9 relating specifically to the balancing pond.

**7.4** Consequently we contend that as Condition 8 of the original approval covers the global ‘sign off’ for the whole drainage system that should be the condition referred to? We therefore respectfully question whether the process has been correctly carried out. I would also ask how the balancing pond can have been accepted when details of its structure and volume calculation could not be provided and appears to have never been formerly approved?

**7.5** As for Condition 14 we have set out above the reason we strenuously refute that it can have been signed off. Its sole purpose was clear - to prevent waterlogging of adjacent ground and that has not been exercised yet. The LLFA comments state categorically that the development will not be acceptable to them without a land drain in place on the line of the ‘blind ditch’ and they agree it is required. Can the LPA ignore the state requirements of the LLFA?

**7.6** Time will tell if our concerns are justified but they are clearly laid out here for future reference. If they are not justified then all we have lost is a few weeks of our time, if they are then there will be clear questions to be answered at some point in the future. We accept that we speak without full details but that is not for the want of asking but our frustration has led us to draw this line in the sand. It is, in any event, the case that we have tried to understand and help but having expressed our views we leave it to the statutory bodies that are formerly responsible to ensure that development it provided in compliance with the approved plans and that those details are fully competent.

**7.7** One cautionary point is that the ‘blind ditch’ has already filled with water to its available capacity without rainfall anywhere near the ultimate design storm, we have the photographs. They also put the lie to the developer’s assertion that the ditch invert is level, **it is not.** The facts as they have developed have been presented to both the LPA and the LLFA but are headlined here and recorded elsewhere in a series of earlier reports. It is hoped that there is sufficient information here to assist any adjacent owners in any action they may need to take if our suspicions are correct. We have been able to drop some of our more detailed technical concerns because the STW adoption process involves full evaluation of the drainage design and its competence.

**7.8** We now hope that the LPA review, in conjunction with the LLFA, the matter of the enforcement of Condition 14 in the area of the treatment of the ‘blind ditch’.

**8.0 Conclusions**

**8.1** The most striking conclusion to come from this whole investigation when stripped back is the ironic fact that the only substantive ‘Planning Condition 14 ’ relating to drainage matters in the initial planning permission is considered flawed by the very Authority that wrote it. It is the most far reaching regarding flood threat to the village and impact on existing housing. The argument is one of many made by the developer to avoid having to put in a storm outfall to ensure the whole site is competently drained, these are:

* it was a pre-existing situation that did not need to be addressed- it is an issue of nuisance that as landowners they have to manage:
* there is no storm water to cause an issue of flooding – there is a significant quantity of overland flow excluded from their calculations but factually present;
* they had not changed the environment of the ditch – they have substantially altered the profile of the land around the ditch and extended the ditch to little effect as it is on a severe slope for a ditch reducing volume;
* the ditch was a ‘land drain’- it is not it is a swale which uses a system of water disposal that cannot possibly work on this site;
* they could not put land drainage water into the storm sewer system – yet they have put significant quantities of overland flow into the storm system via the balancing pond catchment and the steep verges flowing into gullies, highway water is in the system.
* they have improved the situation on site regarding the flows to the ditch so can leave some flooding problems – the degree of betterment is questionable as total volumes may be down but speed of concentration of flow could still cause short term ‘flash flooding’.

These are all flawed arguments so we get to the final case of semantics the use of ‘should’ rather than ‘shall’ and is considered to be the conclusive issue despite it being patently clear that it is a lawyer generated argument to avoid taking fully justified responsibility for draining the whole site competently.

**8.2** A Condition by definition is mandatory. Conditions are there for a purpose, in this case to ensure adequate drainage. When a condition is included a decision has already been made that something is necessary:

**“Where new development will be directly adjacent to existing and it is deemed necessary, a land drainage perimeter drain should be installed to prevent future disputes about garden waterlogging”**

Any legal reference to the LPA’s use for the word ‘should’ is deliberate obfuscation of the clear intent of the Condition. The mere existence of Condition 14 pre-supposes that the LA’s deemed the drainage to be necessary under certain circumstances which in this case have been fully met. The semantic argument has no bearing on the enforceability of Condition 14 and enforcement action should be taken to ensure compliance with the approved planning condition.

**8.3** The present solution for the undrained area / blind ditch does not and cannot meet the hydraulic requirements of the site, that of preventing waterlogging of adjacent property, the geology and lack of an outfall prevent it.

**8.4** The ditch is a potential problem, a scar on the site and a responsibility set to be lost in the mists of time once passed onto the householders via the Management Contract. It is destined to be a hidden unkempt corner of the site and a potential flood threat to the village from storms that exceed the design storm which is an issue the developer has to consider under prescribed design guidance.

**8.5** The developer is planning on passing an established nuisance on to the householders

**8.6** The matter may be taken forward by adjacent owners using the legal powers of the Land Drainage Act if no storm water outfall is provided in the undrained area of the site and the land drainage nuisance continues and that may be action against the new householders.

**9.0 Recommendations**

**9.1 That the Parish Council approve and endorse this report as written.**

**9.2 That the Parish Council forward this report to Lichfield DC as LPA with a request to reconsider their stance on enforcement of Condition 14 at the rear of 10-20 The Beck and require the developer to comply with the solution identified in the report.**

**9.3 That the Parish Council forward this report to Staffordshire CC as LLFA with a request for them to encourage the enforcement of Condition 14 at the rear of 10-20 The Beck with the solution identified in the report and inform the LPA of their support for that action.**

**9.4 That the Parish Council forward this report to STW with a request that they take into consideration the points made, particularly in Appendix B when assessing the storm drainage system for adoption for Elan Homes, Seven Acres development in Elford.**

**DRH – BSc CEng MICE / JO – BEng IEng MICE 12/04/2023**

**Appendix A**

ST Classification: UNMARKED

Hello Dave

I have been passed your enquiry concerning this site.

I can confirm that the developer, Elan Homes Limited, do have an application for a Section 104 Sewer Adoption with Severn Trent for this site. This is subject to regular inspection by our Construction Project Management team.

As part of the design assessment there was a requirement to ensure a Section 106 Agreement was confirmed with Severn Trent and as a condition of the adoption of the pipe network. I understand that my colleague Vijay Tanna has responded with regard to the Section 106 Application.

The Section 104 has not been signed off and continues to follow the process until final adoption which will follow a review of the site post construction and after that has been approved a 12 month maintenance period will follow to ensure that the site meets the requirements for adoption.

Please refer to the Developer direct for any further information?

Regards

**Gregory MORONEY-BARNETT**

**Adoptions Engineering Technician**

**Developer Services**

**07790 882844**

[gregory.moroney-barnett@severntrent.co.uk](mailto:gregory.moroney-barnett@severntrent.co.uk)

**APPENDIX B**

**ANALYSIS OF ATTENUATION FLOWS FOR ELAN HOMES SITE AND ASSESSMENT OF STORM NETWORK DESIGN DETAILS**

**ANALYSIS OF DESIGN PARAMETERS**

The volumes of flow are questionable as it appears that RACE have used IH 124 to establish the rainfall figures which is inappropriate as the site, by their own figures, is only 30% impermeable area. IH 124 states that it is only appropriate for use when the impermeable area of a site exceeds 50 % and clearly for this site this is not the case.

A more appropriate approach is to use UKWIR which includes for variable run offs. This system acknowledges that run off from sites with high levels of permeable ground do have flows from those permeable areas identified and managed. There are other parameters like the presence of impermeable sub-strata and steep banks which again dictate multipliers to the calculated flows to acknowledge the fact that permeable areas cannot always be ignored for IH 124 but there is no evidence that they have been allowed for in Elan’s design.

Elan’s site has the following physical parameters:

* significantly changed soil structure and topography to the original field;
* the site stands on impervious mudstone making ground permeability very limited and unsuitable for ground infiltration systems of water disposal which in turn makes the topsoil susceptible to waterlogging;
* re-profiling has steepened critical areas of the site speeding up run-off. There are steep sections of permeable area making run off rapid.

For a site like Elan’s with 70% permeable area a more balanced design approach should be used recognising the importance of the calculation of the run off volumes from that large permeable area. The SuDS IH 124 system states that, and for clarity I quote:

* green spaces **cannot be excluded** just because they have been landscaped as it will alter their run off characteristics - If this is the case and impermeable area is less than 50% of the site, the **UKSUDS calculator IH 124 is not valid and other run off modelling must be used.**

The FRA for the site stated clearly that the management of storm water was a critical issue for this site ‘with no established storm discharge point’.

**ANALYSIS OF DESIGN DETAIL**

While this matter has been left now to STW given their confirmatory reply there appear to be a few questions and anomalies in the design detail that may cause problems if not corrected. Consequently we have set out what has given us concerns to assist the STW engineers in their compliance checks.

**1 Overflow from S14 TO S20**

The invert level at the upper end of the overflow pipe is 58.865m. The spill level of the lowest point on the pond bank is 58.524m which means that the development storm water will spill from the pond onto plot 4 and 5 before the overflow can activate. This could seriously affect the undrained ‘blind ditch’ behind Nos 10-20 The Beck.

**2 Balancing Pond Bank Top Lowest Point Outside Plot No 4**

The level here is stated above as 58.524m and if breached will release water down onto Plots 4 and 5. This is why any underestimate of attenuation volumes is critical. This flow in turn will flow down to the area of the ‘blind ditch’ aggravating flooding in the area. This is development water from the impermeable areas of the site. This will waterlog the ditch area and adjacent ground against Clause 14 of the PP.

**3 Plot 4 and 5 Gulley Gratings – House and Drives**

These gullies, when the pond water level exceeds their topographic level, will allow a reverse flow of storm water onto plots 4 and 5. This action if allowed will also flood the ‘blind ditch’ with development water unless there is a non-return valve in the system..

**4 Retained Undrained ‘Blind’ Ditch adjacent to Plots 4 and 5**

This ditch does not have any outfall and, as its stands on an impermeable substrate, will waterlog adjacent ground when it impounds any water unless an outfall is provided. Due to the change of the balancing pond location an elevation at the detailed stage of the PP the only outfall available is a pumped system. Clause 14 calls for a functional ‘Land Drain’ on the site boundary where there is risk of waterlogging adjacent property. A land drain in construction terms and by definition has to have an outfall to take a flow of water and reduce pore pressures. The ditch requires an outfall to meet the conditions of Clause 14. The ditch will not meet the requirements of any porosity tests as water stands in the ditch for days sometimes weeks. The FRA states that the site is NOT suitable for ground infiltration solutions for storm water disposal.

Without this facility the developer is in contravention of the obligations of Clause 14 of the approved PP.

**5 Balancing Pond Capacity**

Notwithstanding the potential under prediction of the attenuation volumes the Elan design shows a need to balance 462 m3 of flood attenuation. There is an issue over the approval process for the pond as constructed as it does not match the ‘approved’ scheme provided to us but that excluded our estimation of storage available on site is nearer 360 m3 though detail is thin. That indicates that some 100 m3 of storage is missing. We leave that matter to STW to determine as we cannot find any construction details or revised calculations for the balancing pond as constructed.

**6 Attenuation Storage below the upper hydro-brake**

The relocation of the pond also meant that there would have to be two hydro-brakes on the site the upper one in S20 rated at 5.5 l/s and one in the lower chamber rated at 8.5 l/s intended to control the site discharge to the specified and conditioned maximum discharge. The storage required for the lower section of the site appears to be in the region of 61 m3 but there appears to be only 40 m3 available. **There may be a problem 20 m3 shortfall in balancing below the upper hydrobrake.**

Without extra storage the system will release the additional storm water at a rate that exceeds the 8.5 l/s permitted under the approved PP **and in contravention of that approval.**

**7 Operation of Hydro-brakes**

Hydro-brakes, to operate, require a prescribed operational static head and a ‘free discharge’. We assume that the upper hydro-brake is located in S 20 with the related static head and free discharge and will discharge the regulated designed volume of 5.5 l/s.

The lower hydro-brake is located in a chamber well below the level of The Shrubbery which is often liable to localised flooding when the river levels are moderate to high. This potentially means that the hydro-brake will be drowned and that it will cease to operate. If that is the case the question is how is the site restricted discharge being regulated?

If the regulated flow is not controlled the site will be **in contravention of its specified regulated discharge rate and the approved PP.**

**8 Assessments of Ditch Construction Drawings – ELF-RDP-001 Revisions A and B**

These drawings as with most of Elan’s information has been submitted late in the build process but should have been sorted out before the build started. From a review of the details we have found the following problems:

* The ditch invert is shown as flat, it is not as many photographs of recent flooding show – the fall is about 0.45m.
* The water levels appear to defy gravity as they have a gradient which is completely false making the volumes of storage completely incorrect – there is a 1m hump in the bed level on section BB!!!!!!!!!!!
* Impounded water will spill at the lower end well before anything like the 27 m3 claimed can be impounded – it will be more like a third of that volume.
* The ditch side batters do not meet the developers own specified standards and are too steep – there have already been instances of bank slippage.
* The batters particularly on the side adjacent to the property to the north east are particularly steep and unstable – this affects the private property gardens.
* The run-off areas shown are incorrect as storm overland water will run from Plot 13 down to the ditch – about 18% of the original site still drains to the ditch and the calculations ignore overland flows.
* How can there be an area of any developer’s site where there is no established storm outfall particularly on impervious sub-strata? – this problem was created by the developers choice of pond location.
* Under the Land Drainage Act 1991 no-one can discharge storm water onto adjacent ground to the detriment of that land – if water is discharged to lower land it has to be passed on into an established channel, conduit or pipe established for the purpose.
* The material circumstances surrounding the ditch have been changed significantly – steeper gradients, thinner topsoil, undisturbed mown areas etc all generating more overland flow and faster concentrations yet no allowance for those flows has been made in the design but the ditch lies at the lowest topographic point of the site.
* IH 124 used for the design requires that the site has more than 50 of the site as impermeable area otherwise it states that the system should not be used – this site is 30% impermeable, WIRUK would allow for such imbalance of permeable area.
* The site has severely restricted access and no access berm for maintenance or emergency access in the case of major flooding – it will not meet H&S standards for competent access by any workforce the future.
* A land drain adequately serviced by a pump would allow the gradient issue to be better managed, the excluded garden areas to Plot4/5 be returned to those plots and removed from communal responsibilities and an area destined to be a backwater of discontent be avoided just a sensible suggestion!

**CONCLUSION**

All matters identified seek to consolidate the storm design / system as well as attempting to prevent additional flood risk within the village.

The PC consider the provision of an outfall in place of the ‘blind ditch’ to the rear of Nos 10-20 The Beck to be essential, just as the LLFA does, for the removal of an avoidable flood risk to the village and adjacent property from Elan’s site.

**DRH – BSc CEng MICE / JO – BEng IEng MICE 12/04/2023**