

Planning Representations and Objections to SODC regarding P24/S2642/FUL & P24/S2652/S73 & P24/S2651/DIS

Descriptions

1. P24/S2642/FUL - Engineering operations associated with ground stabilisation works.
2. P24/S2652/S73 - Variation of conditions 1 (Approved plans) and 3 (Landscaping implementation and retention) on application P19/S0245/RM (Reserved Matters for 95 dwellings (appearance, landscaping, scale and layout) pursuant to outline application P16/S0970/O).
3. Discharge of conditions 4(vehicular access, footways, cycle ways, driveways and turning areas), 5(construction management plan), 8(landscape management plan), 9(method statement) and 11(drainage strategy) on application P16/S0970/O.(Outline Planning Application for up to 95 dwellings and associated public open space and landscaping. Means of access and strategic landscaping not reserved).

These representations to P24/S2652/S73 and P24/S2642/FUL and also further representations to P24/S2651/DIS ('the Applications') are made by the Thames Farm Action Group on behalf of each of the 4 members of the Steering Group, who are all residents of Lower Shiplake; also on behalf of the residents of Lower Shiplake whom the Action Group was formed to represent, and, the 1500 local residents who signed the petition objecting to this development and its likely environmental impacts.

This document follows on from our objections of 19 September 2024 to P24/S2651/DIS, as the 3 applications were submitted at the same time and are related and interlinked Applications, that cross refer to each other. However they were allocated differing dates for representations and comments to be submitted, by SODC, hence being the subject of responses at different times.

The contents of this document therefore, are objections to **all 3 Applications**. We raise further objections to P24/S2651/DIS, here having already submitted objections, since the other 2 Applications contain additional material relevant to the former. It is clear that the former application seeks to discharge conditions that can only relate to the latter applications, hence we believe that application to be wrongly described as pursuant to P16/S0970/O. It is one that in reality can only be pursuant to P24/S2642/FUL and P24/S2652/S73, which are yet to be determined.

We are objecting to these Applications, as they are fundamentally flawed and will cause immeasurable harm to the local environment; will risk interrupting the flow of the underlying aquifer and also risk the contamination of said aquifer. The aquifer is the main source of Thames Water's supply of drinking water to its Henley Region and which we understand comprises approx 50,000 residents.

The proposed development comprising ground stabilisation works to this 5.6 Ha site seeks to 'grout' the majority of the land to a depth of perhaps 16m or more and to vibro-compact most of the site surface to a depth of 3m down. The proposals also seek to address a drainage strategy and design, as well as various associated matters like a change in density etc

Grouting operations are notoriously difficult to manage precisely by their very nature, because grouting is a method of dealing with underground faults and dissolutions that have taken place due to the operation of flowing water in the chalk sub strata that makes up the ground underneath

The purpose of the grouting operation, is to fill underground faults and dissolution features, and create a large solid platform in order to allow houses and infrastructure to be built on top of what currently is land, that has within it voids, gaps sink holes and the like which would otherwise risk the movement and collapse of any development constructed on the surface.

Dissolution is a natural process that takes place where large areas of flowing water erode and dissolve the chalk sub strata. It is also precisely these characteristics, that create the ideal conditions for generating clean drinking water, because the chalk operates as a natural filter for the water removing any dirt and chemicals, that might otherwise be consumed by the public.

One of the main unquantifiable risks here is that underground activity is almost impossible to control or model. The proposal to drill at 6m centres a very large grid of very deep holes, and then pump concrete slurry into those holes across vast areas of the site, and then hope that the slurry ends up in the 'right' place rather than flowing into the 'wrong' places is a significant risk that cannot be taken with our sole supply of drinking water.

However good the operatives and processes might be, once underground, the slurry will go where it wants to go, and will follow all gaps that it finds. Once the slurry has flowed and settled not only is it then impossible to undo, but the damage will have happened. Even if the underlying water is not contaminated, the concrete slurry will still have a potential impact on the natural course taken by the water, hence putting the source at unnecessary risk of the direction and volume of flow changing. Moreover, the volume of water available for abstraction at the Thames Water borehole but a short distance of maybe 15 metres (applicants figure) away could very easily be impaired, and be incapable of mitigation due to its proximity to the abstraction boreholes.

Water is a hugely scarce and valuable resource throughout the country, as is starkly illustrated by the huge costs now being incurred to create the new Oxfordshire reservoir, known as the South East Strategic Reservoir Option (SESRO), and the Teddington Direct River Abstraction project, a new abstraction on the River Thames upstream of Teddington Weir.

Because these sources are very valuable and rare in the UK, the Government agency – the EA has designated areas of land which carry the features that give rise to underground aquifers that supply drinking water, as source protection zones. The whole of Thames Farm sits within one of the highest ranking zones known as a grade 1 SPZ or 'inner zone'. There are also a number of less valuable/less important zones or ones further away from the point of abstraction

We cite an extract from GovWire August 1st 2024 below:



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GUIDANCE: GROUNDWATER SOURCE PROTECTION ZONES (SPZS)

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Groundwater supplies a third of our drinking water. In some areas of southern England, up to 80% of the water you get from your taps is from groundwater. It also keeps many of our rivers flowing.

The Environment Agency must protect groundwater sources used to supply drinking water from pollution. Sources include wells, boreholes and springs. We've defined **SPZs** - they're zones which show the level of risk to the source from contamination. This could be from any activity that might cause pollution in the area. For example, storing pollutants like petrol underground, soakaways from septic tanks to the ground. The closer the activity, the greater the risk.

We use our approach to groundwater protection to:

- put in pollution prevention measures in areas of high risk
- monitor the activities of nearby potential polluters

Our engineers (JBA Consulting, who are specialist hydrogeological experts and who were also used by the Local Authority in preparing its own Flood Strategy), are of the opinion that the overall scheme for the groundworks, and the design of this drainage strategy is fundamentally flawed.

A copy of their report of September 2024 is appended at **Appendix 1**.

There remain major question marks over the design that has been adopted by the Applicant in this submission, and it is more than likely that the location, in the SW corner of the site currently earmarked for a balancing lake/infiltration zone, will also need grouting, hence neutralising its capability to provide an area of infiltration for the entire site's 'catch' of surface water runoff, including also, the flows from adjacent elevated land to the west.

"The Applicant's August 2024 Flood Risk Appraisal and Drainage Study remains some way from adequately demonstrating that the drainage strategy is appropriate, in line with planning policies and design good practice, and that it will **not increase flood risk**. Particular attention is drawn to the following points:-

- The reliance on pumping to a high-level infiltration basin on the west side of the site makes this a carbon-intensive design. If adopted, the high operating costs would be passed on to water company bill payers or council tax payers.
- A number of design issues are highlighted by the drainage model, including velocities below the self-cleansing velocity for pipes, 28 Hydrobrake controls below the recommended minimum orifice diameter, and steep (1 in 4) slopes on the basin.

- The assessment of offsite flows does not take into account the whole of the contributing area draining into the site.
- Exceedance scenarios have not been considered for blockages and for a failure of the upper basin to infiltrate at the stated rate.
- The infiltration rate applied, needs to be reassessed if compaction and/or grouting works are planned within the basin's footprint.
- Conversely, it is not clear whether the deep-seated voids identified in the area of the upper basin will be stabilised, and whether the risk of collapse beneath the basin due to high ground loadings and scour of voids has been adequately considered".

Should the ground on which it is proposed to place the balancing lake be grouted/treated in the same way as much of the proposal to treat the rest of the site's developed areas, the balancing lake will be **incapable of operating** as a source of infiltration for stored water. The lake design will need to consider any additional capacity then needed for the storage of water arising from the reduced ability for infiltration to take place, otherwise **flooding of adjacent areas will occur**. The slope of the side walls to the basin are already compromised and are steeper than recommended design tolerances, hence exacerbating the problem.

The drainage solution proposed, is considered to be **contrary** to the NPPF, the SODC Local Plan (Policy DES8) and OCC's 'Local Standards and Guidance' for surface water drainage.

For example, the NPPF states -

"The planning system should support the transition to a low carbon future..."

And

- SODC Local Plan, Policy DES8: Promoting Sustainable Design: "All new development ... should seek to minimise the carbon and energy impacts of their design and construction"
- OCC Local Standards and Guidance for surface water drainage on major development in Oxfordshire: "SuDS should be designed to provide an effective 'whole life' sustainable solution, by ensuring that ... where possible, natural resources are reused and energy efficient products, processes, operation and maintenance are possible."
- These policy requirements are also likely to be out of date and deficient, as evidenced by the recent flooding, which now occurs with alarming regularity multiple times each year, compared to the statistical models that suggest very long interludes. In short climate change is happening much faster than expected.

JBA Consulting's Assessment: Hydrogeological Impacts –

Key issues (only):-

We quote verbatim from the JBA technical note to highlight its findings. Some text is enlarged / underlined for emphasis of critical matters.

"Quote.....

3.1 Assessment of the hydrogeological impact assessment

JBA's review of the information contained in H Fraser Consulting Hydrogeological Impact Assessment (HIA) latest version (August 2024), Stantec Technical Note (August 2024) and Planning Statement (August 2024), and revised Specification for stabilisation of dissolution features by Vertase FLI (July 2024).....

...confirm the current design and plan for the proposed development of the site remains inadequate, in line with comments made at the previous JBA review (September 2023).

The previous review identified strategic flaws for the proposed development requiring grouting at depth for a large part of the site potentially having a detrimental impact on water quality of the drinking water supply and reducing infiltration / drainage of the site.

Grouting is still required to the eastern part of the site, the closest to the water supply zone. The grouting specifications (Vertase FLI, 2024) indicates the selected Contractor would need to "Prepare a Method Statement detailing how the Stabilisation Works will be undertaken" which is a key document to ascertain risk to the water supply.

No indication of the proposed depth for each pile has been provided either, limiting the robustness of the HIA (H Fraser Consulting, 2024).

The use of Pulverised Fuel Ash (PFA) in the grouting mix is not following Building Research Establishment (BRE) 905 (Second edition, 2009). The BRE 905 "Stabilising mine workings with PFA grouts - Environmental Code of Practice" states " A presumption against the use of grouts in groundwater source protection zones designated by the Environment Agency as source protection zone 1 (SPZ 1)." PFA materials are inherently chemically variable, and no chemical tests have been provided to support the detailed risk assessment that is required for this site. One example of grouting with limited monitoring showing no impact cannot be solely relied upon to reflect the potential risk associated with grouting within a SPZ1.

The Environmental Statement and EIA (Stantec, 2024) do not propose any monitoring of the grouting during installation or following completion which could support eventual mitigation measures.

No mitigation measures have been described, and, are unlikely to be effective due to the proximity of the receptor.....

....Infiltration of surface water via SuDS as described in other parts of the site would also have the potential to increase the rate at which dissolution features develop, posing a risk of collapse of the ground level, structures and persons in the vicinity.....

Finally, the combined effect of grouting and change in infiltration pattern across the site have not been evaluated within the ES

4 Conclusions

The August 2024 Flood Risk Appraisal and Drainage Study remains some way from adequately demonstrating that the drainage strategy is appropriate, in line with planning policies and design good practice, and that it will not increase flood risk. Particular attention is drawn to the following points:

- The reliance on pumping to a high-level infiltration basin on the west side of the site makes this a carbon-intensive design. If adopted, the high operating costs would be passed on to water company bill payers or council taxpayers.
- A number of design issues are highlighted by the drainage model, including velocities below the self-cleansing velocity for pipes, 28 Hydro brake controls below the recommended minimum orifice diameter, and steep (1 in 3) slopes on the basins.
- The assessment of offsite flows does not take into account the whole of the contributing area draining into the site.
- Exceedance scenarios have not been considered for blockages and for a failure of the upper basin to infiltrate at the stated rate.
- The infiltration rate applied needs to be reassessed if compaction and/or grouting works are planned within the basin's footprint.
- Conversely, it is not clear whether the deep-seated void identified in the area of the upper basin will be stabilised, and whether the risk of collapse beneath the basin due to high ground loading and scour of voids has been adequately considered.

Regarding the hydrogeological assessment and Environmental Statement, although new grouting plan has been submitted, the risk to the water supply remains unacceptable and against best practice guidance which precludes the use of grouting in SPZ1 - "PFA grout is not permitted in groundwater source protection zone SPZ 1" (BRE, 2009).

.....End of Quote

Our Further Observations

- We further note, that the EIA attached to this FUL application is woefully deficient in considering the true and full environmental impacts of the proposed Groundworks, when it is patently clear to see, that these works (taking some 8 months to complete), will have a major impact upon the local environment and residents in the short term. Moreover, and of even greater importance, potentially **very significant and perhaps irreversible long term impacts**, if as we believe, the design and proposals are fundamentally flawed.

- Whilst we acknowledge that a section on noise and vibration during the proposed grouting (and ground compaction) operations is included within the TCPA - Construction Management Plan, the generic 'boiler plate' text used is not considered sufficient for such major and abnormal works being proposed in a highly unusual location. It is considered that noise, vibration and air quality warrant upfront assessment, whether as part of a statutory or non-statutory EIA or otherwise, to ensure sufficient forewarning, as far as practicable, of any potentially significant impacts. It could be that the findings influence the proposed method(s), which would then require reappraising generally. Without this, we simply **do not know the likely impacts**
- The boring of hundreds of up to 16m deep holes into the ground, removal and relocation of soil and the arrival every few minutes of lorries containing cement slurry which is then pumped continuously day after day after day, will be a huge imposition upon local residents for a period of maybe 8 months. These issues have hardly been mentioned let alone efforts made to fully and properly quantify, consider in context of the existing environmental conditions, nor the bringing forward of suggestions to make those factors more bearable.
- There is no regime of monitoring proposed, or in turn, any reporting to SODC, the Environmental Protection Team, the EA or Thames Water, nor to residents in any form.
- It is to be expected that underground erosion will continue to occur over time, **even once the site has been treated**. There is no evaluation of this highly likely matter, nor any semblance of how this would be dealt with when it arises, nor the impact on affected dwellings and infrastructure.
- There is no reference to the chemical testing of materials used within the assessment, nor any answer put forwards to the statement that any mitigation measures with the grouting **will not work** due to the proximity to the nearby boreholes. Such a risk profile is simply not acceptable for a public water supply.
- No monitoring of potential contamination of ground water is proposed during the currency of the works, nor any long term monitoring to ensure there is no leaching of contaminants. This operation carries major, serious risks and consequences, and completely fails to recognise possible problems, nor the responsibility for taking action over those problems either short, or long term.
- We are attaching an earlier document that was prepared in response to the Application for EIS Screening made by the applicant in May of this year (**P24/S1613/SCR**), which has yet to be determined by the Secretary of State. This follows a referral since SODC were unable to respond to this complex and controversial application within the time limits.

This approach summarises how the applicant has consistently underestimated the complexity and potential to do harm and has not provided adequate robust information and the comprehensive due diligence investigations required, to make a safe determination of what is right, and what does not prejudice the health and well-being of local residents. A grade 1 protection zone exists to red flag those very issues. It should not be ignored or simply dealt with in a perfunctory way.

Our response to this previous application is contained within **Appendix 3** of this paper, and highlights the Applicants failure to fully engage in, and embrace the EIS or EIA processes by providing the necessary information to make the

correct and balanced judgements required. The undue haste after taking years to consider its options is in itself very telling where a new government is seeking early housing wins.

- It is quite clear from the comments made by Thames Water dated 20 September, that they are unable to support these applications because they are deficient in providing sufficient information, detail and due diligence to enable them to consider the potential impacts upon the ground water, the potable water supply and the needs of the foul drainage network. That means that the entire purpose of the applications - which is to enable interested parties to be sure that the proposals are safe and will not 'injure' others nor the infrastructure affecting others - has **failed in its primary purpose**, to satisfy the consultees. We disagree however that the consequences of that failure is to condition a consent, when there is such a fundamental failure.

Conclusions

It is not acceptable for such a valuable and critical natural resource to be put at risk, simply because a developer, has failed to carry out adequate due diligence at the time of purchasing this site, and now finds that their proposals at the time of purchase, are compromised.

The consultees responsible for safeguarding our precious water supply cannot determine what the impacts on that supply would be, good or bad; whilst JBA are of the view that the proposals are fundamentally flawed.

Other more suitable land exists in the area, upon which higher density residential development can take place. Indeed within half a mile there are more than 150 dwellings either in the course of construction or that have recently been completed.

This site is not suitable for the form of development proposed, and there are adequate other sites that provide medium density residential development opportunities in the area, highlighted in the Neighbourhood plans.

The developer has chosen the path of maximising density on the site and as a result, undertaking such huge and out of character groundworks. The scheme could be re-designed to minimise the impacts on the groundwater and aquifer and therefore not require such an extensive package of groundworks? Why is this not being considered by them and by SODC? For the applicant, the reasons are clear, being purely the price paid by the developer buying the land.

Should application P24/S2642/FUL be found to be unacceptable to SODC, it naturally follows that P24/S2652/S73 must also be rejected as it would then be incapable of implementation, and out of alignment with the consented works that it purports to reflect changes to.

The Application works in P24/2642/FUL if permitted, would cause immeasurable harm to the local environment, and will create a major risk to the flow of the aquifer underlying the site as well as having the potential to contaminate the drinking water that supplies up to 50,000 local residents, for which, there is **no piped backup in existence**. The proposals, would also substantially increase the risk of flooding to other local residences and infrastructure, once again without any known or accepted liability or responsibility.

The Applicant has repeatedly failed to demonstrate that it has a viable and safe solution for the development of this site at the density identified, and it's numerous design solutions particularly those that relate to surface water discharge and removal, continue to be fundamentally flawed, and are ones that impose far too great a risk to a critical natural resource, and, of adding to local flooding.

Accordingly, we urge SODC to reject these 3 Planning Applications.

Whilst it is hard to envisage any circumstances under which this development might be consented as proposed, should SODC be minded to grant consent, **Appendix 2** of this document, sets out a range of mitigation and safety check conditions. These are quite exceptional conditions, but ones which we feel **must** be imposed in addition to any other more normal conditions that the LPA would introduce. This is to safeguard against, as far as possible, critical issues that otherwise could have hugely detrimental impacts on the flow and quality of the aquifer, the supply of potable water, disturbance to residents, impacts to the Highway network, and localised flooding.

Thames Farm Action Group

01 October 2024

Appendix 1 – JBA Technical Note September 2024

TECHNICAL NOTE

JBA Project Code	2023s1304
Contract	Thames Farm
Client	Thames Farm Action Group
Date / Version	24/09/2024 v3.0
Author	Dimitrios Goukos, Benjamin Brière De L'Isle
Reviewer / Sign-off	Paul Eccleston
Subject	Review of Review of Drainage and Ground Stabilisation Works, Thames Farm



1 Introduction

JBA Consulting (JBA) were commissioned by Thames Farm Action Group (TFAG) and Shiplake Parish Council to undertake a review of the drainage and ground stabilisation proposals for Thames Farm, Shiplake, RG9 3PH, submitted to South Oxfordshire District Council in August 2024 as part of three planning applications:

- P24/S2642/FUL: Engineering operations associated with ground stabilisation works.
- P24/S2651/DIS: Discharge of conditions 4 (vehicular access, footways, cycle ways, driveways and turning areas), 5 (construction management plan), 8 (landscape management plan), 9 (method statement) and 11 (drainage strategy) on application P16/S0970/O. (Outline Planning Application for up to 95 dwellings and associated public open space and landscaping. Means of access and strategic landscaping not reserved).
- P24/S2652/S73: Variation of conditions 1 (Approved plans) and 3 (Landscaping implementation and retention) on application P19/S0245/RM (Reserved Matters for 95 dwellings (appearance, landscaping, scale and layout) pursuant to outline application P16/S0970/O).

2 History of planning applications and drainage proposals

The Thames Farm site at Reading Road, Lower Shiplake, obtained outline planning permission in 2017, following an appeal, for up to 95 homes on a 5.6Ha site¹. The appeal decision included the following drainage related condition:

11. No development shall commence until a drainage strategy, detailing all on and off site surface and foul drainage works, has been submitted to and approved in writing by the local planning authority. No discharge of foul or surface water from the site shall occur before the drainage strategy has been completed and brought into use.

Reason: to safeguard the water environment and to prevent flooding of the area.

The developer, Taylor Wimpey, had originally proposed to drain the site to infiltration basins, permeable paving and trench soakaways¹, however subsequent ground investigations identified that the site has a large number of sub-surface voids formed by dissolution of the underlying chalk bedrock. Concerned that shallow soakaways will wash material from the voids and increase the risk of collapse, the surface water strategy was amended in February 2020.

The proposed alternative to shallow infiltration was deep borehole infiltration. A formal submission to discharge Condition 11 of the Outline Permission (P16/S0970/O) was made to SODC in February 2020² (SODC Ref P20/S0715/DIS).

1 CEC (2016) Flood Risk Assessment for Proposed Residential Development Thames Farm, Shiplake. Accessed online at https://data.southoxon.gov.uk/ccm/support/dynamic_serve.jsp?ID=1418241303&CODE=2311F630D11AD5E4E995AC1DFEBAD6C5 on 11/03/2021

2 Abley Letchford Partnership Limited (Feb. 2020) Thames Farm Shiplake, Drainage Statement

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Discussions were held with SODC as Lead Local Flood Authority, the Environment Agency and Thames Water as part of the statutory consultee process between February 2020 and June 2020. The outcome was that the proposal could not be supported due to the site's close proximity to the nearby groundwater abstraction station and underlying aquifer (Source Protection Zone 1) introducing an unacceptable risk which could not be overcome within the constraints of the approved Site Layout or within the overall scheme viability. The discharge of Condition 11 submission was withdrawn in June 2020 following the impasse with Statutory Consultees.

An amended proposal was submitted, in October 2020, for a pumped discharge of the attenuated surface water to the Lash Brook³, which lies approximately 1km to the south-east of the site. TFAG, the Parish Council and a large number of residents were concerned about this, principally due to the potential for increased flood risk from the Lash Brook, the risks to the water supply aquifer from the proposed grouting operation and the disruption and nuisance caused by the need to construct a rising main through the village.

Following submission of the Lash Brook proposals, the Developer employed Enzygo Limited, to undertake a full review of watercourses within the wider area, including Lash Brook, in order to ascertain the optimum outfall point and consideration of the flood risk attributed to it.

Enzygo's findings⁴ concluded that Lash Brook was not a suitable receptor for new surface water due to it being classified as a relic watercourse with incomplete hydraulic connections to the River Thames.

Following representations from SPC and the Thames Farm Action Group (TFAG) to Taylor Wimpey, South Oxfordshire District Council (SODC), the Environment Agency (EA) and Thames Water Utilities Limited (TWUL), a revised proposal, in the context of the aforementioned assessment, was submitted by developers Taylor Wimpey. Two alternative outfall connections, to watercourses connecting to the River Thames, were investigated towards the north-eastern watercourse and the northern watercourse.

This proposed to discharge surface water, via a pumped rising main, to those receptors, but after consultation among the parties concerned, it was rejected.

The flood risk assessment, hydrogeological implications and drainage scheme were reviewed by JBA⁵ for TFAG / SPC. This was followed by a review of the hydrogeological implications of the proposed grouting scheme⁶.

3 Abley Letchford Partnership Limited (Oct. 2020) Thames Farm Shiplake, Updated Drainage Statement

4 Enzygo (2021) Flood Risk Appraisal and Drainage Study. Thames Farm, Shiplake.

5 JBA Consulting (2021) Review of Drainage Strategy for Thames Farm, Shiplake: Flood Risk Appraisal and Drainage Study.

6 JBA Consulting (2021) Review of Drainage Strategy for Thames Farm, Shiplake: Hydrogeological review of drainage proposal.

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In August 2024 further infiltration testing (H Fraser Consulting⁷) was carried out along the western boundary of the site, confirming that infiltration to ground was suitable based upon the infiltration rates. They also concluded that the surface water drainage plan for the site has been designed with the capacity to hold and store storm water on site even under the conservative assumption of no infiltration to ground, including from gardens.

In August 2024 the developer submitted proposals to handle surface water disposal entirely within the site boundary, utilising infiltration methods⁸. Given the requirement for supporting engineering works to stabilise the underlying soils (through grouting and compaction), a viable location for infiltration was sought with amendments to the site layout. This new 2024 proposal is the subject of this review.

7 H Fraser Consulting (2024) Hydrogeological impact assessment for ground stabilisation works, Lower Shiplake

8 Abley Letchford Partnership (2024) Thames Farm Shiplake, Drainage Statement - Flood Risk Assessment and Drainage Strategy.

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3 Review of the August 2024 submission

The plans and supporting documentation for the applicant's three applications submitted in August 2024 were screened to identify material relevant to the drainage and ground stabilisation works. Table 3-1 lists the documents and plans that have been reviewed.

Table 3-1: Reviewed documents

Relevant Planning Applications	Documents reviewed
P24/S2642/FUL: Engineering operations associated with ground stabilisation works.	Flood Risk Assessment and Drainage Strategy Part 1.pdf Flood Risk Assessment and Drainage Strategy Part 2.pdf Flood Risk Assessment and Drainage Strategy Part 3.pdf Flood Risk Assessment and Drainage Strategy Part 4.pdf Ground Stabilisation Works Planning Statement, Statement of Community Involvement and Sustainability Appraisal.pdf Hydrogeological Impact Assessment for Ground Stabilisation Works Part 1.pdf Hydrogeological Impact Assessment for Ground Stabilisation Works Part 2.pdf Planning Application Questions and Responses.pdf Specification for the Stabilisation of Dissolution Features.pdf Technical Note (Chalk dissolution and ground treatment works).pdf TCPA Construction Management Plan.pdf Environmental Statement.pdf Environmental Impact Assessment Report.pdf
P24/S2651/DIS: Discharge of conditions 4(vehicular access, footways, cycle ways, driveways and turning areas), 5(construction management plan), 8(landscape management plan), 9(method statement) and 11(drainage strategy) on application P16/S0970/O.(Outline Planning Application for up to	Drainage Statement.pdf Hydrogeological Impact Assessment.pdf Planning Statement.pdf Changes Since Submission Document Part 1.pdf Changes Since Submission Document Part 2.pdf Changes Since Submission Document Part 3.pdf Changes Since Submission Document Part 4.pdf Changes Since Submission Document Part 5.pdf Construction Management Plan.pdf

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95 dwellings and associated public open space and landscaping. Means of access and strategic landscaping not reserved).	
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The August 2024 submission of the Drainage Statement including the Flood Risk Assessment and Drainage Strategy has reverted to infiltration methods in comparison with the previous iteration that proposed a pumped discharge of the attenuated surface water to the nearby receptor, the Northern Watercourse.

It must be stressed that we do not consider it to be feasible to properly assess P24/S2642/FUL and P24/S2651/DIS independently, since both applications contain material relevant to the other.

3.1 Drainage strategy

The current drainage strategy proposals (August 2024) involve the utilisation of a basin in the upper, western part of the site, which will dispose through infiltration the quantities being pumped at it from two collecting basins located in the lower, eastern side of the development. These two lower basins will receive and store, temporarily, the sum of the development's surface water volumes before they are pumped to the aforementioned higher level infiltration basin. A typical drainage piping arrangement including intermediate SuDS features (i.e. permeable paving-parking) will conduct surface water from its source locations to the two temporary storage basins.

It is stated that the pumping station has been designed to adoptable standards, but we have not been able to confirm if it is the applicant's intention to put the surface water drainage system, or parts thereof, up for adoption by Thames Water or by a possible future SuDS Approval Body (SAB).

The proposed design, in relying on surface water pumping, will be a carbon-intensive approach to managing surface water on the site. If adopted, this carbon and economic cost will have to be met by water bill payers (if adopted by Thames Water) or council tax payers (if adopted by OCC), and is contrary to national and local guidance on low-carbon and energy efficient design, e.g.:

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Author	Dimitrios Goukos, Benjamin Brière De L'Isle
Reviewer / Sign-off	Paul Eccleston
Subject	Review of Review of Drainage and Ground Stabilisation Works, Thames Farm



- National Planning Policy Framework: "The planning system should support the transition to a low carbon future"
- SODC Local Plan, Policy DES8: Promoting Sustainable Design: "All new development ... should seek to minimise the carbon and energy impacts of their design and construction"
- OCC Local Standards and Guidance for surface water drainage on major development in Oxfordshire: "SuDS should be designed to provide an effective 'whole life' sustainable solution, by ensuring that ... where possible, natural resources are reused and energy efficient products, processes, operation and maintenance are possible."

3.1.1 The drainage model

The results of a drainage model (Causeway Flow) have been included in the current submission. Going through this model we have concluded that the below issues require addressing:

- Pipe velocity for the 30y+35%CC and the 100y+40%CC scenario is in many pipes below 1m/s, set as the minimum self-cleansing velocity for a full pipe in the water industry's "Design and Construction Guidance"⁹. This will increase the risk of sedimentation and blockage, given the fact that most of the pipes for the 30y+25%CC and all of them for the 100y+40%CC are surcharged.
- The design incorporates 31no. Hydro-Brakes to at the outflows of the permeable paving and parking spaces. 28no. of these have openings smaller than 67mm. This is below the minimum acceptable opening recommended in the SuDS Manual¹⁰ of the 75-100mm and represents an increased risk of blockage, as well as a large number of assets to maintain.
- The attenuation basins located on the east side of the site have a total depth of 2.3m, while the infiltration basin on the west 1.5m respectively. It is a matter of good practice to set for such depth's basins a side slope equal to 1 in 4 or less steep, instead of the 1 in 3 which is set in the model.

3.1.2 Assessment of offsite flows utilising a 2D surface water model (TUFLOW)

The applicant has used a TUFLOW 2D model to assess surface water inflows in the form of hydrographs) onto the site from third-party land upstream. These hydrographs are then utilised from the Causeway Flow drainage model. It is evident in the figure below that the boundaries of the 2D surface water model (TUFLOW - yellow boundary) and the local catchment (as delineated after a GIS catchment analysis of the local 'micro' catchments utilising JBA's own QGIS Watershed Delineation Tool) do not coincide, therefore, the amount of water entering the site offside is underestimated. This, in

9 Water UK (2021) Design and Construction Guidance <https://www.water.org.uk/wp-content/uploads/2021/07/SSG-App-C-Des-Con-Guide.pdf>

10 CIRIA (2015) Report C753 The SuDS Manual-v6

TECHNICAL NOTE

JBA Project Code	2023s1304
Contract	Thames Farm
Client	Thames Farm Action Group
Date / Version	24/09/2024 v3.0
Author	Dimitrios Goukos, Benjamin Brière De L'Isle
Reviewer / Sign-off	Paul Eccleston
Subject	Review of Review of Drainage and Ground Stabilisation Works, Thames Farm

turn, gives an underestimated hydrograph representing the offsite flows in the drainage model (Causeway Flow).

It must also be noted that in the report the rainfall boundary (red boundary), erroneously, is depicted as even smaller than the 2D surface water model, representative of the actual catchment (see figure below), although this does not actually appear to have been the case in the model.

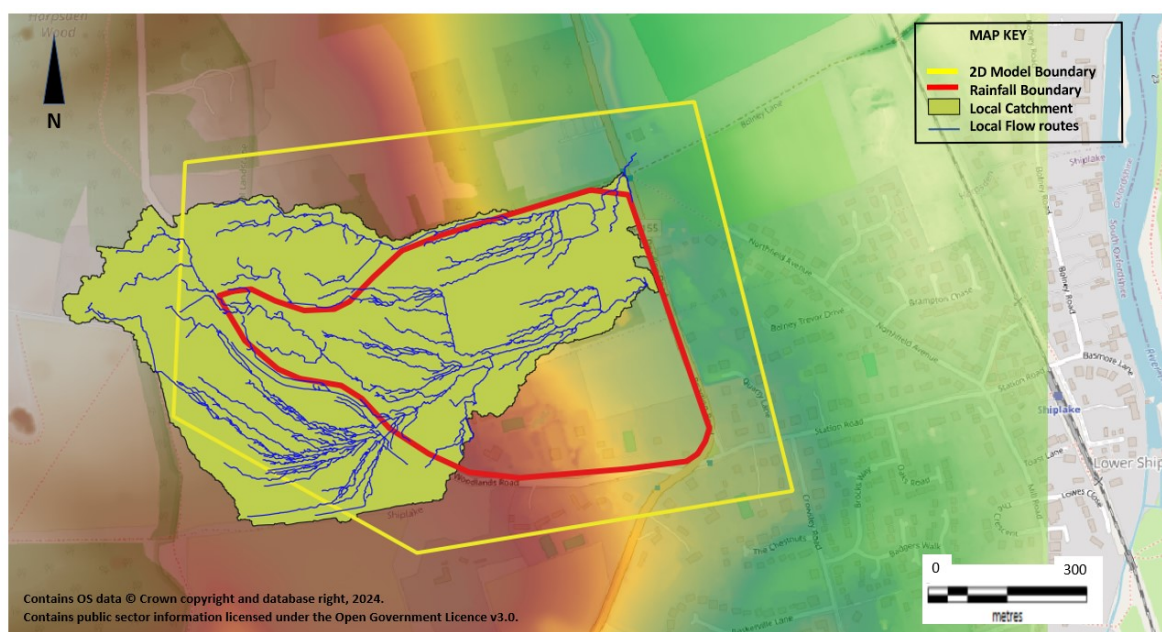


Figure 3-1: Comparison of 2D model boundary with topographic catchment boundary

3.1.3 Failure modes and consequences

The drainage statement includes an assessment of time to flood in the event of a pumping station failure. Flooding would not occur below the 1 in 30 year plus climate change scenario. In the 1 in 100 year plus climate change scenario, the time to flood is estimated at 3,362 minutes (56 hours). This is considered to be a reasonable level of resilience to pump failure.

No consideration is given to other modes of failure including:

- Blockage within pipes or permeable paving systems. This can be properly addressed through a 2D model that is incorporating the post-development layout, the drainage system and its operation. Therefore, post-development 2D surface water modelling is required.
- The potential for the upper infiltration basin to not achieve its designed rate of infiltration. By placing this key asset at the top of the site, the housing below it would be at risk of flooding in the event of infiltration rates significantly below those modelled. The issue of infiltration rates from the basin is considered further below.

TECHNICAL NOTE

JBA Project Code	2023s1304
Contract	Thames Farm
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Date / Version	24/09/2024 v3.0
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Reviewer / Sign-off	Paul Eccleston
Subject	Review of Review of Drainage and Ground Stabilisation Works, Thames Farm



3.1.4 Assessment of the infiltration rate used in the drainage system design

The 2024 HIA¹¹ refers to infiltration rates on the site ranging between $3.1 \times 10^{-7} \text{m/s}$ to $3.2 \times 10^{-4} \text{m/s}$. It indicates that, for the 1 in 100 year plus 40% climate change allowance rainfall design event, the post-development site has sufficient infiltration and storage capacity to attenuate excess runoff, assuming an infiltration rate for the upper basin equal to $1.52 \times 10^{-5} \text{m/s}$, which for context, is considered a good infiltration rate typical of a sandy loam.

In the ALP 2024 Drainage Statement it is stressed that "the most conservative infiltration rate was used to size up this infiltration blanket, which is $1.52 \times 10^{-5} \text{m/s}$ and it was obtained from the Permeability Testing Report produced in July 2023."

However, according to the same HIA the minimum recorded infiltration value was equal to $3.1 \times 10^{-7} \text{m/s}$ (indicative of poor permeability, silt-loam soil). If the minimum observed infiltration rate ($3.1 \times 10^{-7} \text{m/s}$) was applied, some significant volumes of surface runoff could be generated in excess of what the proposed drainage system is designed to attenuate and dispose through infiltration. This will increase the likelihood of local flooding.

Another concern is that the impact of the grouting and compaction works on the infiltration rates of the site have not been accounted for. The 2020 HIA¹² completed by H Fraser Consulting includes a calculation of the potential impacts of the compaction, by calculating a 5% reduction in ground porosity and an 18% reduction in the rate of infiltration. An updated HIA would be needed for the proposed grouting and updated drainage scheme impact on the infiltration rates' values, as suggested in the 2021 JBA¹³ Grouting and Compaction Review.

As described in the 2024 HIA, "Following ground stabilisation work, but prior to further development, permeability underlying the site will have decreased, leading to more surface water run-off and less immediate infiltration. However, temporary drainage structures across the stabilised but undeveloped site will act to capture and hold this water following large rainfall events to remove any increased flood risk. This holding of water will allow recharge to the underlying aquifer, although infiltration rates and recharge are likely to be reduced in comparison with the greenfield site. ". No quantified reduction of the infiltration rate is suggested.

3.2 Assessment of the basin sitting on top of a karstic void

The 2019¹⁴ Geotechnical Investigation mapped the location of voids due to dissolution, as depicted in Figure 3-2.

11 H Fraser Consulting (2024) Hydrogeological impact assessment for proposed development works at Shiplake

12 H Fraser Consulting (2021) Hydrogeological impact assessment for proposed development works at Shiplake

13 JBA Consulting (2021) Grouting and Compaction Review.

14 TerraMech (2019) Geotechnical Investigation

TECHNICAL NOTE

JBA Project Code	2023s1304
Contract	Thames Farm
Client	Thames Farm Action Group
Date / Version	24/09/2024 v3.0
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Reviewer / Sign-off	Paul Eccleston
Subject	Review of Review of Drainage and Ground Stabilisation Works, Thames Farm



Figure 3-2: Mapped voids, 2019 geotechnical investigation © Terramech

The same document referring to the above figure, mentions that "The plan shows the five linear deep seated voids stretching across this site outlined in green and the loosened or relaxed areas shaded orange or purple. Collapsing of the deep seated voids has already affected large areas of the site and the potential for underground collapses to migrate to the surface has been proven by the appearance of two swallow holes.

We suspect that further collapses at this site are inevitable. The drainage of rainwater over the years has resulted in a tentative equilibrium and stability. Our six trial pit soakage tests were sufficient to upset this equilibrium and cause two collapses that migrated to the surface.

The site has now been significantly disturbed by the archaeologists trenches, installation of a five metre deep soakaway, various drainage trenches and chambers (presumably backfilled with gravel), and excavation of a road formation. These man made features may now be re-directing water into areas where new collapses could be initiated."

The deep-seated void in the western part of the site coincides with the proposed location for the infiltration basin (Figure 3-3). However, the 2024 drilling and grouting plan (Figure 3-4) shows only minimal works in this area. It is not clear whether this is as a result of a reassessment of the voids in the part of the site.

TECHNICAL NOTE

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Client	Thames Farm Action Group
Date / Version	24/09/2024 v3.0
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Reviewer / Sign-off	Paul Eccleston
Subject	Review of Review of Drainage and Ground Stabilisation Works, Thames Farm

JBA
consulting

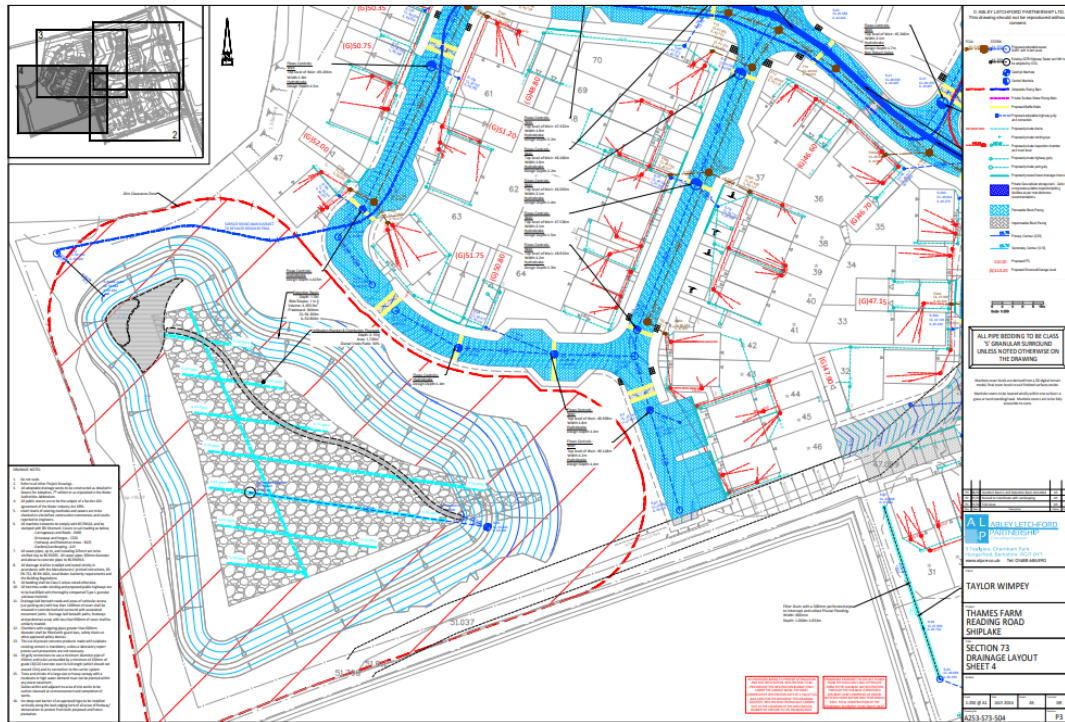


Figure 3-3: August 2024 drainage layout plan 4 © Taylor Wimpey

TECHNICAL NOTE

JBA Project Code	2023s1304
Contract	Thames Farm
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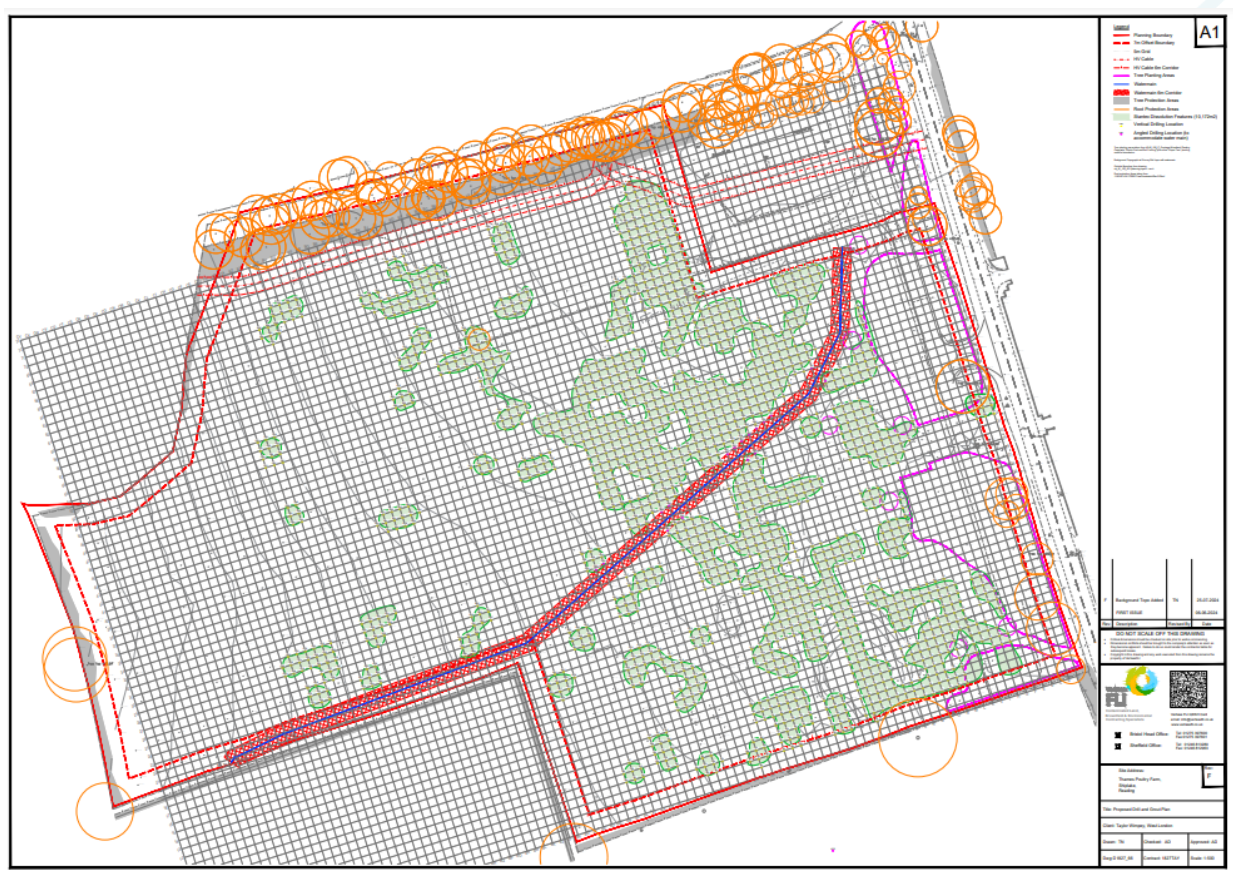


Figure 3-4: 2024 drilling and grouting plan © Vertase FLI

Considering the above it is evident that the 2024 proposed drainage system's sole disposal feature (infiltration basin) is sitting above a deep-seated void. Therefore, explanation is required as to the reason for limited grouting works in this area. When storing up to 2.3m of water, there would be significant ground loading and potentially rapid scour of existing voids if these are not stabilised prior to construction of the basin. If they are treated, as discussed above the infiltration rate needs to be adjusted, and preferably reconfirmed after the grouting works, to ensure that it is adequate to safely discharge the site's surface water to the ground.

3.3 Assessment of the hydrogeological impact assessment

JBA's review of the information contained in H Fraser Consulting Hydrogeological Impact Assessment (HIA) latest version (August 2024), Stantec Technical Note (August 2024) and Planning Statement (August 2024), and revised Specification for stabilisation of dissolution features by Vertase FLI (July 2024) confirm the current design and plan for the proposed development of the site remains inadequate, in line with comments made at the previous JBA review (September 2023).

TECHNICAL NOTE

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Reviewer / Sign-off	Paul Eccleston
Subject	Review of Review of Drainage and Ground Stabilisation Works, Thames Farm



The previous review identified strategic flaws for the proposed development requiring grouting at depth for a large part of the site potentially having a detrimental impact on water quality of the drinking water supply and reducing infiltration / drainage of the site.

Grouting is still required to the eastern part of the site, the closest to the water supply zone. The grouting specifications (Vertase FLI, 2024) indicates the selected Contractor would need to "Prepare a Method Statement detailing how the Stabilisation Works will be undertaken" which is a key document to ascertain risk to the water supply. No indication of the proposed depth for each pile has been provided either, limiting the robustness of the HIA (H Fraser Consulting, 2024). The use of Pulverised Fuel Ash (PFA) in the grouting mix is not following Building Research Establishment (BRE) 905 (Second edition, 2009). The BRE 905 "Stabilising mine workings with PFA grouts - Environmental Code of Practice" states "a presumption against the use of grouts in groundwater source protection zones designated by the Environment Agency as source protection zone 1 (SPZ 1)." PFA materials are inherently chemically variable, and no chemical tests have been provided to support the detailed risk assessment that is required for this site. One example of grouting with limited monitoring showing no impact cannot be solely relied upon to reflect the potential risk associated with grouting within a SPZ1.

The Environmental Statement and EIA (Stantec, 2024) do not propose any monitoring of the grouting during installation or following completion which could support eventual mitigation measures. No mitigation measures have been described and are unlikely to be effective due to the proximity of the receptor.

Infiltration of surface water via SuDS as described in other part of the site would also have the potential to increase the rate at which dissolution features develop, posing a risk of collapse of the ground level, structures and person in the vicinity.

Finally, the combined effect of grouting and change in infiltration pattern across the site have not been evaluated within the ES.

4 Conclusions

The August 2024 Flood Risk Appraisal and Drainage Study remains some way from adequately demonstrating that the drainage strategy is appropriate, in line with planning policies and design good practice, and that it will not increase flood risk. Particular attention is drawn to the following points:

- The reliance on pumping to a high-level infiltration basin on the west side of the site makes this a carbon-intensive design. If adopted, the high operating costs would be passed on to water company bill payers or council tax payers.
- A number of design issues are highlighted by the drainage model, including velocities below the self-cleansing velocity for pipes, 28 Hydrobrake controls below the recommended minimum orifice diameter, and steep (1 in 3) slopes on the basins.
- The assessment of offsite flows does not take into account the whole of the contributing area draining into the site.

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- Exceedance scenarios have not been considered for blockages and for a failure of the upper basin to infiltrate at the stated rate.
- The infiltration rate applied needs to be reassessed if compaction and/or grouting works are planned within the basin's footprint.
- Conversely, it is not clear whether the deep-seated void identified in the area of the upper basin will be stabilised, and whether the risk of collapse beneath the basin due to high ground loading and scour of voids has been adequately considered.

Regarding the hydrogeological assessment and Environmental Statement, although a new grouting plan has been submitted, the risk to the water supply remains unacceptable and against best practice guidance which precludes the use of grouting in SPZ1 - "PFA grout is not permitted in groundwater source protection zone SPZ 1" (BRE, 2009).

Appendix 2 – Schedule of Suggested Conditions

Draft Schedule of Suggested Conditions for Inclusion in any new Planning Permission that may be granted

The Developer /Applicant should **require** the main contractor(s) utilised, in **all** phases of proposed works to submit an application(s) to the Council for **Section 61 Consent** under the **Control of Pollution Act 1974**. See also specific requirements with respect to noise, vibration and air quality below.

The developer should provide a **financial bond or Insurances** to cover any defaults during and after construction for a term of at least 25 years post completion of all construction works

Further to the requirement for an application for Section 61 Consent, a condition / mechanism for defining appropriate noise, vibration and air quality/dust emission limits, together with the actions to be taken if exceeded, and which should include that of all **works to stop** until such time as the thresholds can be demonstrated to be met by amended methods of working.

A monitoring regime (to be paid for by the Developer). This to include initial baseline assessments of current conditions in respect of Noise, Vibration and Air Quality / dust and other emissions. The subsequent monitoring during progress of **all phases** of works of will be carried out independently of the Developer and should be submitted on a weekly basis via email, during each following Monday, to the Environmental Protection Team and the Thames Farm Action Group/Shiplake Parish Council.

A condition to cover the potential for noise impacts from the proposed pumping station(s) and the relocated substation for their normal operations post construction.

A condition to ensure that the on-site and off-site surface water and foul sewer network, pumping stations and balancing features are adopted for maintenance by a statutory undertaker - OCC, or Thames Water, and the payment of any commuted sums that may be required to achieve such adoption.

A management plan of how the on-site and off-site surface water and foul sewer network, pumping stations and balancing features are to be maintained pending adoption.

A bond or insurance policy to secure any maintenance and management regime for both the foul sewage and surface water systems pending adoption.

A bond/insurance for a term of 25 years from completion, to cover any and all bona fide resident's losses emanating from any vibration ground movement or changes to the groundwater flows during and after the works.

A condition to ensure a regular monitoring regime during construction phases, and then a further regime post construction, of water quality with Insurance or other security to cover meeting the costs of any short or long term problems. Regime to remain in place for at least 25 years post construction. Monitoring reports to be provided each week on a Monday by email to the EA, Thames water, and the EHO/Environmental Protection Team and LPA and Shiplake Parish Council. All reports to be publicly displayed.

Grouting works to only use previously approved and completely inert materials - needs to be tied in to other consents for this site

No parking of lorries in local roads or site entrance whilst construction is taking place

No traffic towards Henley or Sation Road Lower Shiplake whilst construction is taking place

No HGV's to arrive before 8 am or after 6pm, Monday to Friday and none on Saturdays, Sundays or bank holidays.

Consultant Submissions by or OBH Applicant should remove disclaimers of liability to 3rd parties **or** Applicant to be liable and underwrite with Bond or Insurances.

All bonds or insurances the subject of these conditions are to be 'on demand sums' subject only to there being verified as bona fides.

All relevant pre-existing conditions save insofar as they conflict with the above requirements

**Appendix 3 – TFAG Response to EIA Screening
Application - June 2024**

**Thames Farm Proposed Development – Environmental Impact Assessment (EIA)
Screening Application
- P24/S1613/SCR**

**TFAG comments on the completion of the proforma EIA Screening Matix &
Application Documents**

A. Introduction

We have always been somewhat mystified as to why a site that is as sensitive as this, was not required at the outset to be subjected to a full EIA when the development proposals first came forwards for consideration; and, given the proposals were supported by only 3 very historic ground investigation samples. Whilst the scale of development was perhaps small by comparison with the typical site subjected to such a requirement, there existed some very compelling reasons as to why this was not the right approach. Indeed what has since transpired with the site is proof of this fact if proof is needed.

The Inspector who finally approved the principle of residential development on the site, imposed stringent requirements and conditions precedent to ensure that detailed due diligence was indeed first undertaken and assessed before the site could be developed. Since that consent was issued however, the current owner has sought to trigger the commencement of the development on the site by undertaking a small proportion of the entrance area works as part of their project to undertake highway improvements to the Reading Road. This was done despite having insufficient and inadequate due diligence on the ground conditions generally, due to the absence of intrusive investigations. The net effect of that action has been that whilst the site may have a valid and implemented Planning Consent, it cannot be developed as currently proposed, without undertaking a very significant ground stabilisation programme to allow the subsequent building of so many houses on the site.

This course of action has resulted in a quite bizarre situation, and no doubt a certain level of embarrassment for the LPA, with the situation now reached. Indeed, both SODC and a Government appointed Inspector have rejected an LDC Application from the developer in January of this year, which is the clearest demonstration of the level of concern and also that in effect the consent needed to be reconsidered with the benefit of the new information.

There now remains outstanding 2 major issues which prevent this development from taking place. Firstly that of the proposed groundworks and their potential impact if approved, and secondly the consequential issue of the disposal of surface water runoff arising from these works which will make the site more impermeable. These two factors are inextricably linked, as one of the primary reasons for the developer failing to achieve an acceptable method of dealing with the run off, is the nature of the groundworks they now propose. Indeed if permission is eventually granted for the grouting and vibro-compaction works now envisaged, the permeability of the site will be very significantly compromised, resulting in a possible requirement to collect the run off and pump it off site. Such a move is certainly out with Governmental guidance and would need very careful consideration and evaluation bearing in mind the previous attempts by the developer to find a satisfactory methodology to deal with runoff..

To recap, the developer has previously put forward 3 different schemes to deal with the surface water issue. The first was deep underground infiltration proposals that might impact the groundwater/aquifer which was rejected by the EA. Latterly, it has been the collection of runoff on site and pumping the run off a very significant distance away, initially to be to the south and later on when that was proven unviable, to the north. Both proposals have been demonstrated to be unworkable and resulting in flooding elsewhere.

The methodology for dealing with surface water run-off, is one of the key environmental impacts that would result from the groundworks as proposed; and, as such, **must** be addressed at the outset in any submission involving the groundworks proposals for the site and their wider Environmental impact.

Appendix 1 to this document contains a marked up copy of the Applicants matrix of questions/responses submitted as part of its application with TFAG's comments in the right hand column.

Appendices 2 and 3 to this document contain 2 technical notes prepared for TFAG and the Local Councils in respect of the Applicant's Hydrogeological Assessments and were submitted to SODC in response to earlier Applications made

B. Relevant Legislation and Government Guidance

What is the purpose of a Environmental Impact Assessment? – (Per Governmental Guidance)

[Environmental Impact Assessment- GOV.UK \(www.gov.uk\)](http://www.gov.uk)

“The aim of Environmental Impact Assessment is to protect the environment by ensuring that a local planning authority when deciding whether to grant planning permission for a project, which is likely to have significant effects on the environment, does so in the full knowledge of the likely significant effects, and takes this into account in the decision making process. The regulations set out a procedure for identifying those projects which should be subject to an Environmental Impact Assessment, and for assessing, consulting and coming to a decision on those projects which are likely to have significant environmental effects.

The aim of Environmental Impact Assessment is also to ensure that the public are given early and effective opportunities to participate in the decision making procedures.....”

“What legislation covers Environmental Impact Assessment?

The process of Environmental Impact Assessment in the context of town and country planning in England is governed by the [Town and Country Planning \(Environmental Impact Assessment\) Regulations 2017 \(the '2017 Regulations'\)](#). These regulations apply to development which is given planning permission under Part III of the Town and Country Planning Act 1990.”

The guidance continues:-

“What are the stages of Environmental Impact Assessment?

There are 5 broad stages to the process:

Screening

Determining whether a proposed project falls within the remit of the Regulations, whether it is likely to have a significant effect on the environment and therefore requires an assessment.

Scoping

Determining the extent of issues to be considered in the assessment and reported in the Environmental Statement. The applicant can ask the local planning authority for its opinion on what information needs to be included (which is called a 'scoping opinion').

A request for a scoping opinion may be made at the same time as a request for a screening opinion. A local planning authority must request additional information if it considers that it has not been provided with sufficient information to adopt a scoping opinion (see [regulation 15\(3\)](#)).

In relation to the issue of SW runoff disposal, the guidance says:-

"Does an applicant need to consider alternatives?"

The 2017 Regulations do not require an applicant to consider alternatives. However, where alternatives **have been** considered, paragraph 2 of [Schedule 4](#) requires the applicant to include in their Environmental Statement a description of the reasonable alternatives studied (for example in terms of development design, technology, location, size and scale) and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

Paragraph: 041 Reference ID: 4-041-20170728

The developer has failed to make such a submission and or comparison

It is clear that the development does not fall within the scope of Schedule 1 of the legislation.

However, Schedule 3 includes criteria for considering screening under Schedule 2 and states:-

"Characteristics of development

1. The characteristics of development **must be** considered having regard, in particular, to—

- (a) the size of the development;
- (b) the cumulation with other development;
- (c) the use of natural resources;

- (d)the production of waste;
- (e)pollution and nuisances;
- (f)the risk of accidents, having regard in particular to substances or technologies used.

Location of development

2. The environmental sensitivity of geographical areas likely to be affected by development must be considered, having regard, in particular, to—

- (a)the existing land use;
- (b)the relative abundance, quality and regenerative capacity of natural resources in the area;
- (c)the absorption capacity of the natural environment, paying particular attention to the following areas—
 - (i)wetlands;
 - (ii)coastal zones;
 - (iii)mountain and forest areas;
 - (iv)nature reserves and parks;
 - (v)areas designated by Member States pursuant to Council Directive [2009/147/EC](#) on the conservation of wild birds(1) and Council Directive [92/43/EEC](#) on the conservation of natural habitats and of wild fauna and flora(2);
 - (vi)areas in which the environmental quality standards laid down in EU legislation have already been exceeded;
 - (vii)densely populated areas;
 - (viii)landscapes of historical, cultural or archaeological significance.

Characteristics of the potential impact

3. The potential significant effects of development must be considered in relation to criteria set out under paragraphs 1 and 2 above, and having regard in particular to—

- (a)the extent of the impact (geographical area and size of the affected population);
- (b)the transfrontier nature of the impact;
- (c)the magnitude and complexity of the impact;
- (d)the probability of the impact;
- (e)the duration, frequency and reversibility of the impact.”

The Applicants own hydrogeological report states there is a chance that turbidity will occur in the chalk strata and fissures will carry contaminative material towards the water supply boreholes. If this arises, what guarantees can be provided that the flows can be stopped once arising, and what indemnities are available from the developer to ensure the consequences of such an event are rectified by them and do not fall upon the public purse or private landowners impacted for remediation?

TFAG's Opinion

We consider that the proposed development **does** fall to be assessed under the following criteria taken from the above guidance:-

1. A, C, D & E.
2. B & C
3. A, C, D & E

We therefore propose to the LPA, that it requests a comprehensive EIA from the developer to address all of the primary impacts of this proposal. Only then can a decision be taken as to whether or not those impacts would be acceptable in the context of these proposals.

The remainder of this document addresses a number of errors, omissions and deficiencies in the screening assessment produced for the developer.

1. The developer states in the accompanying text at para 2.1.1, that the River Thames at this point flows from north to south. The River Thames at this point flows south to north.
2. The developer states at 2.2.9, that the site is not located within or near a drinking water Safeguard Protection Zone and Source Protection Zone for groundwater. Again, this is incorrect - the site is within a Source Protection Zone 1 (Inner Protection Area) which supplies potable water to the Henley area.

This is the only source of potable water for the area, which has no piped supply as a backup, and as such this fact is critical and requires extensive assessment.

This is further amplified by the fact that local designations which are not included in the definition of 'sensitive areas', but which are nonetheless environmentally sensitive, may also be relevant in determining whether an assessment is required. Furthermore, in considering the sensitivity of a particular location, regard should also be had to whether any national or internationally agreed environmental standards (e.g. air quality) are already being approached or exceeded.

It is TFAGs understanding that potable water from this aquifer is used in other Thames Water supply areas to blend with water abstractions to ensure that nitrate levels are within agreed environment standards.

3. The principal environmental effects from the development are centred on the effects upon the supply of potable water from the aquifer and the management and disposal of surface runoff from a site with increased impermeability. This latter point appears to be completely disregarded by the applicant notwithstanding that 3 earlier attempts to produce a solution to this issue have failed. It is for this reason that we consider it essential that this issue is addressed comprehensively as part of an EIA now as it is one of the most significant environmental factors flowing from this proposal.

4. The consultant for the developer is wrong in his reading of the screening criteria. (Para 3.5.3).

*Schedule 2 development - column 2**

"Applicable thresholds and criteria" should be read

(i) The development includes more than 1 hectare of urban development which is not dwellinghouse development; or

(ii) the development includes more than 150 dwellings; or

(iii) the overall area of the development exceeds 5 hectares."

**<https://www.legislation.gov.uk/ukSI/2017/571/schedule/2/made>*

5. The consultants list of Key issues is highly selective and completely omits water and surface water runoff.
6. The consultants conclusions are not correct.
At 4.12. 'Low impact and non-invasive' could hardly be more wrong when considering grouting to a depth of perhaps 16m or more across a significant proportion of the site and the vibro-compaction of a very significant proportion of the surface area of the site. This statement is wholly incorrect and misleading.
7. At 4.1.3 the consultant argues that the site is not located within a sensitive area under the regulations. Once again this is factually incorrect and misleading.
8. At 4.1.4 the consultant again ignores both traffic and water, so the entire screening process is invalidated because of these erroneous assertions.
9. The applicants screening tabulation, TFAG's Comments are in the right hand column:-

Appendix 1 – Matrix of Developers Responses, with T FAG Comments in the right hand column

Part 1 - Question	Part 2 - Answer to the question and explanation of reasons (Yes/No or Not Known (?) or N/A)		Part 3 - Is a Significant Effect Likely? (Yes/No or Not Known (?) or N/A)	TFAG Comments
1. Natural Resource				
1.1 Will construction, operation or decommissioning of the project involve actions which will cause physical changes in the topography of the area?	N	The proposals to stabilise the ground would not be expected to result in changes to ground levels.	N/A	Definition of Topography:- ‘the configuration of a surface including its relief and the position of its natural and man-made features’. We therefore conclude that the topography would be impacted
1.2 Will construction or operation of the project use natural resources above or below ground such as land, soil, water, materials/ minerals or energy which are non-renewable or in short supply?	N	The stabilisation works will comprise below ground stabilisation on a site that has planning permission for residential development. There would be no further use of resources.	N/A	This is not correct. The answer should be YES. Significant amounts of limestone (processed as Portland cement) will be used as part of the admixture for the grout. The grout will comprise sulphate resisting Portland Cement, pulverised fuel ash (PFA), sand, pea gravel, and a thixotropic admixture of either bentonite or other admixture of chemicals to stabilise the ground. The embodied carbon footprint of this material should be considered. In addition, the region has a scarce resource being the Aquifer supplying the region with its potable water supply. There is no backup piped system for this vital resource

1.3 Are there any areas on/around the location which contain important, high quality or scarce resources which could be affected by the project, e.g. forestry, agriculture, water/ coastal, fisheries, minerals?	N	The site is in the semi-rural area of Shiplake. There are no fisheries, tourism or minerals resources that could be affected by the development. The site overlies a groundwater SPZ. A Hydrogeological Assessment has been undertaken for the proposals and will be submitted with the planning application which confirm there would be no significant effects on the SPZ.	N/A	This is not correct, The answer should be Yes! High quality water resources for public water consumption will be impacted. TFAG's advisor JBA has identified a number of shortfalls in the hydrogeological assessment provided by the developer. The hydrogeological assessment shows that there will be an effect on scarce water resources. Whether this is a significant effect requires further investigation
2. Waste				TFAG Comments
2.1 Will the project produce solid wastes during construction, operation, or decommissioning?	N	The proposals are not expected to produce wastes.	N/A	No comment
3. Pollution and Nuisances				TFAG Comments
3.1 Will the project release pollutants or any hazardous, toxic or noxious substances to air?	N	The stabilisation works will introduce grout below the ground level. The proposed dense mortar grout will be inert (the grout will comprise sulphate resisting Portland Cement, pulverised fuel ash (PFA), sand, pea gravel, and a thixotropic admixture of either bentonite or other admixture of chemicals approved), will not react with the surrounding substrate and will not leach into groundwater. Construction machinery will be managed in accordance with best practice including a CEMP secured by condition.	N/A	The developer has not provided the 'safety profiles/certification' of the proposed grouting materials, and the comment is completely unsubstantiated Further investigation is required to support the developer's comments that grout will not react with the surrounding substrate and will not leach into groundwater. The methodology for monitoring potential leeching of the grouting material into the aquifer and preventing any such leak from any significant contamination of the potable water supply needs to be robustly demonstrated and the likelihood of such events quantified and factored into assessment. These materials are not ones that once they have escaped can be recovered or their impact negated very easily. Air quality is a local significant issue in henley on Thames, and no data regarding emissions has been produced by the developer as to its local impacts from the works.

3.2 Will the project cause noise and vibration or release of light, heat, energy or electromagnetic radiation?	N	The works will result in noise which would be considered typical to standard construction practices. The works will be undertaken in accordance with best practice including a CEMP to be secured by condition. Lighting levels will be controlled to maintain safety to minimise spill. No heat, energy or electromagnetic radiation will be caused or released.	N/A	TFAG would not regard 'grouting and ground compaction' as a standard construction for house building. It is wrong to say that noise and vibration will be of a 'standard construction' type. Pumping mass concrete into the ground to a depth of 16 metres or more is a long way from a standard construction project, as is the use of vibro-compaction techniques across a significant proportion of the surface area of this very large site. At the very least these impacts need to be quantified / identified and measures taken to ensure that there is NO impact on any land or buildings outside of the ownership of the developer. Surveys of existing building in the vicinity should be taken before any works begin as a record of the situation before commencement. It is acknowledged that these actions would be time limited – however, the potential impacts of noise and vibration on local residents requires further investigation and safeguarding
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Part 1 - Question	Part 2 - Answer to the question and explanation of reasons (Yes/No or Not Known (?) or N/A)		Part 3 - Is a Significant Effect Likely? (Yes/No or Not Known (?) or N/A)	TFAG Comments
3.3 Will the project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, groundwater, coastal waters or the sea?	N	The stabilisation works will introduce grout below the ground level. The grout will be inert, will not react with the surrounding substrate and will not leech into groundwater. Surface water run-off and foul water drainage will be managed on-site.	N/A	The developer has not provided the 'safety profiles/certification' of the proposed grouting materials. The comment is unsubstantiated. Further investigation is required to support the developer's comments that grout will not react with the surrounding substrate and will not leach into groundwater. Also as stated above a robust methodology that can be immediately actioned needs to be identified in the event that the developer is incorrect in their assertions. The local drinking water MUST be safeguarded at all times and be the first priority of both the developer, and the regulatory authorities.

				Despite at least 3 attempts, the developer has failed to provide a robust surface water runoff methodology/plan. Increasing the non-permeable area will only increase the volume of and need for attenuation of surface runoff. Deep infiltration has been rejected by the EA, a pumped solution to both the north and south have also been proven to be unworkable. The developer has now mentioned the possibility of onsite infiltration once again! This is a fundamental issue that speaks to the viability of the development of this site in the currently approved layout. It is not a matter that can be simply deferred yet again, and must be addressed once and for all (if at all feasible) as part and parcel of this current submission We are aware that there are already flooding difficulties at the entrance to the site following the developers access construction activities. These need to be corrected, and a workable solution identified to the discharge of run off for the scheme as a whole.	
3.4 Are there any areas on or around the location which are already subject to pollution or environmental damage, e.g. where existing legal environmental standards are exceeded, which could be affected by the project?	Y	The site is located within an AQMA. The site is located within a groundwater Source Protection Zone.	N	Air quality impacts with machinery and site operatives will be appropriately mitigated through the implementation of a CEMP, which will set out measures to mitigate air quality impacts from plant and traffic. The Hydrogeological Impact Assessment prepared to accompany the planning application and attached at Appendix B confirms there would be no effects on groundwater.	Further information/investigation is required to support the developer's comments that grout will not react with the surrounding substrate and will not leach into groundwater.
4. Population and Human Health					
TFAG Comments					

4.1 Will there be any risk of major accidents (including those caused by climate change, in accordance with scientific knowledge) during construction, operation or decommissioning?	N	The appointed contractor(s) will implement measures in accordance with Health and Safety legislation/requirements, and best practice to minimise the risks of accidents that could have adverse effects on people or the environment as a result of the stabilisation activities. All such measures will form part of the CEMP. There are no anticipated significant risks of accidents during operation as the development will not involve users dealing with hazardous substances.	N/A	The same comments about the safety profiles/certificates of the proposed grouting materials apply. Statements that there can be no significant risks require further evidence and verification. A large amount of machinery and equipment as well as fuel and other substances will be utilised by operatives and others on site, and so once again this is incorrect
4.2 Will the project present a risk to the population (having regard to population density) and their human health during construction, operation or decommissioning? (for example due to water contamination or air pollution)	N	During the works dust would be managed in accordance with standard best practice measures, enforced through the CEMP, and is not anticipated to generate adverse effects to human health.	N/A	The impact of the proposed grouting and its ability to leach into the aquifer which it will interface with have yet to be properly evaluated. Insufficient information (material hazard data sheets etc) has not been issued for the proposed grouting materials. No consideration of impact on the public drinking water supply has been considered in this EIA screening.
5. Water Resources				TFAG Comments
5.1 Are there any water resources including surface waters, e.g. rivers, lakes/ponds, coastal or underground waters on or around the location which could be affected by the project, particularly in terms of their volume and flood risk?	Y	The site is entirely located within Flood Zone 1. The bedrock under the site is identified as principal aquifer. The stabilisation works will use inert materials which will not leach into groundwater or result in contamination – see Appendix B.	N/A	Incorrect again, - Yes. The site is located within:- Drinking Water Safeguard Zones (Surface Water) Drinking Water Safeguard Zones (Groundwater) Source Protection Zones - Zone I - Inner Protection Zone from which the water supply for the Henley Water Supply Zone is taken. The depth of the proposed grouting means that it is below the high water table as recorded and therefore will interact with this aquifer. The grouting of a substantial area of the site will reduce the ground permeability and lead to an increase in surface water runoff. No mention has been made of how surface water generated within the site will be managed. Previous proposals for

			surface water management have not been viable and their remains an outstanding requirement to find a solution for surface water management for this development. This issue should be an integral component of the EIA as the proposed engineering solution for the ground stabilisation works will materially impact the ability to manage surface water generated and likely increase offsite surface water flood risk.
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Part 1 - Question	Part 2 - Answer to the question and explanation of reasons (Yes/No or Not Known (?) or N/A)		Part 3 - Is a Significant Effect Likely? (Yes/No or Not Known (?) or N/A)	TFAG Comments
6. Biodiversity (Species and Habitats)				
6.1 Are there any protected areas which are designated or classified for their terrestrial, avian and marine ecological value, or any non-designated / non-classified areas which are important or sensitive for reasons of their terrestrial, avian and marine ecological value, located on or around the location and which could be affected by the project? (e.g. wetlands, watercourses or other water-bodies, the coastal zone, mountains, forests or woodlands, undesignated nature reserves or parks. (Where designated indicate level of designation (international, national, regional or local))).	N	There are no ecological designations on or directly adjacent to the site. The ground stabilisation works will not result in direct or indirect effects on biodiversity.	N/A	The answer is not correct. The impact of the grouting on the hydrodynamics of nearby water courses (River Harp), River Thames and their tributaries such as Lashbrook, should be considered.
6.2 Could any protected, important or sensitive species of flora or fauna which use areas on or around the site, e.g. for breeding, nesting, foraging, resting, over-wintering, or migration, be affected by the project?	N	The site comprises semi improved grassland.	N/A	Incorrect response. The site has been left to re-wild for the past few years and as such it is likely that flora and fauna have established habitats over this period and as such a new base line ecology report should be undertaken.
7. Landscape and Visual				TFAG Comments

7.1 Are there any areas or features on or around the location which are protected for their landscape and scenic value, and/or any nondesignated / non-classified areas or features of high landscape or scenic value on or around the location which could be affected by the project? Where designated indicate level of designation (international, national, regional or local).	Y	The site is approximately 300m to the west of the Chilterns National Landscape.	N	The proposals comprise below ground works which would not affect views or result in landscape changes. The works involved in stabilising the underlying geology will be temporary and construction managed through a CEMP.	Incorrect to the extent that, Natural England has approved formal consultation on the extension of the Chilterns AONB as requested by the 7 local parishes
7.2 Is the project in a location where it is likely to be highly visible to many people? (If so, from where, what direction, and what distance?)	N	The site is surrounded by trees but there is potential for local views of the works however these will be temporary and not significant.	N/A		Incorrect response. The site is surrounded by local dwellings on all sides and adjacent to the main route into Shiplake. It is highly visible to residents and public.
8. Cultural Heritage / Archaeology					TFAG Comments
8.1 Are there any areas or features which are protected for their cultural heritage or archaeological value, or any non-designated / classified areas and/or features of cultural heritage or archaeological importance on or around the location which could be affected by the project (including potential impacts on setting, and views to, from and within)? Where designated indicate level of designation (international, national, regional or local).	N	There are no statutory designations within or immediately adjacent to the site.	N/A		We are aware that the adjacent building site has had significant archaeological investigations undertaken. There must therefore be a high probability that there are areas beneath this site that will be of local regional or national interest

Part 1 - Question	Part 2 - Answer to the question and explanation of reasons (Yes/No or Not Known (?) or N/A)	Part 3 - Is a Significant Effect Likely? (Yes/No or Not Known (?) or N/A)	TFAG Comments
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9. Transport and Access				
9.1 Are there any routes on or around the location which are used by the public for access to recreation or other facilities, which could be affected by the project?	N	There are PRoWs within proximity of the site and roads to the north and east however the stabilisation works will be temporary and will not result in significant effects on these features.	N/A	Incorrect, Yes – Taylor Wimpey themselves acknowledge that there are public rights of way adjacent to the site.
9.2 Are there any transport routes on or around the location which are susceptible to congestion, or which cause environmental problems, which could be affected by the project?	N	The works to install stabilisation materials be temporary and will not result in significant effects on local roads. A Traffic Technical Note has been prepared to accompany the planning application confirming there would be no significant transport effects.	N/A	Inaccurate and only an opinion. There will be huge numbers of vehicle movements as identified by the developer and highlighted in our representations to the Planning Application for the LDC. Whilst recognising that grouting and compaction will be a temporary activity, T FAG cannot accept that it will not have a significant effect on local roads, local businesses and local people, as well as the local environment both land based and air based. The large number of vehicle movements for a prolonged period of time will impact local residents and cause disruption and delay on local roads.
10. Land Use				TFAG Comments
10.1 Are there existing land uses or community facilities on or around the location which could be affected by the project? E.g. housing, densely populated areas, industry / commerce, farm/agricultural holdings, forestry, tourism, mining, quarrying, facilities relating to health, education, places of worship, leisure /sports / recreation.	N	The site comprises grassland in a semi-rural location. The nature, scale and extent of the proposed ground stabilisation works will not result in any significant effects on community facilities.	N/A	Incorrect, Yes – Adjacent houses will be impacted by the proposed works.
10.2 Are there any plans for future land uses on or around the location which could be affected by the project?	N	No.	N/A	Incorrect answer, Yes – The area within which the site is located is a Source Protection Zone 1 and as such land use activities are highly sensitive and regulated. Consideration

				of the proposed activities against the requirements of a SPZ1 should be made within a full EIA.
11. Land Stability and Climate				TFAG Comments
11.1 Is the location susceptible to earthquakes, subsidence, landslides, erosion, or extreme /adverse climatic conditions, e.g. temperature inversions, fogs, severe winds, which could cause the project to present environmental problems?	N	No.	N/A	The location is susceptible to subsidence due to karstic features and land condition, so much so that warning signs are in place around the site. It is exactly this that is driving the developer to ground stabilisation techniques. The developer should also consider what further erosion of the sub strata will occur once their groundworks are completed. The area will continue to suffer from ground erosion and in time further movement
12. Cumulative Effects				TFAG Comments
12.1 Could this project together with existing and/or approved development result in cumulation of impacts during the construction/operation phase?	N	There is no potential from cumulative developments which would give rise to potential effects.	N/A	
13. Transboundary Effects				TFAG Comments
13.1 Is the project likely to lead to transboundary effects?	N	No.	N/A	Unknown unless a full hydrogeological model of the aquifer is undertaken, and a solution to the run-off is identified

T FAG is by no means convinced that we have yet to receive the full story/information at Thames Farm. In our view this will only really come about once a full and comprehensive approach to due diligence, ground and site investigations and environmental impacts (including upon the regions sole potable water supply for which there is no piped backup; and for the surface water dispersal proposals) is undertaken to a high, comprehensive and transparent standard of current best practice and statutory requirements - to be specified in detail by the authorities and perhaps with some assistance from our own advisors, whom have on each occasion/review point identified defects and omissions in the information provided at each and every stage.

07 June 2024

The original submitted document contains appendices which are not repeated here

Appendix 4 – Technical Note by JBA Consulting
September 2023

TECHNICAL NOTE

JBA Project Code	2022s1056
Contract	Thames Farm Application for a Certification of Lawfulness
Client	Thames Farm Action Group
Date	September 2023
Author	Benjamin Brière De L'Isle
Reviewer / Sign-off	Paul Eccleston
Subject	Review of supporting evidence documents in appeal (APP/Q31115/X/23/3325922)

1 Introduction

A development appeal form was submitted by Taylor Wimpey West London (TWWL) on 13 July 2023 with Appeal reference APP/Q3115/X/23/3325922 in relation to the planning application P21/S4749/LDP to South Oxfordshire District Council (SODC) decided on 13/01/2022. Thames Farm Action Group requested JBA (email dated 22/09/2023) to review the technical documents submitted as part of the appeal and related to the hydrogeological assessment of the site.

2 Documents reviewed

The applicant, TWWL, submitted the appeal form alongside reports and drawings in support of the appeal. The documents list below has been submitted as part of the appeal statement and, due to time constraints and relevance to hydrogeological matters, only those identified as reviewed have been assessed. No documents from the planning application has been reviewed as part of this work or is commented within this technical note. JBA technical note (January 2021) should be read in conjunction with this technical note for any previously submitted documents as part of the planning application.

Table 1: List of documents

Document name	Relevance to hydrogeology	Reviewed
Appeal Form		Yes
Grounds of Appeal.pdf		Yes
Location Plan drwgn C11748.16.001.pdf	Yes	Yes
Landscape Strategy drwgn C11748.16.701.pdf	Yes	Yes
Tree Woodland Planting Plandrwn C11748.16.705.pdf	Yes	Yes
Strategic Landscaping Plan drwgn C11748.16.801.pdf	Yes	Yes
Shiplake - Program Rev2.pdf		
A253-TN06 Rev C - Traffic Impact Assessment of Grouting Exercise.pdf		
Indicative Foundations.pdf		Yes
30438R3.2 Shiplake Grouting HIA-Non-technical summary.pdf		Yes
Approved Highway Plan.pdf		
30438R3.2 Shiplake Grouting HIA_Part1.pdf	Yes	Yes
30438R3.2 Shiplake Grouting HIA_Part2.pdf	Yes	Yes
30438R3.2 Shiplake Grouting HIA_Part3.pdf	Yes	Yes
30438R3.2 Shiplake Grouting HIA_Part4.pdf	Yes	Yes

The grounds of appeal discussed in this technical note relates only to the nature of the ground remediation works and the potential risk to the public water supply, commenting in particular on Ground of appeal document Section 5. ix) paragraph (6) "The site lies approximately 130 m from the Harpsden Water Treatment Works, where

groundwater is abstracted from the Chalk aquifer from two boreholes for public water supply. A Hydrogeological Impact Assessment has been produced which considers whether it is possible that grouting the ground could have an effect on how rainfall infiltrates down to the water table and also how water flows through the ground towards the boreholes. It also investigates the possibility that grouting could create turbidity, or cloudiness, in the water supply, by creating a suspension of fine particles in the water.

The Hydrogeological Impact Assessment demonstrates that the ground stabilisation works will have no effect on the nearby groundwater abstraction borehole."

The key document related to the appeal is the Hydrogeological Impact Assessment (HIA) produced by H Fraser Consulting dated 10/07/2023.

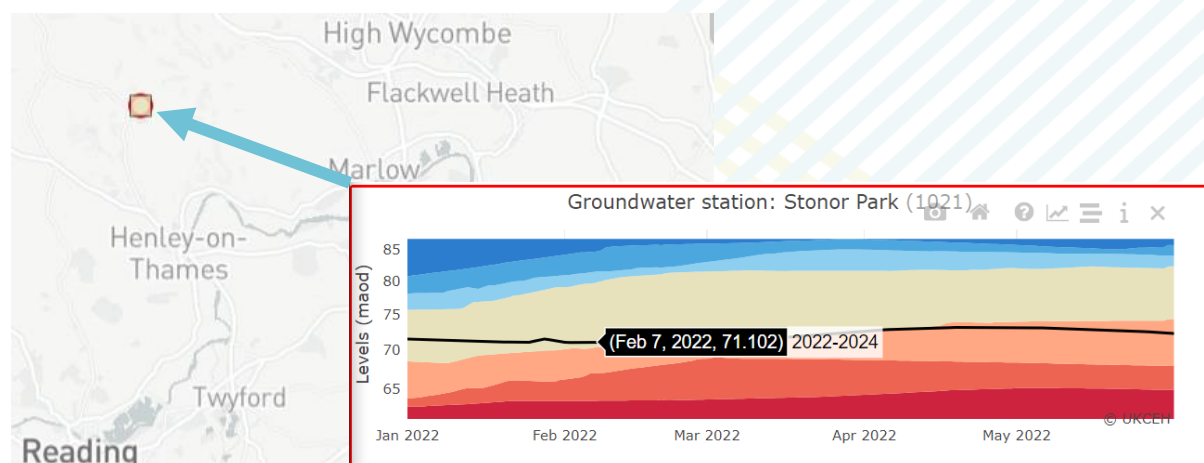
3 Hydrogeological Impacts Considerations

The sections below provide a technical review of the HIA. The objectives stated by the HIA is to "assess the potential impacts of the grouting operation on groundwater abstraction at the PWS abstractions, and on the potential to increase flooding at the site."

3.1 Potential impact of the grouting operation on groundwater abstraction

A network of monitoring boreholes has been installed over several rounds of ground investigation works and is considered sufficient to establish groundwater level over the proposed development. Piezometric levels have been monitored over winter 2022/2023 which have been used to establish groundwater levels although the HIA mainly relies on February 2022 to derive groundwater levels. February 2022 groundwater levels records from Stonor Park borehole; in the Chalk, c.10km North of the proposed development and presented in Figure 1 below; indicates general groundwater level was low at the time. The HIA fails in general to consider higher groundwater levels or varying groundwater levels effects on the risks identified.

Figure 1 : Stonor Park groundwater levels



A hydrogeological conceptual site model (CSM) was developed and presented in Section 5 of the HIA. The CSM indicates that soft ground, potentially with relatively higher capacity for infiltration, are present on the proposed site linking drift deposits (gravels base at 49.4 to 38.6 maod, unstructured Chalk (base at 32.5 to 30.3 maod) and structured Chalk.

The grouting plan specified by Stantec and submitted in Appendix 6 of the HIA indicates most of the grouting would take place to the South of the proposed development (Phase 1). The Ground Stabilisation by Compaction Grouting – Specification (Stantec, March 2020) provides no consideration of the environmental impacts from grouting and potential effect of the grouting on adjacent (80m distance) potable water supply.

The grouting mix described by Stantec (March 2020) and reproduced by H Fraser Consulting (July 2023) consist in a mix of Portland cement, pulverised fuel ash (PFA), sand, pea gravel and a thixotropic admixture or either bentonite or other admixture of chemicals approved by the Engineer. The composition that could be used for the grouting mix is described as *"The Contractor will supply the Engineer with all relevant details and material data sheets of grout mix constituents to demonstrate their quality and compliance at the start of the works."* in Section 5.2 of the HIA (Fraser Nash, 2023). In the absence of clear specification of the proposed grouting mix, it is difficult to establish the potential for release of chemicals into the principal aquifer, how they can be mobilised in the future and their fate potentially affecting the public water supply.

The HIA is assessing the risk of grouting reaching the public water supply by assessing movement of grouts through fractures identified during the site investigation (Section 6.2). The risk assessment uses 1mm and 10mm fractures to determine potential conservative travel distance of 3.4m and 33.4m respectively based on a number of justifications including that *"there will be groundwater in the fractures"*. In assessing the turbidity caused by grouting (Section 6.3), the HIA states that *"In the unlikely event that grout mixture interacts with a chalk fractures (potentially causing turbidity in the groundwater contained in those fractures)"* turbid water would be blocked within this fractures and seep through the Chalk matrix rather than following fractures. It is also stated that *"in the worst-case scenario the grout could flow 130 m to the abstraction point."* (Section 6.2 3rd paragraph).

As the purpose of grouting is to reduce fractures void, it is in fact rather probable that the grout will move to fractures up to a certain distance and not fill entirely fractures allowing the bleed water or the leachate from the grout to be mobilised from the end position within the fracture to other connected fractures and to the public water supply. No assessment is made within the HIA for this source – pathway – receptor linkage other than for turbidity.

With regards to Section 6.3.1 related to the potential reduction in permeability of the Chalk affecting groundwater flow to the public water supply or to Section 6.4 related to the reduction in recharge to the Chalk aquifer, the absence of a definitive drainage strategy for the site reduces significantly the validity of the arguments made. The HIA provides calculations estimating the reduction of water level at the PWS, the drawdown, due to the reduced infiltration using a local approach to recharge as a function of the pumping rate. Although a catchment approach may have been better suited, the results associated with using the Dupuit-Forchheimer equation indicates the extent of grouted area will reduce water available at the PWS. There is no justification why a reduction of 7cm or 3cm in the drawdown at the PWS is considered insignificant and this results as well as the uncertainty associated with the calculation should be considered by Thames Water. It is unclear whether cumulative impacts on the water supply have been considered in the significance of the effects.

3.2 Potential increase of flooding

The potential increase of flooding is dealt with in the HIA by Section 6.5 (total of 2 paragraphs). The HIA indicates that the proposed development works is expected to reduce permeability over the site. However, the assessment is dependent on the approval of SUDS plan taking *"account for areas of reduced permeability due to grouting"*.

4 Conclusion

Based on the above discussion, the applicant's environmental consultant's consideration of the grouting effects on the Harpsden Water Treatment Works concluded that no significant effects are expected.

However, in the absence of a definitive drainage strategy by the applicant there is a significant gap in what has been assessed and should include a robust determination of contamination sources potentially affecting the Source Protection Zone from the grouting works and consideration of drainage to assess effects of the development during its operational phase. Due to the sensitive location of the proposed development, a more comprehensive assessment is expected to assess risks to the public abstraction.

The HIA focuses on risks associated with turbidity, grouting reaching the abstraction borehole and the reduction in permeability over the proposed development. It doesn't provide a chemical assessment of the substances that would be used to support the grouting. No Material Safety Datasheets have been provided for the grouting or for substances that could be added to the grouting mix.

Inconsistencies within the report have been noted, the most significant relating to the actual distance of the Harpsden Water Treatment Works to the site stated at 80m in Section 2.1 Background, or 130m in Section 7 Conclusions. With a worst-case scenario of grouting moving 130m, the proposed grouting would reach the public water supply.

Appendix 5 – TFAG's Objections to P24/S2651/DIS
(19 September 2024)

Representations and Objection to SODC regarding [P24/S2651/DIS](#)

Description

Discharge of conditions 4(vehicular access, footways, cycle ways, driveways and turning areas), 5(construction management plan), 8(landscape management plan), 9(method statement) and 11(drainage strategy) on application P16/S0970/O.(Outline Planning Application for up to 95 dwellings and associated public open space and landscaping. Means of access and strategic landscaping not reserved).

These representations to P24/S2651/DIS ('the Application') are made by the Thames Farm Action Group on behalf of each of the 4 members of the Steering Group, who are all residents of Lower Shiplake; also on behalf of the residents of Lower Shiplake whom the Action Group was formed to represent, and the 1500 local residents who signed the petition objecting to this development and its likely environmental impacts.

We are submitting these representations under the time pressure and deadline imposed by SODC for those representations to be made by 20 September 2024, notwithstanding our stated legal position, where we have confirmed to SODC that we consider this application to be ultra vires and premature, since it cannot properly be considered until after application [P24/S2642/FUL](#) ('the FUL application') has been considered and determined.

The reason for this is that the DIS Application can only be made and properly considered, pursuant to the FUL application, as it primarily relates to how surface water drainage might be managed both during the construction phases of the development and then as part of the long-term management of surface water following completion of the scheme.

There is no settled and approved scheme for the groundworks, and it is those very groundworks that are the overriding reason and responsible for, driving the applicant to this particular solution and design for coping with the surface water run off generated by the developed site.

Our engineers (JBA Consulting, who are specialist hydrogeological experts and whom were also used by the Local Authority in preparing its own Flood Strategy), are of the opinion that the overall scheme for the groundworks and drainage strategy and design will require substantial modification and reappraisal. The resultant changes would directly impact upon the drainage strategy and design proposed in this Application..

The Application is erroneously stated as being in discharge of P16/S0970/O, whereas it seeks to discharge a notional alternative development that could only be permitted under the FUL application and P24/S2652/S73.

It further follows that the third current Planning Application [P24/S2652/S73](#) (also pending determination), which seeks approval for the revised layout of the site pursuant to the approval of the FUL application, needs also to be considered and determined after any approval of the FUL application; should SODC be minded to approve that application.

We also note that the bundle of documents submitted with these applications has a number of sections missing i.e. Drainage Statement v15 Part 1, where there is a missing section 1.10 to 4.11. As a result it has not been possible to fully review this application yet

Without prejudice to the above statements, we are submitting these comments now, and will also submit the completed report / technical note prepared by JBA Consulting on the issue of inter alia the drainage proposals that the Applicant has put forward, confirming a number of errors and shortcomings. The latter has yet to be finalised and will be submitted in response to the FUL and S73 Applications.

It is apparent that there remains a major question mark over the design parameters that have been adopted by the Applicant in this submission, as it is clear that the location of the proposed 'balancing lake' is sited on top of land that contains dissolution features beneath it.

Without prior 'treatment' of those areas via ground remediation, the area of land surcharged by the structure of the proposed balancing lake, and filled with surface water from the entire site and perhaps part of the Highway, will cause collapses to occur below ground. It will also create a pathway for the potential contamination of the underlying groundwater, which forms part of the aquifer that, in turn, provides drinking water to perhaps 50,000 local residents in the area. (Extent of Catchment area for the Thames Water Henley Region taken from Thames waters website).

Should that ground be grouted/treated in the same way as much of the proposal to treat the rest of the site's developed areas, the balancing lake will be incapable of operating as a source of infiltration for the stored water. The lake design will need to consider any additional capacity then needed for the storage of water arising from the reduced ability for infiltration to take place.

The drainage solution proposed here, is also considered to be contrary to the NPPF, the SODC Local Plan (Policy DES8) and OCC 'Local Standards and Guidance' for surface water drainage. The NPPF, for instance, states:-

"The planning system should support the transition to a low carbon future..."

The applicants August 2024 Flood Risk Appraisal and Drainage Study remains some way from adequately demonstrating that the drainage strategy is appropriate, in line with planning policies and design good practice, and that it will not increase flood risk. Particular attention is drawn to the following points:

- The reliance on pumping to a high-level infiltration basin on the west side of the site makes this a carbon-intensive design. If adopted, the high operating costs would be passed on to water company bill payers or council tax payers.
- A number of design issues are highlighted by the drainage model, including velocities below the self-cleansing velocity for pipes, 28 Hydrobrake controls below the recommended minimum orifice diameter, and steep (1 in 4) slopes on the basins.

- The assessment of offsite flows does not take into account the whole of the contributing area draining into the site.
- Exceedance scenarios have not been considered for blockages and for a failure of the upper basin to infiltrate at the stated rate.
- The infiltration rate applied needs to be reassessed if compaction and/or grouting works are planned within the basin's footprint.
- Conversely, it is not clear whether the deep-seated voids identified in the area of the upper basin will be stabilised, and whether the risk of collapse beneath the basin due to high ground loading and scour of voids has been adequately considered.

We are also awaiting professional reports dealing with the issues of noise, vibration and air quality that will arise as a result of the proposals, taken both separately, and together, and would refer SODC to the very limited treatment of these issues in the various EIA submissions made by the Applicant.

Notwithstanding the receipt of further technical reports from professional advisors, it is felt advisable having regard to the nature and scale of the proposed developments (both in terms of groundworks and the subsequent years of construction work on site due to the phased construction of the housing development), that the Developer /Applicant should **require** the main contractor(s) utilised, in all phases of works to submit an application(s) to the Council for **Section 61 Consent** under the **Control of Pollution Act 1974**.

A condition is also considered prudent to cover the potential for noise impacts from the proposed pumping station(s) and the relocated substation for their normal operations post construction.

Conclusion

The Application works, if permitted, would cause immeasurable harm to the local environment, and will create a major risk to the flow of the aquifer underlying the site as well as the potential to contaminate the drinking water that supplies up to 50,000 local residents, for which, there is no piped backup in existence.

Accordingly, we urge SODC to reject this application.

Thames Farm Action Group

19 September 2024