

TECHNICAL NOTE

JBA Project Code Q25-2520
Client South Cerney Parish Council
Date 10/11/2025
Authors: Emily Cumming
Benjamin Briere De L'Isle
Subject Review of supporting evidence documents in
planning application PL/2023/03359

1 Introduction

Acorn Bioenergy Limited (Acorn) and their Consultants (SLR Consulting Limited, Pegasus Group Ltd and GGP Consult) have submitted a planning application (PL/2023/03359) for developing the Land West of Ashton Road, Ashton Keynes, Wilts, SN6 6QT. The application proposal is for "The construction and operation of an anaerobic digestion facility and ancillary infrastructure and the construction of a new access and access road from Ashton Road in Ashton Keynes, Wiltshire".

South Cerney Parish Council requested JBA Consulting by an instruction dated 6/11/25 for an opinion on the above planning application and, in particular, in relation to the potential impact of the facility to the "SSSI Cotswold Lakes and associated waterways, as well as associated proposed run-off/water management"

2 Documents Reviewed

JBA reviewed the following documents submitted as part of the planning application (PL/2023/03359):

- Preliminary Ecological Appraisal (SLR, April 2023)
- Flood Risk Assessment (26th April 2023)
- Wetland and Weir Sections (8th Nov 2024)
- Site Drainage Catchment - sheet 1 and 2 of 2 (29419/P2/105 dated July 2024)
- Attenuation Tanks Sections (8th Nov 2024)
- Drainage Details Sheet 3 (8th Nov 2024)
- Environmental Statement Chapter 5 – Ecology
- Environmental Statement Chapter 6 - Hydrology and Hydrogeology (26th April 2023)
- Ground Investigation Report (SLR Ref: 404.11923.00004.0027, dated May 2023)
- Environmental Statement Addendum V3 (17th Oct 2025)
- Natural England Response (28th Aug 2025)
- Agent's Response to Nature England (23rd May 2025)
- Agent's Response to Nature England (19th Oct 2023)

3 JBA Comments

3.1 Overall comments

The current design of the Anaerobic Digestion (AD) facility consisted in 2No large digester tank (c.58,000 m³), 1No post-digester tank (c. 60,000 m³), 2No underground liquid digestate storage tank (10,000 m³ each), underground attenuation tanks and a wetland with weir to discharge to a nearby ditch.

The location of this AD plant near Cotswold Water Park SSSI is a reasonable cause of concern due to the potential for this type of facilities to generate pollution and in particular nutrients such as nitrogen compounds. The proposed site and surrounding area are within a designated area as a Nitrate Vulnerable zone (ID 457 Thames (Churn to Coln) NVZ). In addition, the site is within a Source Protection Zone 2 and 2c which denotes an area of

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increased scrutiny for any activity or planned activity as vulnerability of groundwater could lead to pollution of water supply.

Beyond the risk posed by the AD facility, the overall objectives stated in Section 3.55 (ES Chapter 3) to have "a nutrient rich solid fertiliser and soil conditioner and a liquid fertiliser (digestate), which would be used on local farms..." raise additional concerns to nitrogen loading in the Nitrate Vulnerable Zone and overall sustainability of the project.

3.2 Issues in the Environmental Statement

1. The Environmental Statement (ES -chapter 6) does not appropriately assess risk to the underlying limestone aquifer or superficial aquifer by assuming the Kellaways Clay completely prevents connectivity (Section 6.69–6.70):
 - Section 6.69 states the "extensive thickness of the Kellaways Clays (25-30m) ensure that there is no potential pathway to the underlying limestone and therefore risk to the limestone aquifer has not been assessed further". However nearby boreholes show this thickness to be as little as 7m with the "with occasional thin bands of sandstones and siltstones" (6.51) present in every nearby borehole, which have the potential to act as preferential pathways for groundwater through the clay. This is further evidence that this report should not be treating these clays as a 'complete seal' for hydraulic connectivity and contamination pathways.
 - The statement that "The site is underlain by the Kellaways Clay, which acts as an aquiclude preventing infiltration to the underlying Kellaways Sand and Limestone aquifer." (Sections 6.68–6.70) is neither verified nor supported by field data. This assumption is also undermined by the fact that the site sits within and uphill of the Cotswold Water Park SSSI, a highly connected hydrological system of shallow sands, gravels, and lakes with interlinked groundwater and surface water flow. This is demonstrated by Ground Investigation Report Section 9.4.3 which reported "*Groundwater strikes were observed in SBH2 and SBH3 during the advancement of the boreholes, encountered at 1.5m and 3.4m bgl. Following a return groundwater visit, water was recorded in all boreholes at depths of between 0.43m to 1.35m bgl...*" and to continue with "*Therefore, the presence of shallow groundwater will impact the construction of shallow foundations.*"

The ground conditions have shown to bear groundwater and are likely in hydraulic continuity with the nearby lakes. Groundwater on site should be considered both as a receptor, Secondary Aquifer, and a pathway to receptors, Cotswold Water Park SSSI. Both construction activities and operations during the lifetime of the AD facility should be considered and their potential effects assessed by the ES.

3.3 Gaps in the Design and Conceptual Model

2. Acorn Bioenergy's response to Natural England ("NE") dated October 2023 and May 2025 explains dirty water (silage contaminated) from surface runoff of hardstanding areas will be collected into above and below ground containment tanks and reused to meet the plant's water demand. However, at maximum these tanks have a combined capacity of 3253m³ (2025 response, page 1, line 27) from designated dirty site areas of 27,941m². The discrepancies between the two responses to the NE are outlined in Table 1.

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3. Surface water storage lagoon of 160m³ will reside above mixed clays and statement that it will "not allow water infiltration" (2025 response to NE) is unfounded.
4. No considerations have been made of climate impacts to the water pathways and storage capacities: i.e. increased rainfall intensity, longer dry periods, or altered groundwater recharge patterns (response to NE).
5. The reported drainage strategy has significantly reduced all calculations from the 2023 to 2025 responses to NE (Table 1) suggesting understatement in run off potential, pollution potential and overall attempting to appear less water-intensive and environmentally complex.

Table 1: Design aspect considerations

Design aspect	2023 response to NE	2025 response to NE	Comment
Total annual water requirements	62,000 m ³ /year	42,000 m ³ /year	32% reduction suggests underreporting in attempt to appear less water intensive and reduce environmental impact complexity
"Dirty" designated areas	36,770 m ²	27,941 m ²	24% reduction in surface area would significantly impact drainage strategy and storage requirements but has not been addressed in design or explained.
Impermeable areas ("hardstanding")	4.52 ha	3.80 ha	Impermeable areas are again reduced without explanation or design changes
Clean water storage (crate system)	1,500 m ³ capacity	744 m ³ capacity	Halved attenuation capacity
Rainwater lagoon	278 m ³	160 m ³	43% reduction in storage; less resistant to heavy rainfall events without explanation
Dirty water storage (below and above ground)	1,200 m ³ (below)	53 m ³ (below) 3200 m ³ (above ground)	No mention of dirty water storage underground in 2023 but switch in system to above ground storage in 2025

6. Both the 2023 and 2025 responses to NE explicitly identifies the ditch as the route of potential pollution with the statement "The outfall from the surface water lagoon to the highways ditch would be closed in the event of an incident." (page 3, line 30) and that sandbags would be deployed across the access gate to prevent access to the

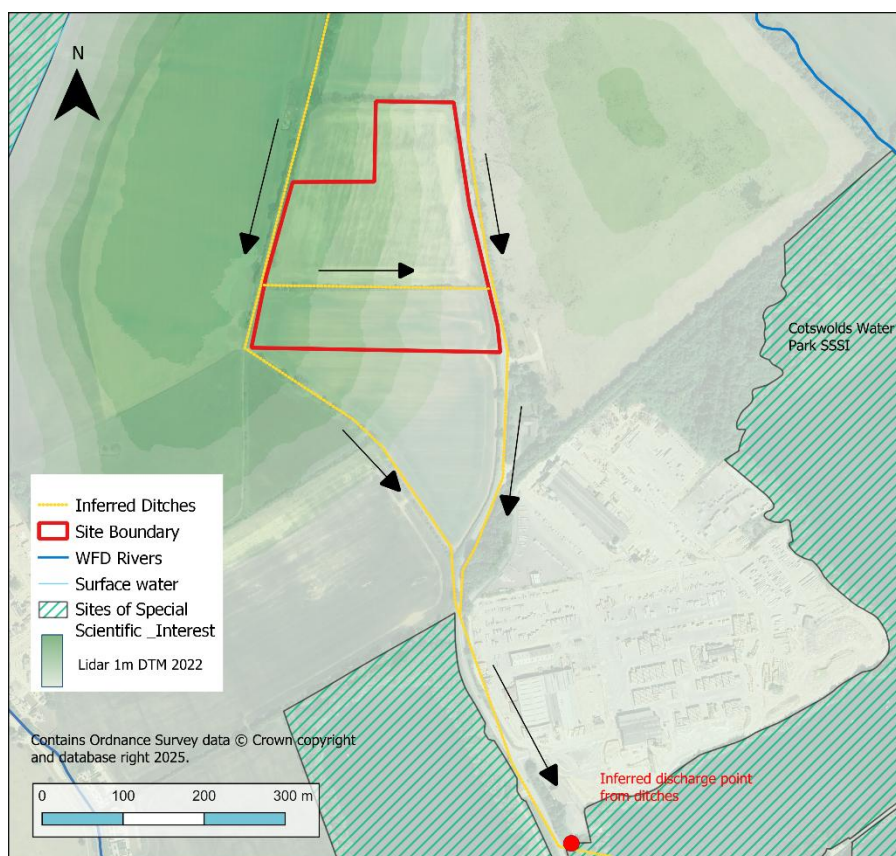
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highway ditch (page 3, line 7). Both responses and the ES claim there is “no pathway to the SSSI”.

7. The “Ashton Road drainage ditch”, noted as the receptor for the proposed lagoon outfall in the ES (6.153) has not been traced or sufficient site catchment analysis made; the ES relies on the existence of the “highways ditch” as a safe drainage receptor, but this flows downhill directly towards the Cotswold Water Park SSSI 500 m away, as seen in Figure 1.

Figure 1: Drainage Network on and around Site



3.4 Methodological Issues in the Assessment

8. Paragraph 6.103 and Table 6-6 collate groundwater abstraction and assign them the same sensitivity as “Medium” where abstraction for dewatering would be a low sensitivity as not consumptive against a very high when the abstraction is for potable water supply.
9. The impact tables (e.g. Table 6-8) repeatedly classify effects as “Minor” because “good construction practice will be adopted” which will only reduce rather than eliminate risk. Pre-mitigation and post-mitigation risk should have been presented separately as required by EIA guidance, which SLR claims to have followed.

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10. The ES appear to minimize flood and surface water risks despite the site lying within a Nitrate Vulnerable Zone, Source Protection Zone, and SSSI Impact Risk, section (6.120). Flood risk is classed as "Low" because "detailed modelling is not required" (6.90). This contradicts the mapped evidence of localised high-risk patches (superficial gravels) near the eastern boundary that could act as a receptor and hydraulic pathway from surface flooding from nearby ditches (i.e. highways ditch, central ditch etc section 6.82 to 6.85). This is further contradicted by the SLR Ground Investigation report encountering consistent shallow groundwater across all boreholes between 0.43m-1.35m bgl (section 9.4.3) and the need to "manage groundwater during construction.
11. Design of hardstanding and secondary containment is said to meet "Containment systems for the prevention of pollution (C736F), CIRIA, June" (2025 response). However, no mention is made of Statutory guidance SR2021 No7 ([generic risk assessment anaerobic digestion facility, including use of the resultant biogas – waste recovery operation](#)) which should be driving the risk assessment of such installation.

4 Conclusion

The documents submitted by the applicant fail to adequately assess any contamination risks to controlled waters (surface water and groundwater), associated Protected Areas (SSSI, etc...) and other receptors such as other water abstractors.

The Environmental Statement Chapter 6 (hydrology and hydrogeology) produced by SLR misrepresents the environment setting, mislead the reader and lower levels of risk of planned activities, either through incorrect facts or omissions.

Based on the above, the planning application should be refused based on the Precautionary Principles, where development must be appropriate to the sensitivity of the site.