

ASHTON KEYNES GREEN ENERGY

PROPOSED ANAEROBIC DIGESTION FACILITY NR. ASHTON KEYNES, WILTSHIRE

Planning, Design and Access Statement

Prepared for: Acorn Bioenergy Limited

Client Ref:11923

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29419 - 101 Rev F	- General Arrangement
29419 /P/2022 Rev A	Silage Clamps Sections and Details
29419/P/2016 Rev A	Fencing and Gate Details
29346-1000 Rev A	- Fermenter Tank - Plans, Sections and Elevations as proposed
29346-1001	- Liquid Storage Tanks A & B – Plans, Sections and Elevations as proposed
29346-1006	- Separator Building – Plans, Sections and Elevations as proposed
29346 – 1007	Chicken Litter Building Sections and Elevations as proposed
29346 - 1014 Rev A	Straw Bunker Building
29419/P/20 Rev A	Paving Plan
29419-013-F101 Rev D	Site Plan and 3D images as proposed
29419-013 F102 Rev D	Site Elevations as proposed
29346-1024 Rev A	Mixer Tanks Proposed Levels
29419/P/102 Rev A	Site Levels

29419/P/115 Rev A Welfare Office Internal Layout

29419/P/116 Rev A Welfare Office External Layout

1.0 Introduction

Acorn Bioenergy Limited (Acorn) is applying to Wiltshire Council for planning permission to construct and operate an anaerobic digestion facility on agricultural land off Ashton Road, southeast of South Cerney, Ashton Keynes, Wiltshire. The nearest postcode is SN6 6QT. The Site location is shown on Drawing AKE-0002.

1.1 The Applicant - Acorn Bioenergy Limited

Acorn Bioenergy Limited (Acorn) is committed to decarbonising hard-to-abate sectors by unlocking the full potential of biomethane production in the UK. It plans to make an immediate impact by reducing transport, industry, and agriculture CO₂ emissions by 2023.

Acorn creates & procures biogas from anaerobic digestion (AD) facilities in the UK and upgrades it to biomethane. It transports biomethane from the anaerobic digestion facility to its point of use, utilising biomethane-powered trucks. The carbon negative biomethane will be directly used as an alternative fuel to power vehicles and also injected into the gas grid to create renewable heat for homes and businesses.

The use of biomethane is a critical step in the world's journey to Net Zero. It is a mature and well understood fuel that can be used today while hydrogen and electrification solutions are developed. It has been shown that running an HGV on biomethane delivers a reduction of equivalent carbon emissions of more than 70% compared against diesel-fuelled HGVs.

1.2 SLR Consulting Limited

SLR Consulting Ltd (SLR) is a Registered Environmental Assessor Member of the Institute of Environmental Management and Assessment (IEMA) and holder of the EIA Quality Mark (<http://www.iema.net/qmark>). SLR is also a Registered Organisation validated by the Institute for Archaeologists (IfA), a member of the Association of Geotechnical and Geo-environmental Specialists, and a Landscape Institute (LI) Registered Practice and a Member of the Anaerobic Digestion and Bioresources Association (ABDA).

The company has significant experience in the preparation of planning applications and undertaking EIA for a wide variety of projects, including waste, minerals, renewable energy, and infrastructure developments.

Further information on SLR can be found on its corporate website at www.slrconsulting.com.

1.3 Summary of Proposed Development

The application proposal is as follows:

"The construction and operation of an anaerobic digestion facility, ancillary infrastructure and the construction of a new access road and access from Ashton Road, Ashton Keynes, Wiltshire".

The total site area is approximately 6.99ha and the proposed AD facility would accept in the region of 91,000 tonnes per annum of feedstock from local farms. The feedstock would undergo a process of controlled decomposition (anaerobic digestion) within the AD facility, which would generate c. 17,456,073Nm³ biogas, which would be upgraded on site into biomethane, before being removed by tanker to a central facility for injection into the national grid. The AD facility would have the capacity to produce approximately 9,815,904, Nm³ of biomethane per annum.

The AD facility feedstock would typically comprise the following:

- energy crops such as silage, rye, maize, and grass;

- straw; and
- poultry litter and farmyard manures.

In addition to the biogas, the AD process would also produce a nutrient rich solid fertiliser, soil conditioner and a liquid fertiliser (digestate), which would be used on local farmland, in place of raw manures and artificial fertilisers.

The AD process would also result in the production of carbon dioxide (CO₂) as a natural by-product. This by-product is usually vented by AD plant operators, for whom the main goal is the production of biomethane. However, as CO₂ is a precious resource, the proposed AD facility would be fitted with equipment to upgrade the CO₂ to 99.9% purity, suitable for almost all industrial and commercial applications in the UK. Upgraded CO₂ would be liquefied and transported by road to end users within the market area. The proposed AD facility would produce approximately 13,714 tonnes of CO₂ a year.

1.4 Rationale for the Proposed Development

The UK is committed to transitioning to a low carbon economy. The Climate Change Act sets out a legal requirement for the UK to achieve 'net zero' carbon emissions by 2050. Government advice is that increasing the amount of energy from renewable and low carbon technologies is important to:

- help to make sure the UK has a secure energy supply;
- reduce greenhouse gas emissions to slow down climate change; and
- stimulate investment in new jobs and businesses.

The proposed AD facility would contribute green, carbon negative energy and support the achievement of the UK Government's and Council's targets for achieving net zero, as it would process rotational arable crops and manures to generate carbon negative biomethane. The biomethane would be directly used as an alternative fuel to power vehicles and also injected into the gas grid to create renewable heat. Running an HGV on biomethane delivers a reduction of equivalent carbon emissions of more than 70% compared to diesel-fuelled HGVs.

The resources used by the AD process include crops grown on the landowner's land and other farms in the surrounding area. It would also use chicken litter, farmyard manure and slurry from the farms in the local area. The anaerobic digestion plant would essentially recycle these inputs and produce a fertiliser which would be spread on local farmland, assisting the growth of other crops.

Unlike many other renewable energy technologies, the proposed development produces energy in the form of a gas rather than electricity, which allows it to fulfil a somewhat different and complementary function to other technologies:

- **Renewable energy production** – The proposed AD facility would produce biomethane which could be used directly to heat homes and fuel vehicles. The proposed development would provide enough green gas to meet the heating demand of 8,700 UK households (based on 12.3 MWh/y per household).

In comparison with standard UK grid emissions, the 9,815,904Nm³ biomethane produced annually by the AD facility would have an equivalent saving of 34,000 tonnes of CO₂e each year, equivalent to taking 22,600 cars off the road.

- **Stable energy production** – Unlike other forms of renewable energy, AD facilities produce consistent and predictable quantities of biogas irrespective of weather conditions and daylight.
- **Energy self-sufficiency** – The UK is expected to be partially dependent on gas, for many years. The Russian invasion of Ukraine has brought into sharp focus how reliant Europe and the UK is on imported gas. The UK currently imports 52% of its gas from overseas and the current crisis has highlighted the need for greater self-sufficiency.

- **Fuel poverty** – The rapidly rising cost of fuel in the UK is impacting on the welfare of large numbers of people across the country. Development of additional supplies of gas within the UK will help protect against inflationary energy prices.

As mentioned above, biomethane is only one of the products of the AD process, the other products being organic fertiliser and CO₂. The benefits of these products can be summarised as follows:

- **Organic fertiliser** – Digestate is a nutrient-rich liquid biofertiliser used as a renewable fertiliser. It has high availability of crop nutrients and is an excellent direct alternative to artificial fertilisers, avoiding the use of artificial carbon-intensive compound fertilisers created from natural gas and from mining phosphate and potash fertilisers. In addition to improving crop yields, digestate can improve soil health; healthier soil can store more carbon, as well as support a more diverse ecosystem.

As the proposed development is farm-based, with the AD facility being developed in partnership with local farmers, the facility would supply its agricultural partners with the organic fertiliser produced at the AD plant; this is used not only on energy crops used to supply the AD facility but also on crops for the wider food supply chain. The digestate can also be used on pastureland to help to improve grazing for dairy farmers. An added benefit of the digestate is that it is considerably less odorous than the undigested slurries and manures typically spread on land.

The cost of fertiliser has recently increased dramatically, making it uneconomical to sow certain crops as the cost of growing the crop outweighs the final value. This is leading to farmers leaving arable land fallow. The provision of a good, affordable local fertiliser would greatly improve this situation.

- **CO₂** - This is normally considered to be a by-product of biomethane production and is normally vented off by AD plant operators. The applicant considers that CO₂ is a precious resource for many industries. At present, the UK is over reliant on one specific industry and supplier for CO₂ and these businesses are vulnerable to high energy costs.

Strengthened resilience of CO₂ supply in the UK will help bring stability to an industry which is currently severely exposed to international energy pricing (resulting in two recent major supply shortages in 2018 and 2021-2022) which led to food shortages in supermarkets. Local supply from AD plants helps stimulate the local economy, enabling parts of the country far from existing sources of CO₂ production to access supply. CO₂ production at the proposed AD facility would be constant, predictable, and reasonably-priced. The capturing and upgrading of CO₂ at the proposed AD facility is highly energy efficient and would result in an overall carbon intensity that is very low or even carbon negative.

Other benefits of the proposed development include the following:

- **Support to the local economy** - The proposed development would benefit local farmers as it would ensure consistent offtake of agricultural residues, some of which are difficult to manage. Farmers working in partnership with the AD facility would grow crops for the facility which gives them a wider range of viable crop rotations and agronomical planning options. The multi-year crop rotation cycle would ensure diversity on the farm, which benefits soil fertility. These benefits will provide farmers with economic stability at a time when agricultural costs are rising, farming subsidies are being phased out and farmers are being squeezed by supermarkets on price. With regard to the wider community, the proposed development would draw from the local supply chain for a wide range of goods and services, thereby directly supporting individuals and companies providing jobs and services in the local area.
- **Agricultural health** - At present British agriculture is looking for a means of solving two crippling issues, that of the weed black-grass and finding a 'break crop' (a crop that can be placed in a wheat rotation to reduce pests and diseases) following cabbage flea beetle issues with oilseed rape:
 - **Black grass** (*Alopecurus myosuroides*) is one of the biggest challenges to profitable arable farming in the main wheat growing areas of the UK due to increased herbicide resistance with

many areas suffering a 13% yield loss in cereals. The use of the AD silages within the farmers crop rotations can dramatically help to control this weed and hence minimise its impacts on following wheat crops.

- **Oilseed rape** is the standard break crop grown in British agriculture and has come under pressure over the last few years. Flea beetle has always been a pest in oilseed rape, but some farmers have been forced to drop the crop after the neonicotinoid seed treatment ban commenced in April 2018. This seed treatment helped control the flea beetle but also had a detrimental effect on bees. Use of energy crops destined for the AD facility as break crops can form an alternative economically viable solution to assist oilseed rape production.
- **Agricultural diversity** - Inserting silage crops within the wheat rotation leads to a more diverse number of crops being grown, having benefits outside of greater crop yields. It has several benefits for soil and crop systems: lower incidence of weeds, insect pests, and plant diseases, as well as improvements of soil's physical, chemical, and biological properties. Improvements in the soil's physical properties include better water holding capacity and aggregate stability, whereas the improvements in the biological properties include an increase in organic matter, which replenishes soil nitrogen and carbon. Crops grown in rotation reduce greenhouse gas emissions because of the lower amount of nitrogen fertiliser needing to be added.
- **Biodiversity** - Wider benefits also occur where organic fertiliser (digestate) replaces artificial fertilisers in terms of the wildlife living within the cropping area, with demonstratable benefits to soil invertebrates, insect numbers and diversity, leading in turn to larger and more diverse mammal and bird populations.

1.5 Screening Opinion

SLR submitted a formal request for a Screening Opinion, in the form of an EIA Screening Report, to Wiltshire Council (WC) in December 2022. WC registered the Screening Opinion (ref. 22/02833/SCREEN), but at the time of submitting this application, WC had not responded to the request.

In order to avoid any further time delays to the submission of the planning application, SLR have prepared a voluntary Environmental Statement (ES).

1.6 Pre-Application Public Engagement

Following the preparation of the draft technical reports and a site layout, the applicant engaged Public Relations company Instinctif Partners to coordinate a public drop-in consultation event, which took place from 16:00-19:00 on 12th December 2022 at South Cerney Village Hall, GL7 5TU.

Prior to the public exhibition, elected representatives from Wiltshire Council were briefed on the proposals over the phone and via email, starting on the 16 November 2022. These included the key political stakeholders, including the ward councillors for the site, and the neighbouring ward, relevant senior councillors and members of the planning committee. The elected representatives were also offered a face-to-face briefing on the proposals.

A meeting was held on 19th December 2022 with the Leader of the Council, Cllr Richard Clewer, and the Cabinet Member for Planning, Cllr Nick Botterill. Ward councillors and senior councillors were also briefed on the feedback received during the consultation and the number of people who attended the public exhibition on the 12th.

In addition, parish councils in the area were consulted before the exhibition, offering them a presentation on the proposals. Parish councils contacted included Ashton Keynes Parish Council and South Cerney CP. A meeting with Ashton Keynes Parish Council took place on 18th January and with South Cerney Parish Council on 21st February.

A dedicated project website was also set up to provide local residents and businesses information about the proposals and a chance to give feedback if they were not able to attend the exhibition¹.

2,576 households were contacted by letter and 67 people attended the public event.

A separate Statement of Community Involvement (SCI) accompanies this application, but in summary, there was significant support for the proposed development as well as some concerns. These concerns were primarily:

- Traffic, namely traffic congestion/ site access;
- Benefit to the community; and
- Site Selection.

The SCI confirmed that many of the comments received from the consultation were positive, with many people generally in favour of the proposals. Benefits were considered to be location, and an acceptance of the need for, and enthusiasm for alternative renewable energy sources. Potential issues and concerns as set out above were explored and addressed by the Acorn team – who provided guidance in line with SLR’s environmental assessment conclusions to date.

The feedback received during the consultation event has been taken into consideration during the preparation of this planning application and it is hoped that the information provided herein provides answers to questions raised.

1.7 Environment Agency engagement

All anaerobic digestion facilities in England, which treat feedstocks such as manures are subject to the Environmental Permitting Regulations (England and Wales) 2016 and are regulated by the Environment Agency (EA). The proposed Ashton Keynes site will require an Environmental Permit to operate, and an application will be submitted to the EA, who will check to ensure the site design meets the required design standards and that it will be operated to Best Available Techniques (BAT). Once operational, Acorn will work with and be audited by the EA, to ensure compliance.

There will be a written and auditable environmental management system in place that will be followed by all site personnel to prevent risk to the environment from all site operations.

The permit will ensure the Site is operated in a manner which meets the regulatory requirements of:

- Best Available Techniques (BAT) for Waste Treatment guidelines published by the European Commission including Associated Emissions Limits (AEL);
- Biological waste treatment: appropriate measures for permitted facilities²
- The Industrial Emissions Directive (2010)

In operational terms this will ensure the following:

- The working practices and operational procedures of the plant are appropriate and regulated;
- Emissions to the environment will be controlled and regulated to within specified limits;
- That auditable records are kept of all aspects of permit compliance;

¹ <https://www.ashtonkeynesgreenenergy.com/>

² <https://www.gov.uk/guidance/biological-waste-treatment-appropriate-measures-for-permitted-facilities/1-when-appropriate-measures-apply>

- That daily checks are carried out to ensure efficient operation of the plant and compliance with the permit;
- That the Site is managed by a fully trained and Technically Competent Manager (TCM); and
- That all staff and contractors working on site are fully trained and competent to carry out tasks on site.

Acorn is working with Earthcare Technical Limited to apply for the Environmental Permit. Following an initial technical review of the site, pre-application advice was sought from the Environment Agency (Ref: EPR/KP3523PP/A001). The Environment Agency have responded to this and provided advice on nature conservation sites and protected habitats, that will require consideration in terms of Air Quality and the potential impact of emissions.

Owing to the presence of the Cotswold Water Park Site of Special Scientific Interest (SSSI) within 500m of the proposed site boundary and area of deciduous woodland designated as a Biodiversity Action Plan (BAP) priority habitat within 50m of the boundary, the proposed Ashton Keynes anaerobic digestion site will require a Bespoke Permit. In addition, the Site sits within a groundwater source protection zone 2. These factors require that more extensive and detailed information is provided to the Environment Agency for their technical consideration to provide reassurance that these sensitive receptors have been carefully considered and any mitigations are included in the site design and proposed future operations.

Acorn Bioenergy will operate the Site in full compliance with their environmental management systems, the environmental permit and following best practice. They will ensure the plant is also compliant with the Anaerobic Digestion Quality Protocol, the Biomethane Quality Protocol, and the British Standards Institute Publicly Available Specification for Digestate (BSI PAS110).

1.8 Submission Package

The planning application submission package comprises the following:

- Planning Application Forms and Certificates

Planning, Design and Access Statement (this document) with the following supporting technical reports:

- Access Arboricultural Feasibility Report (CBA Trees, November 2022) and Arboricultural Development Statement (February 2023);
- Lighting Assessment (Strenger - February 2023);
- Noise Impact Assessment;
- Statement of Community Involvement (Instinctif Partners – March 2023);

Planning application drawings; and

Application form and certificate(s)

Appropriate reports and assessments have been undertaken to cover all other technical considerations and disciplines, which found that the impacts of the proposed development would not be significant and have therefore been 'scoped out' of the EIA. In this case, Noise has been scoped out of the ES as noise impacts were not considered to be 'significant'. Notwithstanding the above, the results of any non-ES technical reports have been integrated and factored into the other planning application documents i.e., the Planning, Design and Access Statement (PDAS).

Environmental Statement (ES) which contains the following Chapters:

- Chapter 1: Introduction;
- Chapter 2: Site and Surrounds;

- Chapter 3: Project Description;
- Chapter 4: Air Quality (Earthcare Limited) including Air Quality Assessment;
- Chapter 5: Ecology (including Preliminary Ecological Appraisal and Biodiversity Net Gain (BNG) report;
- Chapter 6: Hydrology and Hydrogeology (including Flood Risk Assessment and Drainage Scheme);
- Chapter 7: Landscape and Visual Impact Assessment (LVIA);
- Chapter 8: Land Quality (including Preliminary Land Quality Risk Assessment (PLQRA);
- Chapter 9: Transport (including Transport Statement);
- Chapter 10: Historic Environment (including Heritage Desk Based Assessment);
- Chapter 11: Other Environmental Effects;
- Chapter 12: Conclusions; and
- Non-Technical Summary (NTS).

1.9 Report Structure

Following this introductory section, the remainder of this Planning, Design and Access Statement comprises the following Sections:

Section 2	Site and Surroundings: describes the location, setting and physical characteristics of the Site, describes baseline features in and around the Site and outlines the site history;
Section 3	Design Considerations: explains the rationale for the proposed development, describes the Site selection process, and sets out the design parameters;
Section 4	Proposed Development: provides a process description, describes the AD facility and ancillary infrastructure;
Section 5	Environmental Considerations: describes the specialist environmental studies that have been carried out and summarises their findings. This section is supported by technical appendices;
Section 6	Planning Policy: identifies the development plan and considers material considerations; and
Section 7	Conclusion.

Drawings referred to in the main text are included in this report in **Appendix 01**.

2.0 Site and Surroundings

2.1 Application Site

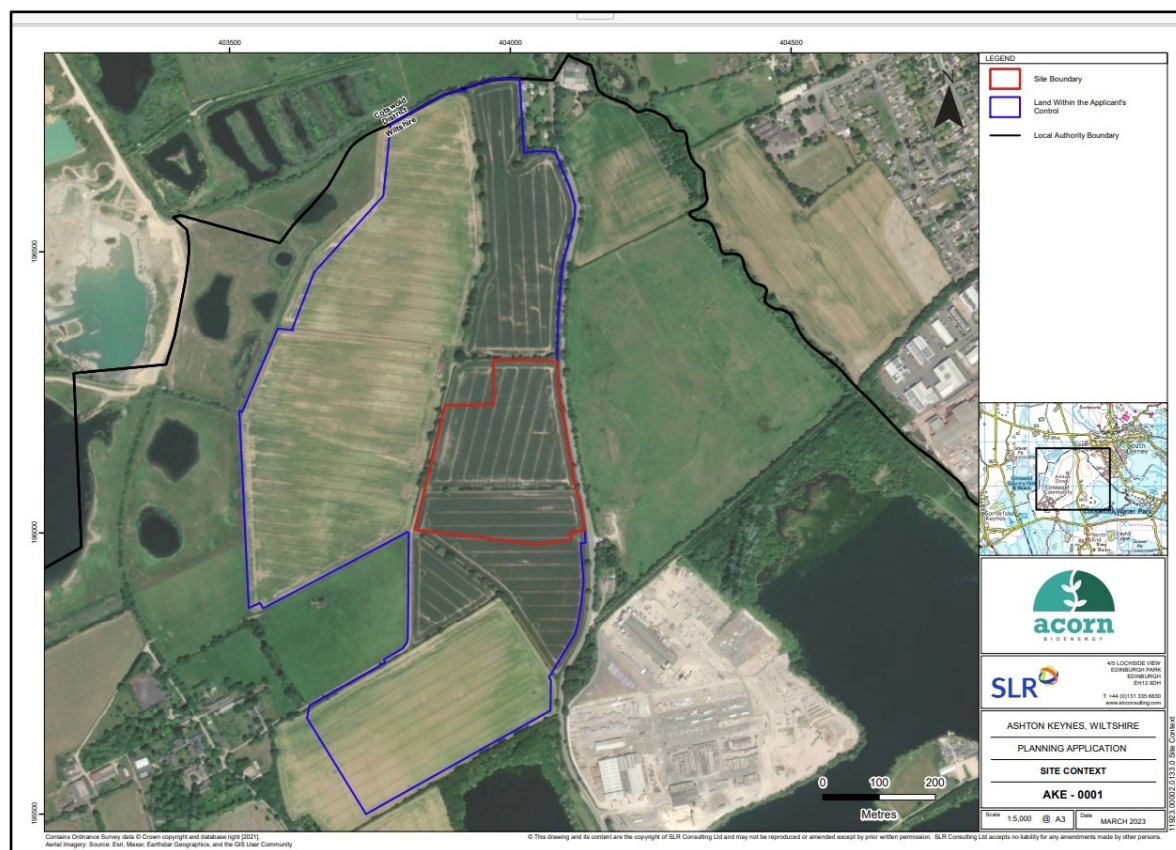
The application site, (the Site) consists of a broadly rectangular field at NGR SU 03993 96195 located immediately west of Ashton Road in an agricultural area, approximately 2km north of the village of Ashton Keynes, Wiltshire.

The Site is formed of one complete field and a portion of a second field immediately to the south, which are bound to the east by Ashton Road. Both fields which form the site are in arable use, and the fields are divided by an intermittent hedge and low trees. A shallow drainage ditch lies on the northern side of the divide between the two fields. The Site is bound by hedges on all sides except the southern boundary which bisects the southern field. Further shallow drainage ditches are present outside the north and eastern boundaries. An unsurfaced access track runs along the outside of the western boundary.

Beyond Ashton Road, to the east, is a previous historic landfill site, which has since been restored to sheep pasture. A derelict barn with livestock holding pens is present in the adjacent field to the northwest of the Site. The barn is constructed of wood and corrugated metal roofing, with some areas of concrete flooring in the holding pens. To the south-east is an Aggregate Industries concrete works.

The wider area around the proposed site is surrounded by a number of inland lakes and wetlands which comprise the Cotswolds Water Park, which is also an ecologically designated SSSI. Figure 2-1 shows the application site (edged red) in the context of the surrounding area.

Figure 2-1 – Site Location



Access and egress will be achieved from Ashton Road, via an upgraded access. Ashton Road has good connections onto the B4696 (Spine Road West) with links to the A419 and Cirencester in the north-east and the wider strategic road network.

2.2 Surrounding Area

The Site is surrounded by agricultural land on all sides. Beyond Ashton Road, to the east, is a previous historic landfill site, which has since been restored to sheep pasture. To the south-east is an Aggregate Industries concrete works.

The site is set within a landscape of similar open fields characteristic of the area, on a wider scale the area is also noted for its large network of the lakes. The lakes, used mostly for leisure purposes make up a network of approximately 170 lakes, creating the Cotswold Water Park SSSI. The villages of South Cerney and Ashton Keynes are approximately 2km away to the southwest and north respectively.

The closest residential properties are located at the Old Farmhouse/ Cotswold Community this is situated to the southwest of the site. There are further residential properties to the north, in a small hamlet situated on the B4696.

2.2.1 Cultural Heritage Designations

Scheduled Monuments:

There are nine Scheduled Monuments within the 5 km Study Area. The closest is a settlement east of Ashtonfields (Cotswolds Community) circa 0.25 km to the southwest of the Site. Three other Scheduled Monuments lie within a 3 km radius include:

- South Cerney castle circa 1.39 km to the northwest
- Hall's Close: a ringwork and bailey 100m west of Kentend Farm circa 1.67 k m to the southeast
- Moated site at Church Farm circa 1.64km to the south

Conservation Areas:

There are a number of Conservation Areas within the 5 km Study Area. These include:

- Preston Conservation Area (CDC) (circa 4.42 km to the northeast);
- Harnhill Conservation Area (CDC) (circa 4.77 km to the northeast);
- Driffield Conservation Area (CDC) (circa 4.44 km to the northeast);
- South Cerney Conservation Area (WC) (circa 0.58 km to the northeast);
- Ashton Keynes Conservation Area (WC) (circa 1.01 km to the southwest);
- Oakesey Conservation Area (WC) (circa 3.75 km to the southwest);
- Somerford Keynes (CDC) (circa 1.97 km to the southwest);
- Kemble Conservation Area (CDC) (circa 4.67 km to the west); and
- Ewan Conservation Area (CDC) (circa 3.34 km to the west).

Listed Buildings

There are several Listed Buildings within a 2 km radius of the Site with a number clustered in South Cerney to the northeast and Ashton Keynes to the south / southeast. The closest Listed Buildings include:

- Four Grade II properties forming part of Cotswolds Community and including Ashtonfields Community Hall and Chapel, Reception Offices, attached staff rooms and Ashtonfields farmhouse lying circa 0.58 km to the southwest of the Site; and
- Walnut Tree Farm (Grade II) circa 0.65 km to the northeast.

2.2.2 Ecological Designations

The site is located within 5km of the following ecological designations:

- Ancient Woodland: There is a small area of Ancient Woodland to the north referred to as Siddington Copse and beyond 2 km radius of the Site;
- Special Area of Conservation: Two SACs lie to the southwest and southeast respectively, 3.2km to the southwest and North Meadow Cricklade circa 4.69 km to the southeast;
- National Nature Reserves: Two lie within 5 km radius, these include Coke's Pit Lake which is also a Local Nature Reserve circa 1.22 km to the southwest and North Meadow Cricklade circa 4.69 km to the southeast and a Special Area of Conservation;
- SSSI: Cotswolds Water Park which wraps around the Site to the south, east and west, the closest point being circa 0.14km to the southeast; and
- Local Wildlife Sites: There are several Local Wildlife Sites throughout the 5 km Study Area. The closest is Shorncote Lake which lies circa 0.42 km to the northwest.

2.3 Site History

From an extensive search of historical mapping, it shows that the Site itself has a continuous history of being an open field, as such, a search of the Wiltshire Council planning portal shows that there is only one planning application (ref: 20/04771/FUL) associated with the Site, this application was for the formation of an agricultural access from Ashton Road in the southeast corner.

The former Cotswold Community area c.500m to the south of the Site has three associated planning permissions:

- 21/02520/REM - Reserved matters application for 75 residential units, replacement of 27 existing buildings and conversion of the four Listed Buildings within the adjoining former Cotswold Community area – approved December 2022; and
- 21/02481/LBC Application for Listed Building Consent associated with above works. Proposed housing layout below, with proposed site to west. Approved December 2022.
- PL/2022/04973 - Variation of condition 2 on 16/02765/WCM to extend the time the land needs to be restored to until 1st July 2023. Approved Sept 2022

There are also two applications associated with the closed landfill to the east of the site, these are:

- N/98/01754/FUL for the relaxation of condition attached to N/76/0885/F reinstatement of gravel pit to agriculture by filling with imported materials; and
- N/91/02747/FUL for the relaxation of condition no.2 attached to permission N/87/1574 to permit the importation of dry non-hazardous & commercial waste.

3.0 Application Rationale

3.1 Site Selection

The Environment Agency's guidance on facilities such as the proposed AD facility states that sites should not be within any of the following:

- groundwater source protection zone 1;
- 10 metres of a watercourse;
- an Air Quality Management Area (AQMA); or
- 200 meters of a sensitive receptor (unless the stack height is greater than 7m (or '3m effective height').

Additionally, the best and most versatile agricultural land should be avoided at risk from flooding. The application site meets the criteria set out above and is classified as Grade 3 agricultural land which is 'good to moderate quality' arable land. The site is also situated in a Flood Zone 1 meaning that there is a low risk of flooding.

AD facility location is primarily driven by key objectives of a rural location with good access to the local transport network and established feedstock providers whilst also ensuring that primary infrastructure components, specifically the digester dome tops, are well-screened to retain characteristic rural amenity of the surrounding landscape. The key constraints which were taken into account during the design process included:

- landscape character and visual amenity;
- location of residential properties – proximity to noise sensitive receptors;
- presence of protected habitats and species;
- potential for traffic, transport, and access effects;
- presence of archaeological and cultural heritage features;
- presence of watercourse and associated flood risk (including surface water);
- key recreational routes and other land users; and
- presence of existing utilities including power lines, pipeline, and telecommunications links.

In addition, Acorn's site selection criteria requires the site to:

- be within close proximity to the primary sources of feedstock including energy crops and manures produced on the surrounding agricultural land;
- be within sufficient proximity to the local road network for feedstock deliveries and biomethane, CO₂ and digestate removal;
- have local power grid connection as a back up to the on-site electricity generation; and
- be capable of meeting planning and environmental criteria to avoid adverse amenity impacts, visually screened where feasible from sensitive views, and minimising impacts on flora and fauna.

3.2 Design Principles

The layout and design of the proposed development was considered as part of an iterative design process aimed at reducing the potential environmental effects, whilst accommodating operation and commercial requirements.

3.2.1 Embedded Mitigation

Considerable efforts were made to produce a site layout which achieves the most satisfactory relationship with the landscape of the Site whilst respecting other environmental and technical considerations. During the EIA Screening Process, the multi-disciplinary team met to discuss the various issues which were identified as part of the initial constraints screening process. The team identified the optimal locations for each type of infrastructure component, i.e., electrical, CHP, tall storage tanks, rainwater detention ponds, digestate lagoons etc.

Mitigation of the potential effects of the proposed development of the proposed development has been predominantly incorporated through the iterative design process. Changes made as a consequence of this iterative design process include the provision of offsite planting to further reduce views into the site, access design and planting and technical consideration of potential impacts on residential properties (i.e., air quality and noise) are considered to be embedded mitigation.

The findings of the technical and environmental studies undertaken for the planning application were used to inform the design of the proposed development, and hence achieved a 'best fit' within the environment of the proposed site.

In summary, the proposed development site has been identified as occupying a suitable and sustainable location for the development of an AD facility and associated infrastructure, close to the primary source of feedstock and well located for access to the B4696 and the surrounding road networks of Wiltshire.

4.0 Proposed Development

4.1 Overview

The application site comprises approximately 6.99ha of arable, agricultural land and includes for an upgraded access point, to provide suitable access from Ashton Road.

The proposed development would accept in the region of 91,000 tonnes of feedstock from local farms per annum.

The AD facility would have the capacity to produce approximately 17,456, 073 Nm³ of biogas per annum; this would result in approximately 9,815,904 Nm³ of upgraded biomethane. A second output of the anaerobic digestion process is digestate, which would be used in place of raw manures and artificial fertilisers. The AD process would also result in the production of a CO₂ rich natural by product. This is normally vented by AD plant operators, where the main goal is the production of biomethane. However, Acorn sees this natural by-product as a precious resource, and all their AD plants will be fitted with equipment to upgrade the CO₂ to 99.9% purity, suitable for almost all industrial and commercial applications in the UK. Upgraded CO₂ will be liquified and transported by road to end users, ideally located locally.

In addition to the biogas, the AD process also produces a nutrient rich solid fertiliser and soil conditioner and a liquid fertiliser (digestate), which would be used on local farms in place of raw manures and artificial fertilisers. The AD process would also result in the production of 13,714 tonnes of carbon dioxide (CO₂) per annum, as a natural by-product.

The proposed development would provide enough green gas to meet the heating demand of 8,700 UK households, based on 12.3 MWh/y per household.

The proposed development would consist of a range of new buildings and structures, hardstanding, soft landscaping and attenuation and conveyance features to discharge surface water run-off to the highways ditch that is present along the eastern boundary.

Key components of the Proposed Development are shown in the Site Layout Drawing ref 29419/P/101 and include:

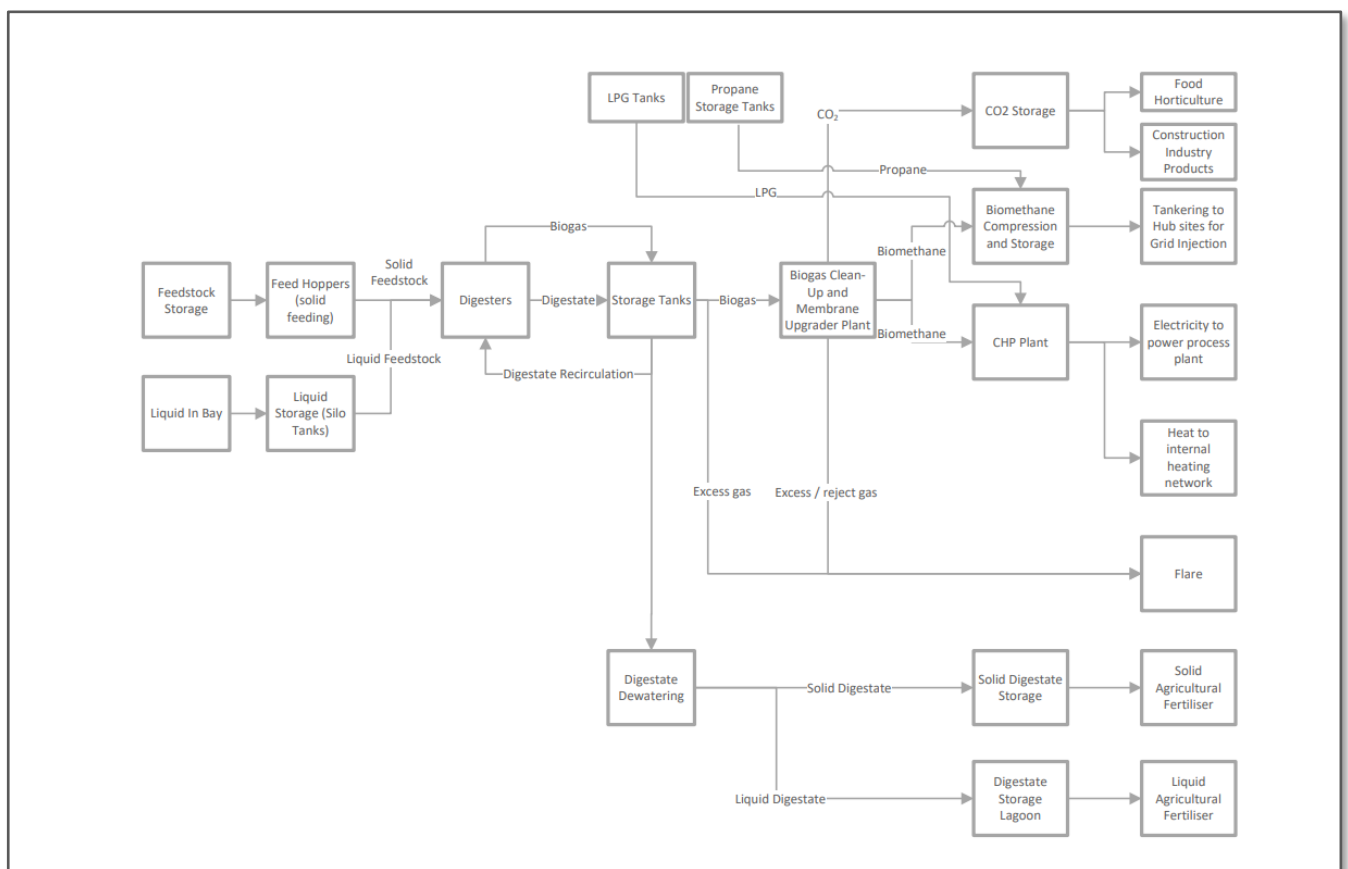
- Five large digester tanks with the storage capacity of 35,000m³ with six smaller tanks, pump building and three feed hoppers;
- Two digestate lagoons with a combined storage capacity of c.20,000m³;
- Two Silage clamps measuring 101.25m x 35.0m x 3.52m;
- Silage clamp measuring 123.75m x 35.0m x 3.52m;
- Rainwater harvesting lagoon c.2,000m³;
- Chicken Shed at 26.0m x 19.5m;
- Straw building at c.30m²;
- Buried Propane Tank;
- Separator building;
- Two offices;
- HGV Trailer bays;
- Gas flare;

- Boiler;
- Chiller;
- Pump unit;
- Trailer Earth System and Filling Dispenser;
- CO₂ Tank;
- Biogas upgrade plant;
- Heat exchanger;
- Tech Container;
- Weighbridge; and
- Earth bunds.

4.2 Process Description

Figure 4-1 presents the AD process, which is further explained in the text below.

Figure 4-1 – AD Process Diagram



The feedstock would be brought to the AD facility from the applicant's land and surrounding farms using tractors and trailers and HGVs or tankers, depending on the type of feedstock. All vehicles would access the Site via the weighbridge, where the weighbridge operator would record the type of feedstock and tonnages.

An indication of the likely feedstock is set out below. However, it is important to note that the availability of different feedstocks can fluctuate as a result of local and national economic conditions. For example, livestock units are currently very vulnerable to high feed and energy costs and low meat prices. Therefore, the volumes of locally available slurry, manure and litter may be reduced at certain times during the operation of the AD facility.

- silage (rye, maize, and grass silage);
- straw;
- dairy slurry; and
- poultry litter and farmyard manure.

The proposed feedstock would be c.70% crops and c.30% agricultural by-products (e.g., manures). The crops (which includes straw and silage) would all have an economic value and therefore could not be considered to be waste. There are no foodstuffs included in the proposed feedstock mix.

In addition to the biomethane, the AD process also produces a nutrient rich solid fertiliser and soil conditioner and a liquid fertiliser (digestate), which would be used on local farms in place of raw manures and artificial fertilisers. The digestate is a product of the AD process and has a value as a fertiliser so also could not be considered to be waste.

Feeding System

Feedstock would be unloaded into the silage clamps, the manure shed and the straw bunker as appropriate.

Crop silage and grass would be unloaded and stored in the silage clamps, which would be constructed with pre-cast concrete sloping wall panels that are filled with earth for additional strength. The clamps will have a hard wearing and acid resistant rolled asphalt floor and be fitted with a protective sheet to preserve the feedstock and reduce odour. The clamps will have a liquid drainage and collection system for dirty liquid run-off, and this would be pumped directly into the buffer tanks for feeding back into the process. Loading shovels would be used to transfer the crop silage from the clamps to the feed hoppers, which would be equipped with walking floors. Loading shovels would also be used to transfer feedstock from the manure shed and straw bunker into the feed hoppers.

The macerator would mechanically crush, homogenise and defibre the solid feedstock through shear forces rather than shredding. The feed screw pump also functions as a mixing pump, allowing captured rainwater or digestate required for dilution to be mixed with feedstock. Use of a macerator for pre-processing improves the digestibility of the solid feedstocks. The processed straw will then be fed into the digestion tank.

Liquid feedstock (farm slurry) would be transferred from a tanker through the liquid in-bay to a series of liquid feedstock storage tanks via the tanker connection point. Liquid feedstock would be transferred from the liquid feedstock storage tanks to the digester via a transfer pump.

Digestion

Within the series of digester tanks, the feedstock would undergo anaerobic digestion, a sequence of processes by which microorganisms break down the feedstock material in the absence of oxygen. Material in the feed hoppers and liquid feedstock storage tanks would be transferred to the digester tanks where it would remain for a minimum of 50 days to maximise the biogas potential from the feedstock.

Each digester would be equipped with submersible mixers to create uniform mixing. There would be a series of pipework entering and leaving the digesters including substrate, digestate, biogas, air, liquid digestate recirculation, and condensate. An optimum temperature of between 38-42°C would be maintained within the digesters through use of the internal heating system which would be supplied with heat from the on-site CHP via the heating manifold. Digestate would be heated to a temperature of 70 °C for 1 hour in the pasteurisation plant to ensure it is safe to spread to land.

The digesters would be fitted with a double layer, self-supporting membrane dome with to store the biogas. The membrane dome would be supported at all times by using air blowers to inflate the void between the two membranes.

From the membrane domes, the biogas would be pumped into the gas cleaning unit, so that it is suitable for injection into the gas grid.

Storage and Digestate Separation

The digestate held within the storage tanks would be transferred to the digestate separation process for dewatering. The digestate would be temporarily stored in a header tank for flow regulation before being transferred to the screw presses via a series of screw pumps. The dewatered digestate would be stored in a storage bunker and the liquid digestate would flow to two covered liquid digestate storage lagoons with a capacity of 10,000m³ each. The lagoons will comprise a reinforced HDPE liner with a floating HDPE cover, with a leakage detection and geotextile protective lining. This protective lining will sit within a bunded earthen lagoon wall and will have a free board of 750mm. This will ensure the agronomic benefits of the odourless digestate are maximised for local arable crop rotations and will be in full accordance with Environment Agency regulations and best practice guidelines.

The liquid digestate would be stored on site until it can be used as an agricultural fertiliser on surrounding land. This reduces the need to import artificial fertilisers. The solid part of the digestate would export by tractor and trailer for use on surrounding farmland. In addition, the potential to provide pipelines directly to enable spreading on neighbouring farmland is being investigated. This would enable the digestate to be piped directly to the land upon which it can be spread, avoiding the use of road transport. From there it could be spread with an umbilical system at the appropriate times of year.

Biogas Clean-up and Membrane Upgrading

Biogas held within the storage tanks would be processed through the biogas clean-up plant. The biogas clean-up and membrane upgrading plant would remove impurities within the biogas stream to produce biomethane and carbon dioxide. Contaminants include hydrogen sulphide, carbon dioxide and water vapour.

There would be sulphur nets in each digester which would convert hydrogen sulphide to elemental sulphur. Pre-treatment to remove contaminants would be required prior to biogas entry into the CHP and gas upgrader to remove contaminants.

The next step in the upgrading process would be to convert water vapour present in the biogas stream into a liquid through a condenser. In the condenser, cold utility fluid would be used to decrease the temperature of the biogas, promoting condensation of water vapour. Water vapour removed from the biogas would flow to the digestate storage lagoons.

Lastly, a membrane upgrader would be used to separate the methane present in the biogas from the carbon dioxide by only allowing methane molecules to pass through a permeable membrane, based on the operating conditions and membrane specification. Carbon dioxide would be recovered and stored onsite for offtake by end users in the food horticulture and construction products industries. Water vapour removed from the biogas would flow to the digestate storage lagoons.

Electricity Generation

The AD plant would have two CHPs; one 1,580kW thermal input CHP fuelled by biogas from the digestion process producing 635kWe, and one 3,508kW thermal input CHP fuelled by imported natural gas producing 1,506kWe.

Heat produced from the CHP plant would be diverted to the digesters through the Site's heating manifold to improve process efficiency.

Biomethane Storage, Transport and Upgrading

Biomethane would be produced at the Site and delivered via a road tanker to an injection point where it would be compressed and cooled prior to injection into the national grid through a Grid Entry Unit.

Excess gas which cannot be used in the CHP plant, storage and transport, or through the grid entry unit would be fed back through the domes and captured. An emergency gas flare would be installed towards the southwestern boundary of the Site, 10m from all structures and planting. The purpose of the emergency flare is to prevent build-up of pressure in the gas store in the event of a breakdown or power cut. This is required because the AD process is based around bacteria which will continue to create the biogas despite a breakdown or power cut.

The gas flare will be completely shrouded and will meet Environment Agency Best Available Technology Guidance. This means it will burn up the gas at 1000 degrees centigrade, to prevent air pollution and the flame will be completely hidden from view. It will only be used when the CHP and the gas clean-up equipment is undergoing scheduled maintenance or in case of break down or emergency.

Water Management

As the AD process can be water intensive, the proposed AD facility would capture as much rainwater as possible for use in the process. Based on annual average estimates, rainwater capture is expected to be sufficient for approximately 100% of the process water demand. Two primary drainage systems will be adopted, for the clean (surface water runoff) and contaminated (foul) water systems.

Accordingly, the Site has been designed to have a clean rainwater lagoon (detention pond to the south east) to store rainwater and clean surface water runoff. Water would be pumped from the attenuation pond back into the AD process or if necessary, could be discharged at greenfield rates into the highways ditch at the proposed outfall.

Operational Hours

The AD process involves a biological process that is continuous. The processing plant would therefore be operational 24/7. The facility would be staffed as required during the hours of 07:00 – 18:00 Monday – Sunday, except during peak harvest periods when working hours would be extended as necessary.

A supervisory control and data acquisition (SCADA) system would monitor the facility overnight when it is not manned.

Deliveries of crops to site would be determined by the harvest. Harvests are ordinarily completed on a campaign basis, therefore during the peak harvest periods, delivery hours would be in line with standard agricultural harvest-time activity.

Vehicle movements relating to delivery of agricultural by-products and export of digestate would generally be limited to the following hours:

- Monday – Friday 07:00 – 18:00; and
- Saturday 07:00 – 13:00.

Export of the biomethane would take place once every 12 hours, including overnight. There will also be a number of CO₂ HGV trips, but these would be 1 to 2 per day over the year.

Description of biomethane trailer swap

After biogas has been upgraded into biomethane it is compressed to 200-300 bar and dispensed into gas container modules. A full module contains around nine tonnes of compressed biomethane. It takes about 12

hours to fill one module. When a module is full it is transported by road to the injection hub and ‘swapped’ with an empty module that has returned from the hub. The process of filling the new empty module then begins again, and the cycle continues with another ‘swap’ taking place roughly every 12 hours.

Site Construction

The construction process would be managed to ensure minimum disruption during the construction period. The process would be managed in accordance with construction good practice including the recommended management and mitigation measures out in the relevant technical reports accompanying this planning application. All appropriate health and safety management systems would be put in place.

A Construction Traffic Management Plan (CTMP) would set out measures for managing the following:

- setting out of site entrance and interface with traffic on Ashton Lane;
- traffic management including routeing and timing of deliveries, including any abnormal load requirements;
- vehicle/plant/delivery schedule;
- staff parking to be accommodated within the site, away from the public highway
- provision of lorry parking and turning areas within the site;
- signs and instructions;
- protection of tree and hedge root protection zones; and
- visibility.

It is expected that construction of the proposed development would take approximate 70 weeks. Approximately 7,200 HGV deliveries would be required during the construction of the proposed development. This would equate to an average of approximately 27 HGV trips per day, across a 275-day year. In order to minimise traffic impacts on Ashton Road, the construction site access junction would be constructed prior to the main construction phase commencing.

It is proposed that construction activities, including deliveries, would be limited to 7am to 7pm Monday to Friday, with reduced hours on Saturday for the duration of the construction period. There would be no construction activities undertaken on Sundays or bank holidays without prior approval, unless in the case of emergency.

4.3 Employment

The AD facility would generate approximately 100 FTE jobs spread over the construction period and five FTE jobs during operation. The temporary increase in employment and the associated secondary economic effects such as supply chain multiplier effects, and spend on local services, would have positive effects at a local level during the construction phase.

4.4 Description of Components

The primary components of the proposed development are shown on the accompanying drawings and would include the items of plant set out in Table 4-1. The AD facility would be located on agricultural land belonging to the applicant and used to manage approximately 91,000 tonnes of agricultural feedstock per annum.

The feedstock would be transported to site in HGVs and tractors and trailers from surrounding farms and once at the site, would undergo a process of controlled decomposition (anaerobic digestion) within the AD facility.

Table 4-1 Description and Dimensions of AD Facility Components

Element	Description of Equipment/Plant	Dimensions	Drawing Ref Number
Slurry Tanks, Pre-Tanks, Dirty Water Tanks	Storage of liquid feedstocks contaminated dirty water run-off to be reused in the process. To be clad in green or an alternative colour agreeable to the LPA.	Total 3no each measuring 8m x 8.m and 3no each measuring 6 x 8 .	29346-1001 - Liquid Storage Tanks A & B – Plans, Sections and Elevations as proposed
Chicken Manure Reception Shed	Storage of poultry litter and farmyard manures. To be partly clad in green under a fibre cement roof or clad using an alternative colour agreeable to the LPA.	26.0m x 19.5m x 6m to eaves, 8m to ridge.	29346 – 1007 Chicken Litter Building Sections and Elevations as proposed
Straw Building	To be partly clad in green under a fibre cement roof or clad using an alternative colour agreeable to the LPA. Eastern stretch of straw storage building including bunker and processing.	48.0m x 15.7 x 6m to eaves, 8m to ridge 18.7m long x 12.0m wide.	29346 - 1014 Rev A Straw Bunker Building
Silage Clamps (x3)	The three silage clamps will be constructed with pre-cast 3.53m high concrete panels that are filled with earth for additional strength. The clamps will have a hard wearing and acid resistant rolled asphalt floor. The clamps will have a liquid drainage and collection system for dirty liquid run-off. This will be pumped directly into the dirty water tanks for feeding back into the process.	Clamp 1 & 2 - 101.25m long x 35m wide x 3.52m high. Clamp 3 – 123.75m long x 35.0m wide x 3.52m high.	29419 /P/2022 Rev A Silage Clamps Sections and Details
Feeder Hoppers (x3)	Feedstock is fed into the feed hoppers as per the sites feeding plan. Once the feed is loaded it exits and proceeds for further feed pre-treatment before pumped to the digesters. To be green or an alternative colour agreeable to the LPA.	3no Approx area 220m ³ each.	
Digester Tanks / Fermenters (x5)	Tanks take feedstock, pumped from upstream processing equipment, with sufficient dry matter content. Digester tank configuration allows for a retention time, with the substrate within the digesters mixed by agitators and recirculated. Generated biogas will flow to the digester	Storage operational capacity of each 41,000m ³ ; straight wall height of 9m with 7.6m gas dome; 34m diameter; max height approx. 17m high.	29346-1000 Rev A - Fermenter Tank - Plans, Sections and Elevations as proposed.

Element	Description of Equipment/Plant	Dimensions	Drawing Ref Number
	headspace before treatment to downstream equipment. To be clad in green or an alternative colour agreeable to the LPA.		
Pasteurisation Tanks (x4)	The pasteurisation tanks would treat the fermented feedstock prior to it being pumped into the digestate lagoons.	4 x 25m ³ tanks approx. 3m diameter x11 m high (top of agitator).	
Separator Building	The separator within the building would extract solids from the digestate before it is pumped to the digestate lagoons.	18m x 15m x 6m to eaves, 8m to ridge.	29346-1006 - Separator Building – Plans, Sections and Elevations as proposed
Digestate Lagoons (x2)	The lagoons will be used to store the liquid digestate until it can be spread on to land. The lagoons will be covered in line with Environment Agency (EA) requirements.	Storage capacity 2 x 10,000m ³ .	
Gas Flare	For infrequent use during maintenance to burn off any excess gas.	Stack height 9m. Flue diameter 2.4m. Footprint 5m x 4m.	
Biogas Upgrade Unit	To clean and pressurise the gas prior to transfer to the gas grid. CO ₂ vent is connected from gas upgrade unit to the CO ₂ capture Unit	Footprint 26 x 9m x 3m. (2 no. iso containers and associated equipment). Vent height 7.5m.	
CO ₂ Capture Unit	Captured CO ₂ to be transported on road tankers for utilisation or storage.	Process plant - approx. 10m x 16m x 4.75m	
CO ₂ Tanks (x2)	Storage vessels for captured CO ₂	2no, 13.2m long x 3m diameter x 3.4m high (including plinth).	
Combined Heat and Power (CHP) Units (x2)	To provide the AD facility with power and heat. One unit would be fuelled by biogas from the digestion process and the other by imported natural gas. To be clad in juniper green or an alternative colour agreeable to the LPA. Associated equipment includes heat exchangers and pumping systems.	CHP1 – 13m x 3m x 3m, stack 9m; CHP2 – 13m x 3m x 3m, stack 9m; (Plus, associated equipment).	
Compressors (x2)	Compression of gas before injecting into road tankers.	Each – 2 no, 13m x 3m x 3m, stack 9m plus associated equipment.	

Element	Description of Equipment/Plant	Dimensions	Drawing Ref Number
Compressed Gas Storage (x2)	Storage vessels for compressed gas	2 x banks of gas storage, each 6.5m x 3m x 3m	
Propane Tank (x1)	The propane tanks will add propane to the biomethane gas as required.	25ft below ground tank	
Biomethane/CO ₂ off-take vehicle bay (x5)	Loading bay area for tanker parking		
Containment Bund	Civil engineering works on site related to the primary containment construction to current CIRIA guidance and recommendations.	Circa 12,119m ²	
Remote lagoon offtake bay	HGV bay for extracting digestate.	1 no, offtake station for HGV.	29419 - 101 Rev F - General Arrangement
Parking Area	6 bay car parking area for visitor car parking in office area.		29419 - 101 Rev F - General Arrangement
New Site Access Roads	70m long on site hard surfaced access road	70m long.	29419 - 101 Rev F - General Arrangement
Pump room container	Contains pumps to facilitate substrate/digestate between the final storage tank and digesters. Feed dosing undertaken here along with heat distribution systems to main equipment.	1no. inside containment bund and 2no outside containment bund 13m x 3m x 3m.	
Rainwater Harvesting Lagoon (underground storage crates)	The development shall drain hardstanding by gravity into a below ground crate system to attenuate all runoff onsite. Water will then be pumped to a conveyance rainwater lagoon and discharged at greenfield rates into the highways ditch at the proposed outfall.	Circa 2,000m ³	Drawing SW2: Surface Water Drainage Strategy in Flood Risk Assessment.
SCADA Alarm Monitoring Systems	Supervisory Control and Data Acquisition (SCADA) system will provide an interface for the operator to control the plant, and capture/record all data produced by the process.	N/A	N/A
Site Boundary Fence	2.4m high v mesh fencing installed around the core site. Deer/wildlife fencing installed around lagoons. Double leaf vehicle access gates	Around the redline site boundary	29419/P/2016 Rev A Fencing and Gate Details

Element	Description of Equipment/Plant	Dimensions	Drawing Ref Number
	and a pedestrian access gate will allow entry into the Site.		
Weighbridge and Site Office Welfare Office Unit (x2)	To record incoming and outgoing deliveries	4 x 40ft containers on top of each other.	29419/P/115 Rev A Welfare Office Internal Layout 29419/P/116 Rev A Welfare Office External Layout
LNG tank, vaporiser, and pump	To provide a back-up supply of natural gas into the CHP.	(if used) LNG tank of 13.7m x 2.4m x 2.6m plus associated equipment.	

4.5 Site Layout

The application site is approx. 6.99 ha and details of the size of plant and buildings proposed are set out in Table 4 -1 above as well as the drawings which support this planning application. The scale of the development is dictated by the process undertaken at the proposed facility, and every attempt has been made to ensure the layout effectively apportions the scale of development across the site and that sufficient screening is proposed to minimise any visual impact.

Figure 4-2 depicts the Site Layout, (GGP Consult Drawing 29419 -101 Rev F- Site Layout Plan).

Figure 4-2 – Site Layout Plan



4.5.1 Planting /Landscaping

The Proposed Development would result in the loss of the following landscape elements:

- Approximately 261 linear metres (1m) of hedgerow (Category C hawthorn) which runs east west across the Site and a section of a mixed native hedgerow alongside Ashton Road would be removed to accommodate the covered lagoons, new site access and visibility splays to the south.
- Four ash trees: One ash tree (Category C1 T1) located within the east west hawthorn hedgerow would be removed to accommodate the covered lagoons and three ash trees to the south-east of the Site along Ashton Road would be removed to improve visibility along the access road.

To mitigate for the lost trees and hedgerows and to screen views into the site and enhance biodiversity, a significant amount of new planting is proposed as shown in the Landscape Strategy (Figure 6), prepared as part of the Landscape and Visual Impact Appraisal (LVIA) which supports this planning application.

The overall strategy is to maintain and enhance the existing landscape structure of woodland blocks, with hedgerows and trees to contain and integrate the proposed development into the wider landscape. The Landscape Strategy is shown in Figure 4-3 below.

Figure 4-3 - Proposed Landscape Strategy



Proposed mitigation planting and management include the following:

- Offsite measures which would allow the existing hedgerows and hedgerow trees to be retained and managed with additional emergent trees maturing. The aim would be to increase the height of the hedgerow to a height of 2.5 to 3m. Any gaps would be infilled with native trees and / or shrubs and any non-native invasive plant species would be removed, as appropriate. This includes the hedgerow to the north and east of the Site as well as new native hedgerow planting to the north-west and south-west of the Site to provide visual screening. Planting and the management of such planting is covered under a Memorandum of Agreement between Acorn and the landowner.
- New native tree and shrub planting (covering approximately 0.82 ha) in the form of both a linear belt of trees to the north, west and south-west of the arc clamps and covered lagoons with smaller copses around the lagoons to the south. Tree and shrub planting would provide long term visual screening for adjacent users of the PRow. Additional individual native trees (7 no) would be introduced in tighter locations where the width between structures is insufficient to establish a belt of trees.
- 228 linear metres of new native species-rich hedgerow with trees (approximately 18 in no) would be introduced to the north-western edge of the Site linking with existing hedgerows. This would provide beneficial screening for visual receptors along the local rights of way network to the north, west and south-west. The hedgerow would be planted at five plants per linear metre and once established the aim would be to increase the average height and width of woody growth to greater than 1.5m along length of the hedgerow, with at least one mature tree per 30m stretch. Access to hedge bases would be managed (restricted) to improve habitat value; and
- 1.34 ha of shade tolerant species rich grassland within the remaining perimeter standoffs and buffers, where space allows to improve overall biodiversity, with 0.14 ha of wet grassland along the embankments of the land drain to the southwest and south of the Site.

4.5.2 Fencing

The AD facility would be enclosed by means of Protek anti-climb fencing around the core site (or similar). Deer/wildlife fencing would be installed around the perimeters of the lagoons. Double-leaf vehicle access gates and a pedestrian access gate will allow entry into the Site. CCTV may be required, and its location would be carefully considered within the design parameters.

4.6 Operational Life

For the purposes of the technical assessments, it has been assumed that the AD plants would have a lifetime of c.25 years.

4.7 Lighting and Security

Artificial lighting will be required for work during periods of reduced daylight availability and darkness, to meet safe passage, security and health & safety requirements. The associated potential obtrusive light effects towards surrounding light sensitive receptors would be minimised through the controlled application of lighting in accordance with current best practice. In order for the Proposed Development to operate safely, it will be necessary to illuminate the site to reasonable workplace lighting standards, balanced with obtrusive light level limits.

An external Lighting Assessment has been undertaken by Strenger³ to quantify the impact of artificial light associated with the proposed development on its surroundings.

³ Ashton Keynes Lighting Assessment prepared by Strenger – February 2023

The assessment should be read alongside the following drawings:

- SK-01 Residential Receptor Location Plan;
- SK-02 Assessed Scheme of Lighting; and
- SK-03 Light Spill.

A full copy of the Lighting Assessment accompanies this application.

The Lighting Assessment concluded that *“Based on the Assessed Scheme of Lighting, it has been demonstrated that the proposed development will be compliant with the residential receptor criteria as set out in the Institution of Lighting Professionals (ILP) Guidance Note 01/21: The Reduction of Obtrusive Light. Specifically, the assessed lighting associated with the Proposed Development is compliant with the obtrusive light criteria as set out for ILP Environmental Zone E2, for which, the obtrusive light criteria are as follows:*

- ‘Light intrusion’ limit of 1 lux (Ev - vertical illuminance)
- ‘Glare’ limit of 63 to 500 cd (I - source intensity)
- ‘Sky-glow’ limit of 2.5 % (upward light ratio)

Lighting Mitigation

The following mitigation measures are integral to good lighting design, and have therefore been included in the Assessed Scheme of Lighting as a matter of course:

- the use of luminaires with zero direct contribution to upward light;
- adopting zero-degree luminaire uplift angles;
- careful aiming and positioning of luminaires;
- careful selection of luminaires;
- the use of light spill shields;
- the use of lower output luminaires bounding potentially light-sensitive ecological receptors;
- the use of optimal light distributions for their specific location and orientation;
- optimisation of mounting heights;
- the use of presence detection controls and zoned switching;
- a 365-day timer clock and photocell controls;
- using the lowest colour temperature light sources practicable (3000K generally & 4000K for explosive atmosphere luminaires but only where 3000K is not available);
- the adoption of the lowest intensity LED modules practicable; and
- minimising the task illuminance level.

The following mitigation measures have been adopted in the design and planned operation of the proposed development:

- embedded by design, the siting of areas requiring a high level of illumination away from potentially light sensitive ecological receptors; and
- by risk-assessed design & operation i.e., not lighting the site access road mouth.

SCADA Alarm Monitoring System

The AD facility will include a control system linked to a Supervisory Control and Data Acquisition (SCADA) system which provides an interface for the operator to control the plant and captures and records all the data produced by the process. The control system would control all aspects of the process and send out performance and error alarms to the operator.

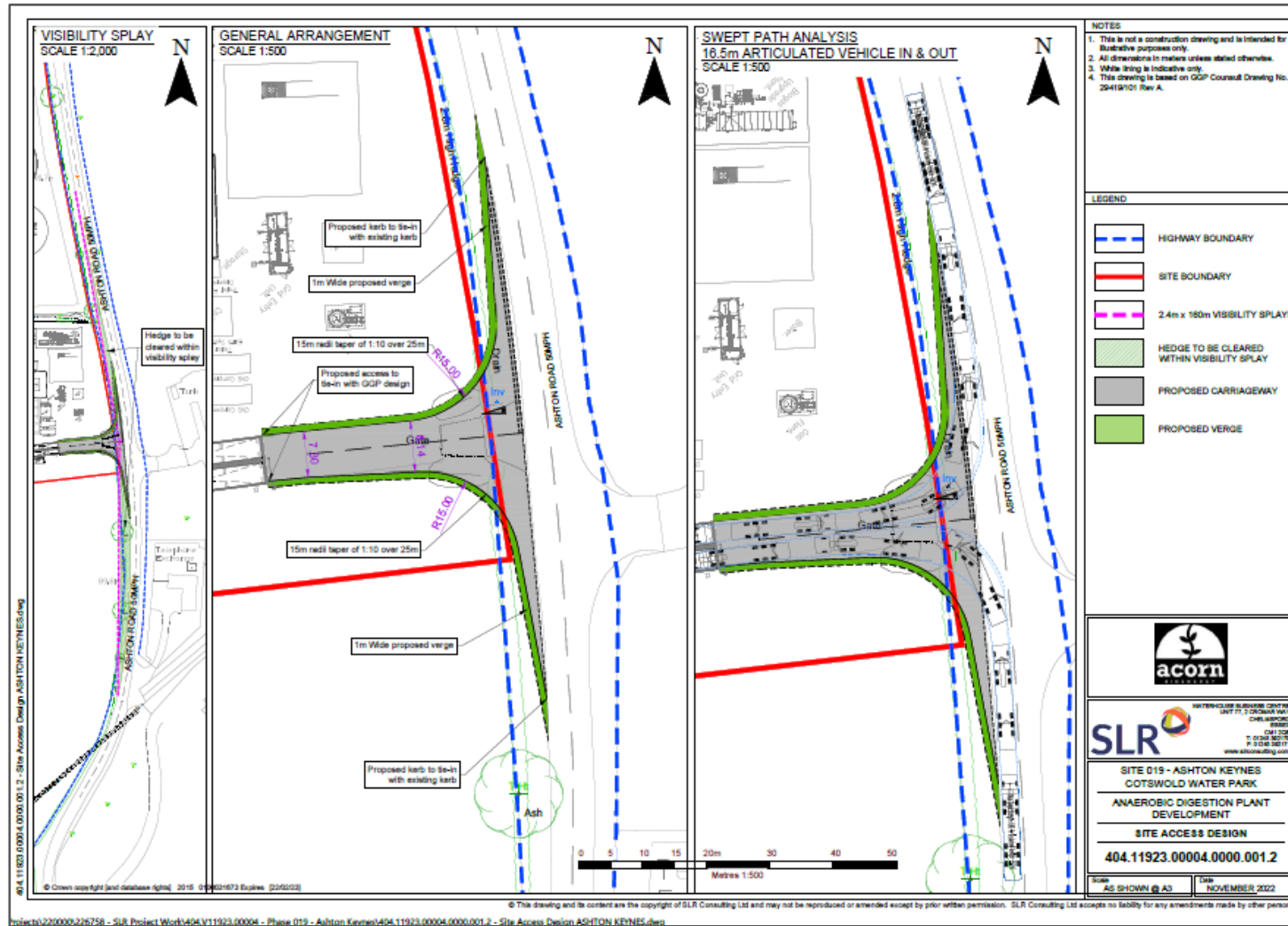
4.8 Vehicular Access

Good access to the highway network was an operational requirement of the proposed development. The access rationale and relevant local plan policies are provided in the accompanying Transport Statement and discussed further below.

Access to the Site would be via an upgraded access at the location of the existing farm access on Ashton Road. The proposed site access junction has been designed in accordance with CD123 DMBR, as a simple priority junction with a 15 metre radii and tapers at 1:10 over 25 metres. The design has been assessed in terms of HGV swept-paths; the access drawing includes swept-paths for a maximum sized articulated lorry which demonstrates that this worst-case vehicle can access and egress without any issue. Critically, it demonstrates that an HGV can gain access to the site whilst another HGV waits to exit.

Junction visibility splays are illustrated on the proposed site access design at Drawing 03 of the Transport Statement, which demonstrates that the necessary splay extends across highway land providing the necessary 2.4 x 160 metre splays. Figure 4-4 presents the proposed site access design.

Figure 4-4 - Proposed Site Access Design



4.9 Vehicle Movements

The Transport Assessment and Transport Statement contained in Chapter 9 of the ES provide a full assessment of vehicle movements.

Due to the nature of the AD facility feedstock, the proposals are likely to result in a varied traffic HGV traffic generation across the year. The traffic forecast in the Transport Statement indicated that for the majority of the year (10 months) the proposed development would generate 38-44 HGV/tractor trips per day associated with local farming operations, which equates to 76-88 HGV/tractor movements. On the basis of a 10 hour working day and an even traffic profile, this level of traffic would equate to an average of 4-5 loads or 8-10 movements per hour.

Proposed site traffic generation levels would then peak associated with seasonal harvest periods. This would likely be restricted to two weeks in June and July (Rye Silage) and two weeks in September (Maize Silage). Predicted traffic levels would peak for two weeks in June and July with up to 80 HGV/Tractor trips per day, which equates to 160 HGV/Tractor movements; a lesser peak is forecast to occur in September and October with up to 72 HGV/Tractor trips per day, which equated to 144 HGV/ Tractor movements.

Additionally, there would be some light vehicle trips associated with staff and visitor movement. Whilst the proposed site traffic will be new to the application site, a large proportion of the generated movements would already be on the wider local network as the proposed AD Facility will service existing local farms which have an existing traffic generation.

4.9.1 Parking

Parking spaces and manoeuvring spaces has been carefully considered to ensure that no vehicles would need to queue to get into the Site. Six car parking spaces are proposed, close to the site office.

The proposed access road would have significant internal length serving traffic between the site and the highway. This would provide a high level of potential internal vehicle queuing capacity, ensuring that no stacking back onto the highway would occur.

4.9.2 Materials and Appearance

The design of the proposed AD facility has been carefully considered so as to ensure that the appearance of the proposed AD facility blends into its rural setting as much as possible. Design measures include the careful consideration of colour palette to integrate structures within the surrounds (see application drawings for detail), careful siting of development infrastructure within the site, and the careful use of external lighting.

4.9.3 Fuel Storage

The proposed fuel storage area would be bunded with a capacity of at least 110% of the largest tank.

5.0 Environmental Considerations

The section below provides an overview of the scope and results of the technical assessments which have been undertaken to support the planning application. The assessments are provided in full as part of this application.

A summary of the scope and findings of the technical assessments are set out below.

5.1 Air Quality

An Air Quality Assessment (AQA) was undertaken in support of this planning application.

The scope of the AQA comprised the following components:

- review of relevant local and national policy;
- baseline assessment – existing air quality in the local area;
- construction phase assessment – potential effects arising from construction activities, primarily dust and traffic emissions;
- operational phase assessment – potential effects arising as a result of odour, dust, bioaerosols, ammonia and combustion emission (from power generation and traffic); and
- recommendation of mitigation measures, as appropriate.

Neither the Site nor the surrounding area is situated within or in close proximity to an Air Quality Management Area (AQMA). The nearest AQMA is located approximately 16km to the south-east (Kingshill Road, Swindon AQMA). The Windrose derived from Global Forecasting System (GFS) meteorological data for the proposed development site presents the frequency of wind speed and direction and shows that winds from the south southwest, southwest, west southwest and west are most prevalent.

The Air Quality Assessment covered the following topics:

- Construction Dust Risk Assessment;
- Operational Dust Emissions;
- Road Traffic Emissions – Screening Assessments;
- Odour Emissions;
- Bioaerosols – Screening Assessments; and
- Other Operational Emissions.

The closest residential receptor that includes buildings and gardens associated with the Cotswold Community site, are located 335m to the southwest. The closest workplace receptor is the Aggregate Industries cement works, the nearest boundary of which is situated approximately 120m southeast of the proposed site. Human and ecological receptors within the locale are likely to be sensitive to emissions from onsite activities. Best Available Techniques and mitigation measures would be employed to limit the potential for impact.

There is the potential for construction dust associated with the proposed development which could potentially affect the closest sensitive receptors; again, best practice mitigation measures would be employed to limit the potential for impact. There is also potential for odour and bioaerosol emissions from the proposed development and mitigation and management measures would be included within the design.

5.1.1 Assessment of Odour

There are potential sources of Odours on the site, and these have been evaluated in further detail within the Air Quality Assessment. The principal sources include feedstock, liquid and solid digestate. The combined source odour potential of the site is considered to be 'medium'. The assessment confirms that the development should adopt a suitably cautious approach to potential odour.

5.1.2 Assessment of Dust

The assessment of dust/ particulate matter (PM₁₀) during the construction and operational phases follows the key elements as recommended within the IAQM guidance on the assessment of dust demolition and construction and IAQM Minerals guidance. The existing air quality, in terms of annual PM₁₀, has been taken from the Defra background maps to represent conditions at the Site. The maximum background PM₁₀ concentration for the grid square of the Site as well as surrounding receptors is 14.0µg/m³, representing approximately 35% of the corresponding AQAL for PM₁₀. Moreover, concentrations are predicted to decrease year on year. On this basis, a significant increase in dust/particulate matter concentrations in the local area as a result of the operations at the proposed development would not be anticipated.

The likely significance of effects as a result of dust generation from the proposed operations is therefore considered to be 'not significant' at all identified receptor locations in accordance with the IAQM guidance.

5.1.3 Assessment of Other Operational Emissions

The emission parameters for combustion plant and other on-site processes giving rise to emissions to air have been determined. These include potential sources that have been identified such as combustion emission sources, (CHPs, boiler, and emergency flare use), sources of ammonia (abatement plant, feed hoppers, liquid and solid digestate storage and offtake, and dirty water tanks). A detailed dispersion modelling assessment has been undertaken in accordance with relevant guidance to assess the potential impact of emissions from the Proposed Development at human and ecological receptor locations. The model has been used to predict ground level concentrations for comparison against Air Quality Assessment Levels, Critical Loads and Critical Levels.

In accordance with risk-based screening criteria the potential for the proposed development to impact on sensitive receptors has been determined as follows:

- PC does not exceed 1% long-term C_{Le} and/or C_{Lo} or that the PEC does not exceed 70% long-term C_{Le} and/or C_{Lo} for European sites and SSSIs; and
- PC does not exceed 10% short-term C_{Le} for European sites and SSSIs;
- PC <100% long-term C_{Le} and/or C_{Lo} for other conservation sites; and
- PC <100% short-term C_{Le} for other conservation sites.

The evaluation determined that the potential impacts at human and ecological receptor locations can be considered not significant.

5.1.4 Assessment of Bioaerosols

In lieu of sector-specific or planning-specific guidance on the assessment of bioaerosols from Anaerobic Digestion, the EA's regulatory position on the assessment of bioaerosols from composting has been adopted. The EA's current position is that the requirement for a site-specific assessment of bioaerosols emissions is not required where potential source of bioaerosols are located at a distance of 250m or more from sensitive receptors (such as workplaces or dwellings). There are sensitive receptors within 250m of the site boundary, however not within 250m of the potential bioaerosol emission sources at the Site. The distance between the nearest sensitive receptors and the nearest potential bioaerosol emission source is approximately 260m or more. Therefore, further consideration of bioaerosol emission is not required.

5.1.5 Summary of Air Quality Assessment

The construction phase assessment concluded that the construction of the proposed development would result in a 'not significant' risk of impacts in terms of dust/ particulate matter and traffic emissions.

The operational phase assessment concluded that the proposed development would result in a 'not significant' effect at human receptor locations with regard to odour, bioaerosols, dust, traffic, and other emissions to air.

With regard to ecological receptors, the process emissions are not considered likely to unduly impact on the sensitive conservation sites identified within the locale of the proposed development.

5.2 Arboriculture

The Arboricultural Development Statement, prepared by CBA Trees in February 2023, presents the finding of the Tree Survey which took place on 19th October 2022. The Tree survey has been used to highlight areas of conflict, trees or groups of trees or hedges that could be retained and trees, groups of trees or hedges that would need to be removed and ways to mitigate the impacts of the proposed development.

The Tree Survey identified 16 individual trees, 1 group of trees and three hedges within the redline boundary. The proposed development will retain 15 of the 16 individual trees, the 1 group of trees and 1 hedge with a further hedge retained with a small end section removed for the new site access. One low grade tree and 1 hedge will be removed from the proposed site layout.

The visibility splay to the south of the junction will require the removal of three Ash trees and a section of hedge. CBA concludes that provided the recommendations included within the report are strictly adhered to, CBA Trees believes the trees highlighted for retention within this report can be retained without undue stress on their long-term health.

5.3 Archaeology and Cultural Heritage

Chapter 10 of the ES present the Historic Environment assessment. In addition, SLR undertook a Heritage Desk-Based Assessment (HDBA) (Heritage ES Appendix 10) to understand the potential impact of the proposed developed upon archaeological and heritage assets at the Site and within a wider study area.

The HDBA, undertaken with due regard to the guidance published by Historic England and in full accordance with the National Planning Policy Framework, identified those heritage assets located within the Site and its vicinity and described their significance. Potential development effects were also discussed, with reference to the proposed site layout.

In addition to a review of wide range of online sources and HER data, a Site inspection was undertaken in October 2022 in order to assess any assets within the Site. Wider field observations in respect to the settings assessment were also undertaken during the Site inspection and during access to publicly accessible areas.

A geophysical survey was undertaken in October 2022, to support the Heritage DBA.

5.3.1 Archaeology Conclusions

The HDBA concluded that there is the potential for some harm to heritage assets as a result of the proposed development, namely the potential removal of *in-situ* prehistoric to post-Medieval remains.

The findings of the geophysical survey suggests that these remains are limited in extent, though if present they would have potential to inform us of ancient occupation of higher ground outcrops such as Ashton Down compared to lower lying gravel terraces. There is no evidence that would suggest that any remains on Site are of such significance that would merit preservation *in-situ*.

The proposals are considered to be compliant with the legislative and planning policy provisions relevant to archaeology.

5.3.2 Heritage Conclusions

There would be a change in the setting of the grade II listed building Ashtonfields Community Hall as a result of some screened intervisibility between the upper storey of the building and the top of the silage clamps. This is not considered to amount to harm to the listed building, as the elements of its setting which contribute to its significance would be wholly preserved.

The proposals are considered to be compliant with the legislative and planning policy provisions relevant to heritage.

5.4 Ecology and Nature Conservation

A Preliminary Ecological Appraisal (PEA) of the Site has been undertaken to support this planning application. A full copy accompanies ES Chapter 5 Ecology and a summary of the findings and recommendations is set out below.

The purpose of the PEA was to:

- establish the ecological baseline conditions and determine the importance of ecological features present (or those that could be present), as far as is possible;
- identify potential ecological constraints to the proposed development and make initial recommendations to avoid potential significant effects on important ecological features, where possible;
- identify potential requirements for mitigation, where possible, including mitigation measures that will be required and those that may be required (depending on results of further surveys or final scheme design);
- establish any requirements for more detailed surveys; and
- identify opportunities for biodiversity enhancements as part of the project.

The assessment of impacts resulting from the proposed development and the detailed development of mitigation measures are covered in a separate Ecological Impact Assessment report (EclA), once the breeding bird surveys have been finalised.

Habitat

The results of the UKHab Survey are discussed within the PEA and are described below. In summary, the following habitats were recorded within the Site, listed approximately in order of dominance:

- c1c Cereal crops;
- h2a hedgerows; priority habitats
- g4 Modified grassland;
- r1 191 Standing open water and canals; ditch; and
- w1g6 Line of trees.

c1c Cereal Crops

The majority of the Site comprised two fields usually growing wheat but were ploughed at time of survey and comprising bare ground. These were bounded by hedgerows and had narrow grassy margins. The species in

these margins included predominantly perennial rye (*Lolium perenne*) and false oat-grass (*Arrhenatherum elatius*) with occasional nettle (*Urtica dioica*) and red fescue (*Festuca rubra*).

h2a Hedgerows; priority habitats

The fields on Site were bounded by native hedgerows, predominantly hawthorn and blackthorn.

g4 Modified grassland

A small area of modified grassland was located in the south-western corner of the site, adjacent to a gateway. Species in this area comprised common nettle, cow parsley (*Anthriscus sylvestris*), hedge mustard (*Sisymbrium officinale*), false oat-grass (*Arrhenatherum elatius*), red dead nettle (*Lamium purpureum*), cleavers (*Galium aparine*), shepherd's purse (*Capsella bursa-pastoris*) and creeping thistle (*Cirsium arvense*).

r1 191 Standing open water and canals; ditch

Two ditches were located on Site, associated with hedgerows as detailed in Table 3-3. Both ditches were dry at time of survey and dominant species present included nettle and cow parsley, with hedge mustard, false oat-grass, red dead nettle and cleavers also present.

w1g6 Line of trees

In the south-western corner of the Site was a line of trees, continuing off site. Species comprised mature hawthorn, pear (*Pyrus communis*), apple (*Malus x domestica*) and ash trees.

5.4.1 Species

Notable Plants and Invasive Plant Species

The Gloucestershire Centre for Environmental Records (GCER) and Wiltshire and Swindon Biological Records Centre (WSBRC) returned several records of notable plants and within the 2km search including marsh helleborine (*Epipactis palustris*), corn spurrey (*Spergula arvensis*), greater chickweed (*Stellaria neglecta*), narrow-leaved bird's-foot-trefoil (*Lotus tenuis*), rat's tail fescue (*Vulpia myuros*) and great burnet (*Sanguisorba officinalis*).

Overall, the Site is unlikely to be of value for notable plants as it is subject to active agricultural management and lacks semi-natural habitats. There was no indication that the Site was of likely high value for notable plants or particular groups such as arable weeds. For the above reasons the Site is therefore considered to have **negligible potential** to support notable plant species.

In regard to invasive plant species there is also considered to be a **negligible potential** to contain invasive plant species. A data search did not return any records of invasive species being within 2km of the site.

Notable Invertebrates

The GCER and WSBRC returned records of 38 notable invertebrate species within 2km of the site. Of these 38 records, 16 are from the past decade and include rugged oil-beetle (*Meloe rugosus*), ghost moth (*Hepialus humuli*), grizzled skipper (*Pyrgus malvae*), small heath (*Coenonympha pamphilus*), grey dagger (*Acronicta psi*), mouse moth (*Amphipyra tragopoginis*), white-letter hairstreak (*Satyrrium w-album*) and cinnabar (*Tyria jacobaeae*), which are all Section 41 species.

No notable invertebrates were observed during the survey.

Generally, it is considered to be unlikely that the Site is of high importance for notable invertebrates as it comprises of a limited range of ubiquitous habitats, managed intensively for agriculture. The Site therefore has **low potential** to support notable invertebrates (either individual species or assemblages).

Amphibians (including Great Crested Newt)

The data search provided records of common toad (*Bufo bufo*) within the 2km search radius. The closest record of a great crested newt licence return on the MAGIC dataset was located in excess of 500m from the Site boundary.

Reference to aerial imagery revealed the presence of ten ponds within 500m of the survey area, but no ponds are present within 250m. It is generally accepted that terrestrial amphibians, including great crested newt, rarely travel over 250m from breeding ponds (Jehle, 2000⁴). In addition, the intervening habitats within the ponds and the site comprise arable with no direct connectivity to the site. The Site is therefore considered to have **low potential** to support amphibians such as great crested newt.

Due to the absence of ponds within the Site or within 500m not separated by barriers to movement, no potential impacts on GCN are predicted.

Reptiles

The data search returned several records of common lizard (*Zootoca vivipara*) and grass snake (*Natrix natrix*) within 2km of the Site, the closest of which comprised a record for grass snake, located 310m south of the site. Small areas of suitable habitats for reptiles are present such as hedgerow, seasonally wet ditch and deadwood habitats, however, the Site is unlikely to support a significant population of any reptile species.

Therefore, whilst it is possible that small numbers of common reptile, such as common lizard and grass snake, may use the Site occasionally, it is considered unlikely that significant permanent populations are present.

The Site is considered to have **low potential** to be of high importance for reptiles. Further surveys to establish the presence/likely absence of reptiles are therefore not considered to be necessary. It is however recommended that precautionary measures (i.e., habitat manipulation) are implemented if unmanaged grassland/dense scrub habitats need to be cleared or managed. This would comprise of a staged sward reduction (in the active season for reptiles), involving an initial high cut 30cm (with cuttings removed), followed by the removal of vegetation to ground level the following day. In the unlikely event that reptiles are encountered, works must stop immediately, and an ecologist should be contacted.

Birds

The data search returned records of notable bird species within 2km of the Site including those associated with arable habitats such as barn owl (*Tyto alba*), corn bunting (*Emberiza calandra*), lapwing (*Vanellus vanellus*) and yellowhammer (*Emberiza citrinella*).

The Site comprises of agricultural habitats that are typical of the area and which are common in Gloucestershire and the wider UK. No specific measures were noted to encourage or support farmland birds such as game cover crops or wildbird seed margins. As such, whilst the potential exists for farmland birds including species of conservation concern to be present, the Site is unlikely to provide a unique or enhanced habitats for this group.

The structured vegetation such as hedgerows and scrub provide opportunities for nesting birds.

To summarise, the Site is likely to provide opportunities for birds to nest and this may include Bird Species of Conservation Concern (BoCC) associated with farmland, but in likely low numbers, due to the absence of any enhanced habitats for this group.

Wintering Birds

The citation for the Cotswold Water Park SSSI, which is located 58m south of the site supports an assemblage of 20,000 waterbirds during the non-breeding season. The data search returned records of such species within 2km

⁴ Jehle, R. (2000). The terrestrial summer habitat of radio-tracked great crested newts (*Triturus cristatus*) and marbled newts (*T. marmoratus*). *Herpetological Journal*, 10, pp. 137-142.

of the Site, including gadwall (*Anas strepera*), shoveler (*Anas clypeata*), green sandpiper (*Tringa ochropus*) and pochard (*Aythya farina*).

The Site comprises of agricultural habitats that are typical of the area and which are common in Gloucestershire and the wider UK. No specific measures were noted to encourage or support wintering birds. Whilst the potential exists for wintering birds including species of conservation concern to be present, the Site is unlikely to provide enhanced habitats for this group.

To summarise, due to the close proximity of the Cotswold Water Park the Site could potentially be used by birds during the winter, however, is it unlikely to be of high importance.

Winter bird surveys have been undertaken and a number of farmland bird species have been recorded on site. Most notably, the presence of lapwing *Vanellus vanellus* was recorded on two out of the four winter surveys with a peak count of two birds. Flocks of meadow pipit *Anthus pratensis* were also recorded during three of the surveys with a peak count of 30.

Breeding bird surveys are ongoing and a first visit was completed in March 2023 and has recorded the presence of several species, most notably skylark *Alauda arvensis* of which one singing individual was recorded in the northern portion of the Site. The results of the bird surveys as well as any required avoidance, mitigation or compensation measures will be detailed in the Ecological Impact Assessment (EcIA) report. The EcIA will be submitted to Wiltshire Council as soon as it is complete.

The presence of nesting birds should be considered when planning the timing of vegetation removal as a direct impact on nesting birds could occur if vegetation clearance took place during nesting season (March to August inclusive). Any clearance of vegetation on Site should therefore take place outside of the nesting bird season. If this is not possible then the absence of nesting birds should be confirmed by an ecologist prior to commencement (within 48 hours). Should any active nests be found, the appropriate mitigation must be put in place to allow the successful fledging of the chicks before the area is cleared.

Barn Owls

Though there is suitable foraging habitat for barn owls in the long grassy areas, however, these areas are not extensive and their temporary loss is unlikely to have impact upon the local barn owl population.

Due to the protection afforded to barn owls in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) against disturbance. Any works which could take place during the nesting season near to trees with nesting potential (i.e., presence of cavities) should be subject to further survey.

5.4.2 Mammals

Bats

GCER and WSBRC returned records of brown long-eared bat (*Plecotus auratus*), common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's bat (*Myotis daubentonii*), lesser horseshoe bat (*Rhinolophus hipposideros*), Nathusius's pipistrelle (*Pipistrellus nathusii*), Natterer's bat (*Myotis nattereri*), noctule bat (*Nyctalus lasiopterus*), serotine (*Eptesicus serotinus*) and soprano pipistrelle (*Pipistrellus pygmaeus*) within a 2km radius of the site.

Several of the trees on site contained potential roosting features. These comprised ash and oak trees with roosting features such as split limbs, rot holes, dense ivy cover, central cavities, and woodpecker holes. These are considered to have **high potential to provide opportunities for roosting bats**.

Overall, the Site is in active agricultural use and as such the fields themselves are unlikely to be of significant value to foraging bats. Lakes and woodland associated with Cotswolds Water Park are located to the south of the Site, and hedgerows are also present which will provide locally important foraging resources for bats.

The Site is considered to have **moderate potential** to be of value to bats for foraging and commuting.

A sensitive lighting strategy has been implemented by the lighting consultant following best practice industry guidance produced by the Bat Conservation Trust and Institute of Lighting Professionals to ensure that hedgerows and mature trees are kept in the dark to retain dark commuting corridors for bats with no light spill to canopies of more than 1 lux.

Measures include:

- the siting of areas requiring a high level of illumination away from potential light sensitive receptors;
- the use of luminaires with zero direct contribution to upward light;
- careful selection, aiming and positioning of luminaires;
- the use of light spill shields;
- the use of lower output luminaires bounding potentially light-sensitive ecological receptors; and
- the use of presence detection controls and zoned switching.

Roosting bats

The survey established that several mature trees have high potential to support roosting bats. It is understood that four ash trees are to be removed to facilitate the proposed development, one of which contains features suitable for roosting bats. A further survey to establish the presence/likely absence of roosting bats will be undertaken in April 2023. If bats are present, then appropriate avoidance and mitigation measures would be required.

The site layout has been designed to ensure that the proposed trenching works do not affect the root systems of adjacent trees and that appropriate stand-offs (Root Protection Areas) are adopted. Roosting bats may also be impacted by any light spill.

Badger

The grassland which is present has some potential to support foraging badgers however no setts were recorded on Site. No further surveys are required however if it begins clear in the future that setts are present, then appropriate avoidance and mitigation measures would be required.

Hazel Dormouse

The data search returned no records of hazel dormouse (*Muscardinus avellanarius*) within 2km of the Site. The Site is bounded by native hedgerow albeit not species rich. It is poorly connected to deciduous woodland in the wider countryside and Ashton Road which runs along the eastern boundary of the Site provides a major barrier for any commuting or foraging dormice. The Site is therefore considered to have **low potential** to support dormice.

Hedgehog

Hedgehogs are not afforded protection under UK and European law however are protected under the Wild Mammals (Protection) Act (1996). This Act requires hedgehog and other small mammals to be protected during Site works. Furthermore, given their status as a S41 species, their conservation is a material consideration in the planning process. Measures to protect hedgehog and retain suitable habitat on Site for the species, allowing continued connectivity, should therefore be followed.

In order to minimise the potential for killing or injuring of hedgehogs (and other small to medium sized mammals) during any vegetation clearance, removal of dense vegetation and tall grass should be undertaken in two phases,

by cutting to 30cm in the first instance, then to ground level. The vegetation should be checked for mammals between these two cuts. Should any hedgehogs be found, they should be moved to a suitable area of habitat that is not subject to clearance.

Riparian mammals: Beaver, otter, and water vole.

The data search returned records of beaver (*Castor fiber*), otter (*Lutra lutra*) and water vole (*Arvicola amphibus*) within 2km of the Site. The record for beaver is associated with an enclosed lake at Cotswold Water Park and as such beavers are unable to disperse from this site. The Site has two ditches, associated with hedgerows, but these were dry and heavily shaded at the time of survey. The Site is therefore considered to have **negligible** potential to support or be of importance for riparian mammals.

Potential Opportunities for Biodiversity Enhancements

Recommendations are listed below for ecological and biodiversity enhancements that would assist the development to meet local and national planning policy requirements, and to adhere to best practice. The list below is not exhaustive and may change depending on the detailed design of the development and any protected or notable species confirmed to be present.

Opportunities for biodiversity enhancement include:

- Wildlife friendly planting – new landscaping should provide a diverse mix of species of demonstratable value for wildlife known to be at Site/have the potential to be encouraged to the Site.
- Invertebrate habitat features – Invertebrate habitat features should be incorporated within landscaped areas to provide features of interest as well as ecological function. Stag beetle loggeries, solitary beehives and habitat panels should be placed in suitable locations. Stag beetle loggeries should be placed in shady areas amongst trees to provide forage and shelter for saproxylic invertebrates in larval stage, whereas beehives and habitat panels should be located in sunny areas.

Mitigation

The reporting of residual effects associated with the proposed development takes account of mitigation and compensation measures that have been set out in this section. In order to ensure the mitigation hierarchy is appropriately adopted and delivered these measures need to be clear, specific, and deliverable. To support this a CEMP and Biodiversity Management Plan will be produced prior to construction commencement.

5.5 Biodiversity Net Gain

This application is supported by a Biodiversity Net Gain (BNG) assessment, which states that the proposed development against the current baseline indicates that an increase in biodiversity performance of the Site of approximately **19%** in habitat and **102%** in hedgerow can be achieved. This is subject to appropriate planting plans and management plans being developed to optimise the delivery of biodiversity performance on the Site and to realise its intended out-turn condition

By demonstrating a level of enhancement at or greater than a 1% change the proposed development, in line with recent caselaw, is considered to satisfy the current requirement for biodiversity enhancement under the National Planning Policy Framework. The level of net gain also satisfies the future ambition of 10% BNG set out within the Environment Act.

5.6 Ground Conditions/ Land Quality

Chapter 8 of the ES presents the results of the Land Quality Assessment, which was supported by a Preliminary Land Quality Risk Assessment (PLQRA), undertaken to demonstrate whether the Site was suitable for its proposed development, taking account of potential contamination related risks.

The PLQRA comprised a desk top study of published information including site history and environmental setting which was used to develop a Conceptual Site Model (CSM) risk assessment. A walkover was undertaken at the Site in September 2022.

Historically the Site has always been open, arable land and has had no previous developments. The land quality assessment determined that the proposed development would have a negligible impact on human health and minor impact on controlled waters during the construction phase due to the potential for low level and localised impacts during site activities, for example, as a result of leaks and spillages from plant and equipment, or from potential sediment in surface water run-off. The potential impact can be mitigated as part of the construction phase measures and controls detailed in the CEMP.

A ground investigation has been undertaken on the Site to establish baseline ground conditions and assess the potential risk to receptors. At the time of preparing ES Chapter 8, the ground investigation report had not been finalised. Groundwater and ground gas monitoring is scheduled to be completed to inform groundwater flow elevations and ground gas risk assessment and the results will be provided to Wiltshire Council.

However, on the basis of the initial findings of the ground investigation, no identifiable sources of on-site contamination have been identified. No made ground is present across the Site and there were no visual or olfactory indications of contamination present. A landfill is located to the east of the Site, and observations have not indicated the potential presence of leachate, ground gases or vapours migrating on to the Site. This will be confirmed through laboratory analysis and ground gas monitoring and the overall investigation and risk assessment findings will be reported in a ground investigation technical report.

In summary, the land quality assessment determined that the proposed development would have a negligible impact on human health and controlled waters during the operational phase. The facility will be regulated as a permitted activity by the Environment Agency under the Environmental Permitting (England & Wales) Regulations 2016 (as amended).

As a permitted facility, the operation of the plant will need to conform with certain regulatory requirements. It is considered that this additional layer of regulatory control will ensure that land quality impacts are further mitigated during the operational phase of the facility. No significant effects in terms of the EIA Regulations are therefore predicted on land quality during the construction or operational phases of the proposed AD facility.

5.7 Landscape and Visual Amenity

SLR have completed a Landscape and Visual Impact Appraisal (LVIA) (ES Chapter 7) to evaluate the likely effects of the proposed development on landscape character, designations and elements and visual amenity of the Site and its surroundings. The LVIA is supported by a number of photographs and visualisations from 7 key viewpoints.

An initial 5 km Study Area was defined to inform a review of aerial photographs and desktop analysis of designations and character areas. The site visit concluded that the Study Area should reflect the extent of the ZTV and the level of intervisibility across the Study Area which in places covers a 5 km radius.

5.7.1 LVIA Findings

In terms of effects on Landscape Character Areas (LCA) or Landscape Character Types (LCT), the proposed development would introduce some new elements into the local landscape.

The LVIA concluded that on operation (Year 0) there would be moderate adverse significant effects on LCT 3 River Basin Clay Vales (LCA 3A South Cerney and Ashton Keynes Settled Wetland) within which the Site lies. This effect would diminish to not significant by Year 15. Effects on remaining LCTs and LCAs would be insignificant

ranging from Negligible to Minor, Minor to Minor to Moderate adverse during construction, operation Year 0 and Year 15. Such effects would reduce over time where appropriate as existing and mitigation planting matures screening lower elevations of the development.

From the Kemble and Ewen Special Landscape Area (SLA) impacts on the aesthetic and perceptual qualities of the designation including views and tranquillity would be limited. Intervisibility between the SLA and the proposed development would be low with only the upper elevations of the AD facility potentially visible. Effects would range on operation (Year 0) from Minor adverse to Negligible to Minor adverse (Year 15); effects reducing over time and as both mitigation and existing planting matures.

Localised effects on landscape elements specific to the Site would range from Minor adverse insignificant, Moderate adverse significant to, Moderate to Major adverse significant and vary during construction and operation. Key effects relate to a change to landform, land use / rural character, tranquillity and vegetation generating Moderate or Moderate to Major adverse effects on operation (Year 0). Mitigation planting over time would result in a Minor to Moderate positive effect by Year 15 altering from Moderate adverse during construction and Year 0 operation.

Visual Effects

In terms of visual effects, recreational receptors utilising footpath AKEY4 to the west of the Site and residents off Ashton Road to the south-east and north of the Site would experience significant effects; Moderate to Major adverse for recreational users and Moderate adverse for local residents respectively.

Effects on recreational users of this adjacent footpath would remain significant but reduce from Moderate to Major to Moderate adverse significant as mitigation planting matures screening the lower elevations of the AD facility.

Remaining visual receptors would experience an Unchanged, Negligible, Negligible to Minor, Minor or Minor to Moderate adverse insignificant effect. Where views are available of the Proposed Development these would be partial and filtered through intervening vegetation and of cranes during construction or the upper elevations of the digester tankers on Operation (Year 0 and Year 15). Over time and as mitigation and existing planting matures some of these effects would diminish.

LVIA Conclusion

The LVIA concluded that although the proposed AD facility would generate visual effects, these would be localised to a 1 km radius of the Site and within the Site itself. The facility would be visible to an extent, however, through the appropriate use of colour and materials and the introduction of new soft landscape elements within the scheme, the effects on the landscape character and visual amenity within the surrounding area would reduce over time.

5.8 Noise

SLR have completed a noise impact assessment to establish pre-development sound levels around the Site, including baseline sound levels representative of the nearest identified noise-sensitive receptors

- A baseline noise survey was completed between Thursday 29th September and Tuesday 4th October 2022.
- Survey monitoring positions representative of identified noise sensitive receptors.
- An assessment in accordance with BS4142:2014+A1:209 with a rating level of 5dB(A) above background being acceptable depending upon the context.

The nearest Noise-Sensitive Receptors (NSRs) were identified as follows.

- NSR 1 – Downs Cottage nominally 450 m to the north of the Site is a residential dwelling off Ashton Road.

- NSR 2 – Cotswold Community area buildings, nominally 600 m south-west of the Site.

Sound levels were measured at two locations as shown on Figure 5-2.

Figure 5-1
Monitoring Locations and Noise-Sensitive Receptors



The Noise assessment concluded that sound resulting from the proposed development will be largely unnoticeable at the noise sensitive receptors because of the low absolute level of emissions, the character of the sound in the residual sound climate, and the predicted internal level of emissions inside the receptor.

The development may marginally affect the acoustic character of the area during the most sensitive periods of the night-time of proposed operation, but not to the extent that there is a perceived change in quality of life

In accordance with overarching planning requirements, measures have been satisfactorily considered to “mitigate and minimise adverse impacts on health and quality of life” which can be secured on the development by conditional approval, if necessary, to include:

- All reasonable standard mitigation of plant including using proprietary attenuation measures, suitable enclosures, and integral CHP stack silencers.

5.9 Traffic and Transport

The planning application is supported by a Transport Assessment (ES Chapter 9) and Transport Statement which includes details of the proposed site access design.

5.9.1 Proposed Traffic Generation

Due to the nature of the AD facility feedstock, the proposals are likely to result in a varied traffic HGV traffic generation across the year. The traffic forecast in the Transport Statement indicated that for the majority of the year (10 months) the proposed development would generate 38-44 HGV/tractor trips per day associated with local farming operations, which equates to 76-88 HGV/tractor movements. On the basis of a 10 hour working day and an even traffic profile, this level of traffic would equate to an average of 4-5 loads or 8-10 movements per hour.

Proposed site traffic generation levels would then peak associated with seasonal harvest periods. This would likely be restricted to two weeks in June and July (Rye Silage) and two weeks in September (Maize Silage). Predicted traffic levels would peak for two weeks in June and July with up to 80 HGV/Tractor trips per day, which equates to 160 HGV/Tractor movements; a lesser peak is forecast to occur in September and October with up to 72 HGV/Tractor trips per day, which equated to 144 HGV/ Tractor movements.

It is important to note that whilst the proposed site traffic would be new to the application site, a large proportion of the traffic movements are already on the local network as the proposed AD Facility would service existing local farms which have an existing traffic generation. This has been quantified as approximately 5,843 annual loads which make up a large proportion (47%) of the proposed 12,530 annual loads.

Therefore, a proportion of the movements would be redistributed traffic, rather than new traffic. The proposed increase would equate to an average of 19 additional HGV/tractor loads per day in the local area. This figure is provided for comparison purposes only as in practice, traffic would fluctuate at harvest periods.

5.9.2 Highway Impacts

In terms of the wider network, the Transport Statement recognised that there are traffic congestion challenges in the area and a series of planned highway improvement schemes are proposed to resolve the issues and deliver future development. However, the proposed level of traffic is not significant, it is not peak hour intensive and will disperse away from the site, therefore not exacerbating any existing congestion issues.

In summary, the proposed scheme has been reviewed in terms of highway safety and operational capacity and it has been concluded that, subject to the implementation of a Traffic Management Plan (TMP) to manage the seasonal traffic peaks, there would be no detrimental impacts to the local highway.

5.9.3 Highway Conclusions

A robust design and assessment process has demonstrated that the scheme proposals adhere to the appropriate safety standards, with the necessary operational capacity to ensure that there will be no detrimental impacts to the local highway.

Paragraph 111 of the National Planning Policy Framework (NPPF) states: *‘Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe’*. It is concluded that any impacts resulting from the proposals would be negligible in terms of road safety, highway operation, and/or network capacity; as such the proposal is considered acceptable in highways and transportation terms.

5.10 Water Environment

Chapter 6 of the ES covers the Water Environment and details the water resources (including both groundwater and surface water), flood risk and drainage of the proposed development and the surrounding area. Chapter 6 is supported by a Flood Risk Assessment (FRA) and Surface Water Drainage Strategy (SWDS)

The FRA and SWDS have been prepared to identify whether there are any potential flooding issues at the Site and set out how the quantum and quality of the surface water runoff can be managed. There is no significant risk of flooding at the Site and the surface water drainage scheme has been designed to make an allowance for a 20% uplift in peak rainfall to accommodate for climate change.

Up to 100% of rainwater would be captured and reused within the AD facility processes and an appropriately sized rainwater detention pond and swale is included in the design. No cumulative impacts on the water environment are anticipated as a result of the proposed development as surface water run-off from the hardstanding would be collected and managed.

Two primary drainage systems will be adopted, for the clean (surface water runoff) and contaminated (foul) water systems. The Site will be provided with hardstanding and secondary containment constructed in accordance with industry best practice standards to prevent pollution to surface water and groundwater.

The clamps, storage bunkers, digestate storage bay, connecting concrete apron and digestate off-take area all drain to the sealed drainage system (leachate system). An Environmental Management System (EMS) will be in place prior to the commencement of site operations.

Surface water runoff resulting from the proposed development will be intercepted and conveyed to below ground storage crates which will provide the required attenuation prior to discharging to the highways ditch located to the southeast corner of the Site. A pump has been utilised to discharge the crates to a rainwater lagoon at greenfield rates, functioning as a conveyance feature to the highways ditch. The crates have been designed to provide manage all surface water runoff without flooding during rainfall events up to and including a 1% AEP rainfall event inclusive of an allowance for climate change (+20%).

Contaminated runoff, caused by silage residue, from the silage clamps and sections of hardstanding area will be collected through a series of drainage channels, pipes, and chambers and be brought into a below ground holding tank. From this tank, runoff will be pumped to three 400m³ holding tanks within the bund where it will be reused within the process. This process has a yearly demand of 62,000m³, equating to 21/s continuous flow. This offers a sustainable drainage system, compliant with the hierarchy.

Clean surface water runoff will be collected from the remaining Site area, comprising building roofs and sections of hardstanding, and conveyed to the attenuation lagoon using a network of channel drains and underground pipes. It is anticipated that petrochemicals will be present within the surface water runoff from the hardstanding areas, which will be separated and removed through a full retention petrol interceptor. Runoff will then be discharged into the adjacent highways ditch at greenfield rates.

The runoff from within the bunds has the potential to become contaminated through process residue. This would be collected through a channel drain and discharge into a pump chamber where it would be sampled and pumped to the lagoon (if clean) or reused in the process (if contaminated). As a result, no cumulative impacts on the water environment are anticipated.

The hydrological and hydrogeological assessment found that the residual effects of the proposed development on the water environment, following the implementation of mitigation measures, are considered Negligible or Minor for the construction and operational phases.

Taking into consideration the mitigation measures already embedded within the design of the facility, including the incorporation of good practice techniques the changes to the water environment are not predicted to be significant.

5.11 Mitigation

Mitigation measures to be adopted during the construction and operation of the AD facility would relate to minimising the effect of the development on surrounding sensitive receptors in relation to dust, ecology, noise, water, traffic and landscape. These measures relate primarily to avoidance, prevention and reduction and are discussed in the noise report which supports the planning application and the technical ES chapters.

Throughout the process of design iteration and improvement, embedded mitigation has been incorporated where possible. Mitigation of the potential landscape and visual effects of have been achieved through the layout of the buildings; how the layout responded to the underlying landform and orientation of the Site; the density and massing of the buildings; and the integration of existing and proposed planting, to reduce views into the site from key viewpoints.

The proposed landscape planting will contribute to minimising any potential indirect effect on heritage assets too.

The primary mitigation measures identified by the technical assessments include the following:

- construction noise controlled to acceptable levels following good industry practice and an appropriate construction management plan (CMP);
- operational noise controlled through the installation of CHP exhaust stack silencers, the use of proprietary acoustic enclosures on plant, and regular servicing of all plant in accordance with manufacturer's instructions;
- cover sheeting of silage clamps, enclosed storage of poultry and farmyard manure and tanked storage of slurry to control odour, bioaerosol and ammonia emissions;
- dust controlled to acceptable levels following recommendations set out within the Dust Management Plan (DMP), good industry practice and an appropriate construction management plan (CMP);
- carefully designed lighting scheme to limit light spill from the Site;
- the storage of oils, chemicals and hydrocarbons in bunded areas/spill pallets;
- offsite measures which would allow for the existing hedgerows and hedgerow trees to be retained and managed with addition emergent trees maturing. The aim would be to increase the height of the hedgerow to a height of 2.5m to 3m. any gaps would be infilled with native trees and/ or shrubs and any non-native invasive plant species would be removed, as appropriate. This includes the hedgerow to the north and east of the Site as well as new hedgerow planting to the north-west and south-west to provide visual screening. Planting and

the management of such planting is covered under a Memorandum between Acorn and the landowner;

- new native tree and shrub planting (covering approximately 0.82ha) in the form of both a linear belt of trees to the north, west and south-west of the arc clamps and covered lagoons with smaller copses around the lagoons to the south. Tree and shrub planting would provide long term visual screening for adjacent users of the PRoW. Additional individual native trees (7 no) would be introduced in tighter locations where the width between structures is insufficient to establish a belt of trees;
- 228 linear metres of new native species-rich hedgerow with trees (approximately 18 in no) would be introduced to the north-western edge of the Site linking with existing hedgerows. This would provide long-term visual screening for adjacent users of the PRoW;
- additional native tree and shrub planting within the perimeter standoffs and buffers, where space allows, to provide a woodland framework to help conceal the development;
- 1.34ha of shade tolerant species rich grassland within the remaining perimeter standoffs and buffers. Where space allows to improve overall biodiversity, with 0.14 ha of wet grassland along the embankment of the land drain and to the southwest and south of the Site; and
- appropriate use of colour and materials, and the introduction of new landscape elements to limit the effect on landscape character and visual amenity within the surrounding area.

6.0 Planning Policy

6.1 Introduction

This section reviews relevant planning policy guidance at national and local levels and considers the degree to which the proposals comply with guidance and policy.

6.2 National Planning Policy Framework

The National Planning Policy Framework (NPPF) (updated July 2021) states, in **paragraph 2**, that planning law requires applications for planning permission be determined in accordance with the development plan, unless material considerations indicate otherwise. The Development Plan for the Site is considered in section 6.3.4.

Achieving sustainable development

Paragraph 7 details that *“The purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.”*

Paragraph 8 continues by detailing that *“Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):*

- a) **an economic objective** – to help build a strong, responsive, and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation, and improved productivity; and by identifying and coordinating the provision of infrastructure;
- b) **a social objective** – to support strong, vibrant, and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities’ health, social and cultural well-being; and
- c) **an environmental objective** – to contribute to protecting and enhancing our natural, built, and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.”

The presumption in favour of sustainable development is detailed in **paragraph 10**, which states: *“So that sustainable development is pursued in a positive way, at the heart of the Framework is a **presumption in favour of sustainable development** (paragraph 11)”*.

Paragraph 11 goes on to say that development proposals that accord with an up-to-date development plan should be approved without delay. The NPPF, seeks to control the environmental impact of new development with **paragraph 185a** stating that planning decisions should ensure that new development is appropriate for its location. Planning decisions should seek to mitigate and reduce to a minimum potential adverse impact resulting from new development and avoid giving rise to significant adverse impacts on health and the quality of life. Further benefits to the sustainability of the agricultural sector in the area such as supporting jobs and decarbonising operations contribute to the Economic and Social Objectives of the framework.

Any adverse impacts of the AD facility on the natural and built environment, and on the local residents and communities in the area, have been assessed as part of this application and found to be acceptable. The landscape and visual impacts have been assessed through a LVA that concluded that although the proposed development would be visible to an extent, however, through the appropriate use of colour and materials and

the introduction of new landscape elements within the scheme, there would be limited effect on the landscape character and visual amenity within the surrounding area. As no significant adverse impacts on health and quality of life have been identified through the technical assessments, the proposed AD facility is considered to be in accordance with the NPPF.

Decision making

Paragraph 38 identifies that *“Local planning authorities should approach decisions on proposed development in a positive and creative way. They should use the full range of planning tools available... and work proactively with applicants to secure developments that will improve the economic, social and environmental conditions of the area. Decision-makers at every level should seek to approve applications for sustainable development where possible.”*

The proposed development would contribute to the economy through the generation of renewable energy, the provision of digestate as a fertiliser for local farms, and the direct and indirect spend in the local economy; thereby supporting local employment and local businesses to the benefit of local communities.

The proposed development would also contribute to environmental conditions by managing farmyard manures and chicken litter through a process that captures methane, methane being one of the main contributors to global warming. Manures that previously were spread on the land releasing CO₂ into the atmosphere would be processed by the plant. As such, the development proposals fully accord with the requirement for sustainable development which is the overarching principle of NPPF.

Building a strong, competitive economy

Paragraph 80 notes that *“Significant weight should be placed on the need to support economic growth and productivity, taking into account both local business needs and wider opportunities for development. The approach taken should allow each area to build on its strengths, counter any weaknesses and address the challenges of the future...”*

Paragraph 83 continues by stating that *“Planning... decisions should recognise and address the specific locational requirements of different sectors...”*

Supporting a prosperous rural economy

Paragraph 84 identifies that *“Planning policies and decisions should enable:*

- a) the sustainable growth and expansion of all types of business in rural areas, both through conversion of existing buildings and well-designed new buildings;*
- b) the development and diversification of agricultural and other land-based rural businesses;”*

The proposed development seeks to develop a sustainable rural business in a way that will support local farms through acceptance of crops and agricultural by-products, and the provision of digestate as a substitute fertiliser, contributing to development of a circular economy within Hampshire, with regard to the key objectives of keeping products and materials in use; regenerating natural systems and eliminating waste and pollution⁵.

Planning for climate change

Section 14 of the NPPF refers to meeting the challenge of climate change, flooding and coastal change, **Paragraph 158** states: *“When determining planning applications for renewable and low carbon development, local planning authorities should:*

⁵ Key objectives definition as set out by the Ellen Macarthur Foundation www.ellenmacarthurfoundation.org

a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and

b) approve the application if its impacts are (or can be made) acceptable..."

The contribution of the proposed development to climate change is at the core of the application. The significant increase in production of renewable energy associated with the operation of the AD facility would make a substantial contribution to climate change and cutting greenhouse gas emissions.

As regards the acceptability of the potential impacts, no significant adverse impacts have been identified through the technical assessments undertaken in support of the planning application. On the basis of **Paragraph 158**, there is clear and unequivocal support in National policy that planning permission should be granted.

6.3 Climate Change

6.3.1 Government advice⁶ for local authorities

As regards local authorities' statutory duty towards climate change, Government advice on the Ministry of Housing, Communities and Local Government states that *'In addition to supporting the delivery of appropriately sited green energy, effective spatial planning is an important part of a successful response to climate change as it can influence the emission of greenhouse gases'*.

6.3.2 Climate Change Act 2008

The Climate Change Act established a legally binding target to reduce the UK's greenhouse gas emissions by at least 80% in 2050 from 1990 levels. This was amended in 2019 to require reduction of emissions by at least 100% in 2050.

Two of the four opportunities highlighted by Government to mitigate climate change by reducing greenhouse gas emissions are relevant to the proposed development:

'Providing opportunities for renewable and low carbon energy technologies.

Providing opportunities for decentralised energy and heating'.

The proposed development would provide a significant opportunity for contributing to climate change minimisation within Wiltshire.

6.3.3 BEIS investment

As recently as December 2022, the Government has announced that a scheme to increase the production of biomass crops grown in the UK will be launched in February 2023. The Department for Business, Energy, and Industrial Strategy (BEIS) will showcase best practice and innovations in biomass feedstock production across the UK, supporting land managers to expand sustainable biomass production.

This demonstrates a clear commitment to low carbon energy derived from biomass crops by central Government, critical to meeting net zero 2050 targets for the UK.

6.3.4 The Development Plan

The Development Plan for the proposed development comprises:

- Wiltshire Core Strategy (Adopted 2015);

⁶ <https://www.gov.uk/guidance/climate-change#statutory-duty-on-Climate-Change>

- Saved Policies of North Wiltshire Local Plan 2011 (Adopted June 2006)

6.3.5 Wiltshire Core Strategy (Adopted 2015)

The Wiltshire Core Strategy Development Plan Document ('the plan') was formally adopted on 20 January 2015. The plan provides a positive and flexible overarching planning policy framework for Wiltshire for the period up to 2026.

The following policies are considered to be applicable to the proposed development:

- Policy 34: Additional Employment Land;
- Policy 41: Sustainable Construction and Low Carbon Energy;
- Policy 50: Biodiversity and Geodiversity;
- Policy 51: Landscape;
- Policy 52: Green Infrastructure;
- Policy 54: Cotswold Water Park;
- Policy 55: Air Quality;
- Policy 56: Contaminated Land;
- Policy 57: Ensuring High Quality Design and Place Shaping;
- Policy 58: Ensuring the Conservation of the Historic Environment;
- Policy 61: Transport and Development;
- Policy 62: Development Impacts on the Transport network;
- Policy 67: Flood Risk; and
- Policy 68: Water Resources.

Core Policy 34 Additional Employment Land states that “outside the Principal Settlements, Market Towns and Local Service Centres, developments will be supported that:

ii. support sustainable farming and food production through allowing development required to adapt to modern agricultural practices and diversification; where they:

a. meet sustainable development objectives as set out in the policies of this Core Strategy and

b. are consistent in scale with their location, do not adversely affect nearby buildings and the surrounding area or detract from residential amenity and

c. are supported by evidence that they are required to benefit the local economic and social needs and

d. would not undermine the delivery of strategic employment allocations and

e. are supported by adequate infrastructure.

The proposed AD facility will support sustainable farming and food production as it will produce a solid and liquid digestate which can be used in place of artificial fertilisers. As the digestate would be produced from locally sourced feedstock and be used on land close to the AD facility, there would be need to import fertiliser from abroad or a remote UK manufacturer. The facility is also considered to meet sustainable development objectives as it would provide a reliable source of carbon negative energy to feed into the gas grid, providing green energy to local homes and businesses.

The Site is considered appropriate for the proposed use as it is close to the source of feedstock and market for the digestate and is well located in relation to the highway network. Rural locations are ideally suited to AD facilities, due to the amount of land take required. The potential impacts of the development on surrounding land uses and residents has been assessed through a range of technical reports and found to be acceptable.

A safe and efficient access is proposed to the site and the AD facility. The Site will also be landscaped, and this will ensure that, with time as the planting matures, the views of the development will be screened, and biodiversity will be enhanced. Furthermore, the proposed development will provide local services in the form of support for local agricultural businesses, local jobs, CO₂ supply for local business and contribute to power resilience and supply. These benefits will help to support other future employment and sustainable housing developments.

In summary, the Site is considered to be well located in relation to the farms which will provide the feedstock and be the recipients of the digestate. The Site is also well located in relation to the public highway. Due the land area required for AD facilities, industrial sites are unlikely to be suitable, therefore AD facilities tend to be constructed in the open countryside. For these reasons, the proposed development is considered to be in accordance with Core Policy 34.

Core Policy 41 refers to **Sustainable Construction and Low Carbon Energy**, this policy seeks to ensure that new buildings incorporate design measures to reduce energy demand.

Whilst this policy relates more to new housing than new industrial/agricultural style buildings, some elements are relevant. The final site layout has been achieved through extensive consultation between the applicant, landowner and SLR landscape, ecology, and hydrology teams. As a result, the layout is considered to make the most efficient use of the land area available whilst protecting existing vegetation as much as possible. Materials and colours would be carefully selected to minimize visual impact and additional tree planting would be implemented to reduce views into the site and provide biodiversity and habitat benefits.

The scheme has been designed to reuse 100% of captured rainwater within the AD process and this would help minimise the risk of flooding and the need to use mains water. The majority of the materials used in the development i.e., steel and concrete are capable of being recycled.

Core Policy 50, Biodiversity and Geodiversity states that *“Development proposals must demonstrate how they protect features of nature conservation and geological value as part of the design rationale. There is an expectation that such features shall be retained, buffered, and managed favourably in order to maintain their ecological value, connectivity, and functionality in the long-term.*

Where it has been demonstrated that such features cannot be retained, removal or damage shall only be acceptable in circumstances where the anticipated ecological impacts have been mitigated as far as possible and appropriate compensatory measures can be secured to ensure no net loss of the local biodiversity resource and secure the integrity of local ecological networks and provision of ecosystem service”.

The policy goes on to confirm that *“All development should seek opportunities to enhance biodiversity. Major development in particular must include measures to deliver biodiversity gains through opportunities to restore, enhance and create valuable habitats, ecological networks and ecosystem services. Such enhancement measures will contribute to the objectives and targets of the Biodiversity Action Plan (BAP) or River Basin/ Catchment Management Plan, particularly through landscape scale projects, and be relevant to the local landscape character”.*

The Biodiversity Net Gain assessment indicates that the project is likely to deliver an increase in the habitat biodiversity value of the site of up to 19% and in the linear habitat (hedgerow) an increase in biodiversity value of the site of up to 102%. By demonstrating a level of enhancement at or greater than a 1% change the proposed development, in line with recent caselaw, is considered to satisfy the current requirement for biodiversity enhancement under the National Planning Policy Framework. The level of net gain also satisfies the future ambition of 10% BNG set out within the Environment Act.

Core Policy 51, Landscape states that *“Development should protect, conserve and where possible enhance landscape character and must not have a harmful impact upon landscape character, while any negative impacts must be mitigated as far as possible through sensitive design and landscape measures. Proposals should be informed by and sympathetic to the distinctive character areas identified in the relevant Landscape Character Assessment(s) and any other relevant assessments and studies. In particular, proposals will need to demonstrate that the following aspects of landscape character have been conserved and where possible enhanced through sensitive design, landscape mitigation and enhancement measures.*

The Landscape and Visual Appraisal (LVIA) which supports this application concluded that although farmland would be lost to the development, a significant amount of new tree and hedgerow planting is proposed, in addition to species rich wildflower meadowland, to provide biodiversity net gain. Therefore, it is considered that there would be limited effect on the landscape character and visual amenity within the surrounding area.

Core Policy 52 Green Infrastructure states that *“Development shall make provision for the retention and enhancement of Wiltshire’s green infrastructure network and shall ensure that suitable links to the network are provided and maintained”*. Although there is no public open space within the Site, a Public Right of Way (PRoW) lies adjacent to the western boundary of the Site. There would be no need to close or divert the PRoW as a result of the development, however, tree planting has been incorporated into the proposed Landscape Strategy, to reduce views into the Site from the footpath.

Core Policy 54 Cotswold Water Park relates to proposals for outdoor or water-based sport and leisure and recreation activities. Whilst the proposed AD facility would not fall within this description of development, the landscaping scheme and biodiversity net gain (BNG) would contribute towards enhancement of biodiversity within the Water Park and the job creation during construction and operation would contribute to the local economy.

Core Policy 55 Air Quality states that *“Development proposals, which by virtue of their scale, nature or location are likely to exacerbate existing areas of poor air quality, will need to demonstrate that measures can be taken to effectively mitigate emission levels in order to protect public health, environmental quality and amenity. Mitigation measures should demonstrate how they will make a positive contribution to the aims of the Air Quality Strategy for Wiltshire and where relevant, the Wiltshire Air Quality Action Plan. Mitigation may include:*

- i. *Landscaping, bunding or separation to increase distance from highways and junctions*
- ii. *Possible traffic management or highway improvements to be agreed with the local authority*
- iii. *Abatement technology and incorporating site layout/separation and other conditions in site planning*
- iv. *Traffic routing, site management, site layout and phasing*
- v. *Where appropriate, contributions will be sought toward the mitigation of the impact a development may have on levels of air pollutants.”*

Consideration has been given to the above policy within this assessment. The Site is not within or near to a designated AQMA and the Air Quality Assessment confirmed that the development will not have a significant adverse impact on the air quality for human and ecological receptors. This is further reinforced by a number of proposed mitigation measures to ensure that all receptors are continually protected during the lifetime of the development. These measures include bunding and new tree and hedge planting around the Site boundaries and covering of the digestate lagoons.

Core Policy 56, Contaminated Land states that *“Development proposals which are likely to be on or adjacent to land which may have been subject to contamination will need to demonstrate that measures can be taken to effectively mitigate the impacts of land contamination on public health, environmental quality, the built environment and amenity”*.

The Preliminary Land Quality Risk Assessment (PLQRA) which supports this application recommended a Site Investigation (SI) as a result of the closed landfill close to the Site. Overall, it was concluded that on the basis of

the initial findings of the ground investigation, no identifiable sources of on-site contamination have been identified. No made ground is present across the Site and there were no visual or olfactory indications of contamination present.

Policy 57 Ensuring High Quality Design and Place Shaping states that “*A high standard of design is required in all new developments, including extensions, alterations, and changes of use of existing buildings*”.

It is considered that the proposals align with revised NPPF (2021) and will contribute to meeting carbon net zero targets, both locally and nationwide. SLR’s technical teams have worked closely with Acorn’s design team to ensure that the construction and operation of the AD facility limits the impacts on sensitive receptors as much as possible. Where necessary, mitigation has been designed into the scheme, for example, boundary planting to reduce views into the Site and the use of silencers for the noisier items of plant and machinery. No significant adverse impacts have been identified as a result of the proposed development on the local area. The proposals constitute sustainable development and therefore the presumption is in favour of granting permission.

The LVIA, which supports this application confirmed that although the proposed development would be visible to an extent, through the appropriate use of colour and materials and the introduction of new soft landscape elements within the scheme, effects on the landscape character and visual amenity would be limited to a 1km radius around the Site. In addition, through the appropriate use of colour and materials and the introduction of new soft landscape elements within the scheme, there would be limited effect on the landscape character and visual amenity within the surrounding area.

The Heritage DBA concluded that that the development would be fully compliant with Policies 51 and 59 which covers landscape and the historic environment. In terms of flooding, the Site is in Flood Zone 1 and the design of the surface water drainage scheme would ensure that neither the site nor surrounding area are at higher risk of flooding as a result of the AD facility. The proposed design has been through several iterations, to make sure it meets the functional requirements of an operational AD facility whilst accommodating the requirements of Policy 57. The proposal is supported by a full suite of technical reports which consider a host of issues including flood risk and drainage. As a functional, operational industrial site, the site will not be open to the public and the design and layout are dictated by the function of the site.

Nevertheless, the design has been laid out and mitigation provided as much as practicable through an appropriate use of materials to minimise visual impact where possible. Bunding and new tree and hedge planting would be used for screening and all existing trees and hedges would be retained where possible. Muted colours are proposed for the buildings. In terms of resilience to climate change, the proposed development would capture a significant amount of rainwater to use in the site processes, thereby greatly reducing surface water runoff, as well as the demand on mains water.

The LVIA concluded that overall that while the proposed development would generate significant visual effects there would be localise to a 1km radius of the Site and within the Site itself. The proposed development would be visible to an extent, through the appropriate use of colour materials and the introduction of new soft landscape elements within the scheme would reduce effects on the landscape character and visual amenity within the surrounding area.

Policy 58 refers to **Ensuring the Conservation of the Historic Environment**, it states that “*Development should protect, conserve and where possible enhance the historic environment. Designated heritage assets and their settings will be conserved, and where appropriate enhanced in a manner appropriate to their significance, including:*

- i. *nationally significant archaeological remains*
- ii. *World Heritage Sites within and adjacent to Wiltshire*
- iii. *buildings and structures of special architectural or historic interest*

- iv. *the special character or appearance of conservation areas*
- v. *historic parks and gardens*
- vi. *vi. important landscapes, including registered battlefields and townscapes”.*

The application is supported by a Heritage Desk Based Assessment (HBDA) which has identified those heritage assets within the Site and its surroundings and has described their significance where necessary.

In relation to heritage, the HBDA has established that the proposal would not cause significant change within the setting of any designated heritage asset. Therefore, the proposals are considered to be compliant with the legislation and planning policy relevant to heritage

Core Policy 61, Transport and New Development states that *“New development should be located and designed to reduce the need to travel particularly by private car, and to encourage the use of sustainable transport alternatives”*. The policy goes on to say that the proposal should be capable of being served by safe access to the highway network and that fit for purpose and safe loading/unloading facilities should be provided where these are required as part of the normal functioning of the development.

The Transport Statement (TS) confirmed that, the proposal site has good vehicular links with the strategic road network with access to the east via the B4696 to the A419, which provides onwards links to the trunk road network via the M4 to the south and M5 to the north. A swept-path analysis has been undertaken which demonstrated that a maximum sized articulated lorry can comfortably gain access to the site whilst another waits to egress, therefore minimising the likelihood of any adverse impacts to the freeflow of traffic on Ashton Road.

A Construction Transport Management Plan (CTMP) will be prepared with the main contractor, to ensure that all staff parking is accommodated within the site away from the public highway; and all lorry parking/loading will occur within the Site. Therefore, the application is considered to be in accordance with Policy 61.

Policy 62 Development Impacts on the Transport Network states that *“Developments should provide appropriate mitigating measures to offset any adverse impacts on the transport network at both the construction and operational stages. Proposals for new development should not be accessed directly from the national primary route network outside built-up areas unless an over-riding need can be demonstrated”*.

The Transport Assessment (ES Chapter 9) confirms that the proposed scheme has been reviewed in terms of highway safety and operational capacity and it has been concluded that, subject to the implementation of a Traffic Management Plan (TMP) to manage the seasonal traffic peaks, there would be no detrimental impacts to the local highway.

A robust design and assessment process has demonstrated that the scheme proposals adhere to the appropriate safety standards, with the necessary operational capacity to ensure that there will be no detrimental impacts to the local highway. Consequently, the proposed development is considered to be in compliance with Policy 62.

Core Policy 67 refers to **Flood Risk**. This policy states that *‘development proposed in Flood Zones 2 and 3 as identified within the Strategic Flood Risk Assessment will need to refer to Strategic Housing Land Availability Assessment when providing evidence to the local planning authority in order to apply the sequential test in line with the requirements of national policy and established best practice’*.

The Site is situated within a Flood Risk Zone 1, which is at low risk of flooding. The Flood Risk Assessment and Surface Water Drainage Strategy confirmed that there is no significant risk of flooding at the Site and the surface water drainage scheme has been designed to make an allowance for a 20% uplift in peak rainfall to accommodate for climate change.

Up to 100% of rainwater would be captured and reused within the AD facility processes and an appropriately sized rainwater detention pond and swale is included in the design. No cumulative impacts on the water environment are anticipated as a result of the proposed development as surface water run-off from the hardstanding would be collected and managed. Therefore, the requirements of Policy 67 are considered to be met.

Core Policy 68, Water Resources highlights the importance of appropriately managing water resource so to ensure that waste quantity and quality of water resources are maintained and improved throughout Wiltshire. This policy states that *'development must not prejudice the delivery of the actions and targets of the relevant River Basin or Catchment Management Plan, and should contribute towards their delivery where possible'*.

The hydrological and hydrogeological assessment (ES Chapter 6) found that the residual effects of the proposed development on the water environment, following the implementation of mitigation measures, are considered Negligible or Minor for the construction and operational phases.

Taking into consideration the mitigation measures already embedded within the design of the facility, including the incorporation of good practice techniques, the changes to the water environment are not predicted to be significant.

6.3.6 Saved Policies of North Wiltshire Local Plan 2011 (Adopted June 2006)

- NE12 Woodland;
- NE14 Trees and the control of new development; and
- NE18 Noise and Pollution.

The proposed development complies with the saved North Wiltshire policies on woodland, trees, noise and pollution, for the reasons set out in response to the Wiltshire Core Strategy policies on trees, noise and pollution.

6.3.7 Wiltshire Council Local Plan – Emerging Spatial Strategy – January 2021

In February 2019 Wiltshire Council resolved to acknowledge a climate emergency and to seek to make the county carbon neutral by 2030. A Global Warming and Climate Emergency Scrutiny Task Group was set up to gather evidence and come up with recommendations on achieving net zero. A commitment was also made to make the council carbon neutral by 2030. The emerging Spatial Strategy confirms that a new climate strategy is being prepared to enable the Council to meet these commitments, but carbon reduction is already an integral theme of the Local Plan.

Wiltshire Council have also published a supporting document to the Spatial Strategy 'Addressing climate change and biodiversity net gain through the Local Plan – raising the ambition (January 2021). One of the identified themes is 'encouraging sustainable renewable energy generation and management'. Page 13 confirms that "A gap in the Council's current evidence includes how the energy system will change in the future. An energy transition programme is expected as high carbon producing sources are replaced with cleaner energy and energy demand increases due to the phasing out of gas and the introduction of domestic electric heating and electric vehicles are increasingly phased in".

6.4 Other Material Considerations

6.4.1 Neighbourhood Plan

Ashton Keynes Neighbourhood Plan 2015 – 2026, Made May 2017

The Site falls within Ashton Keynes Neighbourhood Development Plan Area and the Plan contains several policies of relevance to the Site. Relevant extracts are summarised under the policy headings below:

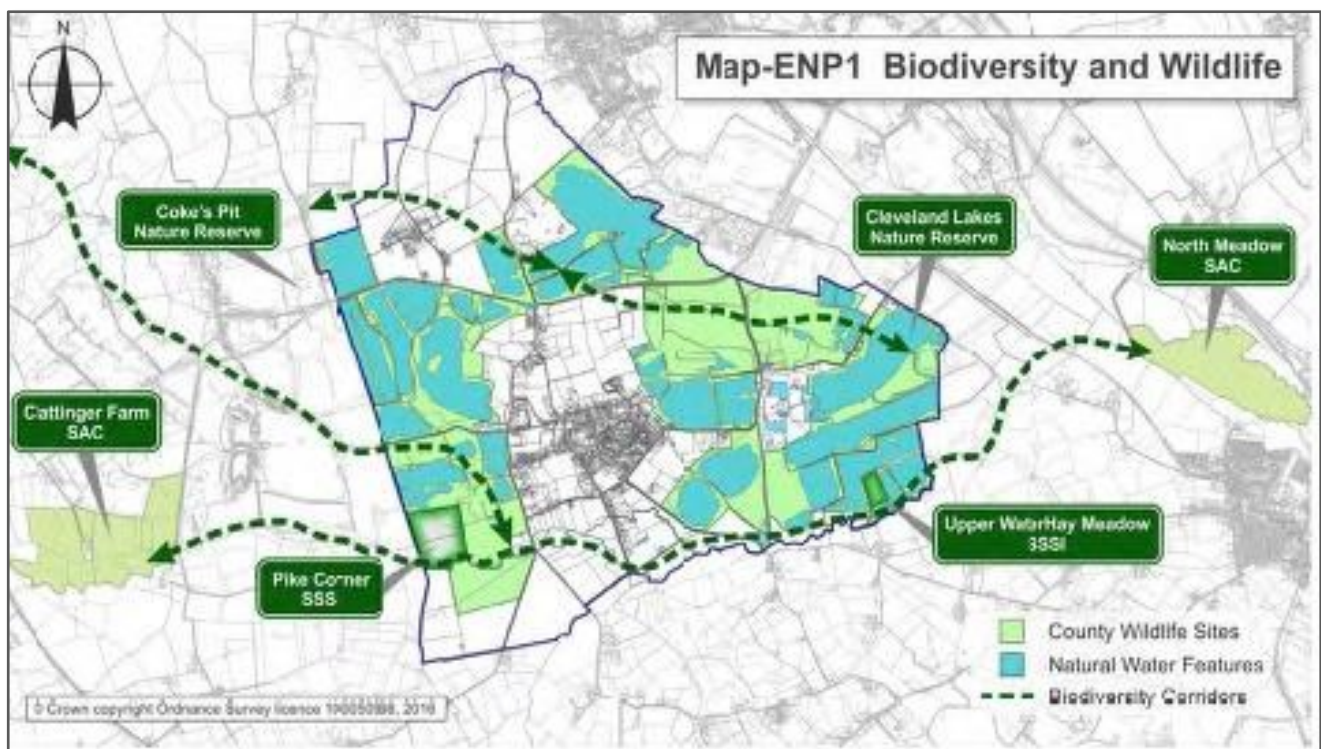
Policy ENP1 Protection of biodiversity and wildlife:

“Development should minimise impacts on biodiversity and provide net gains in biodiversity where possible.”

Figure 6-1 shows that there is a Biodiversity Corridor which runs to the south of the Site. The Preliminary Ecological Assessment presents the findings of the ecological work undertaken to date and the results of the Breeding Birds will be presented to Wiltshire Council in an Ecological Impact Assessment (EcIA) later in 2023.

The assessment of the proposed development against the current baseline indicates that an increase in biodiversity performance of the Site of approximately **19%** in habitat and **102%** in hedgerow can be achieved. This is subject to appropriate planting plans and management plans being developed to optimise the delivery of biodiversity performance on the Site and to realise its intended out-turn condition.

Figure 6-1 Biodiversity and Wildlife



Policy ENP2 Environmental infrastructure and accessibility

“a. Proposals to add to the existing public rights of way network in the area will be supported.

b. Proposals to provide additional cycleways will be supported. Where possible, these should connect with existing cycleways, the Sustrans national cycleway network and/or the Wiltshire Cycleway project.”

Whilst the proposed development would not add to the existing PROW, there would be no stopping up or diversion of the existing PROW close to the site. The Landscape Strategy shows how existing planting would be maintained and strengthened and new planting would be put in place, to reduce views of the AD facility from the footpath to the west.

Policy ENP3 Enhancing the landscape character of the Parish and retaining the character of the village including the tranquillity of its setting

“a. Developments in the Parish should protect, conserve and where possible enhance landscape character. Developments should also retain the character of the settlement including the tranquillity of its setting and its sense of place.

b. Additionally, proposals for outdoor or water-based sports, leisure and recreation-based development will be expected to: increase or enhance public accessibility”.

The Landscape and Visual Appraisal (LVIA) which supports this application concluded that although farmland would be lost to the development, a significant amount of new tree and hedgerow planting is proposed, in addition to species rich wildflower meadowland, to provide biodiversity net gain. Therefore, it is considered that there would be limited effect on the landscape character and visual amenity within the surrounding area. The noise assessment concluded that sound resulting from the proposed development will be largely unnoticeable at the noise sensitive receptors because of the low absolute level of emissions and the character of the sound in the surrounding area. Lighting has also been carefully considered, to minimise light spill in this rural location.

Policy HCP1 Local character

“With regard to national and local heritage and conservation policies, development is expected to fulfil the following criteria:

a. Styles, proportions, materials and finishes used for new build and conversions of both residential and commercial properties must be in harmony with their surroundings, in particular when these are in close proximity to Listed Buildings and Scheduled Monuments (SMs).

b. New residential development should be appropriate to its surrounding context in terms of scale, density, layout, height, and massing.”

The proposed design has been through several iterations, to make sure it meets the functional requirements of an operational AD facility whilst respecting the constraints of the surrounding area. The design has been laid out and mitigation provided through an appropriate use of materials to minimise visual impact where possible. Bunding and new tree and hedge planting would be used for screening and all existing trees and hedges would be retained where possible. Muted colours are proposed for the buildings.

6.4.2 Planning Practice Guidance

Renewable and low carbon energy

The ‘Planning Practice Guidance – Renewable and low carbon energy’ sets out why planning for renewable and low carbon energy is important. It goes on to say that *“increasing the amount of energy from renewable and low carbon technologies will help to make sure the UK has a secure energy supply, reduce greenhouse gas emissions to slow down climate change and stimulate investment in new jobs and businesses...”*

When considering locations for renewable energy, local planning authorities *“need to ensure they take into account the requirements of the technology and, critically, the potential impacts on the local environment, including from cumulative impacts.”*

Paragraph 006 states that *“Examples of the considerations for particular renewable energy technologies that can affect their siting include proximity of grid connection infrastructure and site size, and: for biomass, appropriate transport links.”*

6.5 Planning Policy and Guidance – Conclusion

National and local guidance confirms that proposals for renewable energy developments should be supported in appropriate locations. The proposed site is well placed in relation to the strategic road network as well as the source of the feedstock and the market for the output of the AD facility.

The visual impact of the development would be mitigated by the proposed landscaping screening, with native hedge and tree planting further reducing visual impact and providing biodiversity net gain.

7.0 Conclusion

The proposed AD facility would accept in the region of 91,000 tonnes per annum of feedstock from local farms and process it to generate carbon negative biomethane, which would be used to heat homes and fuel vehicles. Enough biomethane would be produced to meet the heating demand of the equivalent of c.8,700 UK homes (based on 12.3MWh/year per household). In comparison with standard UK grid emissions, the biomethane produced by the AD facility would have an equivalent saving of 34,000 tonnes of CO₂e each year, equivalent to taking 22,600 cars off the road.

Subsistence in power generation is increasingly important in these times of rapidly rising fuel prices and uncertainty over imported gas and the production of biomethane would be in line with local and national targets for reducing CO₂ emissions and reliance on fossil fuels, whilst also contributing to UK fuel self-sufficiency. The solid and liquid digestate would be spread on surrounding farmland in place of artificial fertilisers, thereby reducing the reliance on imported fertiliser, which has also faced recent supply chain issues.

Whilst the existing arable land would be lost, significant biodiversity net gain will be achieved by strengthening the existing native planting, the creation of wet grassland and nectar rich grassland and new tree and hedge planting around the edges of the Site.

The technical assessments undertaken to inform the application have been completed in accordance with up-to-date guidance and standards. The conclusion of the technical assessments is that there is no single issue or combination of issues that should prevent the proposed development from proceeding. The proposed development would be acceptable in terms of highway capacity and safety, would not cause adverse public health and safety impacts or unacceptable adverse amenity or visual impacts. The carefully designed layout scheme would ensure that there would not be a significant adverse effect on designated or important habitats and species and that no additional flood risk would be caused.

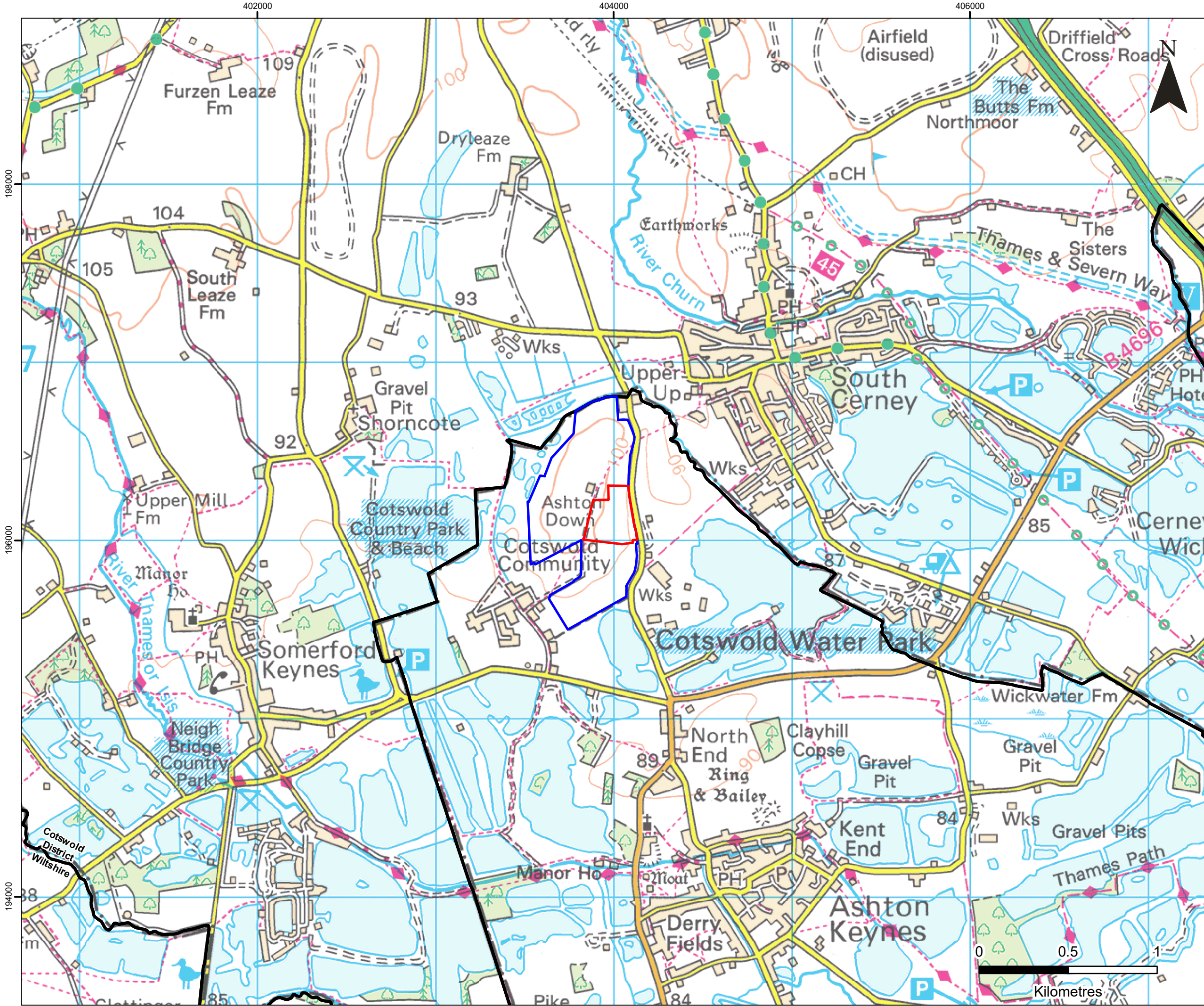
Planning conditions, good management by the applicant and an Environmental Permit from the Environment Agency would ensure the protection of local amenity and the environment from negative effects of development. Furthermore, the Landscape Strategy, developed in consultation with SLR ecologists and landscape architects, would ensure that the final design of the scheme brings landscape improvements and ecological benefits over and above those offered by the existing arable land.

In the light of the above considerations, it is concluded that the development could proceed in accordance with the underlying objectives of policies relating to a low carbon economy, production of renewable energy and supporting the resilience of the rural economy. The planning policy analysis also concludes that the development could proceed in accordance with the development plan policies for the area.

In all these circumstances it is considered that there should be a firm presumption in favour of permission being granted.

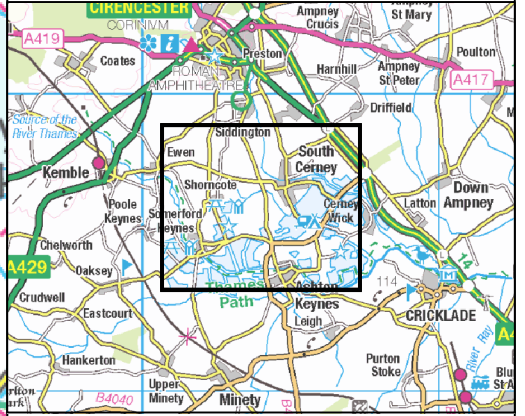
APPENDIX 01

Drawings



LEGEND

- Site Boundary
- Land Within the Applicant's Control
- Local Authority Boundary



4/5 LOCHSIDE VIEW
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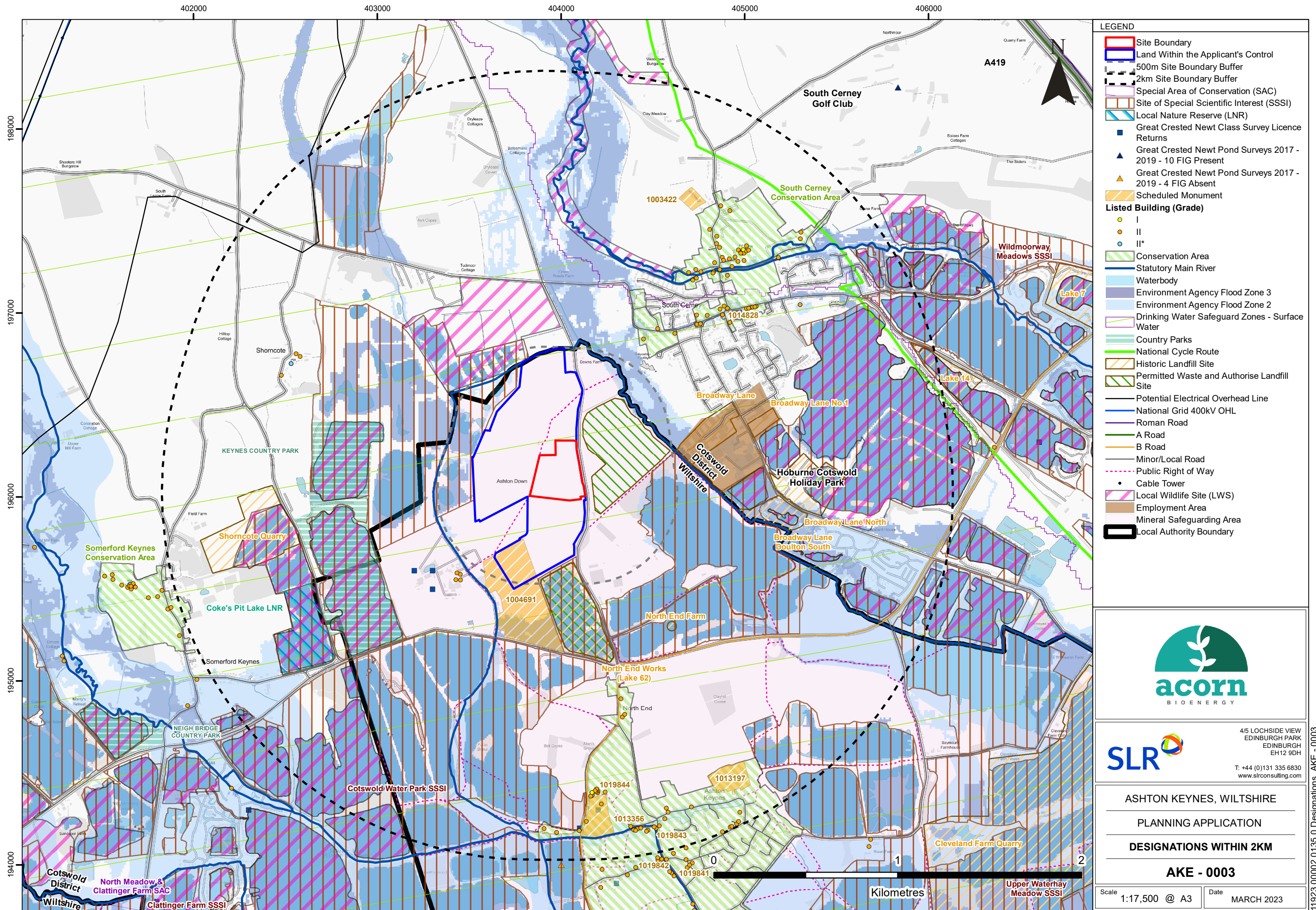
PLANNING APPLICATION

SITE LOCATION

AKE - 0002

Scale 1:20,000 @ A3 Date MARCH 2023

11923.00002.01/34.0 Site Location



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