

Design and Access Statement
Erection of an Anaerobic Digester at Gravel Pit Farm, Sand Hutton,
York YO41 1LN

Client: JFS Gravel Pit Farm Biogas Ltd

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1. Introduction

- 1.1. JFS Gravel Pit Farm Biogas Ltd ('the Applicant') has appointed Prism Planning Ltd ('the Agents') to prepare and submit a planning application to allow for the erection of an anaerobic digestion facility and combined heat and power plant at Gravel Pit Farm, Sand Hutton, York.
- 1.2. This Design and Access Statement is written to be read in conjunction with the Planning Statement.
- 1.3. This Statement considers the design aspects of the proposals in six main sections; Use, Amount, Layout, Scale, Landscaping, and Appearance as advised through CABE's guidance; Design and Access Statements, How to write, read and use them and with reference to with DCLG Circular 01/2006.
- 1.4. Further to the policy review in the accompanying planning statement, local and national design focused planning policies will also be reviewed.

Site Context

- 1.5. Gravel Pit Farm is a mixed beef/arable farm lying approximately ¾ mile (1.2km) to the west of the village of Sand Hutton and 4 miles (6.5km) north east of the edge of York. The farm extends to approximately 1,200 acres (486 hectares).
- 1.6. The beef operations of the farm currently refer to the rearing and finishing of approximately 1000 head of cattle, mainly housed inside all year round and kept on straw. Farm yard manure is currently spread on the farm fields. The farm yard manure is presently supplemented by imported artificial fertilizer. The arable operations refer principally to grain production in addition to hay and silage production.
- 1.7. The overall character of the surrounding landscape is dominated by agriculture with small pockets of conifer plantation and woodland, although mention should be made of the Central Science Laboratory complex, approximately 530m to the south west. The general topography is of level ground. The landscape is pleasing in its own right, although it does not attract any formal landscape designation. Local Plan Strategy Policy SP13 identifies the site to lie within the 'Vale of York' broad landscape character area within which the Council will encourage new development to reinforce the distinctive elements of the local landscape in order to protect and enhance the quality, character and value of the landscape.

2. The Proposed Development

- 2.1. The proposals refer to the erection of an anaerobic digestion plant (AD) with associated combined heat and power (CHP) unit with a 1MW capacity. The chosen site is located partly on a field immediately adjacent to the western corner of the farm complex and partly on the on-farm moto-cross track to the north/north west. The irregular shaped site, which extends to 4.37ha, is bounded by a combination of conifer plantation, farm track leading from the farm complex and the remainder of the existing moto-cross track with farm fields beyond. No development is proposed within the canopy spread of the trees.
- 2.2. In simple terms, an aerobic digester involves putting organic material (usually farmyard manure and occasionally supplemented with grass/maize/corn etc) into a round tank with a roof over it (double skin membrane, internal flexible, external rigid). The mixture is then 'fermented' within the sealed vessel to produce methane and other gasses which are all kept within the fermentation vessel and do not vent to atmosphere.
- 2.3. The resultant gas stream is then filtered and the methane component of the gas stream can be used to drive engines to generate power, burned to produce heat or can be processed to be used as a natural gas or biogas for fuel. For the electricity generation model the electricity is either used on the farm or fed to the grid and the heat, a by product of cooling the engine, is used on the farm. For the gas production model, the gas may be bottled or fed to the gas-grid but there will still be a small CHP unit to produce the electricity that the AD plant requires with the heat generated used on the farm.

- 2.4. The processed material is technically referred to as 'digestate' and is spread on the land in the same way that manure would normally be handled. Unlike manure however it is virtually odourless.
- 2.5. AD is a process that has been carried out in Europe for a number of years and the machinery, plant and overall concept is tried and tested. Within the UK efforts have tended to be concentrated on large schemes based off farm and many have failed to progress because of difficulties of guaranteeing the supply of feedstock.
- 2.6. The proposed site for the AD and CHP plant is located partly on a field immediately adjacent to the western corner of the farm complex and partly on the on-farm moto-cross track to the north/north west. The irregular shaped site, which extends to 4.37ha, is bounded by a combination of conifer plantation, farm track leading from the farm complex and the remainder of the existing moto-cross track with farm fields beyond.

3. Planning Policy Background

- 3.1. It is necessary to give consideration to the development plan when proposing a new development. The development plan consists of either the Local Plan, or Local Development Framework – or a combination of the two. Although not part of the 'Development Plan', national policy is also relevant as a significant material consideration.

National Planning Policy Framework

- 3.2. The National Planning Policy Framework (The Framework) outlines the significance of sustainability and places it at the heart of national policies through which local policies should comply.

The Framework established a new starting point for decision-making. It stated that decisions should accord with locally set policies. The document also established that should the policy be out of date *the presumption in favour of sustainable development*¹ should take precedence. Equally, should there be a significant array of material considerations which are in favour of the development (of which the NPPF may form part), then permission should also be granted notwithstanding the local policy.

Policies in Local Plans should follow the approach of the presumption in favour of sustainable development so that it is clear that development which is sustainable can be approved without delay. All plans should be based upon and reflect the presumption in favour of sustainable

¹ Para. 14 National Planning Policy Framework. March 2012

development, with clear policies that will guide how the presumption should be applied locally.²

Principles of good design

- 3.3. The principles of good design are established through paragraph 56 of The Framework:

Good design is a key aspect of sustainable development, is indivisible from good planning, and should contribute positively to making places better for people.³

- 3.4. The design should will function well and add to the overall quality of the area; establish a strong sense of place; optimise the potential of the site to accommodate, create and sustain an appropriate mix of uses. The design should incorporate green and public space and may need to support local facilities and transport networks;
- 3.5. Fundamentally it is necessary to create environments which are visually attractive as a result of good architecture and appropriate landscaping.⁴ Should a design code be a suitable tool for achieving this, they may be used, but not to the extent of being prescriptive - innovation through design should be encouraged, and not discouraged.

² Para. 16 National Planning Policy Framework, March 2012

³ Para 56. National Planning Policy Framework, March 2012

⁴ Para 58. National Planning Policy Framework, March 2012

- 3.6. Returning back to the presumption of sustainable development, The Framework states that:

Local planning authorities should not refuse planning permission for buildings or infrastructure which promote high levels of sustainability because of concerns about incompatibility with an existing townscape, if those concerns have been mitigated by good design (unless the concern relates to a designated heritage asset and the impact would cause material harm to the asset or its setting which is not outweighed by the proposal's economic, social and environmental benefits).⁵

- 3.7. Notwithstanding the industrial nature and appearance of the development proposed, it is still necessary to give consideration to design related issues. Specifically with reference to the impact of the proposed development on the immediate and wider landscape – the scope to mitigate these impacts are obvious.

⁵ Para 65. National Planning Policy Framework, March 2012

Local Design Policies

- 3.8. The supporting planning statement provides a full analysis of the local planning policies pertinent to the determination of this proposal, as contained within the Ryedale Plan - Local Plan Strategy (adopted 5th September 2013).
- 3.9. The only policy references relating to the design of the subject development are contained within Policy SP18, 'Renewable and Low Carbon Energy', is the Local Plan Strategy policy most relevant to the consideration and determination of the subject planning application. The Policy advises that the Council will be favourably disposed to development proposals that generate renewable and/or low carbon sources of energy providing that the following criteria are met:
- The development can be satisfactorily assimilated into the landscape;
 - The development will not impact adversely on the local community, economy, or historical interests, unless their impact can be acceptably mitigated;
 - The development will not have an adverse impact on nature conservation, in particular in relation to any sites of international biodiversity importance, unless their impact can be acceptably mitigated; and
 - The development will not have an adverse impact on air quality, soil and water resources, unless their impact can be acceptably mitigated.
- 3.10. Policy SP16, 'Design', is a general design policy advising of the expectation that development proposals will create high quality durable places that are accessible, well integrated with their surroundings and which reinforce local distinctiveness and protect amenity and promote well-being.
- 3.11. Policy SP13 identifies the site to lie within the 'Vale of York' broad landscape character area. Within this area the Council will encourage new development and land management practices to reinforce the distinctive elements of the local landscape in order to protect and enhance the quality, character and value of the landscape.
- 3.12. Policy SP13 further advises that development proposals should contribute to the protection and enhancement of distinctive elements of landscape character that are the result of historical and cultural influences, natural features and aesthetic qualities including:
- The distribution and form of settlements and buildings in their landscape setting;
 - The character of individual settlements, including building styles and materials;
 - The pattern and presence of distinctive landscape features and natural elements (including field boundaries, woodland, habitat types, landforms, topography and watercourses);
 - Visually sensitive skylines, hill and valley sides; and
 - The ambience of the area, including nocturnal character, level and type of activity and tranquillity, sense of enclosure/exposure.

4. Design & Access

Scale & Use

4.1. The proposed AD development will comprise of the following main structures:

– Main digestion tanks

These are circular structures/tanks 31m in diameter, with walls 6.2m surmounted by a rigid rubberized membrane domed roof. The internal membrane will stretch as gasses are produced as part of the digestion progress. The roof will dome to a maximum height of 14m above ground level. The digester will maintain a steady state with an inbuilt heating system, and will be computer controlled. Mixing systems are also included within the chamber.

– Secondary digestion tank

Similar in appearance to the main digesters, 27m in diameter with a 7m high wall and the dome roof rising to a height of 13.6m.

– Feedstock feeder

The feeder is based on a simple screw system, and will mix the slurry with the necessary micro-organisms which undertake the physical microbiological breakdown.

– Silage clamp (two banks of four proposed)

An open 3-sided structure with 2m high walls for the storage of farmyard manure before being fed into the digester tank.

– Digestate storage

The liquid digestate resultant from the AD process will be stored in a digestate storage lagoon to the immediate north west of the plant. The lagoon measures approximately 151m x 86m externally including the perimeter bund, which is 1.5m high. The maximum depth of the lagoon is 3m (total capacity 26,000m³, 18,000m³ net with 750mm freeboard). The lagoon will be dug approximately 3m into the ground.

4.2. The overall components of the proposed development is as follows:

- Main digestion tank (2)
- Secondary digestion tank
- Feedstock feeder (2)
- Silage clamp (for storage of farmyard manure)
- Digestate separator (2)
- Digestate storage lagoon
- Gas clean up and storage plant
- CHP Plant (2) for parasitic load and farm requirements
- Emergency flare (2)
- Tech container (2) housing control and pumping equipment
- Sub station

Siting & Layout

- 4.3. The chosen site for the development has arisen through an assessment of the operational requirements of the development and the consideration of visual and amenity impacts.
- 4.4. Full details of the chosen site can be seen on the submitted site layout drawings.
- 4.5. It is essential that the AD unit is located close to the generation and storage of the feedstock. Furthermore, the consideration of infrastructure and connections which will be required by the plant has dictated that the proposed location is most appropriate.
- 4.6. Finally, the consideration of the development's impacts on the existing farm complex means that in its proposed location, the existing agricultural buildings provide a visual and physical buffer.



Photo 1 - View Looking north westwards over the application site from the farm track

Form & Appearance

- 4.7. The appearance of the proposed development is utilitarian and would not be out of place on a typical farm of this nature.
- 4.8. There are no residential properties that will have direct lines of sight into the site, and there are no clear views from public roads.
- 4.9. Notwithstanding, it is proposed to colour the dome of the AD unit in green to allow for maximum camouflage. Furthermore, by sinking the tank into the ground, its variable height will be reduced. Colours are as follows:
- | | |
|---------------|-----------------------|
| Tank Cladding | RAL 6005 (Moss Green) |
| Tank Roof | RAL5010 (Grey) |
- 4.10. The visual impact of the main digester tanks, having a height of 14m to the top of the dome, was identified as being of potential significance in landscape impact terms.
- 4.11. The Planning Statement describes the planning considerations relevant to understanding the visual and landscape impact of the digester tank and.
- 4.12. It has been concluded that the impact of neither the proposed development as a whole nor the tank is unacceptable. Indeed, the development will be read as part of the main farm complex, generally only seen at a distance over intervening agricultural fields.



Figure 1 – Photo montage of a typical digester tank (Indicative Only)

Access

- 4.13. The application site lies immediately north west of the main farm complex, which is accessed from the un-named public road linking Sand Hutton to the east with the A64 to the west.
- 4.14. The proposed site will not require the creation of new access ways. The farm access benefits from a commodious entrance with excellent visibility in either direction. Accordingly, there will be no net impact on infiltration and/or drainage.
- 4.15. Furthermore, there is adequate space within the application site to accommodate vehicular movements associated with the operation of the AD plant.

Landscaping

- 4.16. No new landscaping is proposed. The proposed digester tank is the most visually dominant part of the development but will be read as part of the farm complex from any distant viewpoints. Moreover, the site is screened by a combination of existing tree and hedge cover and the buildings of the existing farm complex and is distant from public roads. Furthermore, those proposed colours of the digester tank, the digestate storage tank and the container for the CHP plant will ensure that the development will recede into the landscape rather than appear prominent within it.
- 4.17. Notwithstanding, it is accepted that the Local Planning Authority may consider that additional landscaping is required to further bolster existing landscape screening and seek to secure such planting by way of a suitably worded condition.

5. Summary & Conclusion

- 5.1. The application proposes the development of an Anaerobic Digestion and associated Combined Heat and Power facility at Gravel Pit Farm, Sand Hutton, York to generate energy (power and heat) from processed farmyard manure. The buildings and facilities required to do this would be very similar to those already found on the farm and already used for storage of FYM. The only component not found on the farm would be the CHP 'engine' and this is located within a storage container.
- 5.2. This Design and Access Statement has demonstrated the consideration which has been afforded to the relevant design guidance, and how this has resulted in a compliant scheme resulting on minimal impact for the surrounding area.
- 5.3. In view of the above and for the reasons set out within this statement it is respectfully requested that the Council support this planning application.