Landscape Visual Impact Assessment

Land at Park Shield, North of the B6319 and the Electricity Sub-Station between Fourstones & Chollerford, Hexham, Northumberland

For JFS Park Shield Farm Biogas Ltd.
Document: Landscape visual impact assessment

Site: Land at Park Shield, North of the B6319 and the Electricity Sub-Station between Fourstones & Chollerford, Hexham, Northumberland

Project: Anaerobic Digester Plant

Client: Park Shield Farm Biogas Ltd.

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1.0 Introduction and Landscape Character

1.1 The purpose of a Landscape Visual Impact Assessment (LVIA) is to measure what impression a development would make on its surrounding landscape. Assessments produce images that are representational to the human perspective, allowing unbiased discussion of the expected impacts of a development on general visual amenity, as well as more sensitive viewpoints.

1.2 This LVIA seeks to establish to what extent the proposed development of an Anaerobic Digester facility at land near Park Shield Farm in Hexham, Northumberland, would visibly impact the surrounding residences, public and heritage viewpoints. The site is Greenfield and set in a rural location which could be sensitive to development. It is a response to concerns raised by English Heritage and local residents that the application site could have a negative visual impact on the historic views of the area, referencing the nearby UNESCO World Heritage Site (WHS) of Hadrian’s Wall and associated nearby Roman ruins and also the footpath known as ‘Hadrian’s Wall Path National Trail’, which runs along these heritage sites.

1.3 There also is a non-Roman heritage site, the site of an Iron Age Fort, located to the south of the application site. Present day buildings nearby are farm and residential buildings scattered to the north and west, with the village of Fourstones to the south west of the site. Also near is an electricity substation immediately to the south of the site, with its own landscaping scheme.

1.4 This report should be read and considered alongside the plans and drawings submitted with the application. Reference should also be made to the supporting documentation, particularly the Planning Statement and the Design and Access Statement.

1.5 The proposed components within the scheme likely to have greatest impact consist of a two digester tanks (fermentation tanks) and four digestate storage tanks. The digesters measure approximately 31m in diameter with walls 8m (maximum) high surmounted by a gas collecting dome that rises a further to 7.8m. The flat-topped digestate storage tanks measure approximately 32m in diameter with walls 8m. Tanks are proposed to be dug into the ground and coloured dark green to mitigate visual impact. There is also a gentle level of fall across the site, which would affect the height of the structures.
1.6 The site location and further description can be seen on the map below:

![Map of the surrounding area with application site, Iron Age site, Hadrian’s Wall and Milecastles, Chesters Fort, Hadrian’s Wall Path National Trail, and roads.]

Figure 1: The surrounding area: the application site is orange, the Iron Age site is blue and Hadrian’s Wall and Milecastles (M) are on the red line, with ‘Chesters Fort’ to the north east. The white line represents the ‘Hadrian’s Wall Path National Trail’ and yellow signifies roads.

(Source: Google Earth and perlineamvall)

1.7 Hadrian’s Wall features a ‘World Heritage Property Buffer Zone’ which the proposed development lies outside of and can be seen in Appendix 1.
2.0 Scope of Study and Methodology

2.1 The Landscape Visual Impact Assessment will take place using guidelines of the Landscape Institute and Institute of Environmental Management and Assessment (IEMA) for best practice.

2.2 The scope of the study was initially discussed and agreed with English Heritage (EH) in terms of agreeing the zone of potential visual influence of particular interest to EH. Thereafter an initial desktop study identified other locations to investigate. A number of these had been highlighted during the consultation process.

2.1 Following the study; a highly visible temporary structure (henceforth the Structure) was created, measuring 14.2m in height to match the tallest elevation on site. The height of the Structure is taken from the highest elevated point on site including site elevation, making it representative of the highest point of the proposed development. The Structure would then be photographed from vantage points in the surrounding area. This was achieved by using a crane with a ‘Hi-viz’ jacket and tape measure attached to verify the height. This method had been agreed in advance with English Heritage representatives.

Figure 2: The Structure used to achieve a visual representation of the height of the proposed Anaerobic Digester Plant:
2.2 Vantage points were visited with photos taken toward the site and the Structure, to accurately record the visual impacts of the proposed development. Guidance from the ‘Landscape Institute Advice Note 01/11’, states criteria to be followed for Visual Impact Assessment photos are:

- Field of view – A standard field of view of 40 degrees may be suitable as may a single photo; a photo should include a proposed scheme and its context, so that the schemes appearance and its place within the environment can be understood.
- Cameras - good quality equipment and a high resolution.
- Setting up and recording data – a range of data is requested relating to weather time of day and OS grid coordinates.

2.3 The camera used is a ‘SLR’ type with an adjustable focal length; for the purpose of fair representation and meeting the Landscape Institute criteria, research was carried out as to the focal length providing that most representative to human vision. Accordingly a focal length of 43mm was selected, this approximating the same perspective as the human eye. The photos are therefore representing a close approximation of what would be seen at each vantage point, free of distortion arising from depth of field issues.
2.4 Photos were taken in landscape format, at a height of approximately 1.8m, to be representational and from a ‘worse case’ locations, so at a hedge perimeter, the photo would be taken at the weakest, least dense section.

2.5 In order to provide answers to all concerns it was necessary to photograph locations, even in situations where there was no visibility. This effectively gives a large Zone of Theoretical Visibility (ZTV) for vantages.

2.6 In addition, photos where the Structure is recognised to be readily visible, a scaled Computer Generated Image (CGI) was superimposed over the photograph to give an accurate visual representation the AD plant on the landscape. Using further advice from the ‘Landscape Institute Advice Note 01/11’ these criteria were followed:

- Photos should be produced at a size and level of geometric accuracy to permit impact assessment
- Be based on a replicable, transparent and structured process, so the accuracy of the representation can be verified and trust established.
- Use techniques with appropriate explanation that best represent the scheme under consideration.
- Be easily understood and usable by members of the public or non-technical background.
- Be based on good quality photographic images taken in representative weather conditions.

2.7 In order for the rendered CGI images to be appropriately representational of the scheme, it is necessary to consider what landscaping might be carried out as part of any development. Such a matter would normally be the subject of a specific condition imposed by the LPA. Accordingly a landscaping scheme was commissioned and the CGI images show the site with the landscaping scheme in place.

2.8 It is accepted that the landscaping scheme will take time to mature and thus the CGI images show the site at point of construction and subsequently at 5 year intervals, showing the increasing impact of the landscaping scheme as it matures. Growth rates have been assumed to be similar to those in lowland Scotland. Thus it is assumed that the Alders in the scheme would grow at a rate of 90cms a year with a final height of 8m after 10 years. Other specimens
would have adjusted growing rates and final characteristics. It is considered that the imagery gives an accurate representation of the impacts that might be expected over a 20 year period of a mixed tree planting scheme using specimens appropriate for the area.

2.9 As previously mentioned the site does not fall within the conservation buffer shown in Appendix 1, however proximity to this sensitive location is considered by the assessment.
3.0 Photo Results

3.1 The map below shows how at each identified location a photo was taken facing the proposed site.

![Map showing vantage points and locations where photos were taken](image)

*Figure 4: The map showing vantage points and locations where photos were taken, note that arrows show the direction of the shot. The orange contours on the map also give an impression of the hilly nature of the landscape.*

(Not to scale; Map Source: Ordinance survey - Licence no. 100019980)
3.2 The following photos show each of the locations (A-R) along with a description. The date was 29/09/14, the time was 10.00-13.00 and the weather was fair with low winds.

Photo A – The site entrance with application notice.

Photo B – The unnamed B road linking the B6319 with the B6318 to the west of the site, the development is partially screened by these trees.
Photo C – Further up this unnamed road, development is partially screened.

Photo D – Taken further again, up the unnamed B road on a public bridle way. The Structure is visible at this point, in contrast to trees to the rear.
Photo E – On the bridleway, along the "Baden-Powell Walk" the Structure is visible with trees to rear.

Photo F – At the Scout camping point in the woods, the Structure is screened by dense tree planting.
Photo G – At this point on Hadrians Wall WHS the Structure is not visible.

Photo H – Further along Hadrain’s Wall to the west, the Structure is not visible, located beyond the trees in the foreground.
Photo I – Where the unnamed road meets the B6318 old Roman road.

Photo J – Traveling East along the B6318, to Walwick, the Structure is faintly visible between trees.
Photo K – Backtracking slightly west at the village entrance, there is a slight view of the Structure.

Photo L – To the east of Walwick on the B6318 the structure is partially visible in the foreground.
Photo M – Continuing eastwards on the B6318, the Structure is visible.

Photo N – View from Fort Chesters, the Structure is not visible.
Photo O – Taken on Front Street A6079, at the layby at Brunton Turret, the Structure is just visible.

Photo P – Following the footpath up to and at Brunton Turret, the Structure is not visible.
Photo Q – Taken by Gravel Wood by the B6139, the Structure is just visible.

Photo R – At the summit of the Iron Age Hill for to the south of the site, the Structure is completely shielded by dense trees.
3.3 The results can be seen in the table below:

<table>
<thead>
<tr>
<th>Viewpoint</th>
<th>Visual Impact Assessment</th>
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<tbody>
<tr>
<td>A</td>
<td>Significant Change</td>
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<tr>
<td>B</td>
<td>Slight Adverse</td>
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<tr>
<td>C</td>
<td>Slight Adverse</td>
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<tr>
<td>D</td>
<td>Significant Change</td>
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<td>E</td>
<td>Significant Change</td>
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<td>N</td>
<td>No Change</td>
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<td>O</td>
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<td>P</td>
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<tr>
<td>Q</td>
<td>Slight Adverse</td>
</tr>
<tr>
<td>R</td>
<td>No Change</td>
</tr>
</tbody>
</table>

Table 1: Assessment of the impacts from each vantage point before landscape mitigation.

3.4 The photos show a range of views; some show no evidence of the Structure (Viewpoints F, G, H, I, N, P, and R) particularly those from Hadrian’s Wall (Viewpoints G, H and I). Some show a partial view, while others show a clear view of the Structure. The majority of the views are from remote vantage points with only slight impacts on the landscape. Views from points A, E, L and Q have been selected for further study using CGI insertion of the proposal, because of either the significance of the impact or the sensitivity of the vantage point. Because Viewpoint D & E are in such close proximity, it was concluded that there was limited value in progressing individual assessments.
4.0 CGI Modelling of Structures

4.1 The previous chapter identified sensitive locations where the proposal would be have greatest visual impact. In such cases the proposed development has been digitally inserted in scale to give a greater representation of visual impacts. For most vantage points five photos per location are shown from periods of 0 year to 20 years after the development, showing the impact as the landscaping scheme matures. The exception to this is the site entrance where only one viewpoint is selected, as it is considered that allowing the hedge to grow up will be sufficient to screen the proposals from general view.

4.2 These images use a present background and do not consider any other landscape growth or change in the 20 year period.

4.3 The following images below have been edited and include description:

View A: 20 year view of the site from the current field entrance, note that only one image is shown as no additional landscaping has been proposed other than the retention of the hedge currently running across the site frontage.
View E – 0 Years: Note the outline of the plant central to the image.

View E – 5 Years: The lower structures are starting to be covered by the landscaping.
View E – 10 Years: Only the upper portion of the buildings are visible.

View E – 15 Years: The tops of the AD tanks are all that remain.
View E – 20 Years: The plant appears to be no longer visible from this point.

View L – 0 Year: Note the location of the site behind the tree central to the photo.
View L – 5 Years: Lower parts of the site are covered by screening at this point.

View L – 10 Years: Lower buildings are completely screened.
View L – 15 Years: Lower buildings are virtually covered

View L – 20 Years: All buildings except upper portions of the AD Tank are covered.
View Q – 0 Years: Note the plant location halfway up the near telegraph pole silhouetted by trees.

View Q – 5 Years: Lower buildings are starting to be covered.
View Q – 10 Years: The silhouette of the hill changes as the landscaping covers the lower levels of the plant.

View Q – 15 Years: Most of the site now screened except the main digester Tank and Drying building.
View Q – 20 Years: The majority of the site is screened with exception of the upper portion of the domed AD Tank.
5.0 Discussion

5.1 The assessment now considers the visual impact of the proposed development by examining the photos and CG imagery. The extent to which the findings result in material harm to the visual amenity of the key receptors in the landscape will be discussed together with the significance of the sensitivity of the receptor. In considering the significance between the existing and proposed imagery, the LVIA should consider the number of viewers that will see it, the permanence of the development and the scale compared to the surroundings. As a result vantage points at Hadrian’s Wall WHS or an area heavily used by the public should have greater weighting.

5.2 The photo results from significant areas to the site; Hadrian’s Wall, ‘Chester’s Fort’ and the National Trail show no visible evidence of the Structure. In contrast a series of electrical pylons in Photo G break the southern horizon line and are a greater visual impact along with the large wind turbines on the horizon to the north of Hadrian’s Wall.

5.3 There are a number of locations which show a slight adverse impact detected, these tended to be partially shielded by existing landscape and trees. Of these photos it is the vantages nearest Walwick which are of most significance, with a population regularly impacted by visual change.

5.4 The areas recognised to be of more significant change were selected for CGI images to be imposed. The photos D and E are of a similar location, as are the photos L and M, meaning that a single CGI image would act as a suitable representation of how that vantage point will change. It was view ‘L’ that appears to be most sensitive of all the sites, being close to Hadrians Wall and containing relatively uninterrupted views down the valley toward the site, so the screening provided by the landscaping was of highest importance.

5.5 The CGI images show changes as the landscaping around the site is an effective buffer, by the 20 year stage the majority of the sites have been successfully shielded from all important viewpoints. The vegetation of the proposed landscaping appears to be strongly defined, yet with natural edges that soften the development.
5.6 The CGI images show the skyline would remain natural as the horizon already retains a woodland silhouette, so that additional planting cannot be regarded as a negative impact. The dark green colour lacks contrast, ensuring that the proposed structures do not stand out in comparison to surrounding trees and vegetation. The texture seen in the CGI images also shows a development that would have limited visual impact.

Heritage Impacts

5.7 It is acknowledged that as a World Heritage Site, Hadrian’s Wall is a most important and top tier heritage asset and the potential impacts of the development on that asset is a material consideration.

5.8 The National Planning Policy Guidance Note, at paragraph 29 notes that;

“Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset’s conservation and any aspect of the proposal.”

5.9 Paragraph 138 of the Framework goes on to note that:

“Not all elements of a World Heritage Site or Conservation Area will necessarily contribute to its significance.”

5.10 The conclusions of the study highlight that development lies wholly outside of the World Heritage Site and the defined buffer of the site. Moreover, the development is invisible from those parts of the Wall where it is still manifestly in existence and cannot be seen from the Hadrian’s Wall walkway where it passes over remote and isolated grassland that define the predominant and important character of the Wall and its setting.

5.11 The proposals are distantly visible from only a small part of the WHS, being a stretch approximately 300m long at Walwick where the wall is no longer in apparent existence, having been built over by the public highway (the B6318). It is considered that this part of the WHS falls into the situation envisaged by para 38, being part of the WHS that does not contribute to its overall significance. The application site is more than a mile from the WHS at this point.
Moreover with the mitigation of the proposed landscaping scheme the impacts of the proposed development, as a distant development just below skyline, viewed from the WHS will clearly have no material impact upon the significance of the heritage asset as a whole in any event.

5.12 Reference was also made to the potential impacts of the development on the setting of the Scheduled Ancient Monument lying to the south of the site, being the location of an Iron Age Hill Fort. The imagery clearly highlights that the proposed development is not visible from the site of the heritage asset, from which it follows that the proposed development cannot have any impact upon the significance of that asset, as a matter of fact.
6.0 Conclusions

6.1 This LVIA was conducted to establish visual impacts resulting from the development of an Anaerobic Digestion facility at land near Park Shield Farm in Hexham, Northumberland. It was established that the assessment area has a number of designated heritage assets to consider. A methodology to assess visual impacts of the proposed development was devised, taking the concerns of English Heritage into account.

5.13 It should be considered that the landscape is not static and would change depending on season. As a result photos cannot always capture all of the likely effects of a development in a visual impact. Also the LVIA is only one part of assessment as the development may have other impacts which relate to how an individual’s receptors will perceive a landscape.

6.2 Overall the evidence gathered by the LVIA shows limited visual impact from the development. In the case of the WHS where it is visible above ground as Hadrian’s Wall and Roman structures such as ‘Fort Chesters’, the Structure is not visible. The locations to the east of Walwick and North West of the site have the greatest view of the proposals.

6.3 The CGI images show a mitigated impact as the landscaping proves effective mitigating the impacts of the facility. This would lead to a degree of containment within the site, having an enclosed appearance of no impact. Further to this the site does not impact past the skyline and the proposed development has been coloured in a way which limits the impact.

6.4 Overall it is the conclusion that the development is one of coherence with a suitable landscaping strategy, dark green coloured buildings to match the surroundings and is effectively screened from the WHS Hadrian’s Wall and ‘Chesters Fort’ even without landscaping. The locations that are most exposed to the development have a lower heritage value. The proposed landscaping scheme will mitigate the visual impacts of the development, with the majority of the structure being shown to be screened in the early stages of the landscaping.
7.0 Appendix 1 – Map of Hadrian’s Wall Buffer Zone.

Appendix 1a: A map of the Buffer Zone for Hadrian’s Wall – Blue Circle denotes site area. (Source: UNESCO)
Appendix 1b: Zoomed in buffer zone shows the area around the site in more detail. The Blue circle represents the site (Source: UNESCO)