



Kirkby Battery Storage Facility

Landscape and Visual Appraisal

Prepared for



Pelagic Energy

March 2023
2569-02-Landscape and Visual Appraisal



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1.0 INTRODUCTION

1.1 This Document

- 1.1.1 This report, together with the accompanying figures, comprises the Landscape and Visual Appraisal (LVA) of the proposed gas peaking plant development off Coopers Lane, Kirkby (the Proposed Development). The Appraisal was undertaken by a Chartered Member of the Landscape Institute (CMLI).
- 1.1.2 The Appraisal has been prepared to accord with good practice guidance set out in *Guidelines for Landscape and Visual Impact Assessment* (the GLVIA)¹. The scope of the Appraisal is proportionate to the likely significant effects of the Proposed Development, and as such is light-touch.
- 1.1.3 Landscape effects are caused by physical changes to the landscape (including the built environment, or 'townscape'), which may result in changes to the distinctive character of that landscape and how it is perceived. Visual effects are changes to what can be seen by people as a result of what is proposed.
- 1.1.4 It should be noted that the landscape (including the context in which views are experienced) is dynamic, i.e. it is affected by social, economic, technological and climatic changes, all of which can influence patterns of land use, land cover and land management. As such, the baseline context for the Appraisal is not static.

1.2 Previous Appraisal Work

- 1.2.1 In 2019, planning consent was granted (ref: 19/00147/FUL) for a development comprising 11 no. gas engines and associated ancillary structures at the same Site (the Consented Development). The gas engines included 20m high exhaust stacks.
- 1.2.2 The planning submission for the consented gas engines included an LVA (the 2019 LVA). The 2019 LVA concluded that the landscape and visual effects would not be significant, noting that the Consented Development:

"...would be located adjacent to the far more extensive National Grid Super Transformer Substation, which already exerts a strong influence upon its

¹ Landscape Institute and Institute of Environmental Management and Assessment, 3rd edition 2013. *Guidelines for Landscape and Visual Impact Assessment*. Routledge: Abingdon



surroundings, and would be largely enclosed by vegetation cover, limiting its visibility. Views of the tops of the proposed stacks are likely to be available from locations in the vicinity of the Site, but this would represent only an incremental change to an area which is already influenced by energy infrastructure (the Substation and pylons) and is also strongly influenced by nearby industrial development and road corridors. It should also be noted that the area surrounding the Site has been allocated by Knowsley Council as a sustainable urban extension (with employment as the primary use), and that therefore the appearance and character of the area, and views across it are likely to undergo major change irrespective of the presence of the Proposed Development...”²

1.3 Description of the Proposed Development

1.3.1 The Proposed Development would have a generating capacity of 49.5MW of electricity and would comprises the following elements:

- i) 58 no. containers housing Battery Energy Storage Systems (BESS) sited on concrete plinths;
- ii) 15 no. battery inverter / transformer stations;
- iii) 1 no. client control room;
- iv) 1 no. switchgear unit;
- v) 1 no. auxiliary transformer;
- vi) 2.4m high steel palisade security fencing surrounding the entire BSF facility;
- vii) 6m high lighting / CCTV column points;
- viii) Gated entrance to the Site; and
- ix) Hardstanding access road.

1.3.2 The layout of the Proposed Development is shown on Drawing 2569-02-003, and elevations are provided on Drawings 2569-02-005 to 009. A plan of the existing Site is shown on Drawing 2569-02-004.

² Axis, 2019. 2569-01 / Kirby Gas Engines Landscape and Visual Appraisal February 2019.



1.4 Legislative and Policy Content

- 1.4.1 Details of the planning and policy background for the proposal, including an appraisal of effects on relevant landscape-related policies, as set out in the adopted Statutory Development Plan, are included in the Planning Statement.

2.0 METHODOLOGY

2.1 Current Guidance

- 2.1.1 As noted in Section 1, this LVA has been prepared with reference to published good practice guidance set out in the GLVIA.

2.2 The Study Area

- 2.2.1 The same Study Area has been used for the current LVA as was used in the 2019 LVA. As the Proposed Development comprises structures which are appreciably smaller than the consented structures, it is considered that the 1.5km Study Area adopted in 2019 is more than sufficient to appraise the landscape and visual effects of the Proposed Development.
- 2.2.2 For reference, the Study Area was determined following a field visit in 2019 to ascertain the landscape context in the area surrounding the Site. This confirmed that due to the nature of the surrounding land use and pattern of vegetation cover, the influence of the Proposed Development would be very localised, and as such the Study Area extends no more than approximately 1.5km from the Site boundary.

2.3 Significance of Effects.

- 2.3.1 In the case of development (such as that proposed) that does not require Environmental Impact Assessment, there is no requirement to state whether an effect is significant or not. However, it is considered likely to be of assistance to the decision-maker if such a statement is included in the Appraisal.
- 2.3.2 Not all landscape and visual effects arising as a result of a particular proposal will be significant. Furthermore, where likely significant effects are predicted, this does not automatically mean that such effects are unacceptable. The acceptability of landscape and visual effects is a matter to be weighed in the planning balance alongside other factors. What is important is that the likely environmental effects of any proposal are transparently appraised and described, in order that the relevant



determining authority can bring a balanced and well-informed judgement to bear as part of the decision-making process. The judgement made will depend on the specific circumstances being considered.

2.4 Limitations

2.4.1 The field visit to inform the LVIA was carried out in January 2019, when foliage on deciduous vegetation was absent. Where relevant to its conclusions, the LVIA has had regard to likely seasonal change in visibility.

2.4.2 There have been no changes in the interim period to the landscape and visual context into which the Proposed Development would be introduced that are considered material to the findings of the LVA.

3.0 BASELINE

3.1 The Site and its Surroundings

3.1.1 Refer to Figure 1 for a plan illustrating the Site and its surroundings, and to Figures 2a-d for photographs looking towards the Site from the surrounding area.

3.1.2 The Site is located at the edge of Kirkby, on the eastern side of the A5208 Coopers Lane, and immediately south-west of the National Grid Super Transformer Substation. It is largely enclosed by deciduous tree cover, with a break in this to accommodate the access track that leads onto Coopers Lane (refer to Photograph 5). The Site is relatively flat, with a ground level of approximately 42m AOD. Land cover is chiefly grassland with some limited scattered scrub. The access track is surfaced and also allows access to an area of hard standing immediately to the north of the Site that is used as a compound by SPEN.

3.1.3 The surrounding area exhibits an urban fringe character. To the west of Coopers Lane is Knowsley Industrial Park, a large area of industrial and commercial development, extending over approximately 3.75km from north to south at the eastern edge of Kirkby. This area is characterised by the presence of large, functional buildings and wide road corridors including dual carriageways (refer to Photographs 1, 6 and 7. A small area of residential development is present to the north of the A5208 South Boundary Road, approximately 275m north of the Site.



- 3.1.4 To the east and south-east of the Site, influences are more agricultural in nature, with large flat fields the main element of land cover. There are significant belts of tree planting present, and both the corridor of the A580, and the electricity pylons converging on the Substation are prominent landscape features (refer to Photographs 2 and 4). Scattered residential properties are located along Hewitts Lane to the east of the Site, the closest of which is approximately 295m away. A pumping station is also located along Hewitts Lane, surrounded by security fencing and including areas of raised, engineered landform (refer to Photograph 3).
- 3.1.5 The boundary of the Grade II Registered Knowsley Park is located approximately 900m south-east of the Site at the closest. Knowsley Park is an extensive area of historic parkland, and the north-western boundary (i.e. that closest to the Site) is delineated by a dense belt of mature tree planting.

3.2 Landscape Designations

- 3.2.1 The Site is not subject to any statutory or non-statutory landscape designations.

3.3 Landscape Character Assessment and Related Studies

- 3.3.1 The *Landscape Characterisation of Knowsley Borough*³ identifies that the Site is located at the edge of the Simonswood Moss landscape character area, adjacent to the Kirkby urban area (which is not included in the Council assessment).
- 3.3.2 Simonswood Moss is described as having an open character with wide views available. Specific mention is made of the area around the Site as follows:

*“...The ‘urban edge’ of Kirkby and in particular Kirkby Industrial Park on the west of the area has localised distracting impact on the landscape, as does the landfill site at Coopers Moss, on Perimeter Road. A number of overhead power lines and pylons detract from the overall landscape character of this area providing a dominating visual intrusion against the horizon”.*⁴

³ Knowsley Council, 2007. *Landscape Characterisation of Knowsley*

⁴ Ibid, page 20

3.4 Future Landscape Change

- 3.4.1 In the absence of the Proposed Development, it is assumed that the Site would continue in its current usage. There is however clearly a development pressure associated with the need to provide new sources of electricity supply, and the desirability of co-locating such facilities close to the existing electricity grid (i.e. the adjacent Super Transformer Substation). As such, it is possible that other similar development proposals may come forward at the Site, or in other nearby locations.
- 3.4.2 It should also be recognised that the entirety of the Site and the area to the east as far as Hewitts Lane is allocated in the *Knowsley Local Plan*⁵ as a 'Sustainable Urban Extension' with employment identified as the proposed primary use. Given this, it seems likely that other forms of development are likely to come forward in the vicinity of the Site, and that the existing character and views are likely to change because of this, irrespective of the Proposed Development.

4.0 APPRAISAL OF EFFECTS

4.1 Effects on Landscape Fabric

- 4.1.1 The existing grassland within the Site would be replaced by new structures and associated hard standing and fencing. The grassland is not a sensitive feature, and its loss to accommodate the Proposed Development would not lead to significant effects upon the landscape fabric. Trees outside the site boundary would be unaffected.

4.2 Effects on Landscape Character

- 4.2.1 The presence of the Proposed Development would introduce additional industrial structures into the landscape, adjacent to the existing Substation. The Proposed Development would include a series of new structures that would be lower in height than the existing Substation structures, and would be far less extensive in footprint. As such, the new battery storage facility would constitute a limited extension to the existing cluster of energy infrastructure, the influence of which would be largely contained by the tree belts to the south and west and by the existing structures to

⁵ Knowsley Council, adopted 2016. *Knowsley Local Plan Core Strategy*



the north and east. This incremental change in character would be small in scale and would not give rise to significant landscape effects.

4.3 Visual Effects

ZTV

- 4.3.1 Zone of Theoretical Visibility (ZTV) mapping has been used to identify the extent of the visibility of the Proposed Development. The ZTV has been generated on the basis that all of the proposed structures would have a height of 4.33m. In reality only the proposed external switchgear unit would be this tall, with everything else being lower in height. As such, the ZTV slightly exaggerates theoretical visibility.
- 4.3.2 The ZTV was produced using a 1m First Return National LIDAR Survey Digital Surface Model (DSM) available from the Environment Agency under the terms of the Open Government Licence. The data was captured in 2022. The DSM is based upon a 1m grid spacing. The Root Mean Square Error (RMSE), or the level of accuracy of the data is 15cm.
- 4.3.3 The ZTV was calculated and created using QGIS open source software. The ZTV calculation process takes account of the curvature of the earth's surface and light refraction. The eye height of the receptor in the computer model was set at 1.7m above ground level in accordance with guidance set out in GLVIA.
- 4.3.4 A ZTV, as use of the term theoretical implies, is not an absolute indication of the extent of visibility but rather a computer-generated aid that utilises available relative data to indicate areas of inter-visibility and screening in relation to a specific modelled object. ZTVs are tools to assist the LVIA. The technique aims to give a better understanding of the areas where visibility is likely and unlikely but imperfections in data are such that it must only be seen as an aid to understanding. This limitation needs to be recognised when interpreting the ZTVs.
- 4.3.5 The ZTV produced using the DSM does reflect the presence of screening features in the landscape. However, it should be recognised that the DSM reflects a single moment in time (i.e. when the underlying survey data was captured). In reality, the extent and / or height of vegetation cover is dynamic and changes as vegetation inevitably increases in stature over time and / or is planted, trimmed or removed. Similarly, there is potential for buildings to have been erected, demolished or modified, subsequent to the data being captured.



- 4.3.6 Additionally, the DSM tends to assume that vegetation captured forms a solid visual barrier, when in reality views can sometimes be available through leaves and branches, especially in winter when deciduous foliage is absent. As such, the real-world visibility of the Proposed Development could potentially be underestimated in places. Field work undertaken as part of the LVIA included groundtruthing the ZTV and confirmed that it provides an accurate depiction of actual on-the-ground visibility.
- 4.3.7 A further caveat is that the DSM ZTV simply illustrates that part of a structure would be theoretically visible. As such, it makes no distinction between a clear view of all or most of a proposed feature and a view of a very small proportion of a feature (for example one corner of a building roof, or the top of a stack). This is especially relevant in the case of the Proposed Development, where views from the surrounding area are heavily restricted by vegetation cover.

Changes in View

- 4.3.8 Visually, the Proposed Development would be largely screened from view or otherwise obscured by surrounding features.
- 4.3.9 The tree cover to the south and west is taller than the proposed new structures and security fencing, and would provide effective screening of views, particularly in the summer months. Glimpses of the fencing and tops of containers may be available through the trees in winter, and a narrow clear view of the whole facility would be available looking along the route of the Site access. Refer to Photographs 5 and 6.
- 4.3.10 To the north and north-east, the Substation structures would be located 'in front' of the new structures, and views of the Proposed Development would be screened by these existing features and would not be clearly visible, if indeed visible at all (refer to Photograph 2).
- 4.3.11 From nearby residential properties, which are typically highly sensitive to change in view, views would be largely screened by the surrounding vegetation cover. It is likely that some limited visibility of the new structures would be available in views from properties along Hewitts Lane to the east (refer to Photograph 3) and from some properties along the B5202 to the south-east. Any visibility would be in the context of the far more prominent structures at the adjacent Pumping Station, and at the Substation. Change in view would be negligible. Visual effects would not be significant.

- 4.3.12 From properties on the B5202 to the south, and from the adjacent stretch of public footpath, the dense tree cover around the Substation perimeter would wholly screen the Proposed Development from view (refer to Photograph 7).
- 4.3.13 From properties to the north (north of the A5208), which again have a high sensitivity to change in view, the combination of vegetation and structures at the Substation would provide significant screening, and the proposed new structures would not be visible (refer to Photograph 1).
- 4.3.14 Any views of the Proposed Development from the road network would typically be seen in the context of vegetation, traffic and highway infrastructure (e.g. signage, lighting columns etc...) (refer to Photographs 5, 6 and 7), and in the case of views from vehicles, these would be transient and of limited duration. Road users have a medium sensitivity to change in view. Additionally, from Molly's Lane to the north, any change in view would be experienced in the context of the intervening Substation structures (refer to Photograph 2). At worst only fleeting glimpses of the proposed new structures would be available through the surrounding screening features, and these would only be available from very short stretches of road. Visual effects would be negligible at worst, and would not be significant.
- 4.3.15 The Proposed Development would not be visible from within Knowsley Park. The dense perimeter vegetation around both the Substation and the Park would wholly screen views.

5.0 MITIGATION.

- 5.1.1 As the landscape and visual effects of the Proposed Development would not be significant, no mitigation measures are proposed.

6.0 SUMMARY AND CONCLUSIONS.

- 6.1.1 The introduction of Proposed Development would not result in significant landscape and visual effects. It would be located adjacent to the far more extensive National Grid Super Transformer Substation, which already exerts a strong influence upon its surroundings, and would be largely enclosed by vegetation cover, greatly limiting its visibility. From outside of the Substation compound, the influence of the Proposed Development upon the surrounding area would be virtually nil, with only occasional and very localised glimpsed views of the proposed new structures available. It should also be noted that the area surrounding the Site has been allocated by

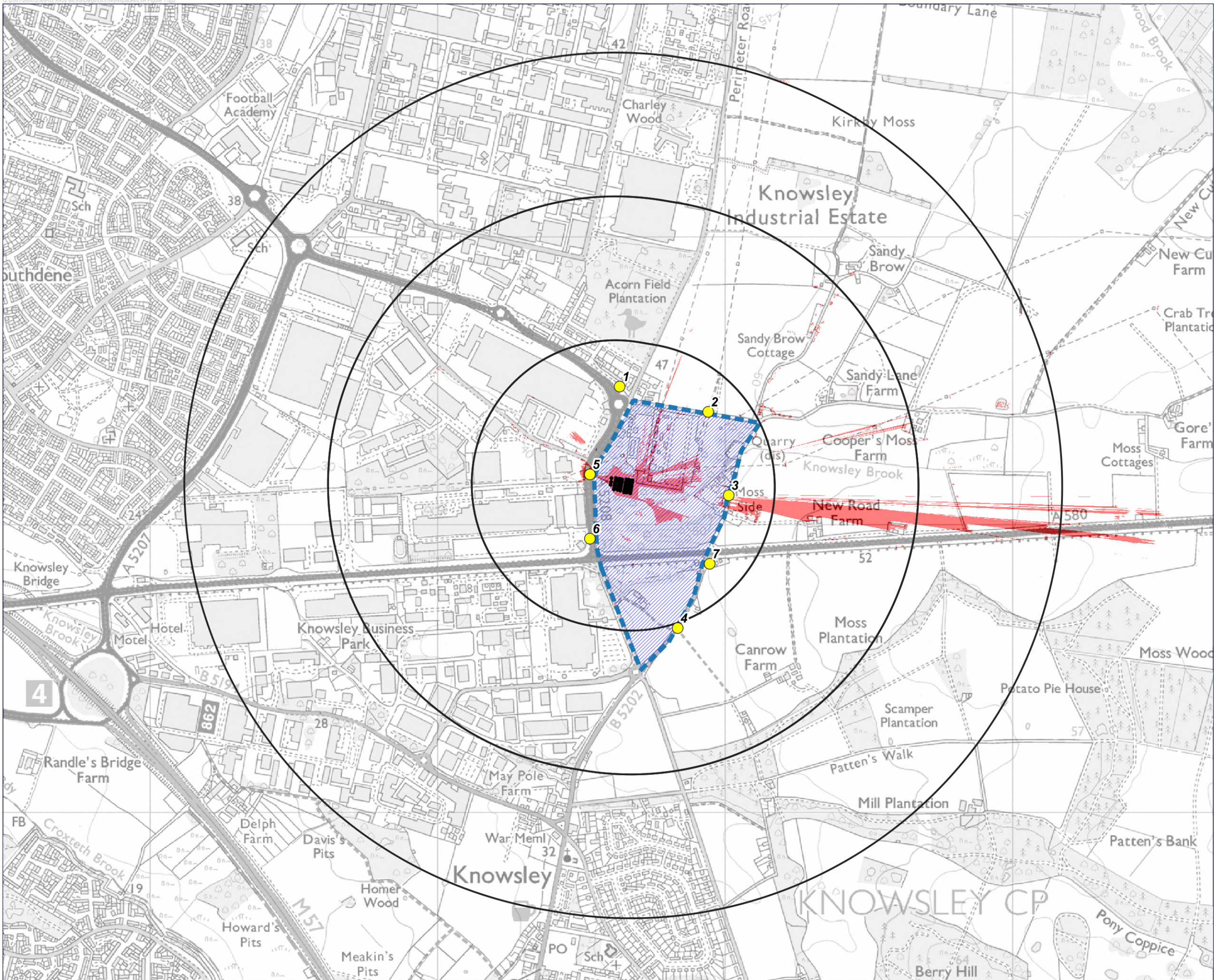


Knowsley Council as a sustainable urban extension (with employment as the primary use), and that therefore the appearance and character of the area, and views across it are likely to undergo major change irrespective of the presence of the Proposed Development.



FIGURES





• Proposed Structures

Distance from Proposed Structures at 0.5km intervals

Sustainable Urban Extension

ZTV (4.33m high new structures)

Photograph Locations

NOTES:
1. Zone of Theoretical Visibility has been generated using Environment Agency 1m First Return LIDAR DSM data (RMSE or accuracy +/-15cm), which takes account of screening features in the landscape.
2. ZTV generation has allowed for curvature of the earth and light refraction.
3. ZTV has been generated based upon an observer eye height of 1.7m above ground level.

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Project

Kirkby Battery Storage Facility

Figure Number

Figure 1

Figure Title

Landscape and Visual Context

Scale

1:12500@A3

Date

March 2023



0 250 500 750 1,000 1,300 m

Photograph 1: View south from Spinney View



Refer to Figure 1 for Viewpoint locations

Photograph 2: View south-west from Molly's Lane



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Project

Kirkby Battery Storage Facility

Figure Number

Figure 1

Figure Title

Photographs 1 and 2

Scale

N/a

Date

March 2023

Photograph 3: View west from Hewitts Lane



Refer to Figure 1 for Viewpoint locations

Photograph 4: View north from B5202 Knowsley Lane



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Project

Kirkby Battery Storage Facility

Figure Number

Figure 2

Figure Title

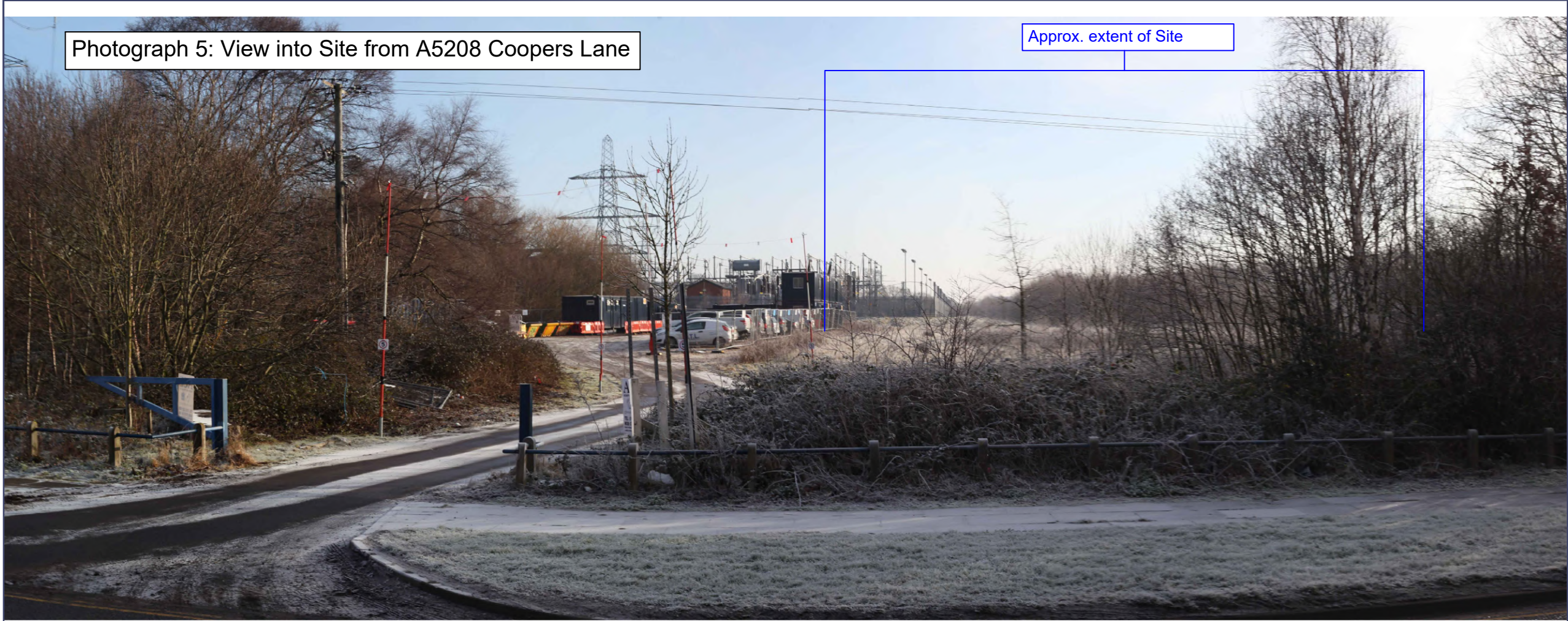
Photographs 3 and 4

Scale

N/a

Date

March 2023



Refer to Figure 1 for Viewpoint locations



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Project

Kirkby Battery Storage Facility

Figure Number

Figure 3

Figure Title

Photographs 5 and 6

Scale

N/a

Date

March 2023

Photograph 7: View north-west from junction of A5208 and B5202

Views towards the Site screened by vegetation



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Project

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Figure Number

Figure 4

Figure Title

Photograph 7

Scale

N/a

Date

March 2023