Technical Appendix 5.1: LVIA Methodology

Chapter 1
LVIA Methodology

Introduction

5.1.1 This appendix sets out the methodology used for the Revised Larbrax Wind Farm (hereafter referred to as 'the Proposed Development') Landscape and Visual Impact Assessment (LVIA) and associated cumulative assessment contained in **Chapter 5: LVIA**, Volume 2 of the Environmental Impact Assessment Report (EIA Report).

5.1.2 The methodology for the production of accompanying visualisations was based on current good practice guidance as set out by NatureScot[1] unless stated otherwise. Detailed information about the approach to taking viewpoint photography, Zone of Theoretical Visibility (ZTV) and visualisation production is provided at the end of this appendix.

5.1.3 The methodology used for undertaking the Residential Visual Amenity Assessment (RVAA) is set out in **Appendix 5.2**.

5.1.4 Landscape and visual assessments are separate, although linked, processes. LVIA therefore considers the likely effects of a proposed development on:

- Landscape as a resource in its own right (caused by changes to the constituent elements of the landscape, its specific aesthetic or perceptual qualities and the character of the landscape); and
- Views and visual amenity as experienced by people (caused by changes in the appearance of the landscape).

5.1.5 The primary LVIA deals with landscape and visual effects separately against the current baseline. It is followed by an assessment of cumulative landscape and visual effects, which considers the effects against potential future baseline scenarios, where relevant.

Guidance

5.1.6 This methodology was developed by Chartered Landscape Architects (Chartered Members of the Landscape Institute (CMLI)) at LUC, who have extensive experience in the assessment of landscape and visual effects arising from wind energy developments.

5.1.7 The methodology was developed primarily in accordance with the principles contained within the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3)[2] and supplemented by experience and professional judgement. NatureScot cumulative guidance[3] also informs the approach to the assessment of cumulative landscape and visual effects in relation to onshore wind energy development. Other relevant guidance is listed in **Chapter 5**.

Scope of Assessment

5.1.8 LVIA considers physical changes to the landscape as well as changes in landscape character. It also considers changes to areas designated for their scenic or landscape qualities, and the visual impacts of a proposed development as perceived by people from routes, settlements and viewpoints.

5.1.9 All potentially significant landscape and visual effects (including cumulative effects) are examined, including those relating to construction and operation. Effects during decommissioning are scoped out, as set out in **Chapter 5**.

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[1] Scottish Natural Heritage (2017) Visual Representation of Wind Farms Guidance, Version 2.2
[2] The Landscape Institute and Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, Routledge
[3] NatureScot (2021) Guidance: assessing the cumulative landscape and visual impact of onshore wind energy developments

5.1.10 Where it is judged that significant effects are unlikely to occur, due to limited theoretical visibility or distance to the receptor, the assessment of likely effects on some receptors have been 'scoped out'.

Assessment Methodology

Study Area

5.1.11 The study area for LVIA is determined by the nature and scale of the development proposed and the nature of the study area (e.g. complex topography or extensive tree cover leading to visually enclosed areas may limit the extent of likely significant effects). A 40 km radius study, in line with NatureScot guidance[4], was defined for this assessment. Where likely significant effects are anticipated to be localised, the assessment focusses on smaller study areas within 40 km as appropriate – see **Chapter 5**.

Methodological Overview

5.1.12 The key steps in the methodology for assessing landscape and visual effects are as follows:

- The study area is defined, and the area over which the development will potentially be visible is established through the creation of an initial ZTV plan[5];
- The landscape of the study area is analysed, and landscape receptors identified, informed by desk and field-survey;
- The visual baseline is recorded in terms of the different receptors (groups of people) who may experience views of the development (informed by the initial ZTV) and the nature of their existing views and visual amenity;
- Potential assessment viewpoints are selected, as advocated by GLVIA3, to represent a range of different receptors and views, in consultation with statutory consultees:
  - "***Representative viewpoints**, selected to represent the experience of different types of visual receptor, where larger numbers of viewpoints cannot all be included individually and where the significant effects are unlikely to differ – for example, certain points may be chosen to represent the views of users of particular public footpaths and bridleways;*
  - ***Specific viewpoints**, chosen because they are key and sometimes promoted viewpoints within the landscape, including for example specific local visitor attractions, viewpoints in areas of particularly noteworthy visual and/or recreational amenity such as landscapes with statutory landscape designations, or viewpoints with particular cultural landscape associations; and*
  - ***Illustrative viewpoints**, chosen specifically to demonstrate a particular effect or specific issues, which might, for example, be the restricted visibility at certain locations.*" (GLVIA3, Para 6.19, Page 109).
- Likely significant effects on both the landscape as a resource and visual receptors are identified; and
- The level (and significance) of landscape and visual effects are judged with reference to the **nature of the receptor** (commonly described as the sensitivity of the receptor), which considers both susceptibility and value, and the **nature of the effect** (commonly described as the magnitude of change), which considers a combination of judgements including scale, geographical extent, duration and reversibility.

Direction of Effects

5.1.13 As required by the EIA Regulations[6], the assessment identifies the direction of effect as either being beneficial, adverse (also referred to as positive or negative) or neutral.

[4] Scottish Natural Heritage (2017) Visual Representation of Wind Farms Guidance, Version 2.2
[5] A bare ground ZTV indicates areas from where a development is theoretically visible, but does not account for screening from vegetation and/or buildings.
[6] Scottish Government (2017) The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended)

5.1.14 The direction of landscape, visual and cumulative effects (**beneficial**, **adverse** or **neutral**) is determined in relation to the degree to which the proposal fits with the existing landscape character or views, and the contribution to the landscape or views that the proposed development makes, even if it is in contrast to the existing character of the landscape or views.

5.1.15 With regard to wind energy development, whilst there is a broad spectrum of response from the strongly positive to the strongly negative, an assessment is required to take an objective approach. Therefore, to cover the 'maximum/worst case situation, likely landscape and visual effects (including cumulative effects) relating to commercial scale wind farms are generally assumed to be adverse (negative).

Method for Assessing Landscape Effects

5.1.16 As outlined in GLVIA3 "*An assessment of landscape effects deals with the effects of change and development on landscape as a resource*" (GLVIA3, Para 5.1, Page 70). Changes may affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character.

5.1.17 An assessment of landscape effects requires consideration of the nature of landscape receptors (sensitivity of the receptor) and the nature of the effect on those receptors (magnitude of change). GLVIA3 states that the nature of landscape receptors should be assessed in terms of the susceptibility of the receptor to the type of change proposed, and the value attached to the receptor. The nature of the effect on each landscape receptor should be assessed in terms of scale of effect, geographical extent, duration and reversibility.

5.1.18 These aspects are considered together to form a judgement regarding the overall significance of landscape effects (GLVIA3, Figure 5.1 Page 71). The following sections set out the methodology used to evaluate sensitivity and magnitude.

Significance of Landscape Effects

5.1.19 The introduction of a development could affect the elements which make up the landscape, the aesthetic or perceptual aspects of the landscape or its distinctive character.

5.1.20 Landscape receptors are the constituent elements of the landscape, its specific aesthetic or perceptual qualities and the character of the landscape in different areas (GLVIA3, Para. 3.21, Page 36).

5.1.21 The sensitivity of landscape receptors should be assessed in terms of the susceptibility of the receptor to the type of change or development proposed, and the value attached to the landscape. The magnitude of change should be assessed in terms of the scale, geographical extent, duration and reversibility of the effect.

5.1.22 These aspects are considered together, to form a judgement regarding the overall significance of landscape effect (GLVIA3, Figure 5.1 Page 71). The following sections set out the methodology used to evaluate sensitivity and magnitude.

Sensitivity of Landscape Receptors

5.1.23 The sensitivity of a landscape receptor to change is defined as **high**, **medium** or **low** and is based on weighing up professional judgements regarding susceptibility and value, as set out in the table below.

Table 5.1.1: Sensitivity of Landscape Receptors

	Higher		Lower
Susceptibility	Attributes that make up the character of the landscape offer very limited opportunities for the accommodation of change without key characteristics being fundamentally altered by wind energy development, leading to a different landscape character.	↔	Attributes that make up the character of the landscape are resilient to being changed by wind energy development.
Value	Landscapes with high scenic quality, high conservation interest, recreational value, important cultural associations or a high degree of rarity.	↔	Landscape of poor condition and intactness, limited aesthetic qualities, or of character that is widespread.

	Higher		Lower
	Areas or features designated at a national level e.g. National Parks or National Scenic Areas or key features of these with national policy level protection.		

5.1.24 There may be a complex relationship between the value attached to a landscape and the susceptibility of the landscape to a specific change. Therefore, the rationale for judgements on the sensitivity of landscape receptors needs to be clearly set out for each receptor. Further information on the criteria is provided below. It should be noted that whilst landscape designations at an international or national level are likely to be accorded the highest value, it does not necessarily follow that such landscapes all have a high susceptibility to all types of change, and conversely, undesignated landscapes may also have high value and susceptibility to change (GLVIA3, Page 90).

Susceptibility of Landscape Receptors

5.1.25 Susceptibility is defined by GLVIA3 as "*the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular type or area, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies*" (GLVIA3 paragraph 5.40).

5.1.26 A series of criteria are used to evaluate the susceptibility of Landscape Character Types (LCT) to wind energy development as set out in the table below. These criteria or aspects are drawn from a range of published sources relating to wind farm development, including SNH's Siting and Designing Windfarms in the Landscape[7] and GLVIA3.

Table 5.1.2: Landscape Susceptibility Criteria

	Aspects Indicating Reduced Susceptibility to Wind Energy Development		Aspects Indicating Greater Susceptibility to Wind Energy Development
Scale	Large scale	↔	Small scale
Landform	Absence of strong topographical variety, featureless, convex or flat	↔	Presence of strong topographical variety or distinctive landform features
Landscape pattern and complexity	Simple Regular or uniform	↔	Complex Rugged and irregular
Settlement and man-made influence	Presence of contemporary structures e.g. utility, infrastructure or industrial elements	↔	Absence of modern development
Skylines	Non-prominent /screened skylines Presence of existing modern man-made features	↔	Distinctive, undeveloped skylines Skylines that are highly visible over large areas or exert a large influence on landscape character Skylines with important historic landmarks
Inter-visibility with adjacent landscapes	Little inter-visibility with adjacent sensitive landscapes or viewpoints	↔	Strong inter-visibility with sensitive landscapes Forms an important part of a view from sensitive viewpoints

[7] Scottish Natural Heritage (2017) Siting and Designing Windfarms in the Landscape, Version 3a

	Aspects Indicating Reduced Susceptibility to Wind Energy Development		Aspects Indicating Greater Susceptibility to Wind Energy Development
Perceptual aspects	Close to visible or audible signs of human activity and development	↔	Remote from visible or audible signs of human activity and development

5.1.27 Published landscape capacity or sensitivity studies[8] (where they exist) are reviewed to help inform the evaluation of susceptibility, in addition to desk-based research and fieldwork undertaken across the study area. This review includes an evaluation as to the relevance of the publication to the assessment being undertaken (e.g. consideration of the purpose and scope of the published studies and whether they have become out of date).

5.1.28 Landscape susceptibility is described as being **high**, **medium** or **low**.

Value of Landscape Receptors

5.1.29 The European Landscape Convention advocates that all landscape is of value, whether it is the subject of defined landscape designation or not, "*The landscape is important as a component of the environment and of people's surroundings in both town and country and whether it is ordinary landscape or outstanding landscape*" (Explanatory Report to the European Landscape Convention, Page 6). The value of a landscape receptor is recognised as being a key contributing factor to the sensitivity of landscape receptors.

5.1.30 The value of landscape receptors is determined with reference to:

- Review of relevant designations and the level of policy importance/protection that they benefit from (such as landscapes designated at international, national or local level); and/or
- Application of criteria that indicate value (such as scenic quality, rarity, recreational value, representativeness, conservation interests, perceptual aspects and artistic associations) as described in GLVIA3, paragraphs 5.44-5.47; and/or

5.1.31 Aspects relating to landscape character and "*the value of individual contributors to landscape character, especially the key characteristics, which may include individual elements of the landscape, particular landscape features, notable aesthetic, perceptual or experiential qualities, and combinations of these contributors*." (GLVIA3, Para 5.44, Page 89). Internationally and nationally designated landscapes would generally indicate landscape of higher value whereas those without formal designation (such as a widespread or common landscape type without high scenic quality) are likely to be of lower value, bearing in mind that all landscapes are valued at some level. There is, however, variation across both designated and undesignated areas, and so judgements regarding value are also informed by fieldwork.

5.1.32 Landscape value is described as being **high**, **medium** or **low**.

Magnitude of Landscape Change

5.1.33 The overall judgement of magnitude of landscape change is based on combining professional judgements on scale, geographical extent, duration and reversibility. Further information on the criteria is provided below.

Scale of Change

5.1.34 For landscape elements/features this depends on the extent of existing landscape elements that would be lost or changed, the proportion of the total extent that this represents, and the contribution of that element to the character of the landscape.

5.1.35 In terms of landscape character, this reflects the degree to which the character of the landscape would change as a result of removal or addition of landscape components, and how the changes would affect key characteristics.

[8] The Scottish Borders Council (2016), Renewable Energy Supplementary Guidance and Landscape Capacity Study, and Midlothian Council (2014). Midlothian Landscape Wind Energy Capacity Study, have been used to inform the evaluation of susceptibility of landscape character types.

5.1.36 The scale of the effect is described as being **large**, **medium**, **small**, or **barely perceptible**.

Geographical Extent of Effect

5.1.37 The geographical extent over which the landscape effect would arise is described as being **large** (scale of the landscape character type, or widespread, affecting several landscape types or character areas), **medium** (more immediate surroundings) or **small** (site level).

Duration of Effect

5.1.38 GLVIA3 states that "*Duration can usually be simply judged on a scale such as short term, medium term or long term*" (GLVIA3, Page 91). For the purposes of the assessment, duration is often determined in relation to the phases of the proposed development being assessed, as follows:

- **Short-term** effects are those that occur during construction, and may extend into the early part of the operational phase, e.g. construction activities, generally lasting 0-5 years;
- **Medium-term** effects are those that occur during part of the operational phase, generally lasting 5-10 years; and
- **Long-term** effects are those which occur throughout the operational phase (in this instance 35 years), e.g. presence of turbines, or are permanent effects which continue after the operational phase, generally lasting over 10 years.

5.1.39 Duration is also a relevant consideration for effects which are intermittent (for example lighting during construction).

Reversibility of Effect

5.1.40 In accordance with the principles contained within GLVIA3, reversibility is reported as **reversible**, **partially reversible** or **irreversible** (i.e. permanent), and is related to whether the change can be reversed at the end of the phase of development under consideration (i.e. at the end of construction or at the end of the operational lifespan of the development).

5.1.41 Taking into account these four factors, judgements on the magnitude of landscape change are recorded as **high**, **medium**, **low** or **barely perceptible** and are guided by the table below.

Table 5.1.3: Magnitude of Landscape Change

	Higher		Lower
Scale	Extensive loss of landscape features and/or elements, and/or change in, or loss of key landscape characteristics, and/or creation of new key landscape characteristics	↔	Limited loss of landscape features and/or elements, and/or change in or loss of some secondary landscape characteristics
Geographical Extent	Change in landscape features and/or character extending considerably beyond the immediate site and potentially affecting multiple landscape character types/areas	↔	Change in landscape features and/or character contained within or local to the immediate site and affecting only a small part of the landscape character type/area
Duration	Changes experienced for a longer period e.g. 10 years or more Continuous	↔	Changes experienced for a shorter period e.g. up to 5 years Intermittent or occasional
Reversibility	Change to features, elements or character which cannot be undone or are only partly reversible after a long period	↔	A temporary landscape change which is largely reversible following the completion of construction, or decommissioning of the development

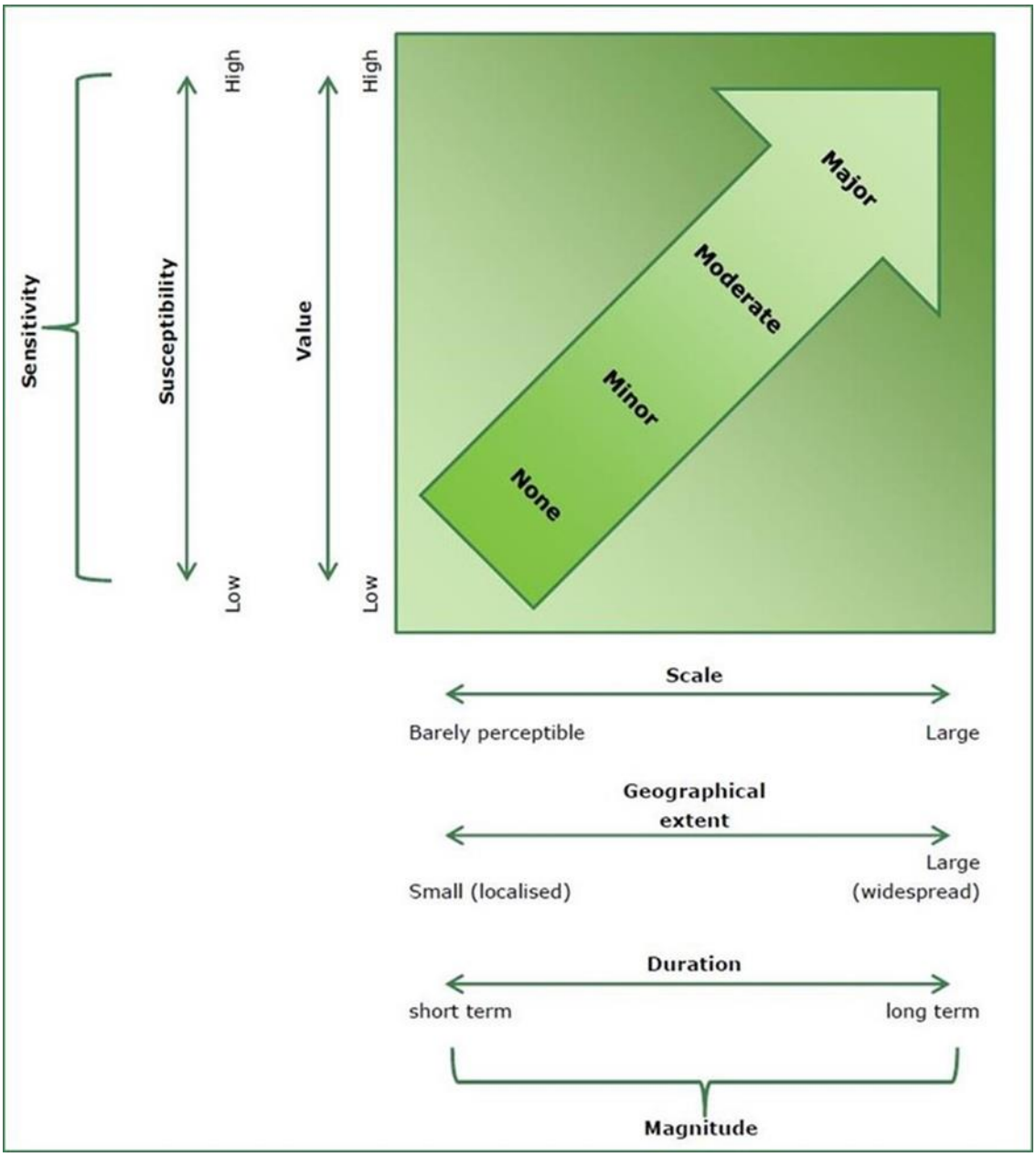
Judging Levels of Landscape Effect and Significance

5.1.42 The final step in the assessment requires the judgements of sensitivity and magnitude of change to be combined to make an informed professional judgement on the significance of each landscape effect (GLVIA3, Figure 5.1, Page 71).

5.1.43 Consideration of the relative importance of each aspect is made to feed into the overall decision. Levels of effect are identified as **negligible**, **minor**, **moderate** or **major** where moderate and major effects are considered significant in the context of the EIA Regulations.

5.1.44 This determination requires the application of professional judgement and experience to take on board the many different variables which need to be considered, and which are given different weight according to site-specific and location-specific considerations in every instance. Judgements are made on a case-by-case basis, guided by the principles set out in **Diagram 5.1.1** below. As such, the conclusion on the level of effect is not always the same. A numerical scoring or rigid matrix-type approach, where the level of effect would be defined simply based on the level of sensitivity (nature of receptor) combined with the magnitude of change (nature of effect), is not considered appropriate.

Diagram 5.1.1: Judging Levels of Effect – Landscape or Visual (including cumulative)



Method for Assessing Visual Effects

Significance of Visual Effects

5.1.45 As outlined in GLVIA3 "*An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity*" (GLVIA3, Para 6.1, Page 98). Changes in views may be experienced by people at different locations within the study area including from static locations (normally assessed using representative viewpoints) and whilst moving through the landscape (normally referred to as sequential views, e.g. from roads and walking routes).

5.1.46 Visual receptors are individuals or groups of people who may be affected by changes in views and visual amenity. They are usually grouped by their occupation or activity (e.g. residents, motorists, recreational users) and the extent to which their attention is focused on the view (GLVIA3, Paras. 6.31-6.32, Page 113).

5.1.47 Like landscape effects, GLVIA3 states that the sensitivity of visual receptors should be assessed in terms of the susceptibility of the receptor to change in views and/or visual amenity and the value attached to particular views. The magnitude of change should be assessed in terms of the scale, geographical extent, duration and reversibility of the effect.

5.1.48 These aspects are considered together, to form a judgement regarding the overall significance of visual effect (GLVIA3, Figure 6.1, Page 99). The following sections set out the methodology used to evaluate sensitivity and magnitude.

Sensitivity of Visual Receptor

5.1.49 The sensitivity of a visual receptor to change is defined as **high**, **medium** or **low** and is based on weighing up professional judgements regarding susceptibility and value, and each of their component considerations, as set out in the table below.

Table 5.1.4: Sensitivity of Visual Receptors

	Higher		Lower
Susceptibility	Viewers whose attention or interest is focused on their surroundings, including communities/individual residential receptors/people engaged in outdoor recreation/ visitors to heritage assets or other attractions where views of surrounding area an important contributor.	↔	People whose attention is not on their surroundings (and where setting is not important to the quality of working life) such as commuters/people engaged in outdoor sports/people at their place of work.
Value	Views may be recorded in management plans, guide books, and/or which are likely to be experienced by large numbers of people.	↔	Views which are not documented or protected.

5.1.50 The sensitivity of visual receptors may involve a complex relationship between their susceptibility to change and the value attached to a view. Therefore, the rationale for judgements of sensitivity is clearly set out for each receptor in relation to both its susceptibility (to the type of change proposed) and the value of the view. Further information on the criteria is provided below.

Susceptibility of Visual Receptor

5.1.51 The susceptibility of visual receptors to changes in views/visual amenity is a function of the occupation or activity of people experiencing the view and the extent to which their attention is focused on views (GLVIA3, para 6.32). This is recorded as **high**, **medium** or **low**, and is informed by the table below.

Table 5.1.5: Susceptibility of Visual Receptors

High	Medium	Low
People whose attention or interest is focussed on their surroundings, including: ■ Communities where views contribute to the landscape setting enjoyed by residents; ■ Visitors to heritage assets or other attractions where views of surroundings are an important contributor to experience; and/or	■ People engaged in outdoor recreation (including users of cycle routes, footpaths and public rights of way whose interest is likely to be partially focused on the landscape); ■ People travelling in vehicles on scenic routes and tourist routes, where attention is focused on the surrounding landscape, but is transitory; and/or	■ People travelling more rapidly on more major roads, rail or transport routes (not recognised as scenic routes); ■ People engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape; and/or ■ People at their place of work whose attention is not on their surroundings (and where setting is

High	Medium	Low
■ Visitors to formal or promoted stopping places on scenic or tourist routes.	■ People at their place of work whose attention is focused on the surroundings and where setting is important to the quality of working life.	not important to the quality of working life).

Value of View or Visual Amenity

5.1.52 GLVIA3 also requires evaluation of the value attached to the view or visual amenity and relates this to planning designations and cultural associations (GLVIA3, Para. 6.37, Page 114).

5.1.53 Recognition of the value of a view is determined with reference to:

- Planning designations specific to views;
- Whether it is recorded as important in relation to designated landscapes (such as views specifically mentioned in the special qualities of a National Scenic Area);
- Whether it is recorded as important in relation to heritage assets (such as designed views recorded in citations of Gardens and Designed Landscapes (GDL) or views recorded as of importance in Conservation Area Appraisals); and
- The value attached to views by visitors, for example through appearances in guidebooks or on tourist maps, provision of facilities for their enjoyment and references to them in literature and art.

5.1.54 A designated/promoted viewpoint or scenic route advertised on maps and in tourist information, or which is a significant destination in its own right, such as a Munro summit, is likely to indicate a view of higher value. High value views may also be recognised in relation to the special qualities of a designated landscape or heritage asset, or may be a view which is familiar from photographs or paintings.

5.1.55 Views experienced from viewpoints or routes not recognised formally or advertised in tourist information, or which are not provided with interpretation or, in some cases, formal access, are likely to be of lower value.

5.1.56 Judgements on the value of views or visual amenity are recorded as **high**, **medium** or **low**.

Magnitude of Visual Change

5.1.57 The overall judgement of magnitude of visual change (nature of visual effect) is based on weighing up professional judgements on scale, geographical extent, duration and reversibility. Further information on the criteria is provided below.

Scale

5.1.58 The scale of a visual change depends on:

- The scale of the change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the proposed development;
- The degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of form, scale and mass, line, height, colour and texture; and
- The nature of the view of the proposed development, in terms of the relative amount of time over which it will be experienced and whether views will be full, partial or glimpses.

5.1.59 All changes are assumed to be during winter, representing a 'maximum case effect' or 'worst case effect' scenario with minimal screening by vegetation and deciduous trees. Note that wireframes and ZTVs prepared to illustrate potential visual effects are calculated on the basis of bare ground and therefore demonstrate the maximum extent of visibility possible, in the absence of buildings or vegetation. Where forestry is present, consideration is given to felling regimes if levels of screening by forestry are likely to change notably during the lifetime of the proposed development.

5.1.60 In this assessment scale of visual change is described as being **large**, **medium**, **small** or **barely perceptible**.

Geographical Extent

5.1.61 The geographical extent of a visual change records the extent of the area over which the changes will be visible e.g. whether this is a unique viewpoint from where the proposed wind farm can be glimpsed, or whether it represents a large area from which similar views are gained. Geographical extent is described as being **large**, **medium** or **small**.

Duration

5.1.62 The duration of visual effects is reported as **short-term**, **medium-term** or **long-term**, as defined for the duration of landscape effects (see above). Duration is also a relevant consideration for effects which are intermittent (for example lighting).

Reversibility

5.1.63 Reversibility is reported as **irreversible** (i.e. permanent), **partially reversible** or **reversible**, and is related to whether the visual change can be reversed at the end of the phase of development under consideration (i.e. at the end of construction or at the end of the operational lifespan of the development). Operational visual effects are generally considered to be partially reversible as the decommissioning phase will remove turbines and most infrastructure at the end of the operational phase.

5.1.64 Judgements on the magnitude of visual effect are recorded as **high**, **medium**, **low** or **barely perceptible** guided by the table below.

Table 5.1.6: Magnitude of Visual Change

	Higher		Lower
Scale	A large visual change resulting from the proposed development is the most notable aspect of the view, perhaps as a result of the development being in close proximity, or because a substantial part of the view is affected, or because the development introduces a new focal point and/or provides contrast with the existing view and/or changes the scenic qualities of the view.	↔	A small or some visual change resulting from the proposed development as a minor or generally unnoticed aspect of the view, perhaps as a result of the development being in the distance, or because only a small part of the view is affected, and/or because the development does not introduce a new focal point or is in contrast with the existing view and/ does not change the scenic qualities of the view.
Geographical Extent	The assessment location is clearly representative of similar visual effects over an extensive geographic area.	↔	The assessment location clearly represents a small geographic area.
Duration	Visual change experienced over a longer period, e.g. 10 years or more. Continuous Longer periods of time when travelling along a linear route	↔	Visual change experienced over a short period e.g., up to 5 years. Intermittent or occasional Shorter periods of time when travelling along a linear route
Reversibility	A permanent visual change which is not reversible or only partially reversible following decommissioning of the proposed development.	↔	A temporary visual change which is largely reversible following the completion of construction, or decommissioning, of the proposed development.

Judging the Level of Visual Effect and Significance

5.1.65 As for landscape effects, the final step in the assessment requires the judgements of sensitivity of visual receptor and magnitude of visual effect to be combined to make an informed professional assessment on the significance of each visual effect.

5.1.66 This determination requires the application of professional judgement and experience to take on board the many different variables which need to be considered, and which are given different weight according to site-specific and location-specific considerations in every instance. Judgements are made on a case-by-case basis, guided by the same principles as set out in **Diagram 5.1.1** above.

5.1.67 Consideration of the relative importance of each aspect is made to feed into the overall decision. Levels of visual effect are identified as **negligible**, **minor**, **moderate** or **major** where moderate and major visual effects are considered significant in the context of the EIA Regulations. A numerical or rigid matrix-type approach, where the level of effect would be defined simply based on the level of sensitivity (nature of receptor) combined with the magnitude of change (nature of effect), is not adopted. As such, the conclusion on the level of effect is not always the same.

Cumulative Landscape and Visual Impact Assessment

5.1.68 The aim of a cumulative assessment in LVIA is to "*describe, visually represent and assess the ways in which a proposed windfarm would have additional impacts when considered together with other existing, consented or proposed windfarms*"[9] (NatureScot page 8, 2021).

5.1.69 The cumulative assessment therefore focuses on the **additional** cumulative change which may result from the introduction of a proposed development because of its interaction with other development. The cumulative assessment may also make reference to in-combination (also known as total) cumulative effects, where these have the potential to be significant. A cumulative assessment may also consider the potential interactions between different types of development (e.g. transmission infrastructure, other energy generation stations or other built development) if these are likely to result in similar landscape and visual impacts. No other types of development other than wind farms, however, are considered likely to give rise to significant landscape and visual cumulative effects within the LVIA Study Area, and as such have not been considered within the cumulative assessment.

5.1.70 Cumulative landscape and visual effects are described separately, as for the primary LVIA.

Differences Between the Primary LVIA and the Cumulative Assessment

5.1.71 Although both the primary LVIA and the cumulative assessment look at the effects of a proposed development on the landscape and on views, there are differences in the baseline against which the assessments are carried out.

5.1.72 For the primary LVIA, the baseline includes existing wind farms and other developments which are present in the landscape at the time of undertaking the assessment, which may be either operational or under construction (assuming it is well advanced and, in the case of wind farms, the turbines are already present). The presence of existing development has an influence on the assessment of effects on landscape character and the assessment of effects on views, for example in that the existing character may be influenced by wind turbines, and this characteristic might be intensified. The primary LVIA considers cumulative effects against the current baseline. For the cumulative assessment of potential future effects, the baseline is partially speculative and includes (in addition to existing wind farms):

- **Scenario 1**: Wind farms which have been granted planning consent but are not yet constructed (consented).
- **Scenario 2**: Submitted valid wind farm applications which are currently awaiting determination by the relevant consenting authority, including those at appeal (proposed).

5.1.73 A cut-off date of 28th May 2024 was applied for the inclusion of developments within the cumulative assessment.

Types of Cumulative Effect

5.1.74 NatureScot's Assessing the Cumulative Impact of Onshore Wind Energy Developments[10] states that "*cumulative landscape effects can impact on either the physical fabric or character of the landscape, or any special values attached to it*".

5.1.75 Three types of cumulative effects on visual amenity are considered in the assessment: combined, successive and sequential:

[9] NatureScot (2021) Assessing the cumulative impact of onshore wind energy developments [online].
[10] NatureScot (2021) Assessing the cumulative impact of onshore wind energy developments [online].

- **Combined effects** occur where a static viewer is able to view two or more wind farms from a viewpoint within the viewers' same arc of vision (assumed to be about 90 degrees for the purpose of the assessment);
- **Successive effects** occur where a static viewer is able to view two or more wind farms from a viewpoint, but needs to turn to see them; and
- **Sequential effects** occur when a viewer is moving through the landscape from one area to another, for instance when a person is travelling along a road or footpath, and is able to see two or more wind farms at the same, or at different times as they pass along the route. Frequently sequential effects occur where wind farms appear regularly, with short time lapses between points of visibility. Occasionally sequential effects occur where long periods of time lapse between views of wind farms, depending on speed of travel and distance between viewpoints.

Method for Assessing Cumulative Landscape Effects

5.1.76 The primary LVIA considers the introduction of a proposed development to a baseline which includes existing (operational) wind farms, or those that are already at an advanced stage of construction (i.e. they are present in the landscape). The cumulative assessment considers the potential future effects of the addition of the proposed development, against a landscape baseline that includes wind farms that may or may not be present in the landscape in the future, i.e. wind farms that are in the early stages of construction where turbines are not yet present, those that are consented but not yet built, and/or undetermined planning applications. The wind farms included in each scenario are assumed to be present in the landscape for the purposes of the assessment.

5.1.77 The scale of cumulative change focuses on:

- The pattern and arrangement of wind farms in the landscape or view, e.g. developments seen in one direction or part of the view (combined views), or seen in different directions (successive views in which the viewer must turn) or developments seen sequentially along a route;
- The relationship between the scale of the wind farms, including turbine size and number, and if wind farms appear balanced in views in terms of their composition, or at odds with one another;
- The position of the wind farms in the landscape, e.g. in similar landscape or topographical context;
- The position of the wind farms in the view, e.g. on the skyline or against the backdrop of land; or how the proposed development will be seen in association with another development (separate, together, behind etc.); and
- The distances between wind farms, and their distances from the viewer.

Significance of Cumulative Effects

5.1.78 As for the primary LVIA, judging the significance of cumulative landscape and visual effects requires consideration of the sensitivity and the magnitude of change on those receptors. The following sections set out the methodology applied for the assessment of cumulative effects for both landscape and visual receptors and explains the terms used.

Sensitivity

5.1.79 An assessment of cumulative landscape effects requires consideration of the sensitivity of the landscape receptors. This requires consideration of susceptibility and value, as detailed in the primary LVIA.

Magnitude of Cumulative Landscape Effects

5.1.80 As for the primary LVIA, the magnitude of cumulative landscape effect (nature of cumulative landscape effect) is based on combining professional judgements on scale, geographical extent, duration and reversibility. Judgements on the magnitude of cumulative landscape effect (nature of cumulative visual effect) are recorded as **high**, **medium** or **low**.

Scale

5.1.81 The scale of cumulative landscape change reflects the additional influence the proposed development has on the character of the area, assuming the other developments considered in the future baseline scenarios are already present in the landscape. This is influenced by:

- How the proposal fits with existing pattern of development, including the relationship to landscape character types and areas; and
- The siting and design of the proposed development in relation to other existing and proposed developments (including distance between wind farms, composition, size and scale).

Geographical Extent

5.1.82 The geographical extent over which the cumulative landscape change will be experienced is described as being large (scale of the landscape character type or widespread, affecting several landscape types or character areas), medium (immediate surroundings) or small (site level).

Duration and Reversibility

5.1.83 For the purpose of the cumulative landscape assessment, consideration of the judgements of the duration and reversibility of landscape effects are as recorded in the primary LVIA.

5.1.84 Judgements on the magnitude of cumulative landscape effect are recorded as **high**, **medium** or **low**.

Levels of Cumulative Landscape Effect and Significance

5.1.85 The final step in the assessment of future cumulative landscape effects requires the judgements of sensitivity and magnitude of cumulative landscape effect to be combined to make an informed professional assessment on the significance of each cumulative landscape effect.

5.1.86 As for the primary LVIA, the levels of cumulative landscape effect are described as **negligible**, **minor**, **moderate** or **major** where moderate and major cumulative landscape effects are considered significant in the context of the EIA Regulations.

5.1.87 More significant effects are likely where:

- The proposed development extends or intensifies a landscape effect;
- The proposed development 'fills' an area such that it alters the landscape resource; and/or
- The interaction between the proposed development and other developments means that the total effect on the landscape is greater than the sum of its parts.

5.1.88 GLVIA3 states "*The most significant cumulative landscape effects are likely to be those that would give rise to changes in the landscape character of the study area of such an extent as to have major effects on its key characteristics and even, in some cases, to transform it into a different landscape type. This may be the case where the project being considered itself tips the balance through its additional effects. The emphasis must always remain on the main project being assessed and how or whether it adds to or combines with the others being considered to create a significant cumulative effect*" (GLVIA3, Para 7.28).

5.1.89 This determination of potential future cumulative landscape effects requires the application of professional judgement and experience to take on board the many different variables which need to be considered, and which are given different weight according to site-specific and location-specific considerations in every instance. Judgements are made on a case-by-case basis, guided by the same principles as set out in **Diagram 5.1.1** above.

Method for Assessing Cumulative Visual Effects

Sensitivity

5.1.90 The assessment of the significance of cumulative visual effects requires consideration of the sensitivity of the visual receptors. This requires consideration of susceptibility and value, as recorded in the primary LVIA.

Magnitude of Cumulative Visual Effects

5.1.91 The magnitude of cumulative visual effect (nature of cumulative visual effect) is based on combining professional judgements on scale; geographical extent; duration and reversibility. Judgements on the magnitude of cumulative visual effect (nature of cumulative visual effect) are recorded as **high**, **medium**, **low** or **barely perceptible**.

Scale

5.1.92 The scale of cumulative change to views depends on the additional influence the proposed development has on views assuming the other developments are already present in the landscape. This is influenced by:

- Whether the proposed development introduces development into a new part of the view so that the proportion of the developed part of the view increases;
- The relationship between the proposed development and other developments in terms of design, size and layout;
- The apparent visual relationship of developments to landscape character types and or landscape character areas; and/or
- In the case of magnitude of change to routes, the relative duration of views of development from routes, and whether these will be intermittent or continuous.

5.1.93 There has to be clear visibility of more than one development from any one place, or sequentially when moving along a route, of which one must be the proposed development, for there to be a combined or sequential cumulative effect.

Geographical Extent

5.1.94 The geographical extent of cumulative visual change refers to the extent of the area over which the changes will be visible e.g. whether this is a unique viewpoint from where the proposed wind farm can be glimpsed, or whether it represents a large area from which similar views are gained from large areas. Geographical extent is described as being **large**, **medium** or **small**.

Duration and Reversibility

5.1.95 For the purpose of the cumulative visual assessment, consideration of the judgements of the duration and reversibility of visual effects are as recorded in the primary LVIA.

Levels of Cumulative Visual Effect and Significance

5.1.96 The final step in the assessment of cumulative visual effects requires the judgements of sensitivity and magnitude of cumulative visual effect to be combined to make an informed professional assessment on the significance of each cumulative visual effect.

5.1.97 The evaluation of susceptibility, value, scale, geographical extent, duration and reversibility are considered together to provide an overall profile of each identified cumulative visual effect. An overview is taken of the distribution of judgements for each aspect to make an informed professional assessment of the overall level of each visual effect, drawing on guidance provided in GLVIA3. Levels of effect are identified as **negligible**, **minor**, **moderate** or **major** where moderate and major visual effects are considered significant in the context of the EIA Regulations.

5.1.98 More significant effects are likely where:

- The proposed development extends or intensifies a visual effect;
- The proposed development 'fills' an area such that it alters the view/ visual amenity;
- The interaction between the proposed development and other developments means that the total visual effect is greater than the sum of its parts; and/or
- The proposed development will lengthen the time over which effects are experienced (sequential effects).

5.1.99 The determination of cumulative visual effects requires the application of professional judgement and experience to take on board the many different variables which need to be considered, and which are given different weight according to site-specific and location-specific considerations in every instance. As for the primary assessment of landscape and visual effects, judgements are made on a case-by-case basis, guided by the same principles as set out in **Diagram 5.1.1** above.

Combined Cumulative Effects

5.1.100 GLVIA3 refers to the focus of cumulative LVIA being either "*additional effects of the main project under consideration, or on the combined effects of all the past, present and future proposals together with the new project.*" (paragraph 7.18), but in

doing so acknowledges that "…*assessing combined effects involving a range of different proposals at different stages in the planning process can be very complex. Furthermore the assessor will not have assessed the other schemes and cannot therefore make a fully informed judgement. A more comprehensive overview of the cumulative effects must rest with the competent authority*."

5.1.101 Therefore, this type of cumulative effect is only described where it is considered likely to be a relevant consideration in the determination of the proposed development. In considering the detailed cumulative landscape and visual effects set out in the LVIA, broad observations are made, where relevant, within the summary of effects. These relate to how the combined cumulative effects of multiple future developments may influence landscape character, views and visual amenity and designated landscapes.

Chapter 2
ZTV Mapping and Visualisation Methodology

Introduction

5.2.1 This section sets out the approach to the production of the figures and visualisations which accompany **Chapter 5**. Figures referred to in this appendix are located in **Volume 3a** of the EIA Report and visualisations are included in **Volumes 3b: LVIA Visualisations (Part 1) and Volume 3c: LVIA Visualisations (Part 2) and Cultural Heritage Visualisations.**

5.2.2 The methodology for the production of figures and visualisations was based on current good practice guidance from NatureScot[11] and the Landscape Institute[12], unless otherwise stated. Further information about the approach is provided below.

Data Sources

5.2.3 Data used for generating maps and visualisations:

- OS Terrain 50 mid-resolution height data (DTM) (50m grid spacing, 4 metres RMSE);
- OS Terrain 5 mid-resolution height data (DTM) (5m grid spacing, 2.5 metres RMSE);
- Ordnance Survey of Northern Ireland (OSNI) 10m DTM (10m grid spacing, 1.0m RMSE);
- OS Address Base Core data (for accurate residential property locations);
- Ordnance Survey 1:25,000 raster data (to provide detailed maps for viewpoint locations);
- Ordnance Survey 1:50,000 raster data (to show surface details such as roads, forest and settlement detail equivalent to the 1:50,000 scale Landranger maps); and
- Ordnance Survey 1:250,000 raster data (to provide a more general location map).

Zone of Theoretical Visibility (ZTV) Mapping

5.2.4 Evaluation of the theoretical extent to which the wind farm would be visible was informed by establishing a ZTV, using specific computer software designed to calculate the theoretical visibility of the proposed turbines within its surroundings. ESRI's ArcPro 3.2.0 software was used to generate the ZTV. The tool calculates areas from which the turbine hubs and maximum blade tip height are potentially visible. This is performed on a 'bare ground' computer generated terrain model, which does not take account of potential screening by buildings or vegetation. The software uses raster[13] height data, but while it is displayed as continuous data (with each grid square referred to as a 'cell'), it assumes a single average height value for each cell. Therefore, any height variations across cells are not recognised.

5.2.5 The DTM used for the analysis for the LVIA figures is OS Terrain® 5 height data, and OSNI 10m DTM. The DTM data has not been altered (i.e., by the addition of local surface screening features) for the production of the ZTV. The OSNI 10m DTM has been re-projected to British National Grid and merged with the OS Terrain 5 data into a single dataset with 10m resolution. No significant discrepancies between the DTM and the actual topography around the study area were noted. The effect of earth curvature and light refraction was included in the ZTV analysis. A viewer height of 2 m above ground level was used. As the model uses a 'bare ground' situation, it is considered to over-emphasise the extent of visibility of the Proposed Development and therefore represents a 'maximum potential visibility' scenario which is likely to be not possible in reality. The ZTV is used as a starting point in the assessment to provide an indication of theoretical visibility. This information was verified in the field.

[11] Scottish Natural Heritage (2017) Visual Representation of Wind Farms, Version 2.2
[12] Landscape Institute (2019) Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment
[13] Raster data is a matrix of cells (or pixels) which contain a value representing information.

5.2.6 The ZTV was calculated to show the potential number of turbines visible to maximum blade tip height (up to 149.9 m) and maximum hub height (up to 83.4 m). The ZTV showing where blade tips will be visible is provided in **Figures 5.1.2a and b**. The hub height ZTV is shown in **Figures 5.1.3a and b**. Subsequent figures which include the ZTV make use of the ZTV which indicates visibility up to the top of the blade tips.

5.2.7 To prepare cumulative ZTVs to illustrate the cumulative visibility of the Proposed Development in conjunction with other wind farms, the ZTV to tip height of each wind farm was generated (based on the tip height of each turbine to an applicable maximum radius in accordance with the current guidance (SNH, 2017)), and then combined with the Proposed Development ZTV (to a 40 km radius). The cumulative ZTVs are colour coded to distinguish between areas where the Proposed Development is predicted to be visible (either on its own, or in conjunction with other wind farms), and areas where other wind farms would be visible, but the Proposed Development would not be.

Viewpoint Photography

5.2.8 The photography is undertaken in accordance with guidance from SNH (now NatureScot)[14] and the Landscape Institute[15]. The focal lengths used are in accordance with recommendations contained in guidance and are stated on the figures. Photography was undertaken by LUC between 2023 and the start of 2024. A Nikon D750/D600 full frame sensor digital single lens reflex (SLR) camera, with a fixed 50mm focal length lens, was used to undertake photography from all viewpoint locations.

5.2.9 A tripod with vertical and horizontal spirit levels was used to provide stability and to ensure a level set of adjoining images. A panoramic head was used to ensure the camera rotated about the no-parallax point of the lens in order to eliminate parallax errors[16] between the successive images and enable accurate stitching of the images. The camera was rotated through a full 360˚ at each viewpoint.

5.2.10 The location of each viewpoint and information about the conditions was recorded in the field in accordance with NatureScot (SNH, 2017) and LI guidance (2019).

5.2.11 Weather conditions and visibility were considered an important aspect of the field visits for the photography. Where possible, visits were planned around clear days with good visibility. Viewpoint locations were visited at times of day to ensure, as far as possible, that the sun lit the scene from behind, or to one side of the photographer. South facing viewpoints can present problems particularly in winter when the sun is low in the sky. Photography opportunities facing into the sun were avoided where possible to prevent the wind turbines appearing as silhouettes. Adjustments to lighting of the turbines were made in the rendering software to make the turbines appear realistic in the view under the particular lighting and atmospheric conditions present at that time the photography was taken.

Visualisations

5.2.12 Wirelines are computer generated line drawings which show outlines of the proposed turbines and the bare earth topography, which means that they show a maximum-case scenario where no screening is provided by structures, trees or other built development. Photomontages are computer generated images of the proposed development modelled into the actual baseline photography and therefore show screening elements. Wirelines and photomontages are assessment tools and are not a substitute for site visits. They do not convey turbine movement and are representative of particular views, but cannot represent visibility at all locations.

Photographic Stitching, Wirelines and Photomontages

5.2.13 Photographic stitching software PTGui© 12.24 was used to stitch together the adjoining frames to create panoramic baseline photography. A selection of identical control points was created within each of the adjoining frames to increase the level of accuracy when stitching the 360° panoramic photography.

5.2.14 The software package ReSoft© WindFarm version 5 was used to create a digital terrain model (DTM), using a combination of from OS Terrain® 5 (out to 20 km) and OS Terrain® 50 (out to 60 km) height data. The DTM includes the site,

[14] Scottish Natural Heritage (2017) Visual Representation of Wind Farms, Version 2.2
[15] Landscape Institute (2019) Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment
[16] Parallax is the difference in the position of objects when viewed along two different lines of sight. In the case of a camera this would occur if the rotation point of the lens was not constant and would result in stitching errors in the panorama.

viewpoint locations and all landform visible within the baseline photography. Turbine and viewpoint location coordinates were entered. It should be noted that, in some viewpoints, OS Terrain 5 DTM data does not show smaller scale changes in topographic data, as evident in the baseline photography. Photomontages were constructed to show the candidate turbine with the specified tip and hub height. A default viewer height of 1.5m above ground level was set in the ReSoft© software, however on limited occasions this viewer height was increased by a small increment to achieve a closer match between the terrain data and photographic landform content[17].

5.2.15 Wind farm layouts included within the cumulative assessment were added to the ReSoft© WindFarm model.

5.2.16 The Panoramic baseline daytime photographic images were imported into ReSoft© WindFarm software. From each viewpoint the wireline views of the landform model with the proposed turbines were carefully adjusted to obtain a match. Fixed features on the ground such as buildings and roads were located in the model and used as markers to help with the alignment process where necessary. Each view was rendered taking account of the sunlight and the position of the sun in the sky at the time the photograph was taken. Blade angle and orientation adjustments were also made to represent a realistic situation.

5.2.17 Where visible, in the proposed 53.5 degree photomontage view, the three small turbines at Meikle Galdenoch (to the north-east of the Site) and two small turbines at Meikle Larbrax (to the south of the Site) have been removed from the baseline photography. Both these small scale schemes will be removed should the Proposed Development get constructed.

5.2.18 The exported renders were imported into Adobe Photoshop© where they were aligned and combined with the baseline photography. Turbines or sections of turbines which were located behind foreground elements in the photograph were removed to create the photomontage. Where visible, infrastructure associated with the proposed development was modelled into photomontages, within 5 km.

5.2.19 Finally, where applicable, the images were converted from Cylindrical Projection to Planar Projection using PTGui© 12.24 software.

Figure Layout

5.2.20 The printed figures for the viewpoints produced in accordance with NatureScot requirements are presented in Volumes 3b and 3c of the EIA Report.

5.2.21 Adobe InDesign© software was used to present the figures. The dimensions for each image (printed height and field of view) are in accordance with NatureScot requirements. Photography information and viewing instructions are provided on each page where relevant.

5.2.22 The elongated A3/A1 width format pages for each viewpoint are set out as follows. This follows NatureScot visualisation standards:

- The first A3/A1 page contains two maps. The first (on the left) shows the cumulative context of the site on an OS 1:250,000 scale map. The second map (on the right) shows an OS 1:50,000 scale map showing the viewpoint location, direction of the 90˚ baseline photography, wireline views and 53.5˚ photomontage view. Wind turbine locations for the proposed development are also shown when visible in the map view;
- The following page contains 90˚ baseline photography and wireline to illustrate the wider landscape and visual context. These are shown in cylindrical projection and presented on an A1 width page. Additional pages in the same format are provided where relevant to illustrate wider cumulative visibility up to 360˚; and
- The subsequent two pages contain a 53.5˚ wireline and photomontage. These images are both shown in planar projection and presented on an A1 width page.

[17] An altered height above ground level was used for where local topography did not match the wireframes due to data resolution.

Technical Appendix 5.2: Residential Visual Amenity Assessment

Contents

Chapter 1
Residential Visual Amenity Assessment

Introduction

1.1 This Residential Visual Amenity Assessment (RVAA) has been undertaken by Chartered Landscape Architects at LUC, and describes the change in views likely to be experienced by residents of properties up to 2.5 kilometres (km) from the Proposed Development (4 turbines at 149.9 m to blade tip height, and associated infrastructure). The RVAA should be read in conjunction with **Chapter 5: Landscape and Visual Impact Assessment** of the Environmental Impact Assessment (EIA) Report. This chapter is supported by **Figures A5.3.1-A5.3.45** and accompanying wirelines for each property assessed.

1.2 The RVAA was undertaken in accordance with the principles contained within the Landscape Institute's Guidelines for Landscape and Visual Impact Assessment 3rd Edition (GLVIA3)[1] and Landscape Institute RVAA Technical Guidance Note 2/19 (LI TGN 2/19)[2]. The approach was also informed by numerous decisions made following public inquiries into wind energy proposals in Scotland and elsewhere in the UK. LI TGN 2/19 includes reference to Enifer Downs Wind Farm, and the way that Residential Amenity was first addressed, by Inspector Lavender. Paragraph A1.12, page 21, of the guidance states:

"… he observed that: "when turbines are present in such number, size and proximity that they represent an unpleasantly overwhelming and unavoidable presence in main views from a house or garden, there is every likelihood that the property concerned would come to be widely regarded as an unattractive and thus unsatisfactory (but not necessarily uninhabitable) place in which to live." A1.13 In coming to his decision Inspector Lavender considered the extent to which:

- *the visual experience from the dwelling and garden may be comparable to "actually living within the turbine cluster" rather than a turbine cluster being present close by; or*
- *the experience of the turbines is "unpleasantly overwhelming and unavoidable".*

1.3 Whilst the approach to be taken, and language used, was developed further by LI TGN 2/19, reference to this first case continues. This has come to be known as the '*Lavender Test'*.

1.4 GLVIA3 notes the need for a 'residential amenity assessment' to consider the effects of development on private properties (GLVIA3, Page 107, Para. 6.17). This is noted to include an assessment of visual effects, although is separate from the Landscape and Visual Impact Assessment (LVIA).

1.5 LI TGN 2/19 explains that: "*the purpose of RVAA is to provide an informed, well-reasoned answer to the question: "is the effect of the development on Residential Visual Amenity of such nature and / or magnitude that it potentially affects 'living conditions' or 'Residential Amenity'?*" (LI TGN 2/19, Page 5, Para. 2.1).

1.6 Judgements in this RVAA have been made in accordance with LI TGC 2/19 and based on professional experience.

1.7 The RVAA does not consider other components of residential amenity, such as noise or shadow flicker, which are dealt with in the appropriate chapters of the EIA Report.

1.8 Findings of significant effects on views or visual amenity from a property do not automatically imply the need for further assessment. However, for properties likely to experience a high magnitude of visual change

[1] Landscape Institute and the Institute of Environmental Management and Assessment (2013). Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3).
[2] Landscape Institute (2019). Technical Guidance Note 02/19, Residential Visual Amenity Assessment.

and which are in proximity to a development, undertaking an RVAA may be appropriate. The scope of the RVAA, including the 2.5 km study area, was set out in the Scoping Report (February 2022).

1.9 The methodology for the RVAA is set out below along with the scope of the assessment. The assessment concludes with a summary of the findings.

Methodology

1.10 The methodology, which reflects that described in LI TGN 2/19, is summarised as follows:

- Identification of properties to be considered (defining the study area and scope);
- Collation of baseline information from maps and aerial photographs and preparation of wirelines, to inform field survey;
- Field survey to collate information in relation to baseline views and visual amenity from each property;
- Assessment of the magnitude of change in visual amenity likely to be experienced at the property; and
- For properties experiencing a high magnitude of change, a professional judgement of whether the predicted change in views and visual amenity reaches the 'Residential Visual Amenity Threshold' described in LI TGN 2/19, i.e. *"is the effect of the development on Residential Visual Amenity of such nature and / or magnitude that it potentially affects 'living conditions' or 'Residential Amenity'?"*[3];

1.11 The following section sets out the methodology and the factors considered in more detail.

Study Area

1.12 The assessment includes consideration of the changes in views and visual amenity from all properties up to approximately 2.5 km of the proposed turbines. Although there is the potential for significant visual effects to occur beyond this distance due to theoretical visibility of the Proposed Development, such effects are not considered likely to affect 'living conditions'[4]. This opinion was informed by experience, observations made on Site and an understanding of the Proposed Development.

1.13 Properties were identified using Ordnance Survey (OS) AddressBase Plus data and verified in the field. Properties (including their curtilage and access drives) with no theoretical visibility, as indicated by the Zone of Theoretical Visibility (ZTV) map in **Figure A5.3.1**, were not considered in the RVAA.

Desktop Studies

1.14 For the purposes of this RVAA, the visual amenity experienced at a property is made up of a combination of the type, nature, extent and quality of views that may be available from the property and its domestic curtilage (e.g. gardens and access drives).

1.15 OS maps, aerial imagery and Google Streetview were used for desktop research to assist with recording information such as the location of the residential elements of each property, the orientation of the property, and the extent of its curtilage.

1.16 In considering baseline visual amenity, the following were examined:

- The nature and extent of the available existing views (including main/principal views) from the property and its garden, including the proximity and relationship of the property to surrounding landform, landcover and visual foci; and
- Views experienced when approaching or departing from the property via its driveway and/or access roads, if applicable.

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[3] LI TGN 2/19 notes that "*the factors which might contribute to the threshold being reached, or the way in which these are expressed, may be different for different types of development (for example, one might use terms such as 'overwhelming/overbearing' for tall structures, or 'overly intrusive' for a development overlooking a garden or principal room)*" (paragraph 2.2).
[4] LI TGN 2/19 notes that "*Residential Amenity comprises a range of visual, aural, olfactory and other sensory components. Development can cause effects on one or more components of Residential Amenity, for example effects of noise, dust, access to daylight, vibration, shadow flicker, outlook and visual amenity. Sometimes this is referred to as 'living conditions*" (paragraph 1.4).

Field Surveys

1.17 Field surveys were undertaken from publicly accessible locations between summer 2023 and summer 2024 to determine the following baseline information:

- The orientation and likely views from each property (including principal/primary aspects and presence of windows);
- Layout and orientation of the gardens and property curtilage;
- Access location, and likely views from private or shared driveways or access tracks;
- The nature of existing views from the properties and their gardens, including the proximity and relationship of the properties to surrounding landform, landcover and visual foci and the scenic quality of views; and
- Potential screening provided by local variations in topography, the built environment and vegetation/tree cover within the surrounding landscape.

1.18 Fieldwork was undertaken between winter and summer. This enabled the 'maximum case' scenario to be assessed, on the basis that any available screening offered by deciduous vegetation was at a minimum during winter months.

Preparation of Accompanying Visualisations

1.19 On the basis of guidance included in LI TGN 2/19, indicative wirelines based on a bare ground digital terrain model were generated, using Resoft WindFarm software, from all individual properties and property groups considered in this assessment[5]. The illustrative wirelines are presented at the rear of this appendix. They are centred on the Proposed Development and illustrate a 53.5˚ included angle of view and 1.5 metres (m) viewing height from each location.

1.20 The illustrative wirelines show the proposed turbines only, with turbines numbered for ease of reference. No other components of the Proposed Development have the potential to affect 'living conditions'. As such they are not included in the wirelines. Other operational / under construction, consented and proposed (at application or appeal) wind farms within approximately 10 km (and which have been identified for assessment within the cumulative assessment, refer to **Chapter 5**) are included in the wirelines, where visible within the 53.5˚ view focused towards the Proposed Development.

1.21 The wirelines are not necessarily representative of the primary outlook of the property and do not show features such as buildings and trees that may provide screening or filtering of views. It should therefore be noted that these indicative wirelines represent a 'maximum visibility scenario' which may potentially be experienced from the property or its curtilage. This should be borne in mind when using the images. The principal/primary outlook of residential properties is discussed in the tables for each property in the assessment section which follows below.

Assessment of Potential Changes to Views and Visual Amenity

Sensitivity of Residential Receptors

1.22 GLVIA3 advocates an approach which considers the overall sensitivity of visual receptors (people) in terms of "*both their susceptibility to change in views and visual amenity and also the value attached to particular views*" (GLVIA3, Page 113, Para. 6.31), whilst stating that visual receptors most susceptible to change are likely to include "*residents at home*" (GLVIA3, Page 113, Para. 6.33).

1.23 Taking account of the purposes of this RVAA, and taking a precautionary approach, all people at their place of private residence are considered to be of **high** sensitivity to changes in their views and visual amenity. As a consequence, no individual assessment of sensitivity is outlined in the assessment which follows.

[5] Properties were grouped together if they were close together geographically and have the potential for similar views.

Magnitude of Change to Views and Visual Amenity

1.24 The likely changes in views and visual amenity as a result of the Proposed Development are considered with reference to the individual wirelines from each property / property group, and findings based on field work and a review of aerial mapping. A judgement on the magnitude of visual change which will be experienced is made, and the change in views summarised, with reference, as appropriate, to the following factors which are set out in GLVIA3 (Page 115, Para. 6.39-6.40):

- "scale of the change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the Proposed Development;
- degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of form, scale and mass, line, height, colour and texture;
- angle of view in relation to the main activity of the receptor;
- distance of the viewpoint from the Proposed Development; and
- extent of the area over which the changes would be visible."

1.25 The following additional factors are specific to the type of development proposed:

- Type and nature of the available view (e.g. panoramic, framed);
- Relative size and proximity of turbines, or other infrastructure;
- Number, extent and composition of turbines visible (and presence of screening);
- Position of turbines in views from the property e.g. whether in the principal/primary outlook from the property;
- Proportion of the skyline occupied by the turbines;
- Direction (including the aspect) of the view affected; and
- Density and spacing of turbines and their overall composition in the view.

1.26 For each property or group of properties, the evaluation consists of:

- A description of the property and of its location and context;
- A description of the likely existing available views and visual amenity from the property and its domestic curtilage, including gardens and private or shared access drives; and
- A description of the likely effect on views and visual amenity resulting from the Proposed Development, as well as other existing and proposed schemes included in the study area and likely to influence the decision-making process.

1.27 The detailed information for each property or group of properties concludes with a judgement with respect to the visual component of residential amenity or 'living conditions' and whether the 'Residential Visual Amenity Threshold' is breached. It is intended that this judgement may assist the decision maker in coming to the wider planning judgement on overall residential amenity, when considered within the context of other components (e.g. noise, shadow flicker, dust).

1.28 Informed by the preparatory desk work and supported by maps and wirelines, an assessment was undertaken during field surveys of the magnitude of the likely change in visual amenity that may result from the introduction of the Proposed Development into the local landscape and the view(s) from each property or property group.

1.29 Magnitude of visual change is expressed on a relative scale, as set out in **Table 1.1** below, which highlights the differences between the types of change experienced in views from residential properties

examined as part of this RVAA. The existing and proposed view from each property is described, and the likely relative magnitude of change (high, medium, low, barely perceptible) arising from the Proposed Development is determined. Reference to other wind farm development is made where appropriate. The nature of existing and predicted views (open, enclosed, panoramic, focused, framed etc.) affects the relative magnitude of change and is taken on board in reaching that judgement. The RVAA looks at the range of views likely to be available from the house and its curtilage, and considers potential effects on all of these.

Table 1.1 Magnitude of change in views and visual amenity

Magnitude of Change in Visual Amenity	Description
High	The Proposed Development will be a key/defining element in the view.
Medium	The Proposed Development will be clearly discernible but will not be a key/defining element of the view.
Low	The Proposed Development will be visible and will form a minor element of the view.
Barely Perceptible	The Proposed Development may go unnoticed as a minor element of the view, or is not visible.

1.30 The RVAA concludes, for properties predicted to experience a **high** magnitude of change, with a judgement as to the potential effect on 'living conditions', or residential visual amenity. This corresponds to the 'Residential Visual Amenity Threshold' as described in LI TGN 2/19.

1.31 For properties experiencing a magnitude of change below 'high', it considered that there is no potential for 'living conditions' to be affected, and this final stage is therefore not undertaken.

Properties Considered in the Assessment

1.32 There are 44 habitable residential buildings identified within the 2.5 km study area using OS Address Data, aerial photography and site visits. ZTV analysis has confirmed theoretical visibility from 40 of them. To provide a comprehensive appraisal, properties which sit just beyond the stated study area of 2.5 km (within 2.6 km of the nearest proposed turbine) were also considered. **Table 1.2** below lists all of the properties examined as part of this study. For each property, **Table 1.2** contains a reference number (which correlates to those included on **Figure A5.3.1**), the property name (as informed by OS AddressBase Plus data) and details of location. Computer modelling was used to provide details of distance, viewing direction and potential visibility of the Proposed Development. This potential visibility of the wind turbines is illustrated in the supporting wirelines.

1.33 Following site survey, analysis of illustrative wirelines and review of aerial mapping, notes were prepared for each of the properties regarding the potential magnitude of change which would be experienced at these properties. Where the magnitude of change is judged to be below high, commentary on these findings is provided in **Table 1.2** below. These receptors were not carried forward for more detailed assessment. These properties are shaded grey in the table.

Table 1.2 Properties Considered in the Assessment

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
Individual Properties				
P1	Meikle Larbrax Cottages	197781 560974	0.9 km	Low – hubs of two turbines and tips of a further two turbines will be theoretically visible due to intervening topography. Views will also be filtered by shrubs/ a hedgerow adjacent to the property. Not considered further.  *View looking south-east towards western primary outlook of Meikle Larbrax Cottages. Hedge along property frontage filters views towards the Proposed Development.*
P2	Meikle Larbrax	197608 560451	1.2 km	Low – hub of one and blades of another turbine will be theoretically visible due to intervening topography. Large outbuildings, to north of property, likely to screen the majority of views. Not considered further.

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
				 *View looking south-west towards Meikle Larbrax farmhouse, showing farm buildings to the north-west of the property's rear outlook which will provide screening views towards the Proposed Development.*
P3	Greenburn	197348 563091	1.2 km	**High – considered further in assessment.**
P4	Drumwhistley	197302 563344	1.3 km	**High – considered further in assessment.**
P5	Meikle Galdenoch	197374 563237	1.3 km	Medium-low – although theoretical visibility is indicated, views will be filtered by nearby mature trees. Site facing windows (to the south-west) are also small in size and number. Views from garden area likely to be screened by the building itself. Not considered further.  *View looking east towards Meikle Galdenoch. The Proposed Development will be located to the south-west (to the right of the photo) and few windows can be seen facing in this direction.*

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
				 *View looking south-west towards the Proposed Development from track outside Meikle Galdenoch, showing filtering by trees.*
P6	Larbrax Lodge	198227 561557	1.3 km	Low - although theoretical visibility is indicated, views will be extensively filtered / screened by enclosing woodland to the west of the property including around the B736. Not considered further.  *View of Larbrax Lodge from the west, showing the north-western primary outlook on the left oriented towards the Proposed Development, and garden vegetation to the west of the property.*
P7	Galdenoch Mill Cottage	197365 563478	1.4 km	No theoretical visibility – not considered further.
P8	Larbrax Schoolhouse	198416 561041	1.5 km	No theoretical visibility – not considered further.
P9	Beach Cottage	197461 559925	1.6 km	No theoretical visibility – not considered further.

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
P10	Glenvallagh Cottage	198202 562901	1.8 km	Medium – although theoretical visibility of four turbine hubs and sets of blades is indicated, views are likely to be largely filtered / screened by intervening vegetation from the property itself. There is a small break in the vegetation at the south-west end of the curtilage. This will likely provide, at most, partial/ glimpsed views of the Proposed Development from the property and main area of the rear garden to the west. Potential for more open views from western garden area, located just beyond main tree line around the property. Vegetation to west still likely to provide an extensive level of filtering. The wireline also indicates that, due to viewing distance, effects will fall below the residential visual amenity threshold. Not considered further.  *View of Glenvallagh Cottage from the east, with garden vegetation behind the property extensively filtering views to the south-west towards the Proposed Development.*

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
				 *View of Glenvallagh Cottage from the east, showing break in garden vegetation near the south-west edge of the property.*
P11	High Mark	196658 564429	1.8 km	**High – considered further in assessment**
P12	Fairview, Little Galdenoch Farm	197852 563478	1.8 km	Low-medium - although theoretical visibility is indicated, views are likely to be largely screened by farm outbuildings in close proximity, to the south-west of the property. Not considered further.  *View of Fairview, Little Galdenoch Farm from the east, showing farm buildings to the south-west which will largely screen views towards the Proposed Development from the site-facing gable end.*
P13	Shore Cottage	197517 559658	1.8 km	No theoretical visibility - not considered further.
P14	Little Galdenoch	197872 563559	1.9 km	Low - although theoretical visibility is indicated, views are likely to be filtered / screened by garden vegetation. Not considered further.

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
				 *View of Little Galdenoch from the south-west, showing the site-facing façade.*
P15	Balgracie Cottage	198636 560644	1.8 km	Low – although theoretical visibility is indicated, views are likely to be screened by a banking surrounding the property on three sides. Not considered further.   *Views of the primary southern façade of Balgracie Cottage from the south-east, showing the banking surrounding the property. The site is located to the north-west.*

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
P16	Little Larbrax Farm	198138 559942	1.9 km	Medium – visibility of the hubs and blades of all four turbines is anticipated, from northern façade of property, where windows appear to be small. The primary outlook is oriented to the west, towards the sea. From this viewing distance and angle, with views looking down rather than across the layout, the Proposed Development occupies a small horizontal field of view. Not considered further.  *View of Little Larbrax Farm from the north-west, showing its secondary outlook to the north-west facing the Proposed Development.*
P17	Balgracie Farm	198738 560738	1.9 km	Low – although theoretical visibility is indicated, views will be largely screened by close proximity farm buildings to the north-west of the property. Not considered further.  *View of Balgracie Farm from the south-east, showing a farm building to its north-west that will provide screening of views towards the Proposed Development.*

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
P18	Dairy Cottage, Balgracie	198759 560753	1.9 km	Low – although theoretical visibility is indicated, views will be largely screened by close proximity farm buildings to the north-west of the property. Not considered further.  *View of Dairy Cottage (circled) from the south, showing its position among farm buildings that will screen views north-west towards the Proposed Development. Balgracie Farm is the building on the left.*
P19	Knocknain Farm	197441 564279	2.0 km	Low – very limited visibility of blade tips. Not considered further.  *View of Knocknain Farm from the north-east, showing screening of views towards the Proposed Development by intervening topography.*
P20	2, High Mark Cottage	196919 564597	2.0 km	Low – views south from the property are from the gable end rather than the primary outlook.

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
				Limited visibility of hub of one turbine and blades of another two turbines, due to intervening topography. Not considered further.  *View of High Mark Cottages (on the left) from the north-east, showing landform which will largely screen views south towards the Proposed Development. High Mark Farm is on the right.*
P21	1, High Mark Cottage	196920 564611	2.0 km	Low – views south from the property are from the gable end rather than the primary outlook. Limited visibility of blades of two turbines, due to intervening topography. Not considered further. *See above (2, High Mark Cottage) for photograph.*
P22	Laggansally Lodge	198951 561448	2.0 km	Low – hub of one turbine and blades of another three turbines will be theoretically visible. Woodland to west of property likely to filter views. Not considered further.
P23	Burnbank, Lochnaw Home Farm	198651 562821	2.1 km	**High – considered further in assessment**
P24	Steading Cottage, Lochnaw Home Farm	198798 562495	2.1 km	Low - although theoretical visibility of all four turbines is indicated, views south-west towards the Proposed Development are screened by woodland and views west, from the western gable end of the property, are very oblique in nature. Not considered further.

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
				 *View of Steading Cottage from the north-west showing rear and side façades of the property. The Proposed Development will be located to the west.*
P25	Lochnaw Home Farm	198879 562435	2.2 km	Low - although theoretical visibility is indicated, views will be screened by adjacent outbuildings to the west and south. Not considered further.
P26	Blackpark Farm	199123 561543	2.2 km	Medium – although theoretical visibility is indicated of all four turbines, views west from the property are from the gable end rather than the primary outlook. These views are likely to be partially screened by intervening woodland in the valley between Topmalloich Hill and Cairn Hill of Balgracie. Combined with viewing distance, effects will likely fall below the RVA Threshold. Not considered further.
P27	Little Larbrax Cottage	198354 559749	2.2 km	Medium – visibility of the hubs and blades of all four turbines is likely, in more open views to the north-west from the primary outlook of the property. The wireline shows that the proposed turbines occupy a narrow horizontal range on the horizon, at a distance of over 2 km. Not considered further.

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
				 *View looking south-west towards north-western primary façade of Little Larbrax Cottage oriented towards the Proposed Development.*
P28	Garden House, Lochnaw Home Farm	198780 562997	2.3 km	Low - although theoretical visibility is indicated, views are likely to be screened by enclosing woodland and outbuildings to the west of the farmhouse. Not considered further.
P29	Knockaldie	198564 559749	2.3 km	Medium - although property is slightly elevated, views towards the Proposed Development are from the property gable end and not from the primary outlook to the south-west. Mature trees are likely to provide partial screening in views to the north-west. Not considered further.  *View of the south-west facing primary façade of Knockaldie and the gable (on the left) facing the Proposed Development to the north-west. Mature trees can be seen near the property.*

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
P30	Linden	198501 559638	2.3 km	Low – blades of three turbines will be theoretically visible due to intervening topography. Woodland to north-west of the property will further filter views towards the Proposed Development. Not considered further.  *View of Linden from the east, showing woodland behind the property filtering views north-west towards the Proposed Development.*
P31	Manley	197393 564834	2.4 km	Low– hubs of two turbines and blades of another two turbines will be theoretically visible due to intervening topography. Dense garden vegetation, to the south of the property, will extensively filter views. Not considered further.  *View of Manley from the west, showing the south-facing front of the property and dense garden vegetation filtering views south-west towards the Proposed Development.*

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
P32	Blackpark	199393 561281	2.4 km	It was not possibly to verify during fieldwork if this was an inhabited property. Woodland planting, to the west of the location, will screen any potential views towards the Proposed Development. Not considered further.
P33	Rose Cottage	198785 563235	2.5 km	Low – hub of one turbine and blades of another turbine theoretically visible in gable end views, due to intervening topography. Not considered further.  *View of Rose Cottage from the east towards the primary façade of the property. The Proposed Development will be located behind the property to the south-west*
P34	Lochnaw Bungalow	198659 563113	2.5 km	Very limited theoretical visibility of blade tips of one turbine. Not considered further.

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
				 *View of P34: Lochnaw Bungalow from the north-east showing landform which will screen views south-west towards the Proposed Development.*
P35	Stokesay	198749 563396	2.5 km	Low - although theoretical visibility is indicated, views south-west are extensively filtered by dense woodland enclosing the property. Not considered further.  *View of Stokesay from the south-east showing its situation enclosed by woodland, which will screen views south-west towards the Proposed Development.*
P36	Avalon	198784 563400	2.6 km	Low - although theoretical visibility is indicated, views will be extensively filtered by dense woodland enclosing the property. Not considered further.

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
				 *View of Avalon from the south showing its situation enclosed by woodland.*
P37	Lochnaw Castle Hotel, Lochnaw Home Farm	199138 562821	2.6 km	Low - although theoretical visibility is indicated, views will be largely screened by dense woodland enclosing the property. Not considered further.  *View of Lochnaw Castle from the north showing its situation enclosed by woodland, which will screen and filter views south-west towards the Proposed Development.*
Property Groups				
G1	Knocknain Cottages	South Knocknain Cottage (G1a): 197396 563803 North Knocknain Cottage (G1b):	1.6 km	Medium – although theoretical visibility is indicated, views towards the Proposed Development are from the western gable end rather than the primary outlook (to south-east), and garden vegetation will provide some filtering. Combined with the viewing distance, effects will fall below the RVA Threshold. Not considered further.

Ref	Name	Approximate grid ref	Distance to nearest turbine	Magnitude of change indicating if the property is carried forward to detailed assessment
		197398 563813		 *View of Knocknain Cottages from the south-east showing filtering by garden vegetation of views to the south towards the Proposed Development.*
G2	Lochnaw Cottage and Cairnhapple House	Lochnaw Cottage (G2a): 198237 562779 Cairnhapple House (G2b): 198278 562795	1.8 km	**High – considered further in assessment**
G3	Cranberry Cottage, Galdenoch Farmhouse and Tara	Cranberry Cottage (G3a): 198342 563504 Galdenoch Farmhouse (G3b): 198371 563523 Tara (G3c): 198360 563551	2.3 km	**High – considered further in assessment**

Assessment of Effects on Residential Visual Amenity

1.34 This section sets out the detailed assessment of effects on views and visual amenity for each individual property or group of properties taken forward for detailed assessment in accordance with **Table 1.2**. Below, **Tables 1.3 to 1.8** present the detailed assessments. The assessment should be read in conjunction with the accompanying illustrative wirelines.

Table 1.3 Property P3

Property P3: Greenburn		
Grid reference	NGR 197348 563091	
Direction of view to the Proposed Development	South-west	
Distance to nearest turbine (from the property) and turbine no.	1.2 km	T4
Number of turbines theoretically visible	Hubs visible	3
	Sets of blades visible	4
Description of property, location and context:		

- Situated in an area of undulating ground to the north of Galdenoch Moor (c.80 m AOD), beside the Green Burn, and accessed via a track from the B738 to the north of the property.
- Modern 1.5 storey property. Garden mainly to the east.
- Oriented to the west and east, with principal views assumed to be to the west.
- No windows on southern gable end of property.
- The property is situated among fields in all directions. A shelterbelt of trees and shrubs also surrounds the property curtilage immediately to its north, east and south-east.
- Viewpoint 3: Meikle Galdenoch, near Parking Area in the LVIA is representative of views near the property.
- At time of field visit in June 2024 the property appeared to be uninhabited.

Aerial view of Greenburn.

Property P3: Greenburn

View looking south-east towards the primary western façade of Greenburn. The Proposed Development will be located to the south-west.

Description of existing views and visual amenity:

Westerly and south-westerly views from the property are contained by undulating and rising farmland in the foreground, with forestry seen on the horizon. Views to the north, east and south are extensively filtered by trees and shrubs near the property. Views from the access track are broadly similar to those from the main property. Three small turbines near Meikle Galdenoch are apparent in views to the north-west. The single turbine at Glenhead of Aldouran is theoretically visible in views to the east, but is likely to be extensively screened by intervening woodland.

Description of likely effect on views and visual amenity as a result of the Proposed Development:

The Proposed Development will introduce theoretical visibility of up to three turbine hubs (T1, T2 and T4) and four sets of turbine blades (T1-4) to the south-west, at a distance of approximately 1.2 km. The turbines will occupy approximately 60 degrees of the horizontal field of vision, and they will appear relatively evenly spaced on the horizon on either side of a minor summit to the north of Galdenoch Moor. They will be partially screened by intervening landform and coniferous forest (whilst this remains in place) on the horizon. The landform will screen direct views towards access tracks and turbine bases, so the Proposed Development will read as a wind farm behind the enclosing horizon. From the access track there will be similar views. The three small turbines at Meikle Galdenoch will be removed should the Proposed Development receive planning permission.

Property P3: Greenburn
Conclusion with respect to the Proposed Development
The magnitude of visual change will be **high**. The hubs of three turbines and four sets of turbine blades of the Proposed Development will be visible from the western property frontage, in oblique views, and from the access track. Although the turbines will occupy approximately 60 degrees of the horizontal field of vision, they will be seen at a distance of more than 1 km from the property and will be partially screened by the intervening landform/ coniferous forest. As a result of the viewing distance/ oblique nature of views/ partial screening provided by the landform and coniferous forest, the Proposed Development **will not appear overwhelming or oppressive and will not breach the residential visual amenity threshold**.

Table 1.4 Property P4

Property 4: Drumwhistley		
Grid reference	NGR 197302 563344	
Direction of view to the Proposed Development	South-west	
Distance to nearest turbine (from the property) and turbine no.	1.3 km	T4
Number of turbines theoretically visible	Hubs visible	4
	Sets of blades visible	4
Description of property, location and context:		
■ Situated on a slight knoll to the north of Galdenoch Moor (c.80 m AOD), beside the Green Burn, and accessed via a track to the south and east which links into the B738. ■ Modern detached one-storey property. Small curtilage surrounding the property. ■ A living room with large windows is located on the western façade of the property, and principal views are assumed to be in this direction, looking towards the coast. There are also large windows on the north and south-facing facades. ■ The property is situated among fields in all directions. There is a small area of trees and shrubs to the east of the property, and Meikle Galdenoch Farm lies a short distance to the south.		

Property 4: Drumwhistley

Aerial view of Drumwhistley.

View looking north towards the southern façade of Drumwhistley, with the primary western façade visible on the left. The Proposed Development will be located to the south-west.

Property 4: Drumwhistley
Description of existing views and visual amenity:
The property is elevated above much of the surrounding landscape sitting on top of a slight knoll, and as such has open views in all directions over pastoral farmland. Westerly views extend past a small turbine towards the North Channel and the coastline of Northern Ireland beyond. Views also extend towards nearby low hills including Mill Park (84 m AOD) and Kiln Hill (93 m AOD) to the north, Black Hill (c.80 m AOD) to the north-east and the unnamed hill (149 m AOD) topped by Kinsale Tower across the B738 to the south-east, However, trees and shrubs near the property may filter views to the east and south-east. Southerly views extend past Meikle Galdenoch Farm towards Galdenoch Moor (c.80 m AOD) and Hind Hill (82 m AOD), although intervening farm buildings may provide partial screening. Views from the access track are broadly similar to those from the main property. Three small turbines at Meikle Galdenoch are visible in close range views to the south-west, and the operational turbine at Knocknain Farm is theoretically visible in views to the north. The single turbine at Glenhead of Aldouran to the east and the turbines of North Rhins Wind Farm to the south-east are theoretically visible.
Description of likely effect on views and visual amenity as a result of the Proposed Development:
The Proposed Development will introduce theoretical visibility of up to four turbine hubs and sets of blades (T1-4) to the south-west, at a distance of approximately 1.3 km. The turbines will occupy approximately 50 degrees of the horizontal field of vision and they will appear relatively evenly spaced on the horizon. Turbine 4 will appear between the property and the sea. The buildings of Meikle Galdenoch may partially obscure views of the lower parts of turbines. The undulating intervening landform will screen direct views into the Site, of the access tracks and turbine bases. There will be similar views from the short access track to the south of the property. The three small turbines at Meikle Galdenoch will be removed should the Proposed Development receive planning permission.
Conclusion with respect to the Proposed Development
The magnitude of visual change will be **high**. The hubs and blades of four turbines of the Proposed Development will be visible from the property and access track. Although the turbines will occupy approximately 50 degrees of the horizontal field of vision, but, in views to the south-west, they will be seen at a distance of more than 1 km from the property. Given the open and panoramic nature of views from the property, and combined with the viewing distance, the Proposed Development **will not appear overwhelming or oppressive and will not breach the residential visual amenity threshold**.

Property P11

Property P11: High Mark		
Grid reference	NGR 196658 564429	
Direction of view to the Proposed Development	South	
Distance to nearest turbine (from the property) and turbine no.	1.8 km	T4
Number of turbines theoretically visible	Hubs visible	4
	Sets of blades visible	4

Description of property, location and context:

- Situated on gently undulating ground west of Ruddoch Hill (74 m AOD) to the north of the Galdenoch Burn, and accessed by a private track from the B738 to the east.
- Detached, 1.5 storey property with extensive farm outbuildings immediately to the north and west of the property.
- Primary outlook appears to be to the south, with secondary outlooks to the east and west.
- Views extend to the east and south across surrounding fields. Extensive farm outbuildings screen views to north and west from the main property.

Aeriel view of High Mark.

Property P11: High Mark

View of High Mark from the north-east. The property is visible on the horizon beyond the row of High Mark Cottages. The Proposed Development will be located to the south, beyond the horizon.

Description of existing views and visual amenity:

Agricultural fields provide the foreground of views in all directions from the curtilage, and farm outbuildings screen some views to the west, north-west and north from the main property. Easterly views extend past Ruddoch Hill and the valley of the High Mark Burn towards Knockgour (73 m AOD) to the north-east, Kiln Hill (93 m AOD) to the east and Mill Park (84 m AOD) to the south-east. In views to the south, the broad expanse of Galdenoch Moor contribute to the skyline beyond the valley of the Galdenoch Burn, and south-westerly views extend across the North Channel. Views from the access track, looking south towards the Site, will largely be screened by the landform of Ruddoch Hill, immediately south.

The single turbine at Knocknain Farm and three small turbines at Meikle Galdenoch are evident in views to the south-east, while the turbines of North Rhins Wind Farm are theoretically visible in the distance. In views to the west, two small turbines near the property may be screened by farm buildings.

Description of likely effect on views and visual amenity as a result of the Proposed Development:

The Proposed Development will introduce theoretical visibility of up to four turbine hubs and sets of blades (T1-4) to the south, at a distance of approximately 1.8 km. The turbines will occupy approximately 20 degrees of the horizontal field of vision and they will appear as two pairs on the horizon. Turbines 1 and 2 will appear above Galdenoch Moor, and Turbines 3 and 4 will appear between the property and the sea. The undulating landform will screen direct views into the Site, of the access tracks and turbine bases. Views from the access track will be screened by Ruddoch Hill. The small turbines at Meikle Galdenoch will be removed should the Proposed Development receive planning permission.

Conclusion with respect to the Proposed Development

The magnitude of visual change will be **high**. The hubs and blades of four turbines of the Proposed Development will be visible from the property (southern façade). The turbines will appear at a distance of more

Property P11: High Mark
than 1 km from the property in large scale views to the south-west which look out to sea. The Proposed Development will read as a wind farm contained behind enclosing horizons. Given the viewing distance and context of the view, the Proposed Development **will not appear overwhelming or oppressive and will not breach the residential visual amenity threshold**.

Table 1.5 Property P23

Property P23: Burnbank, Lochnaw Home Farm		
Grid reference	NGR 198651 562821	
Direction of view to the Proposed Development	South-west	
Distance to nearest turbine (from the property) and turbine no.	2.1 km	T2
Number of turbines theoretically visible	Hubs visible	4
	Sets of blades visible	4

Description of property, location and context:

- Situated on the western edge of Drummullin Wood next to the Mill Isle Burn, among low hills north-east of Larbrax Moor. Accessed by a private access track running south from the B7043, which continues past the property towards Home Farm.
- 1.5 storey property surrounded by garden.
- Oriented to the south-west (front) and north-east (rear).
- Views to the north, east and south-east are largely screened by woodland at the edge of Drummullin Wood. Views are more open to the west.

Aerial view of Burnbank.

Property P23: Burnbank, Lochnaw Home Farm

View of Burnbank from the north-west showing the primate south-western façade oriented towards the Proposed Development.

Description of existing views and visual amenity:

The primary outlook is to the south-west, extending across fields towards woodland which largely screens longer distance views. North-westerly views are screened by the unnamed hill (c.90 m) between the access track and the B738. Views to the north, east and south-east towards the interior of the Rhins peninsula are largely screened by woodland at the edge of Drummullin Wood, which surrounds the property curtilage in these directions. Views from the access track are broadly similar to those from the main property. No operational wind farms are visible from the property.

Description of likely effect on views and visual amenity as a result of the Proposed Development:

The Proposed Development will introduce theoretical visibility of up to four turbine hubs and sets of blades (T1-4) from the primary outlook towards to the south-west, at a distance of approximately 2.1 km. The turbines will occupy approximately 35 degrees of the horizontal field of vision and they will appear evenly spaced on the horizon. The turbines will be partially screened by woodland across fields to the west of the property, and by slopes of the unnamed hill (c.90 m AOD) to the north-west of the property.

Conclusion with respect to the Proposed Development

The magnitude of visual change will be **high**. The hubs and blades of four turbines of the Proposed Development will be visible in views south-west from the property. The turbines will appear in front of the primary outlook of the property. However, they will be at a distance of more than 2 km from the property, partially screened by intervening woodland and landform. The Proposed Development will read as a wind farm seen beyond intervening woodland. In this context, the Proposed Development **will not appear overwhelming or oppressive and will not breach the residential visual amenity threshold**.

Table 1.6 Property Group G2

Property Group G2: Lochnaw Cottage (G2a) and Cairnhapple House (G2b)		
Grid reference	NGR 198237 562779 (Lochnaw Cottage)	
Direction of view to the Proposed Development	South-west	
Distance to nearest turbine (from the property) and turbine no.	1.7 km	T2
Number of turbines theoretically visible	Hubs visible	4
	Sets of blades visible	4

Description of property, location and context:

- Situated near the Mill Isle Burn, on the east side of the B738.
- Lochnaw Cottage – detached, 1.5 storey property with gardens and curtilage on all sides, most extensive to the east and north-east.
- Curtilage includes outbuildings to the south-west and south-east of the main property, and a large holiday let (Cairnhapple House[6]) to its north-east.
- Lochnaw Cottage is oriented to the south and north, with principal views assumed to be to the south and with views north over the rear garden. The gable end of the property faces west towards the Site, and there is a conservatory at ground level with windows facing west.
- Cairnhapple House is a detached, modern 1.5 storey property in an elevated position above Lochnaw Cottage. Oriented south-west (front) to north-east (rear).
- Deciduous trees surround the curtilage to the north, east and south, filtering views in these directions. Westerly views are more open.
- Viewpoint 4: B738, near Lochlaw Cottage in the LVIA is representative of views from the property.

Aerial view of Property Group 2.

[6] https://www.sykescottages.co.uk/cottage/Ayrshire-and-Dumfries-Galloway-Home-Fm/Cairnhapple-House-1143589.html

Property Group G2: Lochnaw Cottage (G2a) and Cairnhapple House (G2b)

Lochnaw Cottage: View looking east towards western and southern façades with small conservatory on the west side. The Proposed Development will be located to the south-west.

Cairnhapple House: View towards south-western facing façade.

Property Group G2: Lochnaw Cottage (G2a) and Cairnhapple House (G2b)
Description of existing views and visual amenity:
The primary outlook from the main property (Lochnaw Cottage) appears to be southwards, where views are contained by deciduous woodland (adjacent to the curtilage) and garden vegetation. The three small turbines at Meikle Galdenoch are apparent in views to the north-west. Westerly, views extend across the B738, past a field containing a pond and scattered trees in the foreground, towards Galdenoch Mor (c.80 m AOD) in the distance. A similar, slightly longer distance view is also available from the primary, south-westerly outlook from Cairnhapple House (although Lochnaw Cottage and associated garden vegetation may provide some screening). The single turbine at Knocknain Farm is visible in views to the north-west, and three small turbines at Meikle Galdenoch are visible to the west, north-west.
Description of likely effect on views and visual amenity as a result of the Proposed Development:
The Proposed Development will introduce theoretical visibility of up to four turbine hubs and sets of blades (T1-4) to the south-west, at a distance of approximately 1.7 km. The turbines will occupy approximately 45 degrees of the horizontal field of vision and they will appear evenly spaced on the horizon. They will be partially screened by the intervening landform of Galdenoch Moor, with intervening vegetation providing further filtering/ screening of turbines. Direct views towards the access track and turbine bases will be screened by the landform and vegetation. The Proposed Development will also be seen on the other side of the B738 and beyond the immediate setting to the west of this road, focused around a small pond. The small turbines at Meikle Galdenoch will be removed should the Proposed Development receive planning permission.
Conclusion with respect to the Proposed Development
The magnitude of visual change will be **high**. The hubs and blades of four turbines of the Proposed Development will be visible from the property group. Although the turbines will occupy approximately 45 degrees of the horizontal field of vision, they will be seen at a distance of more than 1 km from the property group and will be partially screened by the intervening landform and scattered trees, in views to the west. Direct views into the Site will also be screened and the Proposed Development will be seen on the other side of the B738 and beyond the more immediate landscape context focused around a small pond. In this context, the Proposed Development **will not appear overwhelming or oppressive and will not breach the residential visual amenity threshold**.

Table 1.7 Property Group G3

Property Group G3: Cranberry Cottage (G3a), Galdenoch Farmhouse (G3b) and Tara (G3c)		
Grid reference	NGR 198342 563504 (Cranberry Cottage)	
Direction of view to the Proposed Development	South-west	
Distance to nearest turbine (from the property) and turbine no.	2.3 km	T4
Number of turbines theoretically visible	Hubs visible	4
	Sets of blades visible	4

Description of property, location and context:

- Situated on gently undulating ground north of the Mill Isle Burn. Cranberry Cottage and Tara are situated on the east side of a minor road running from the B738 to Glengyre. Galdenoch Farmhouse is to their east, accessed from the south by a short private track.
- Cranberry Cottage – 1 storey L-shaped property with wings to the west and south of the entrance. Conservatory at the south end, small garden to the south and front yard to the west.
- Galdenoch Farmhouse – 1.5 storey property. Appears to be oriented to the south (front) and north (rear).
- Tara – 1 storey property on terrace above the road, with prominent semi-octagonal room at the south-west corner and garden to the south. Primary outlook appears to be to the south-west.
- There are farm buildings within the curtilage to the north of the properties.
- Views from each property in some directions may be screened by vegetation, nearby landforms and other properties within the group. More open views to south-west from elevated property Tara.

Aerial view of Property Group 3.

Property Group G3: Cranberry Cottage (G3a), Galdenoch Farmhouse (G3b) and Tara (G3c)

View of property group G3 from the south-west. Cranberry Cottage is at the lower right. Galdenoch Farmhouse is visible behind it with a flat-roofed extension and grey gable end. Tara is further left, raised above a white wall running along the minor road near the properties.

View south-west towards the Site from the minor road near property group G3.

Property Group G3: Cranberry Cottage (G3a), Galdenoch Farmhouse (G3b) and Tara (G3c)
Description of existing views and visual amenity:
Views south-west extend across rough pasture towards Galdenoch Moor (c.80 m AOD), with a strip of coniferous forest on its higher ground. Views to the west and north-west are partially screened by a strip of woodland a few hundred metres from the property, and farm outbuildings adjacent to the properties restrict views to the north. Easterly views are enclosed by the unnamed hill (c.90 m AOD). Views to the south are extensively filtered by trees between the properties and the B738, and a large hedge in the garden of Cranberry Cottage provides some screening of south-westerly views from that property. There will also be some screening of views from each property by other properties in the group. The single turbine at Knocknain Farm to the west, north-west and three small turbines at Meikle Galdenoch to the west are visible in some views from the property group but may be filtered by intervening woodland.
Description of likely effect on views and visual amenity as a result of the Proposed Development:
The Proposed Development will introduce theoretical visibility of up to four turbine hubs and sets of blades (T1-4) in open views to the south-west, at a distance of approximately 2.3 km. The turbines will occupy approximately 35 degrees of the horizontal field of vision and they will appear relatively evenly spaced on the horizon. The undulating intervening landform will screen views of the turbine bases and access tracks. The small turbines at Meikle Galdenoch will be removed to facilitate noise allowances, as part of the development.
Conclusion with respect to the Proposed Development
The magnitude of visual change will be **high**. The hubs and blades of four turbines of the Proposed Development will be visible in south-westerly views from the properties (most notably the property at Tara, which has slightly more elevated views looking south-west). The Proposed Development will read as a wind farm seen behind gently undulating enclosing horizons. Combined with the viewing distance, the Proposed Development **will not appear overwhelming or oppressive and will not breach the residential visual amenity threshold**.

Conclusion

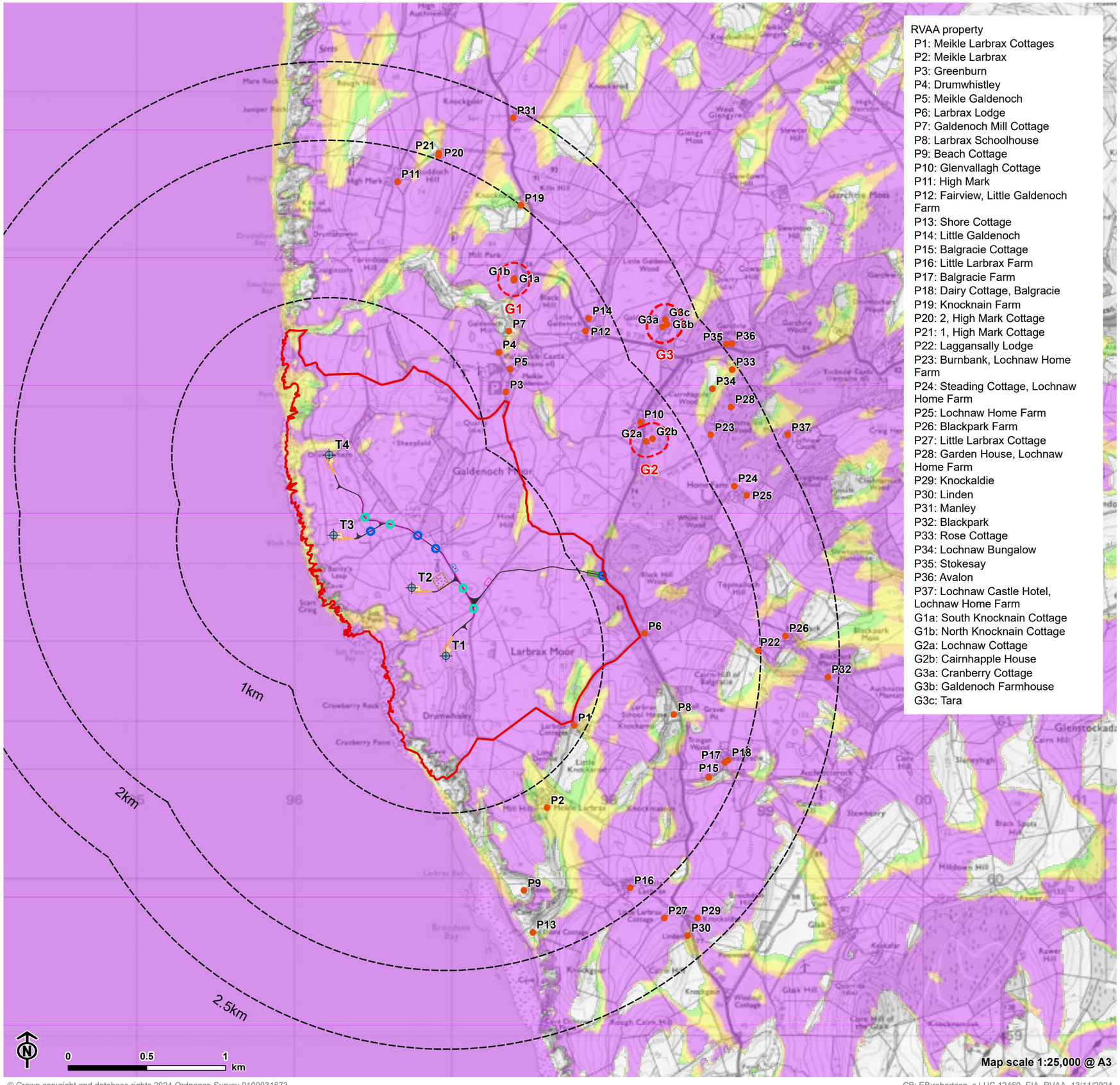
1.35 Residents at nine properties considered in this assessment will experience a **high** magnitude of change in views towards the Site from parts of their property and/or from their gardens, curtilage and access track. When combined with the high sensitivity of the residential receptor, there is the potential for these residential receptors to experience a significant visual effect.

1.36 However, none of these receptors will be subject to effects on residential visual amenity which are judged to appear overwhelming or oppressive and as such will not breach the Residential Visual Amenity Threshold described in LI TGN 2/19, i.e. "*is the effect of the development on Residential Visual Amenity of such nature and / or magnitude that it potentially affects 'living conditions' or Residential Amenity*".

Revised Larbrax Wind Farm
EIA Report
for Ørsted Onshore UK Ltd

LUC

Figure 5.3.1: Site Layout - RVAA Properties



RVAA property
P1: Meikle Larbrax Cottages
P2: Meikle Larbrax
P3: Greenburn
P4: Drumwhistley
P5: Meikle Galdenoch
P6: Larbrax Lodge
P7: Galdenoch Mill Cottage
P8: Larbrax Schoolhouse
P9: Beach Cottage
P10: Glenvallagh Cottage
P11: High Mark
P12: Fairview, Little Galdenoch Farm
P13: Shore Cottage
P14: Little Galdenoch
P15: Balgracie Cottage
P16: Little Larbrax Farm
P17: Balgracie Farm
P18: Dairy Cottage, Balgracie
P19: Knocknain Farm
P20: 2, High Mark Cottage
P21: 1, High Mark Cottage
P22: Laggansally Lodge
P23: Burnbank, Lochnaw Home Farm
P24: Steading Cottage, Lochnaw Home Farm
P25: Lochnaw Home Farm
P26: Blackpark Farm
P27: Little Larbrax Cottage
P28: Garden House, Lochnaw Home Farm
P29: Knockaldie
P30: Linden
P31: Manley
P32: Blackpark
P33: Rose Cottage
P34: Lochnaw Bungalow
P35: Stokesay
P36: Avalon
P37: Lochnaw Castle Hotel, Lochnaw Home Farm
G1a: South Knocknain Cottage
G1b: North Knocknain Cottage
G2a: Lochnaw Cottage
G2b: Cairnhapple House
G3a: Cranberry Cottage
G3b: Galdenoch Farmhouse
G3c: Tara

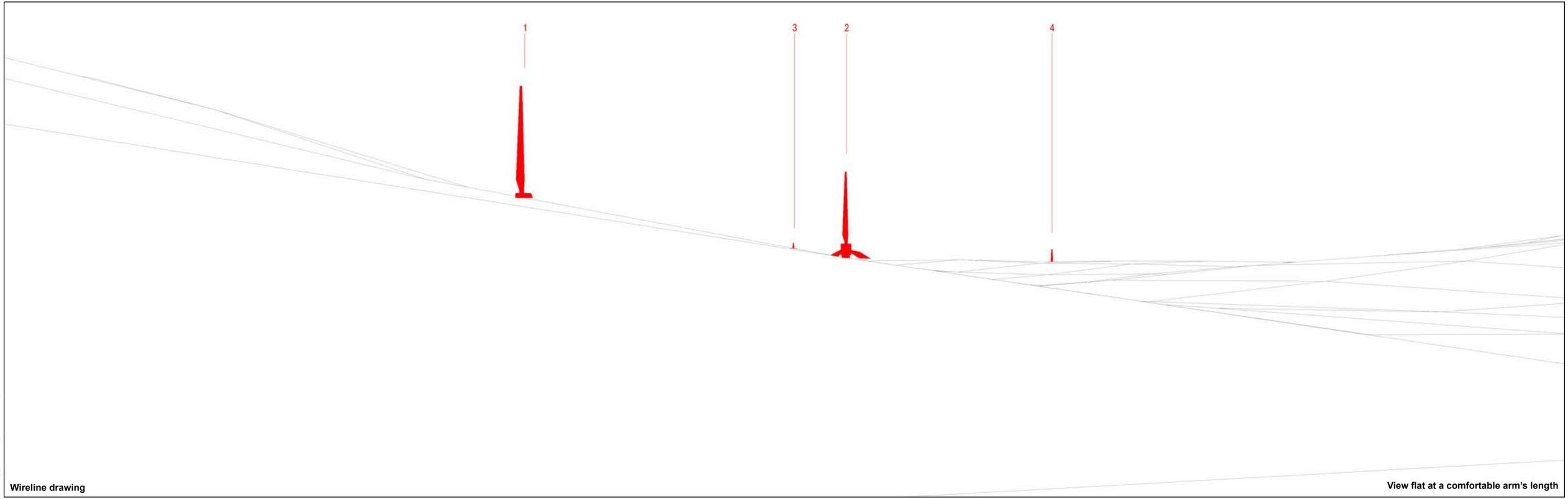
Site boundary
Turbine
Hardstanding temporary
Hardstanding permanent
Temporary borrow pit
Temporary construction compound
Substation/battery storage
Track to be upgraded
Proposed new track/access junction
Tree/scrub removal
New watercourse crossing
Existing (upgraded) watercourse crossing

Zone of Theoretical Visibility
1 turbine visible
2 turbines visible
3 turbines visible
4 turbines visible
RVAA property
1km, 2km and 2.5km intervals from outermost turbines
Property group (G1, G2 and G3)

Note:
The ZTV is calculated to individual turbine blade tip height (up to 149.9 m) from a viewing height of 2 m above ground level.
The terrain model assumes bare ground and is derived from OS Terrain 5 and OSNI 10m DTM height data.
Earth curvature and atmospheric refraction have been taken into account. The ZTV was calculated using ArcPro 3.2.0.

Ørsted

CB: EB:robertson_s LUC 12469_EIA_RVAA 13/11/2024
Source: Pell Frischmann, LUC, Ørsted



Wireline drawing

View flat at a comfortable arm's length

LUC

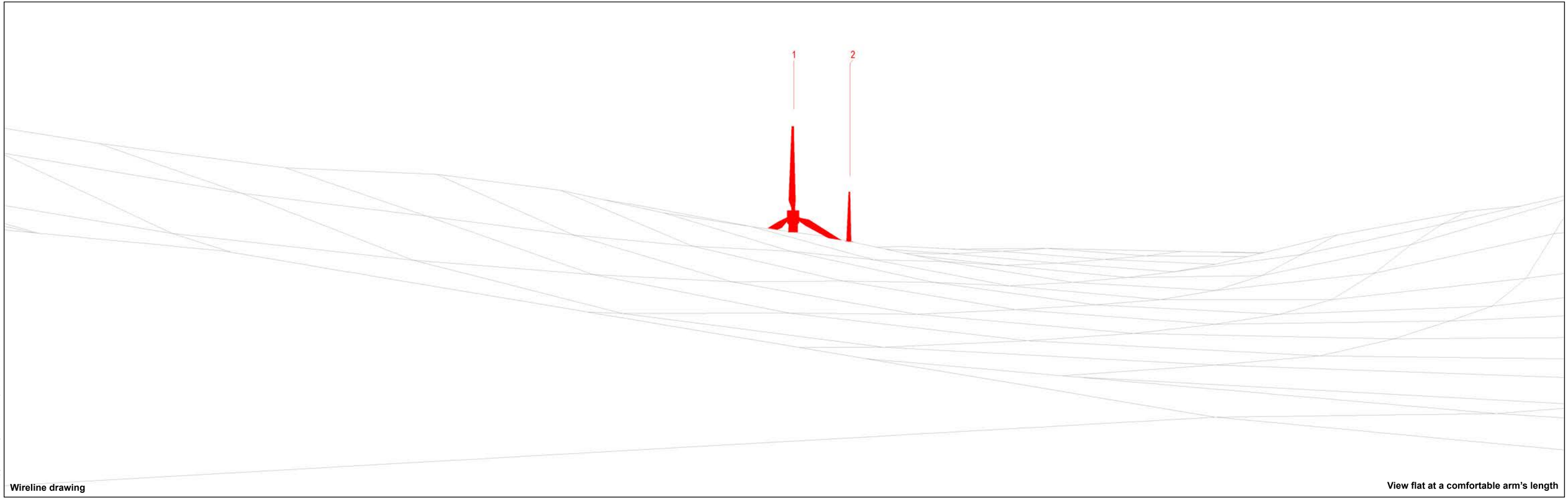
OS reference:	197781E 560974N	Horizontal field of view:	53.5° (planar projection)
AOD:	57.58 m	Principal distance:	812.5 mm
Direction of view:	308°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	0.93 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.2

Residential Property 1: Meikle Larbrax Cottages



Wireline drawing

View flat at a comfortable arm's length

LUC

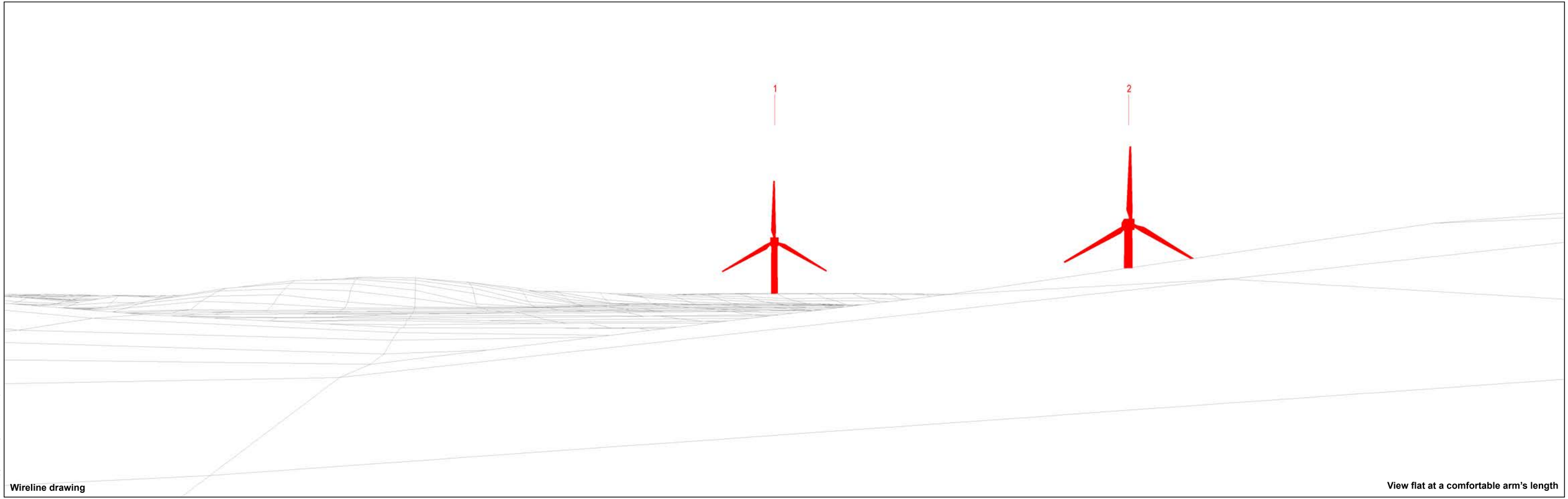
OS reference:	197608E 560451N	Horizontal field of view:	53.5° (planar projection)
AOD:	46.79 m	Principal distance:	812.5 mm
Direction of view:	326°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.16 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.3

Residential Property 2: Meikle Larbrax



Wireline drawing

View flat at a comfortable arm's length

LUC

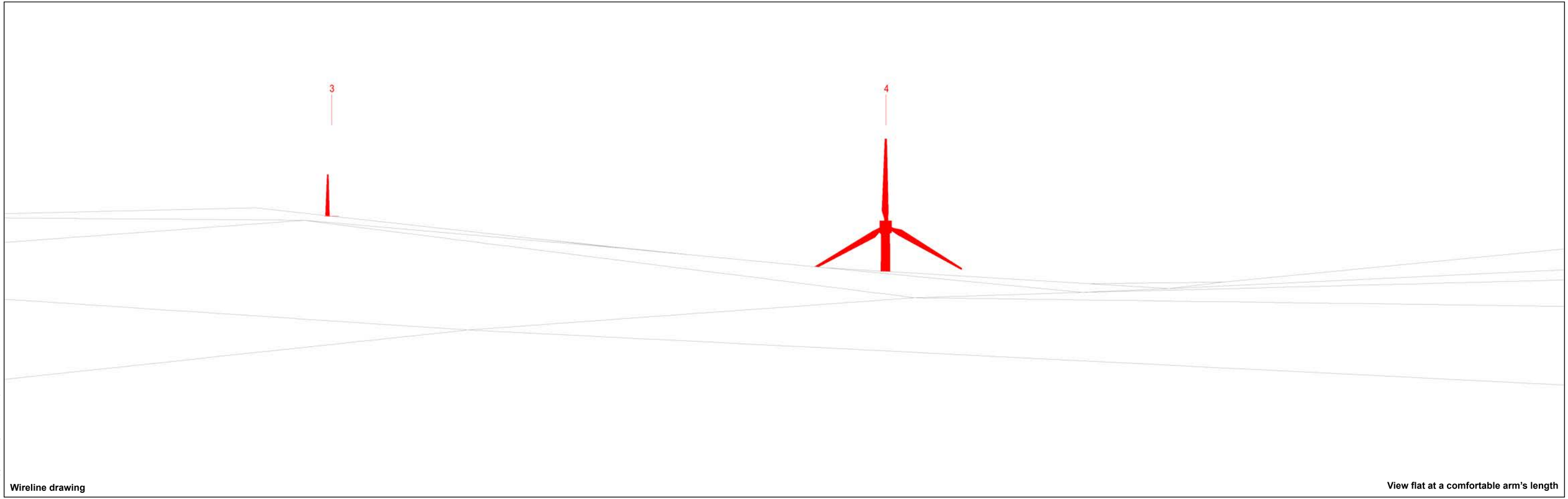
OS reference:	197348E 563091N	Horizontal field of view:	53.5° (planar projection)
AOD:	64.67 m	Principal distance:	812.5 mm
Direction of view:	193.25°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.19 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.4a

Residential Property 3: Greenburn View A



Wireline drawing

View flat at a comfortable arm's length

LUC

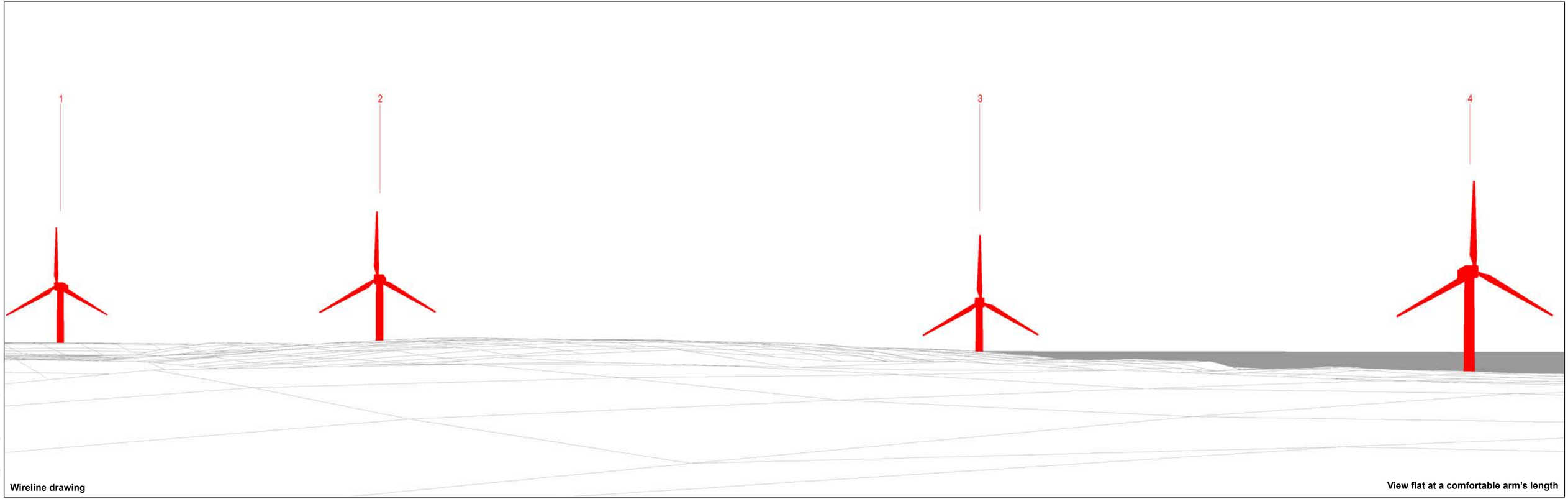
OS reference:	197348E 563091N	Horizontal field of view:	53.5° (planar projection)
AOD:	64.67 m	Principal distance:	812.5 mm
Direction of view:	246.75°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.19 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.4b

Residential Property 3: Greenburn View B



Wireline drawing

View flat at a comfortable arm's length

LUC

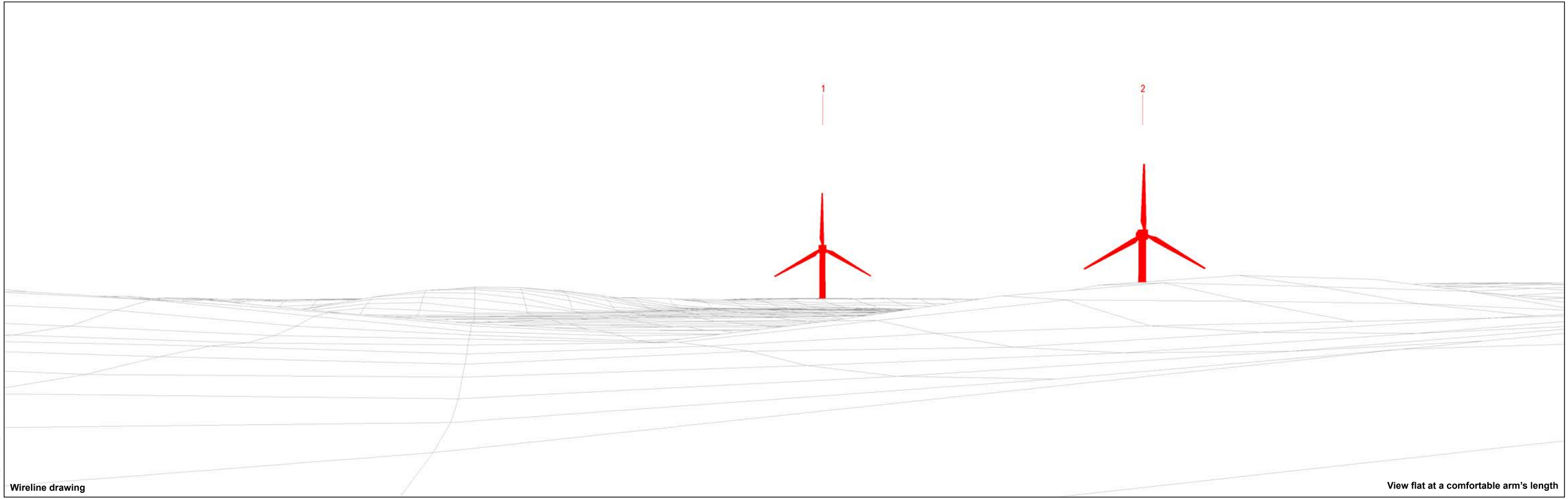
OS reference:	197302E 563344N	Horizontal field of view:	53.5° (planar projection)
AOD:	75.93 m	Principal distance:	812.5 mm
Direction of view:	215°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.26 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.5

Residential Property 4: Drumwhistley



Wireline drawing

View flat at a comfortable arm's length

LUC

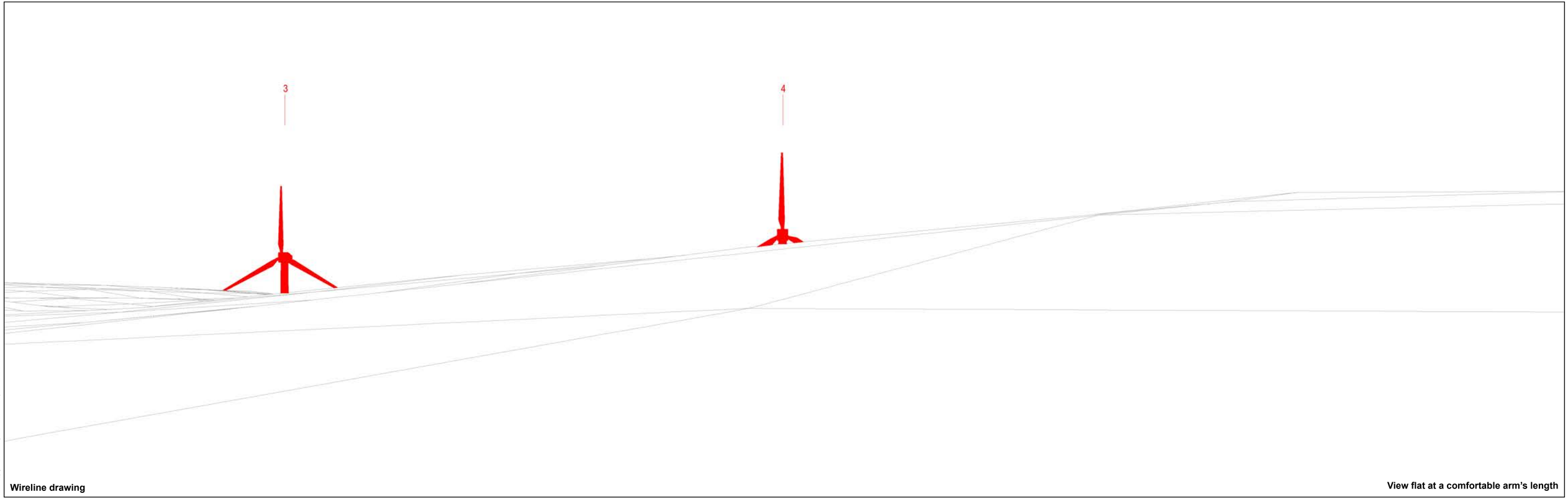
OS reference:	197374E 563237N	Horizontal field of view:	53.5° (planar projection)
AOD:	66.76 m	Principal distance:	812.5 mm
Direction of view:	191.25°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.27 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.6a

Residential Property 5: Meikle Galdenoch View A



Wireline drawing

View flat at a comfortable arm's length

LUC

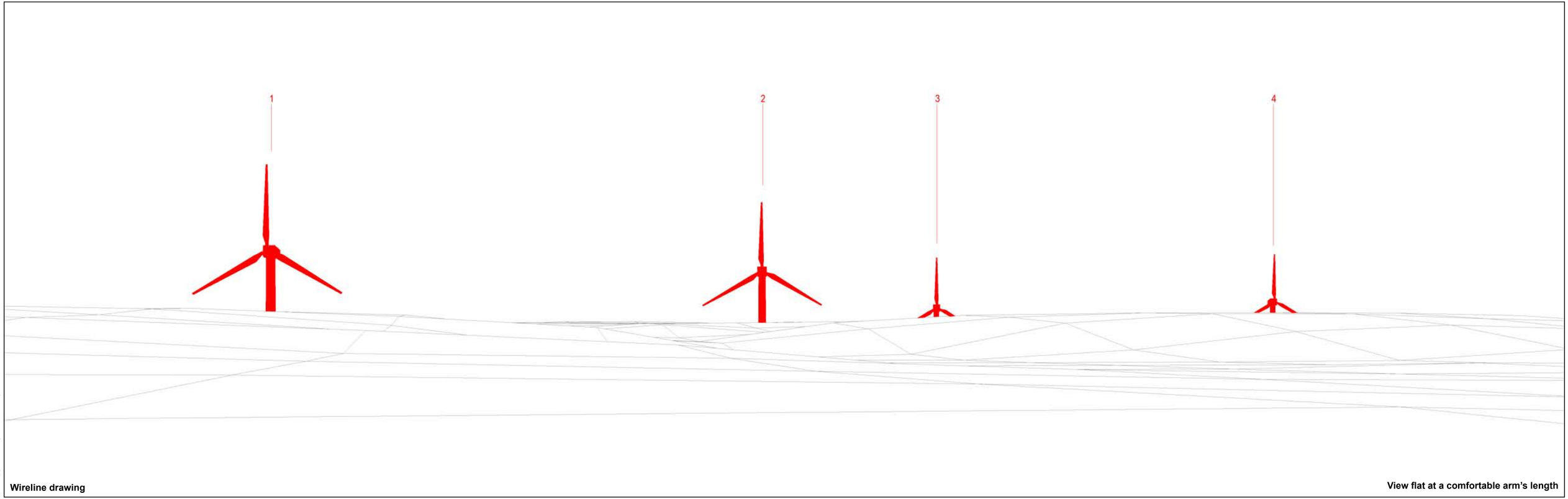
OS reference:	197374E 563237N	Horizontal field of view:	53.5° (planar projection)
AOD:	66.76 m	Principal distance:	812.5 mm
Direction of view:	244.75°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.27 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.6b

Residential Property 5: Meikle Galdenoch View B



Wireline drawing

View flat at a comfortable arm's length

LUC

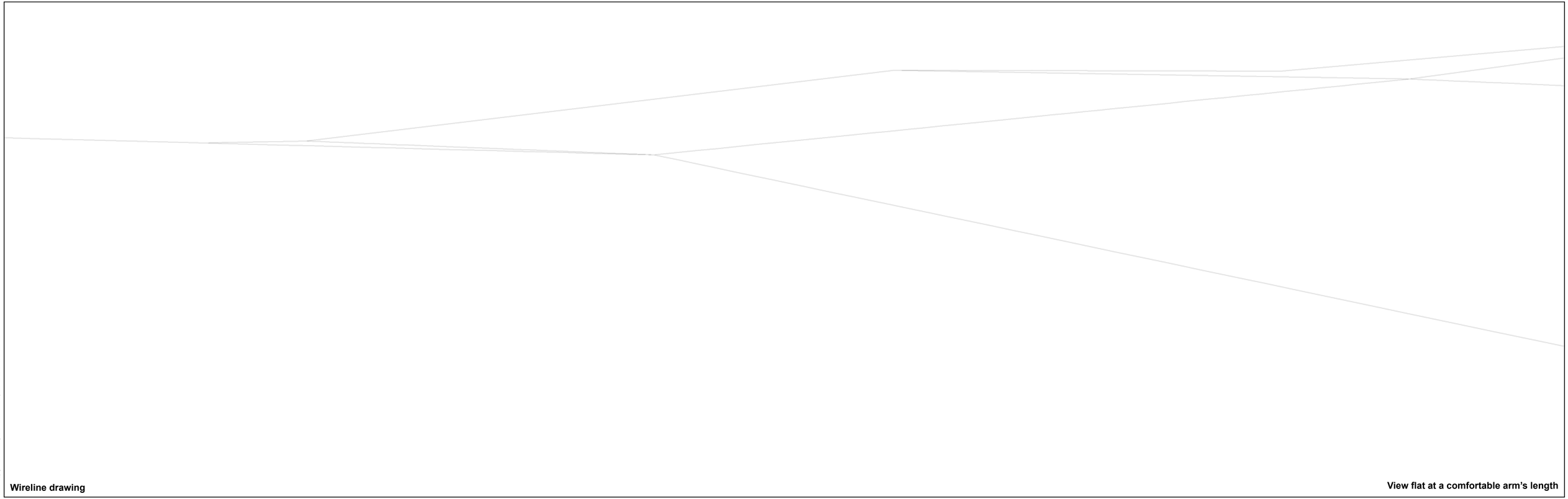
OS reference:	198227E 561557N	Horizontal field of view:	53.5° (planar projection)
AOD:	69.87 m	Principal distance:	812.5 mm
Direction of view:	282°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.27 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.7

Residential Property 6: Larbrax Lodge



Wireline drawing

View flat at a comfortable arm's length

LUC

OS reference:	197365E 563478N	Horizontal field of view:	53.5° (planar projection)
AOD:	60.2 m	Principal distance:	812.5 mm
Direction of view:	213°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.39 km	Correct printed image size:	820 x 260 mm

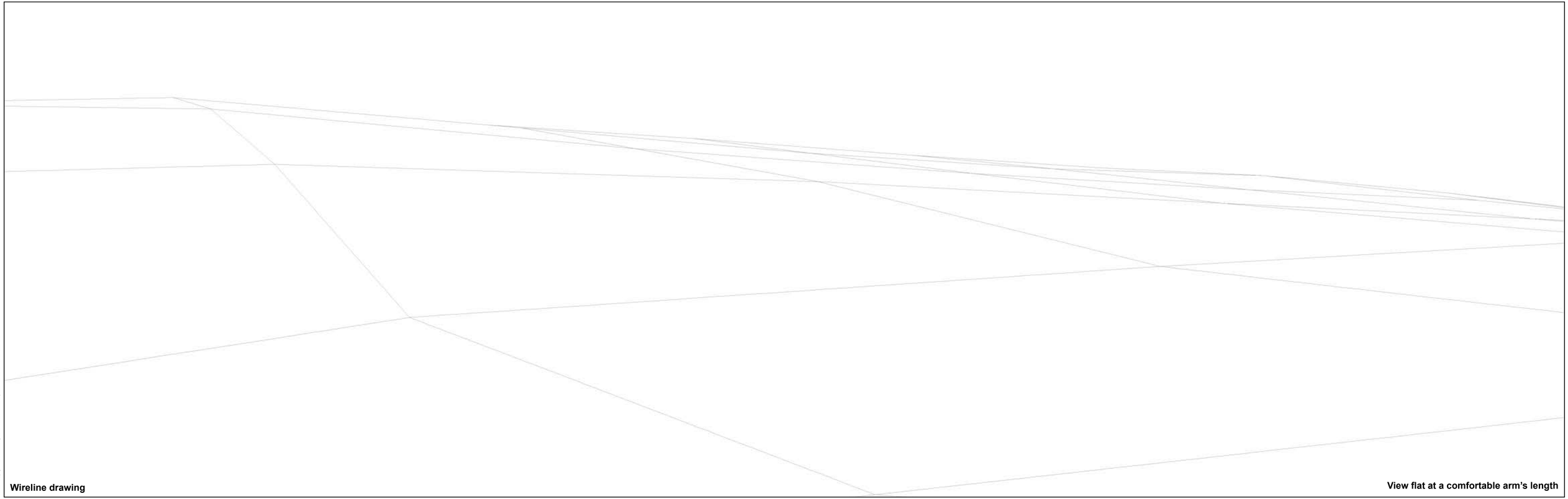
Wind Farm Developments key (by status): Proposed scheme

Notes:
1) Proposed scheme and cumulative sites not visible from this location

Larbrax Wind Farm

Figure: 5.3.8

Residential Property 7: Galdenoch Mill Cottage



Wireline drawing

View flat at a comfortable arm's length

LUC

OS reference:	198416E 561041N	Horizontal field of view:	53.5° (planar projection)
AOD:	67.84 m	Principal distance:	812.5 mm
Direction of view:	296°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.5 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Notes:
1) Proposed scheme and cumulative sites not visible from this location

Larbrax Wind Farm

Figure: 5.3.9

Residential Property 8: Larbrax Schoolhouse

Wireline drawing

View flat at a comfortable arm's length

LUC

OS reference:	197461E 559925N	Horizontal field of view:	53.5° (planar projection)
AOD:	9.78 m	Principal distance:	812.5 mm
Direction of view:	337°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.57 km	Correct printed image size:	820 x 260 mm

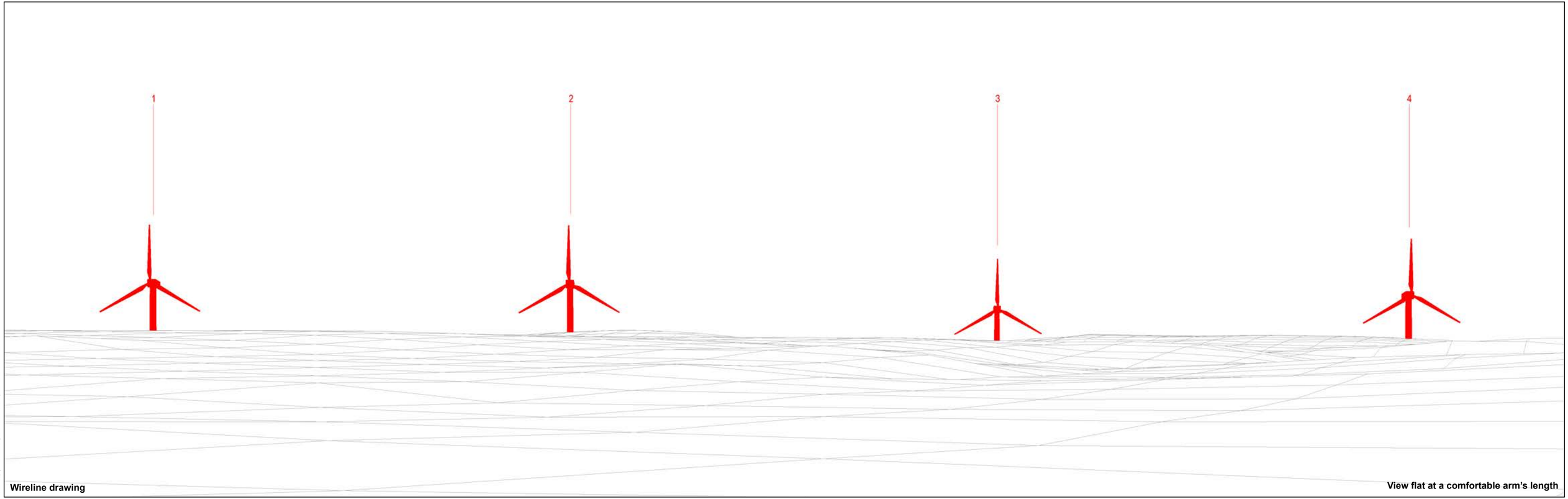
Wind Farm Developments key (by status): Proposed scheme

Notes:
1) Proposed scheme and cumulative sites not visible from this location

Larbrax Wind Farm

Figure: 5.3.10

Residential Property 9: Beach Cottage



Wireline drawing

View flat at a comfortable arm's length

LUC

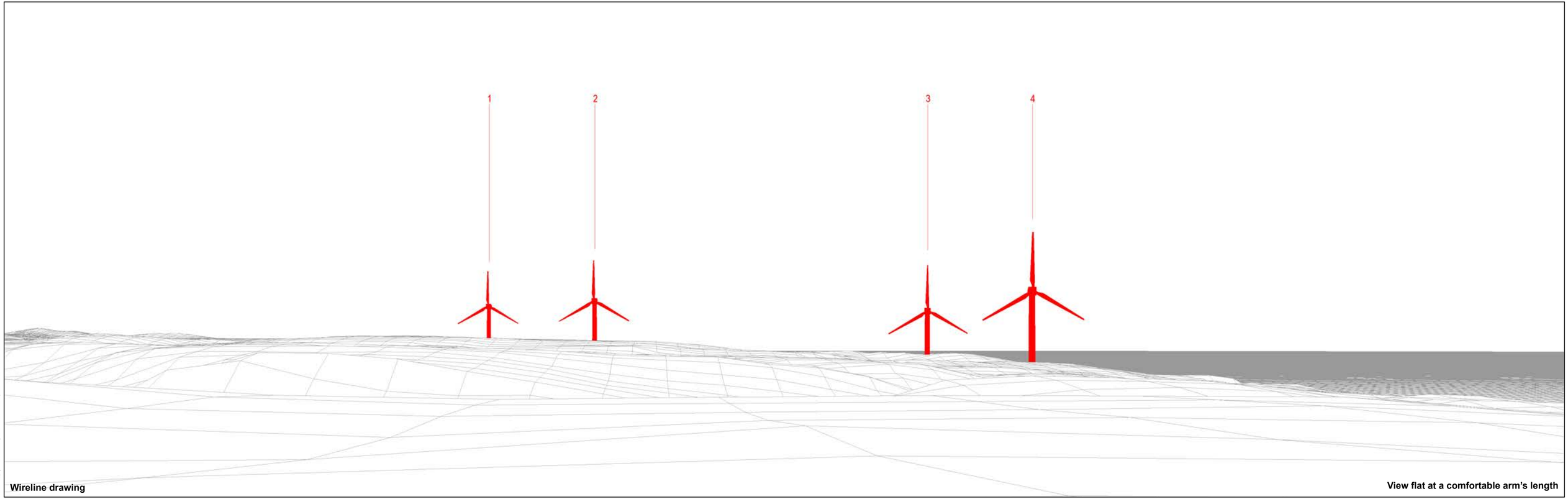
OS reference:	198202E 562901N	Horizontal field of view:	53.5° (planar projection)
AOD:	71.55 m	Principal distance:	812.5 mm
Direction of view:	242°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.79 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.11

Residential Property 10: Glenvallagh Cottage



Wireline drawing

View flat at a comfortable arm's length

LUC

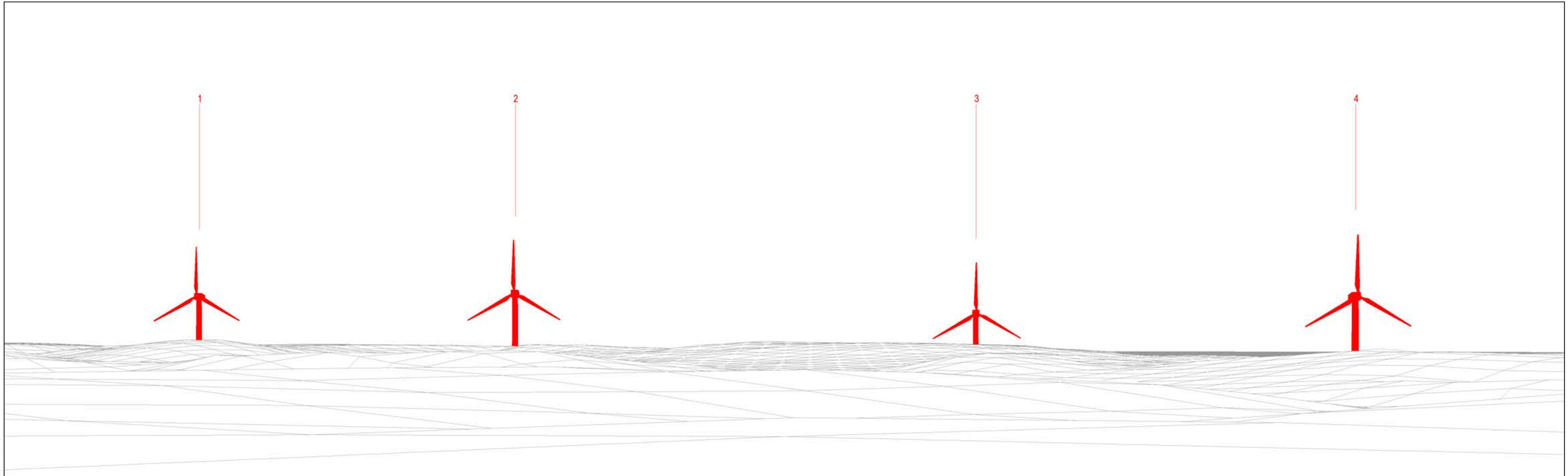
OS reference:	196658E 564429N	Horizontal field of view:	53.5° (planar projection)
AOD:	69.33 m	Principal distance:	812.5 mm
Direction of view:	185°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.79 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.12

Residential Property 11: High Mark



Wireline drawing

View flat at a comfortable arm's length

LUC

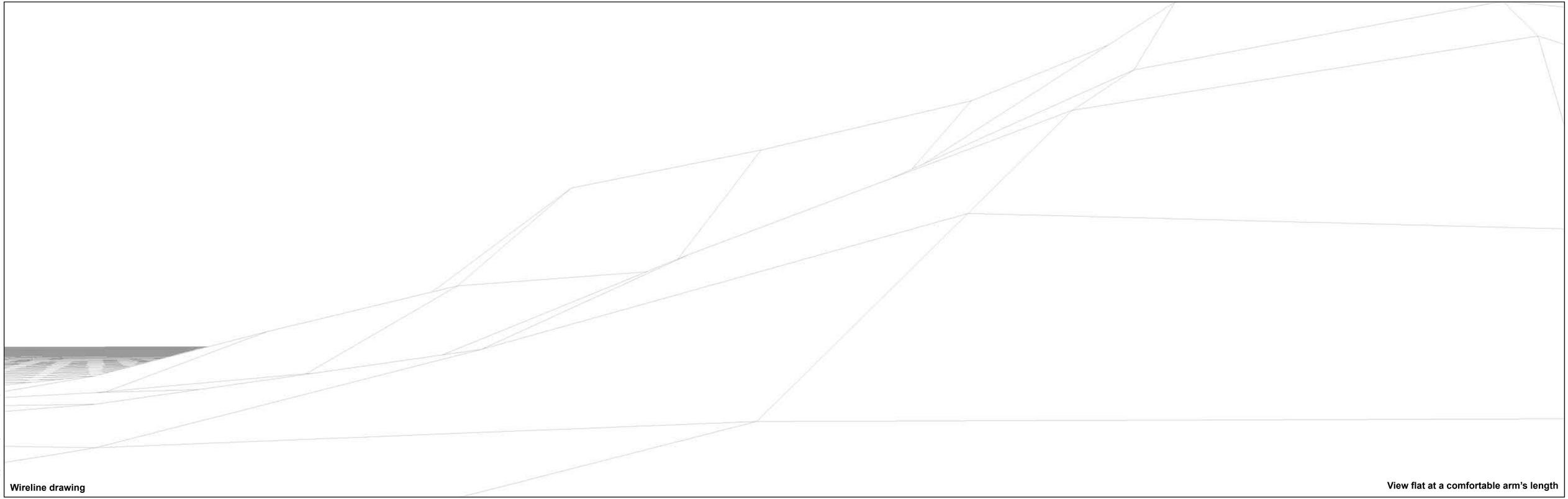
OS reference:	197517E 563478N	Horizontal field of view:	53.5° (planar projection)
AOD:	77.37 m	Principal distance:	812.5 mm
Direction of view:	224°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.81 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.13

Residential Property 12: Fairview, Little Galdenoch Farm



Wireline drawing

View flat at a comfortable arm's length

LUC

OS reference:	197517E 559658N	Horizontal field of view:	53.5° (planar projection)
AOD:	9.76 m	Principal distance:	812.5 mm
Direction of view:	339°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.84 km	Correct printed image size:	820 x 260 mm

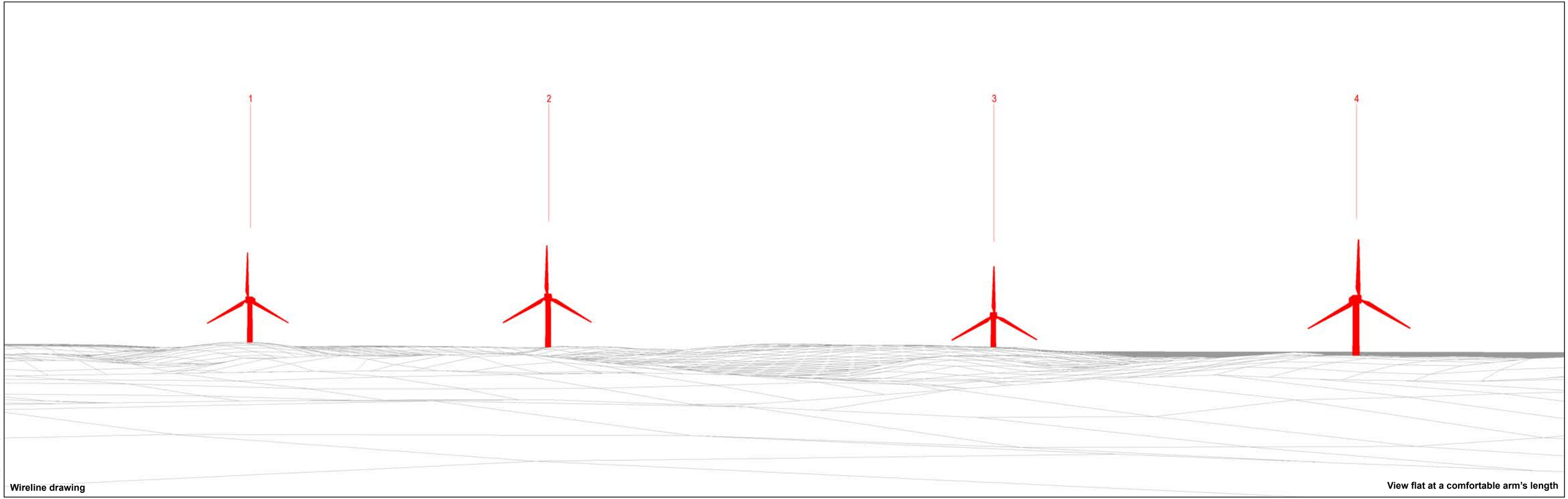
Wind Farm Developments key (by status): Proposed scheme

Notes:
1) Proposed scheme and cumulative sites not visible from this location

Larbrax Wind Farm

Figure: 5.3.14

Residential Property 13: Shore Cottage



Wireline drawing

View flat at a comfortable arm's length

LUC

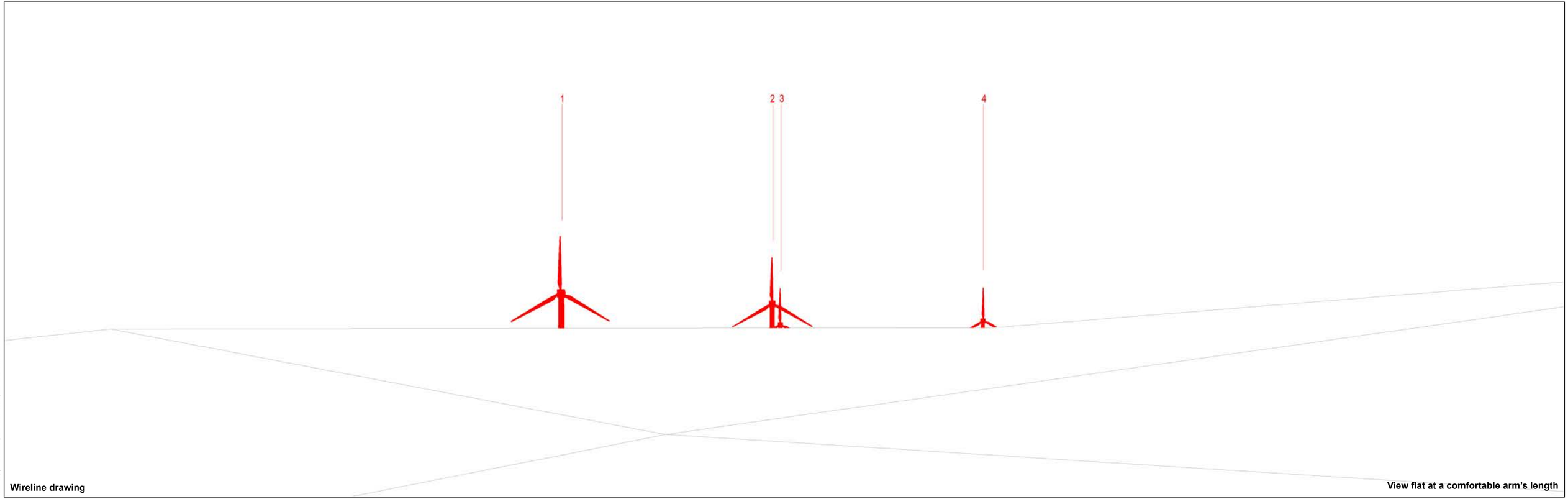
OS reference:	197872E 563559N	Horizontal field of view:	53.5° (planar projection)
AOD:	79.19 m	Principal distance:	812.5 mm
Direction of view:	222°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.86 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.15

Residential Property 14: Little Galdenoch



Wireline drawing

View flat at a comfortable arm's length

LUC

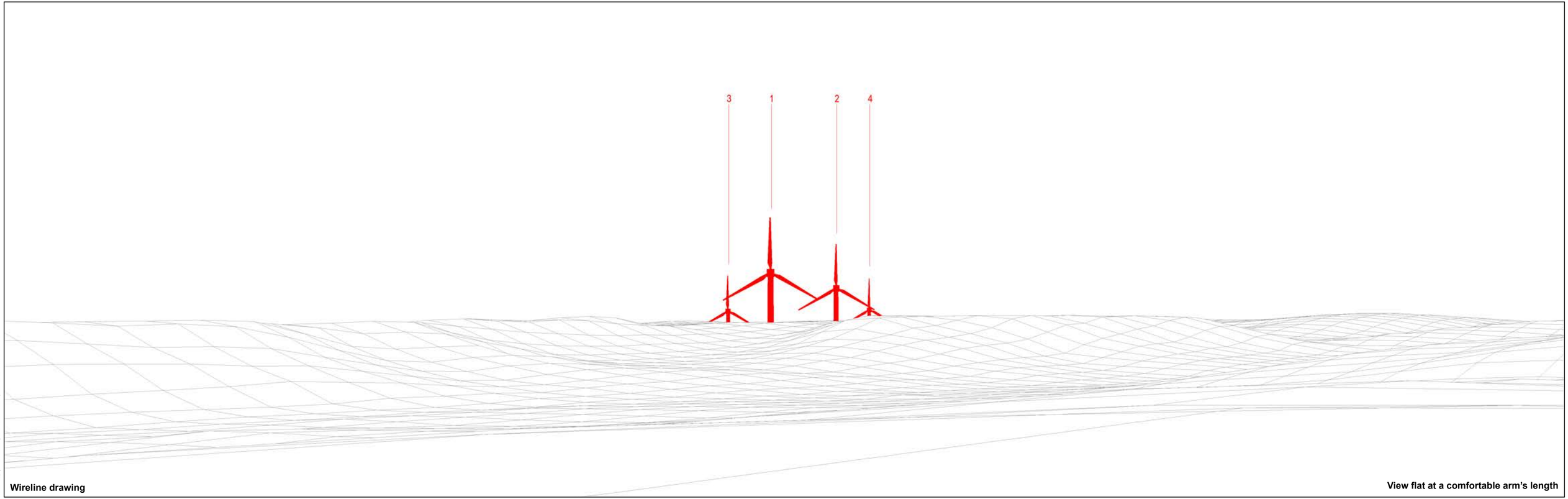
OS reference:	198636E 560644N	Horizontal field of view:	53.5° (planar projection)
AOD:	82.37 m	Principal distance:	812.5 mm
Direction of view:	303°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.84 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.16

Residential Property 15: Balgracie Cottage



Wireline drawing

View flat at a comfortable arm's length

LUC

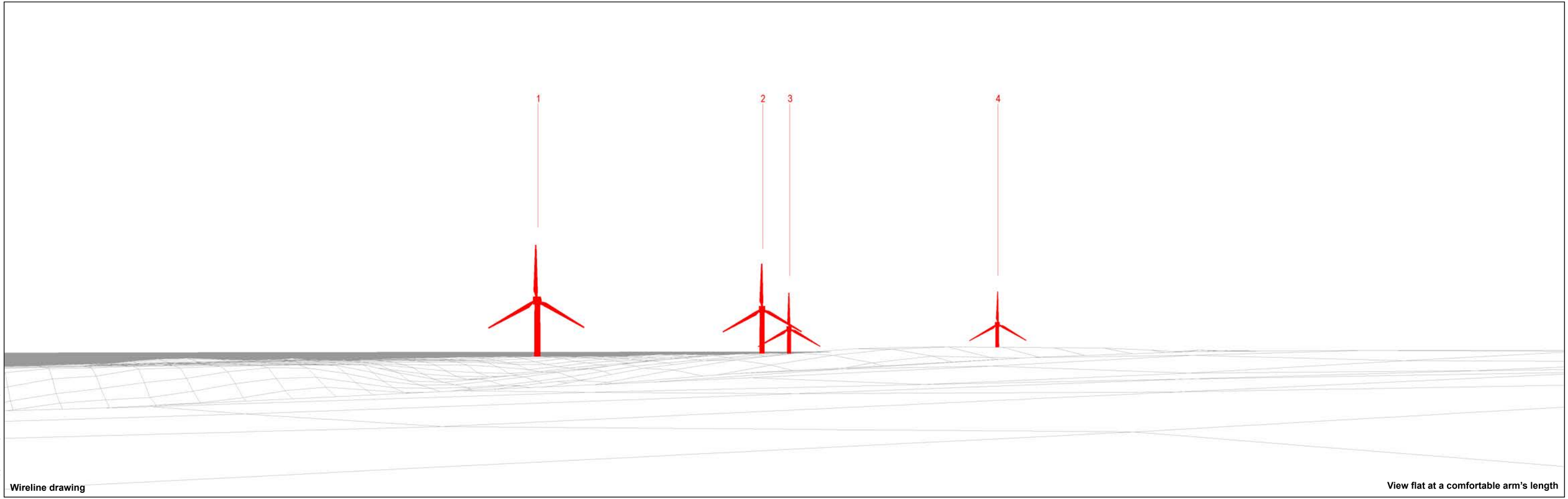
OS reference:	198138E 559942N	Horizontal field of view:	53.5° (planar projection)
AOD:	55.49 m	Principal distance:	812.5 mm
Direction of view:	322°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.88 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.17

Residential Property 16: Little Larbrax Farm



Wireline drawing

View flat at a comfortable arm's length

LUC

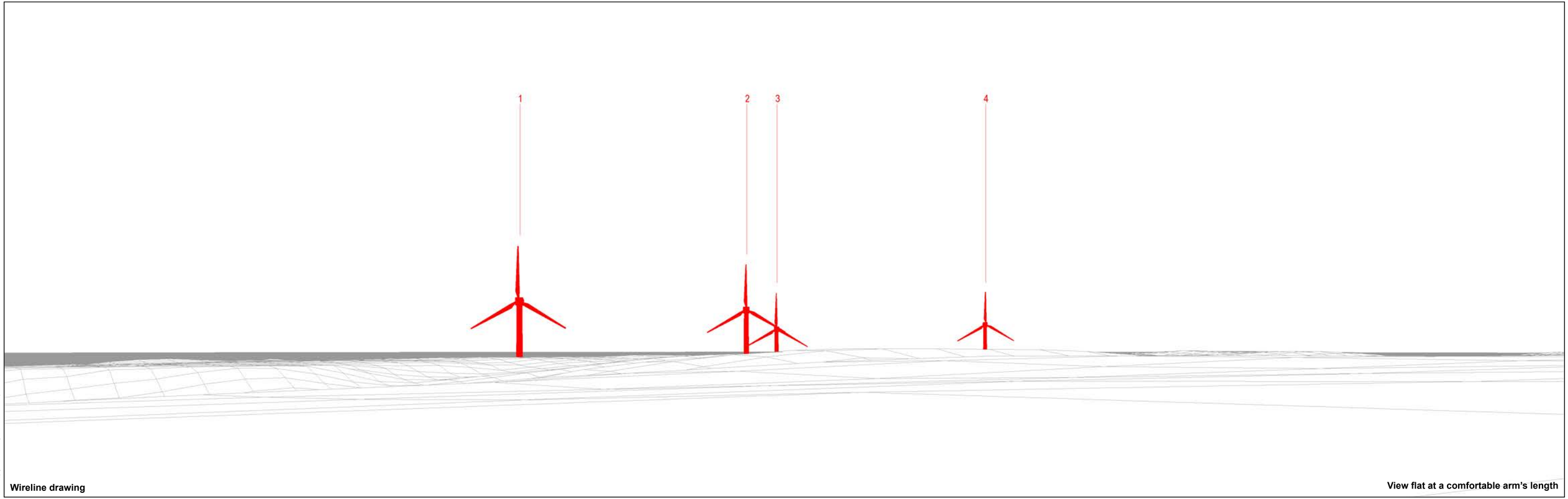
OS reference:	198738E 560738N	Horizontal field of view:	53.5° (planar projection)
AOD:	89.32 m	Principal distance:	812.5 mm
Direction of view:	300°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.9 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.18

Residential Property 17: Balgracie Farm



Wireline drawing

View flat at a comfortable arm's length

LUC

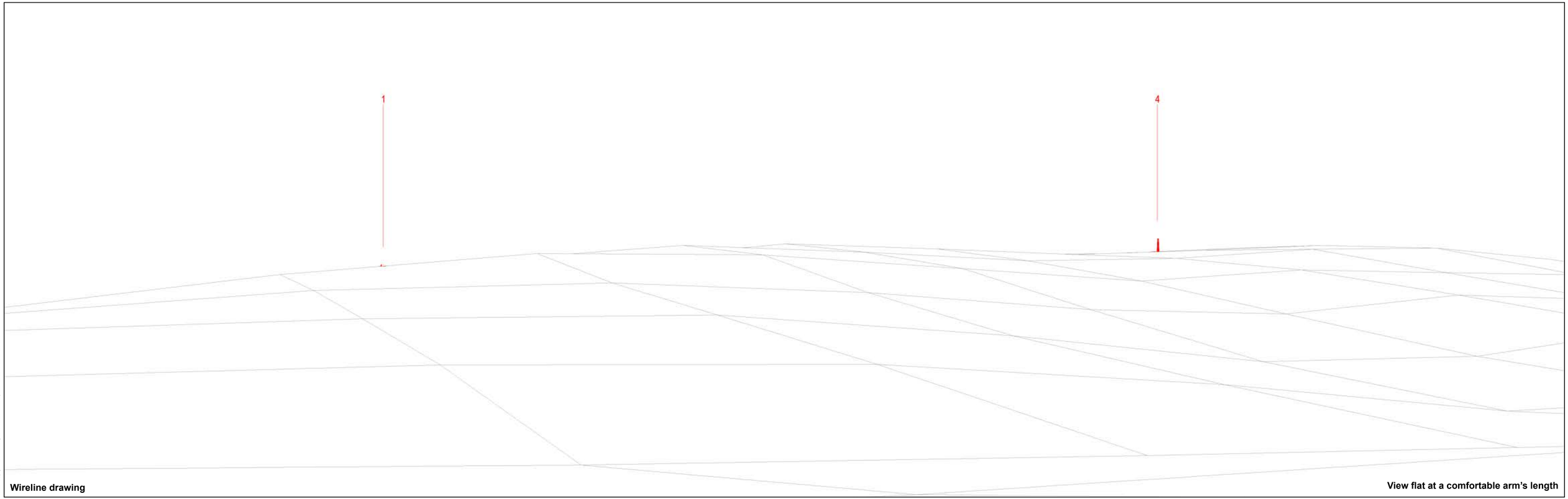
OS reference:	198759E 560753N	Horizontal field of view:	53.5° (planar projection)
AOD:	89.98 m	Principal distance:	812.5 mm
Direction of view:	300°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.91 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.19

Residential Property 18: Dairy Cottage, Balgracie



Wireline drawing

View flat at a comfortable arm's length

LUC

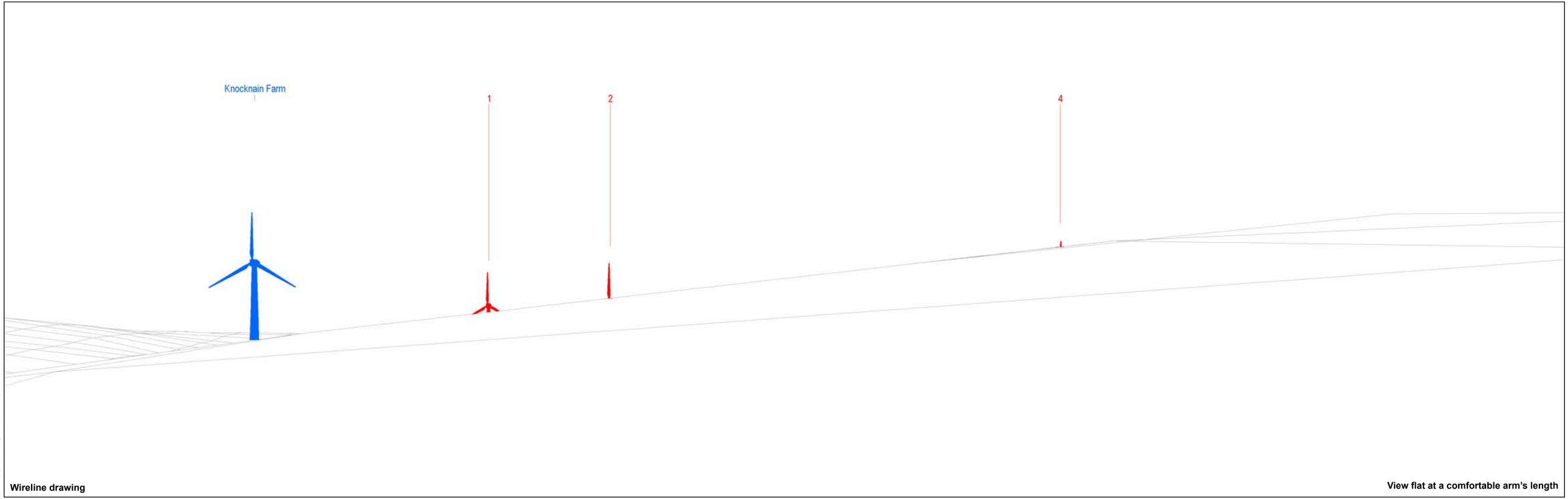
OS reference:	197441E 564279N	Horizontal field of view:	53.5° (planar projection)
AOD:	64.14 m	Principal distance:	812.5 mm
Direction of view:	204°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.20

Residential Property 19: Knocknain Farm



Wireline drawing

View flat at a comfortable arm's length

LUC

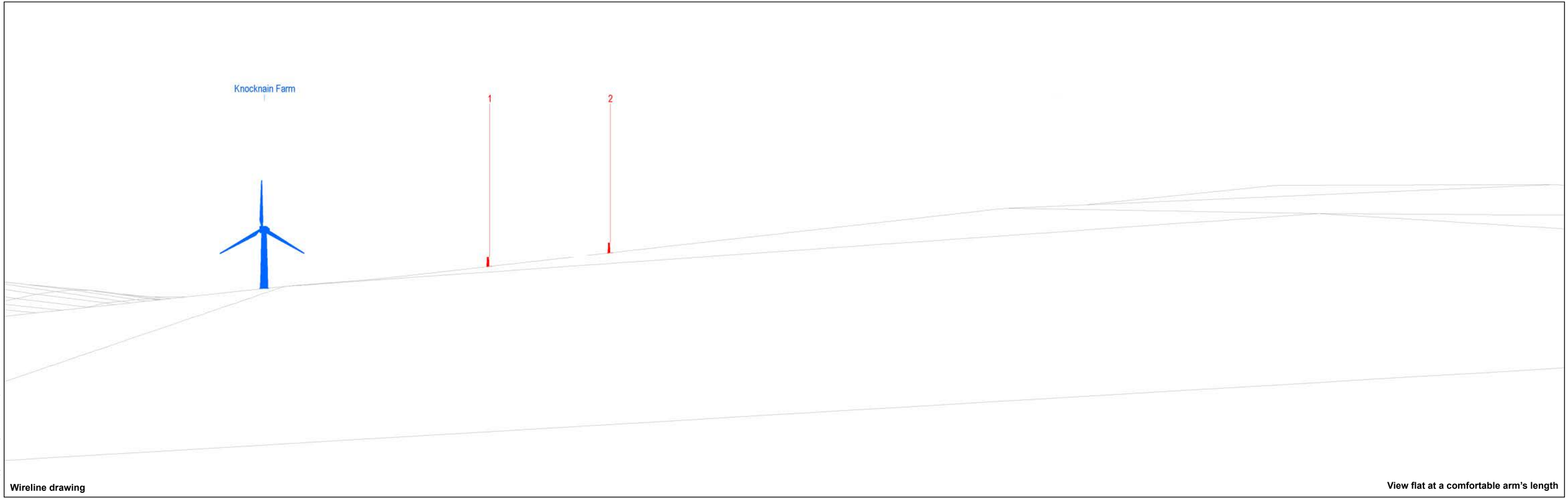
OS reference:	196919E 564597N	Horizontal field of view:	53.5° (planar projection)
AOD:	64.39 m	Principal distance:	812.5 mm
Direction of view:	190°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.03 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme; Operational

Larbrax Wind Farm

Figure: 5.3.21

Residential Property 20: 2, High Mark Cottage



Wireline drawing

View flat at a comfortable arm's length

LUC

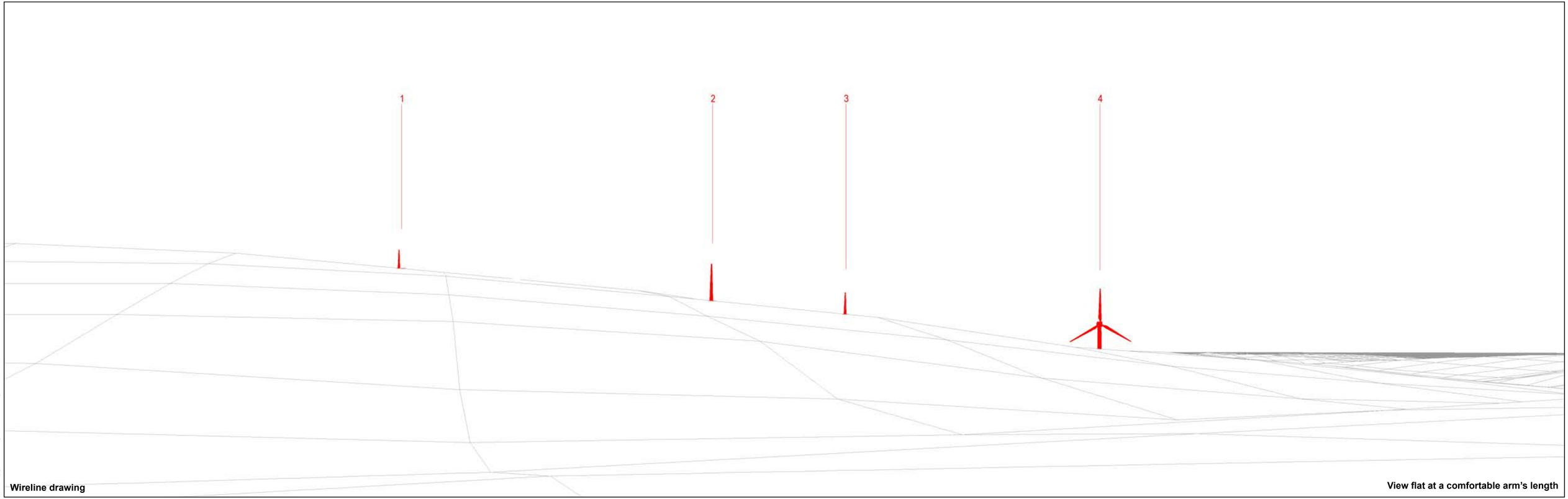
OS reference:	196920E 564611N	Horizontal field of view:	53.5° (planar projection)
AOD:	63.46 m	Principal distance:	812.5 mm
Direction of view:	190°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.04 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme; Operational

Larbrax Wind Farm

Figure: 5.3.22

Residential Property 21: 1, High Mark Cottage



Wireline drawing

View flat at a comfortable arm's length

LUC

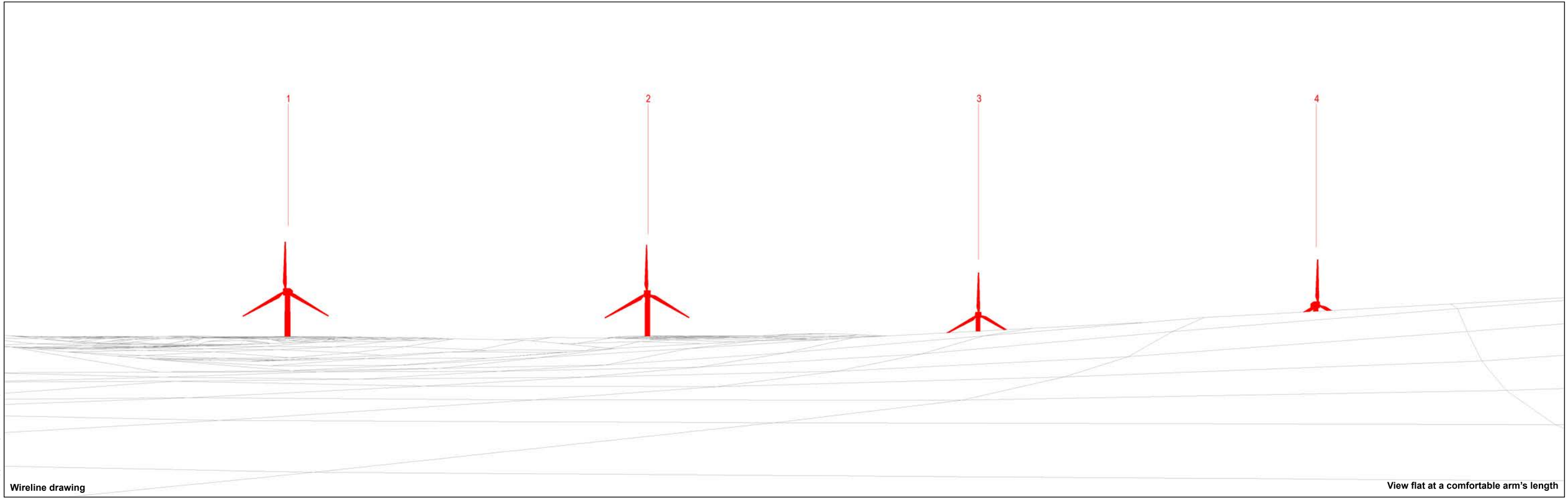
OS reference:	198951E 561448N	Horizontal field of view:	53.5° (planar projection)
AOD:	91.94 m	Principal distance:	812.5 mm
Direction of view:	283°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.99 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.23

Residential Property 22: Laggansally Lodge



Wireline drawing

View flat at a comfortable arm's length

LUC

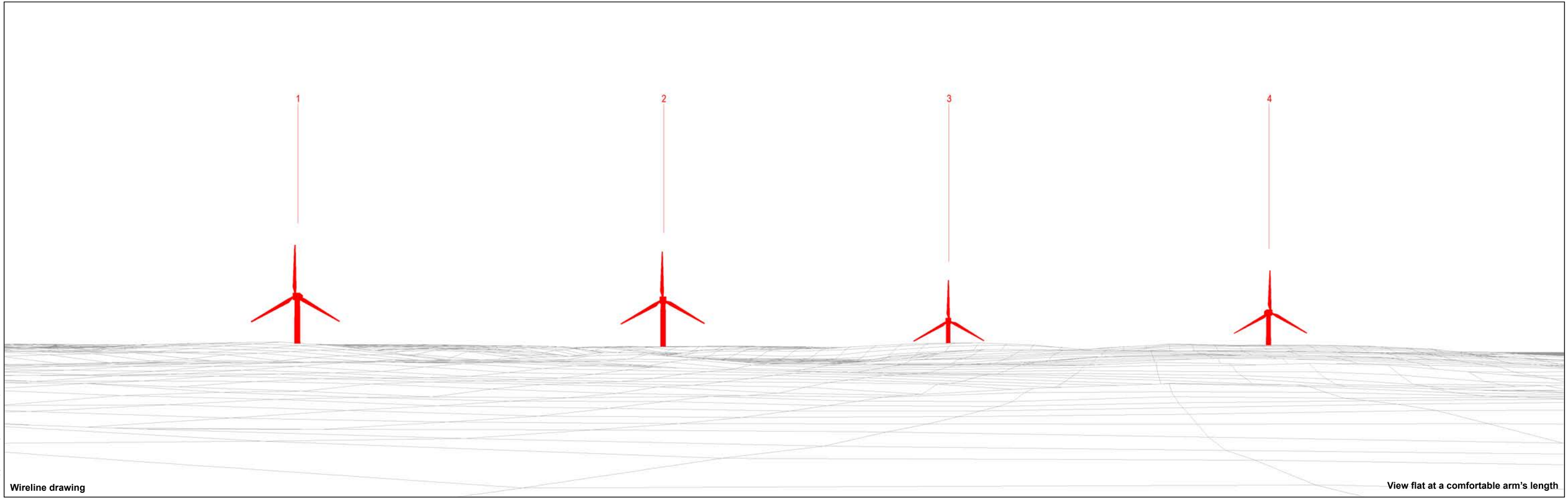
OS reference:	198651E 562821N	Horizontal field of view:	53.5° (planar projection)
AOD:	71.31 m	Principal distance:	812.5 mm
Direction of view:	248°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.14 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.24

Residential Property 23: Burnbank, Lochnaw Home Farm



Wireline drawing

View flat at a comfortable arm's length

LUC

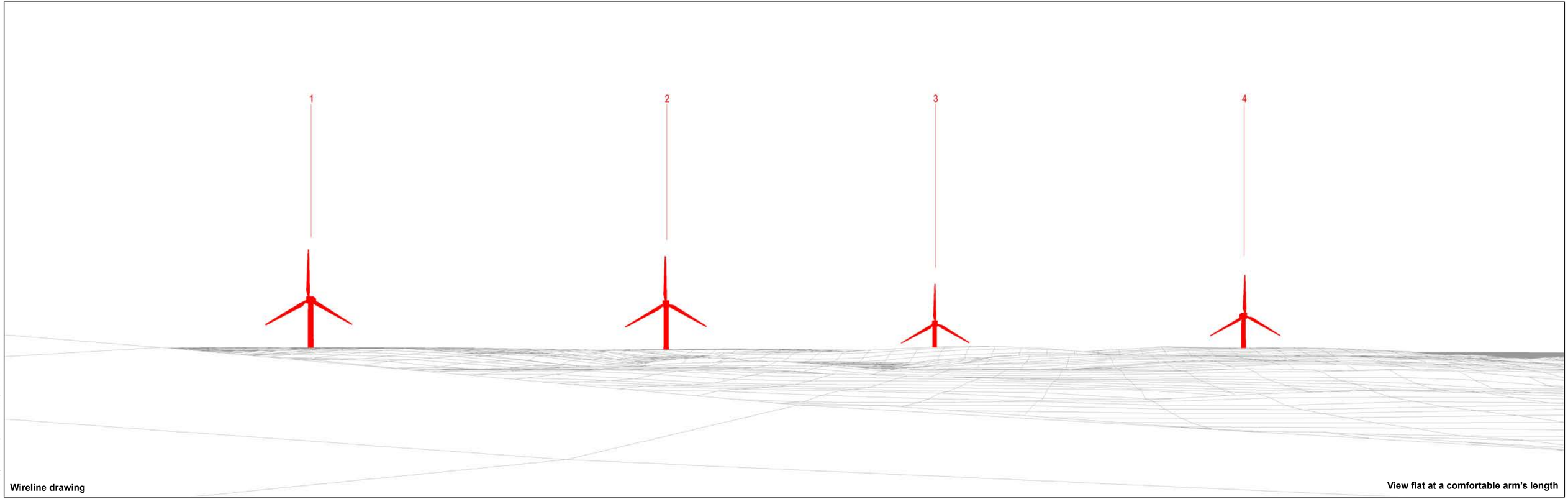
OS reference:	198798E 562495N	Horizontal field of view:	53.5° (planar projection)
AOD:	79.5 m	Principal distance:	812.5 mm
Direction of view:	257°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.13 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.25

Residential Property 24: Steading Cottage, Lochnaw Home Farm



Wireline drawing

View flat at a comfortable arm's length

LUC

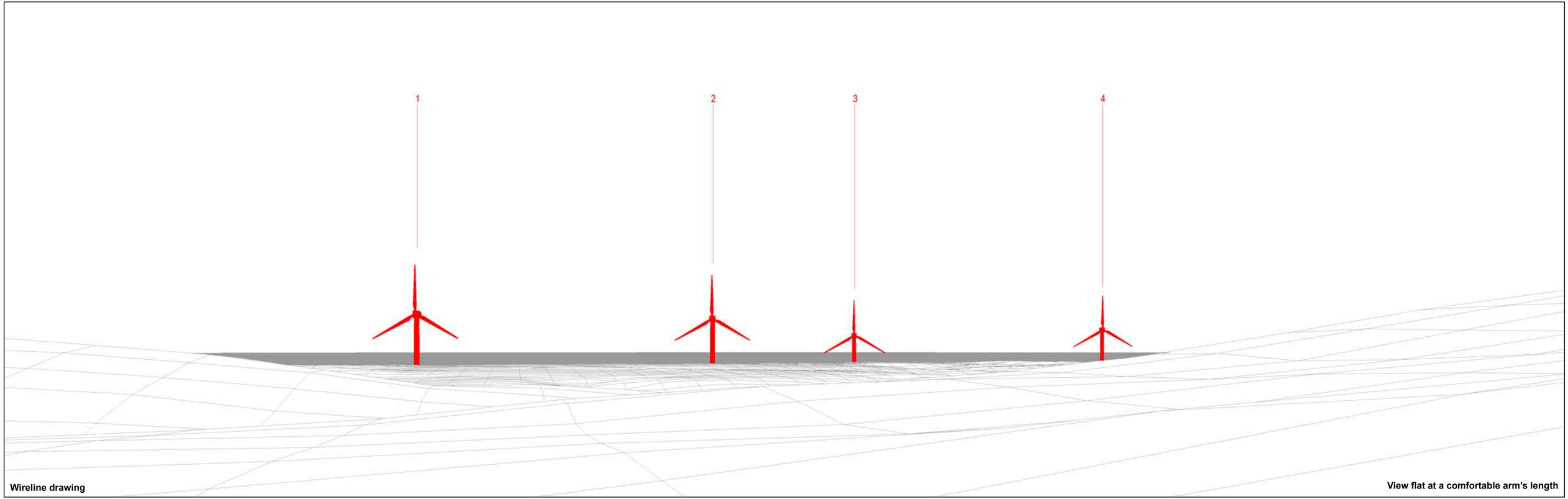
OS reference:	198879E 562435N	Horizontal field of view:	53.5° (planar projection)
AOD:	82.89 m	Principal distance:	812.5 mm
Direction of view:	259°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.17 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.26

Residential Property 25: Lochnaw Home Farm



Wireline drawing

View flat at a comfortable arm's length

LUC

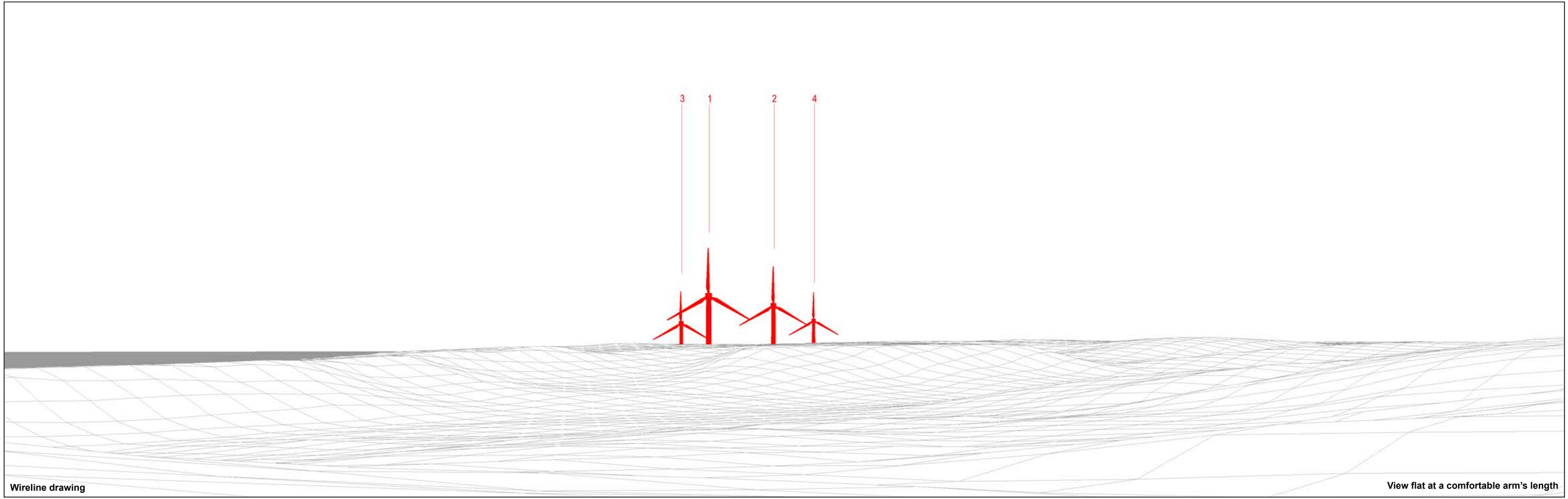
OS reference:	199123E 561543N	Horizontal field of view:	53.5° (planar projection)
AOD:	101.38 m	Principal distance:	812.5 mm
Direction of view:	280°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.16 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.27

Residential Property 26: Blackpark Farm



Wireline drawing

View flat at a comfortable arm's length

LUC

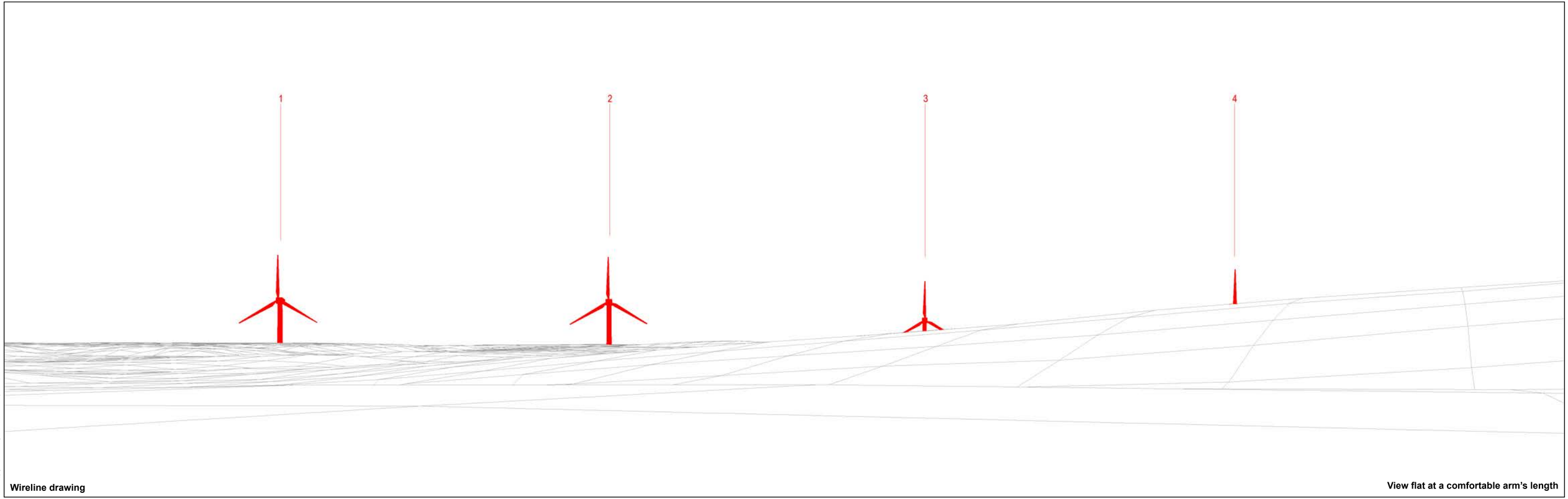
OS reference:	198354E 559749N	Horizontal field of view:	53.5° (planar projection)
AOD:	75.14 m	Principal distance:	812.5 mm
Direction of view:	323°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.17 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.28

Residential Property 27: Little Larbrax Cottage



Wireline drawing

View flat at a comfortable arm's length

LUC

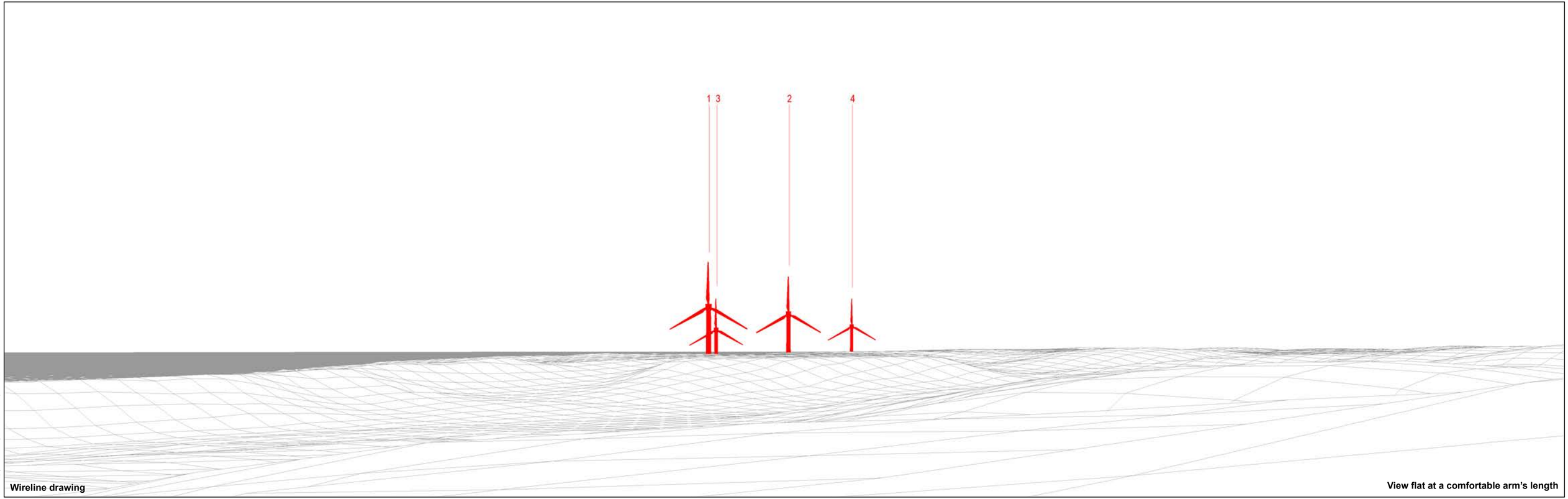
OS reference:	198780E 562997N	Horizontal field of view:	53.5° (planar projection)
AOD:	77.52 m	Principal distance:	812.5 mm
Direction of view:	247°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.33 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.29

Residential Property 28: Garden House, Lochnaw Home Farm



Wireline drawing

View flat at a comfortable arm's length

LUC

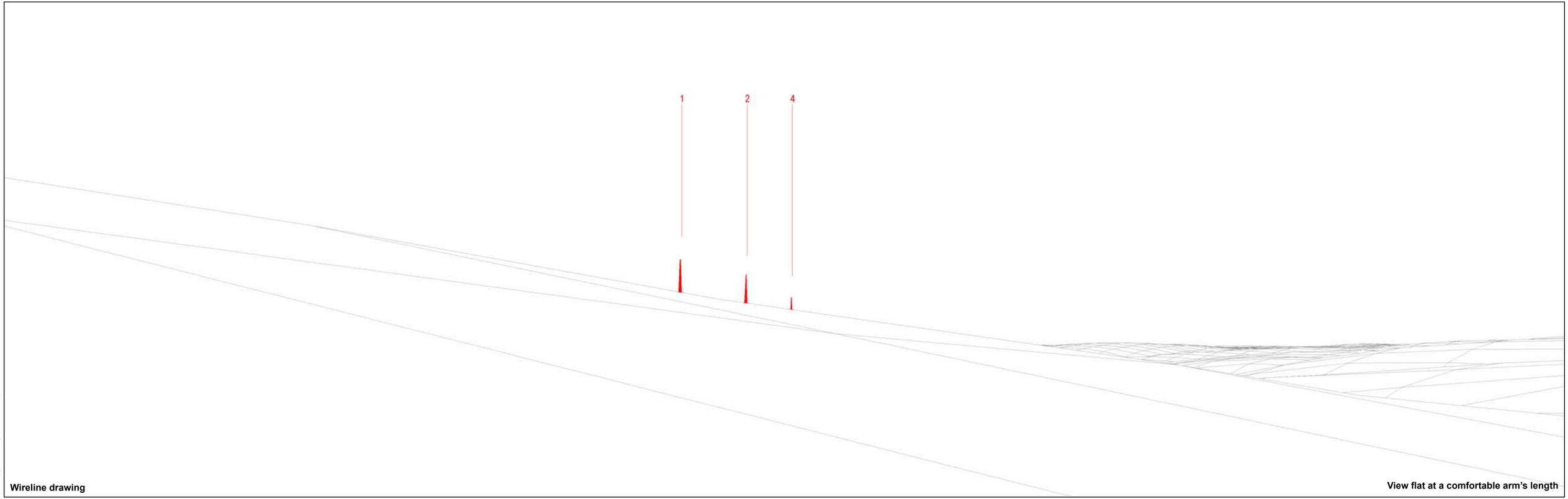
OS reference:	198564E 559749N	Horizontal field of view:	53.5° (planar projection)
AOD:	86.78 m	Principal distance:	812.5 mm
Direction of view:	319°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.31 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.30

Residential Property 29: Knockaldie



Wireline drawing

View flat at a comfortable arm's length

LUC

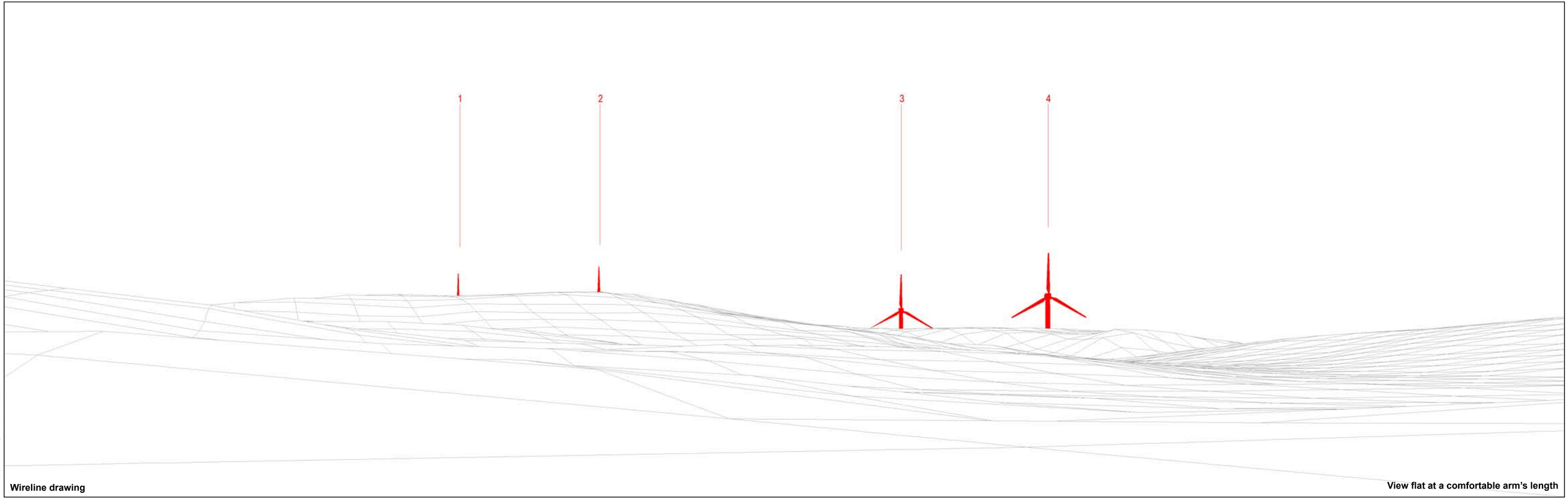
OS reference:	198501E 559638N	Horizontal field of view:	53.5° (planar projection)
AOD:	80.81 m	Principal distance:	812.5 mm
Direction of view:	323°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.35 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.31

Residential Property 30: Linden



Wireline drawing

View flat at a comfortable arm's length

LUC

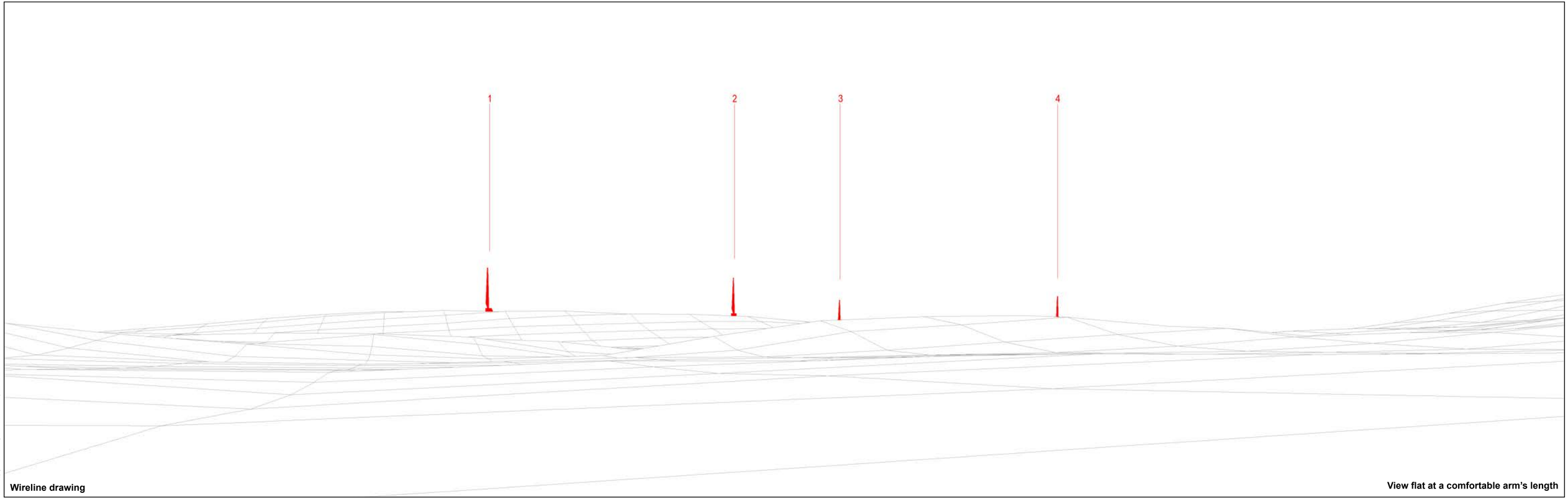
OS reference:	197393E 564834N	Horizontal field of view:	53.5° (planar projection)
AOD:	55.6 m	Principal distance:	812.5 mm
Direction of view:	199°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.44 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.32

Residential Property 31: Manley



Wireline drawing

View flat at a comfortable arm's length

LUC

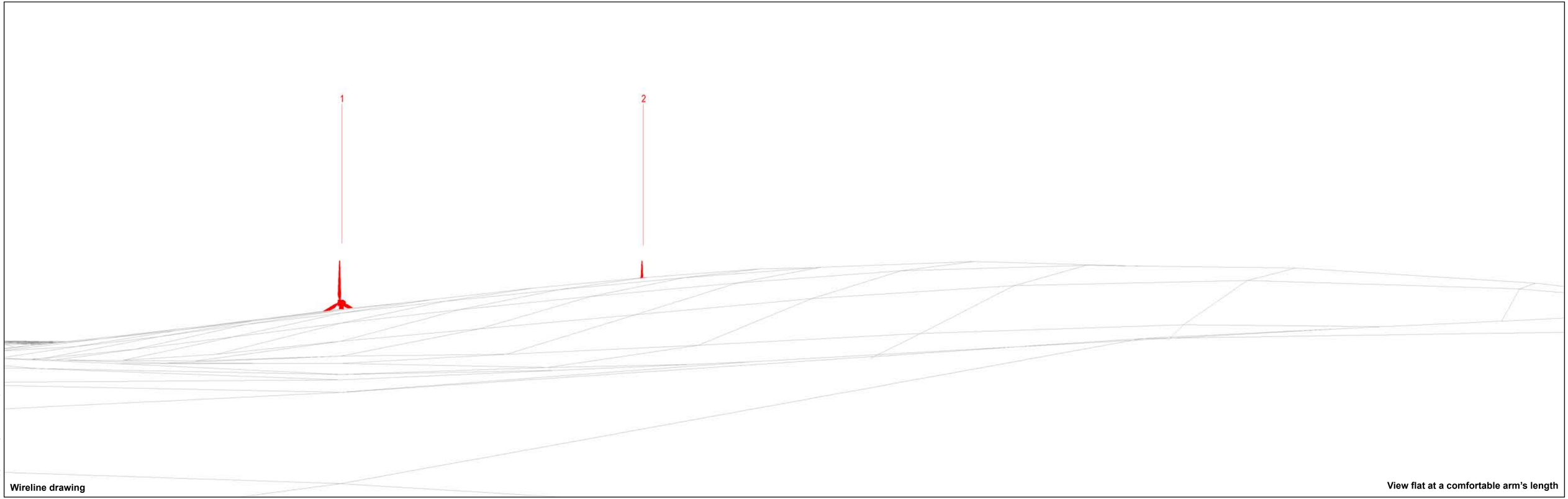
OS reference:	199393E 561281N	Horizontal field of view:	53.5° (planar projection)
AOD:	91.48 m	Principal distance:	812.5 mm
Direction of view:	284°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.43 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.33

Residential Property 32: Blackpark



Wireline drawing

View flat at a comfortable arm's length

LUC

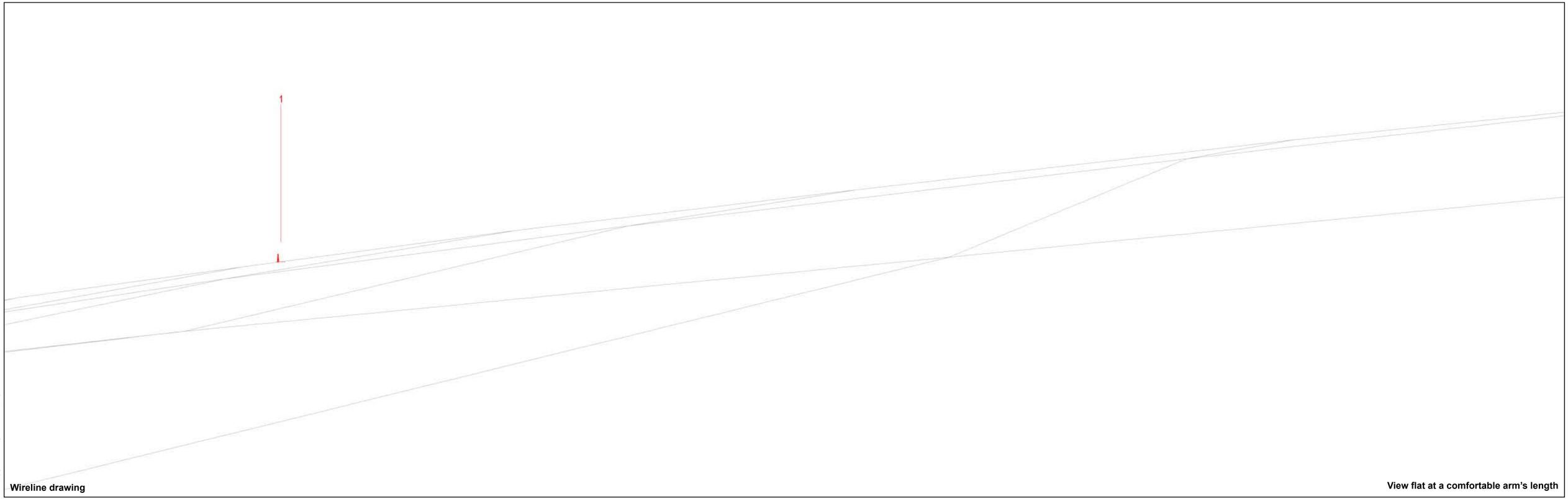
OS reference:	198785E 563235N	Horizontal field of view:	53.5° (planar projection)
AOD:	75.95 m	Principal distance:	812.5 mm
Direction of view:	241°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.46 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.34

Residential Property 33: Rose Cottage



Wireline drawing

View flat at a comfortable arm's length

LUC

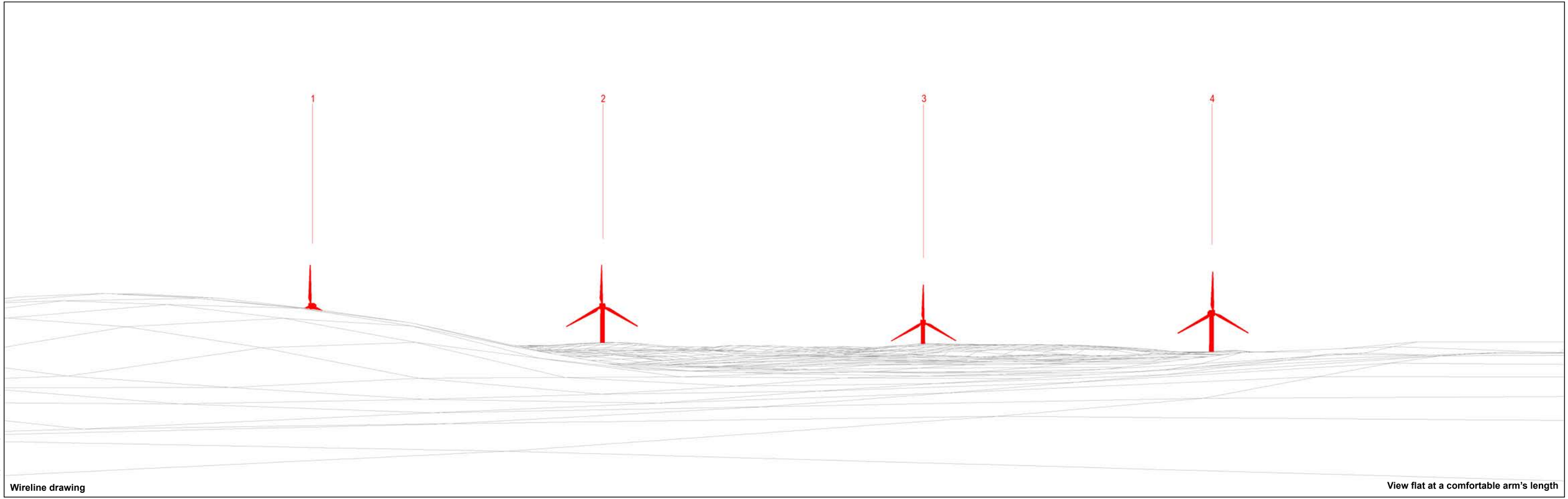
OS reference:	198659E 563113N	Horizontal field of view:	53.5° (planar projection)
AOD:	75.89 m	Principal distance:	812.5 mm
Direction of view:	243°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.29 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.35

Residential Property 34: Lochnaw Bungalow



Wireline drawing

View flat at a comfortable arm's length

LUC

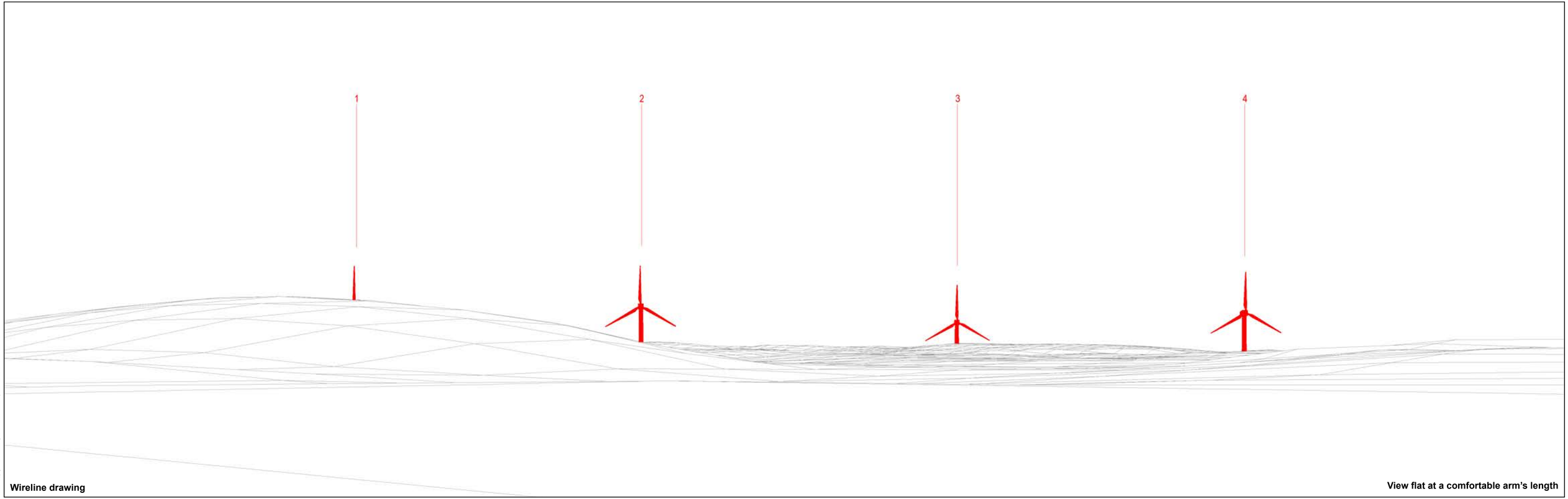
OS reference:	198749E 563396N	Horizontal field of view:	53.5° (planar projection)
AOD:	78.91 m	Principal distance:	812.5 mm
Direction of view:	239°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.53 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.36

Residential Property 35: Stokesay



Wireline drawing

View flat at a comfortable arm's length

LUC

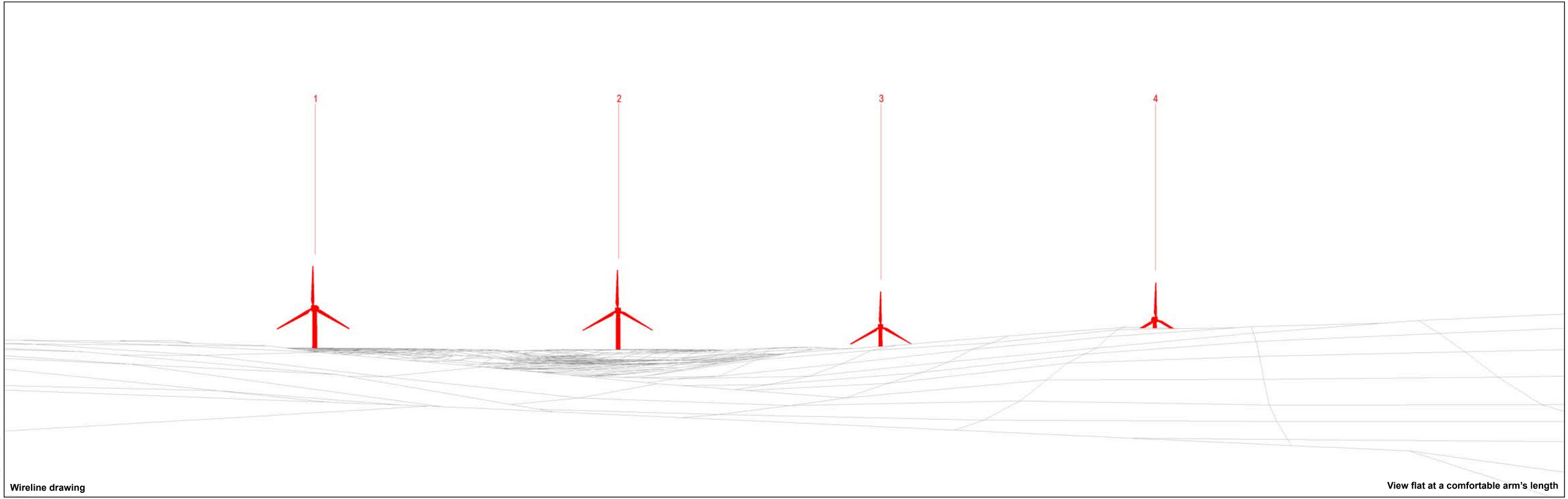
OS reference:	198784E 563400N	Horizontal field of view:	53.5° (planar projection)
AOD:	78.42 m	Principal distance:	812.5 mm
Direction of view:	238°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.56 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.37

Residential Property 36: Avalon



Wireline drawing

View flat at a comfortable arm's length

LUC

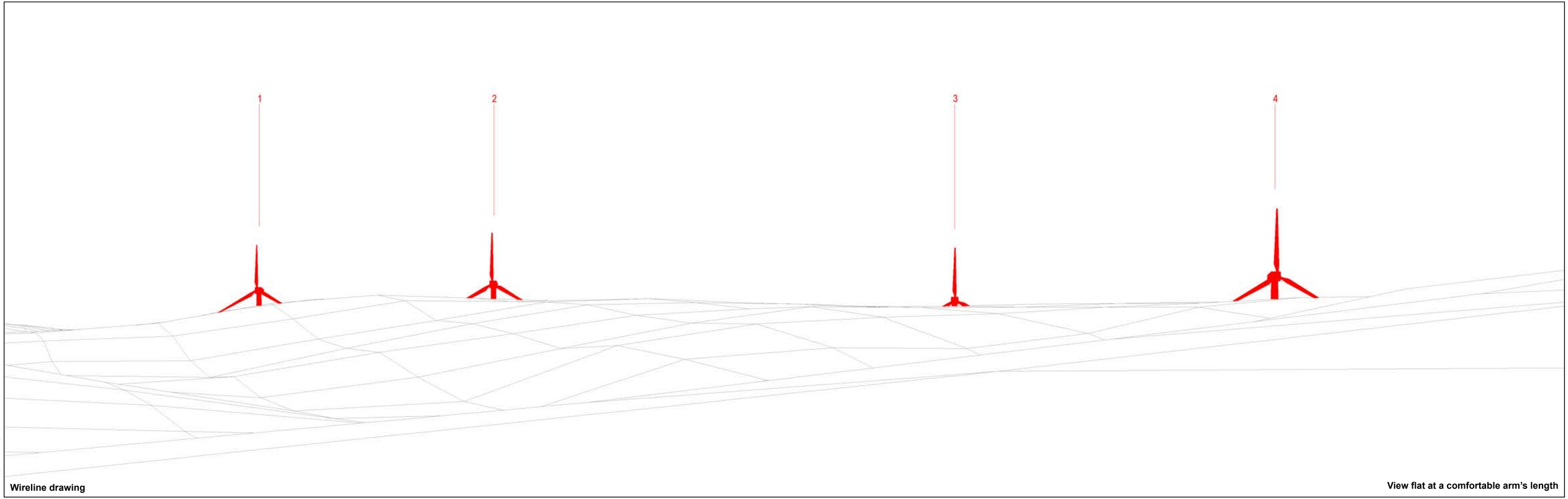
OS reference:	199138E 562821N	Horizontal field of view:	53.5° (planar projection)
AOD:	84.58 m	Principal distance:	812.5 mm
Direction of view:	254°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.58 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.38

Residential Property 37: Lochnaw Castle Hotel, Lochnaw Home



Wireline drawing

View flat at a comfortable arm's length

LUC

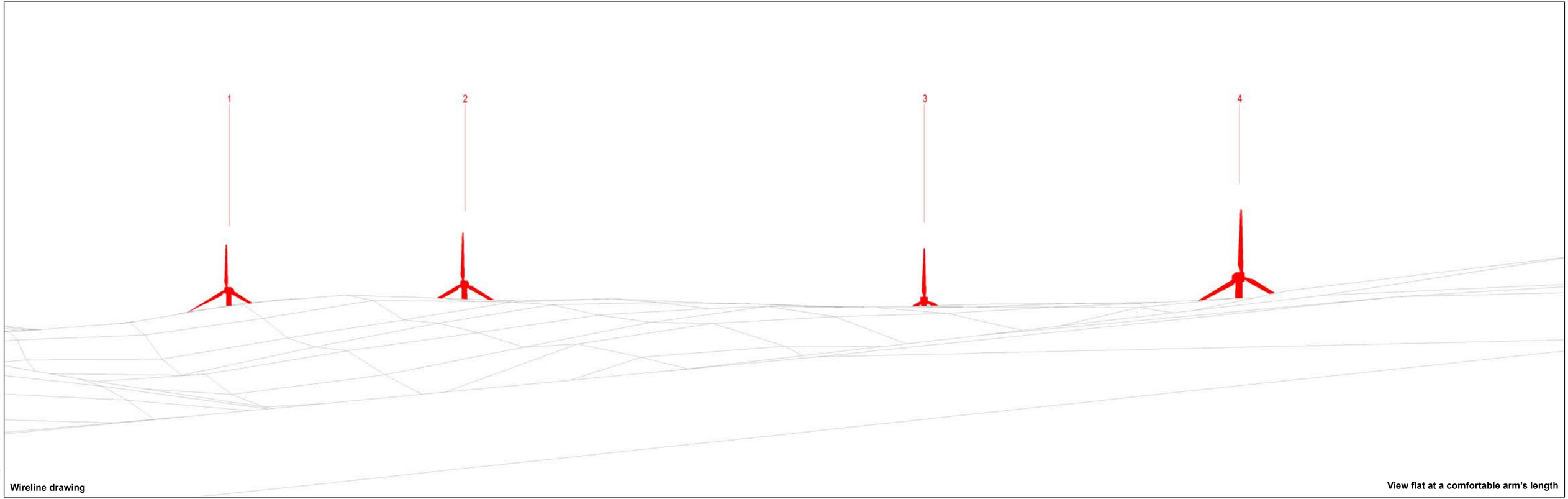
OS reference:	197396E 563803N	Horizontal field of view:	53.5° (planar projection)
AOD:	62.42 m	Principal distance:	812.5 mm
Direction of view:	209°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.62 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.39

Residential Property Group 1a: South Knocknain Cottage



Wireline drawing

View flat at a comfortable arm's length

LUC

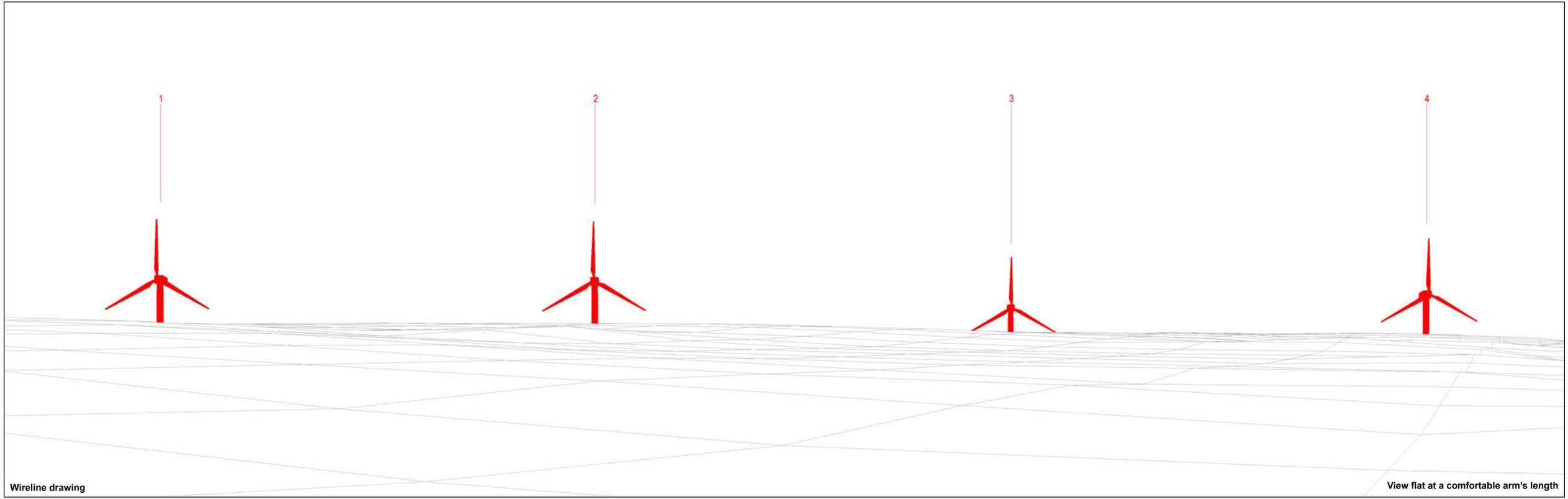
OS reference:	197398E 563813N	Horizontal field of view:	53.5° (planar projection)
AOD:	62.18 m	Principal distance:	812.5 mm
Direction of view:	210°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.62 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.40

Residential Property Group 1b: North Knocknain Cottage



Wireline drawing

View flat at a comfortable arm's length

LUC

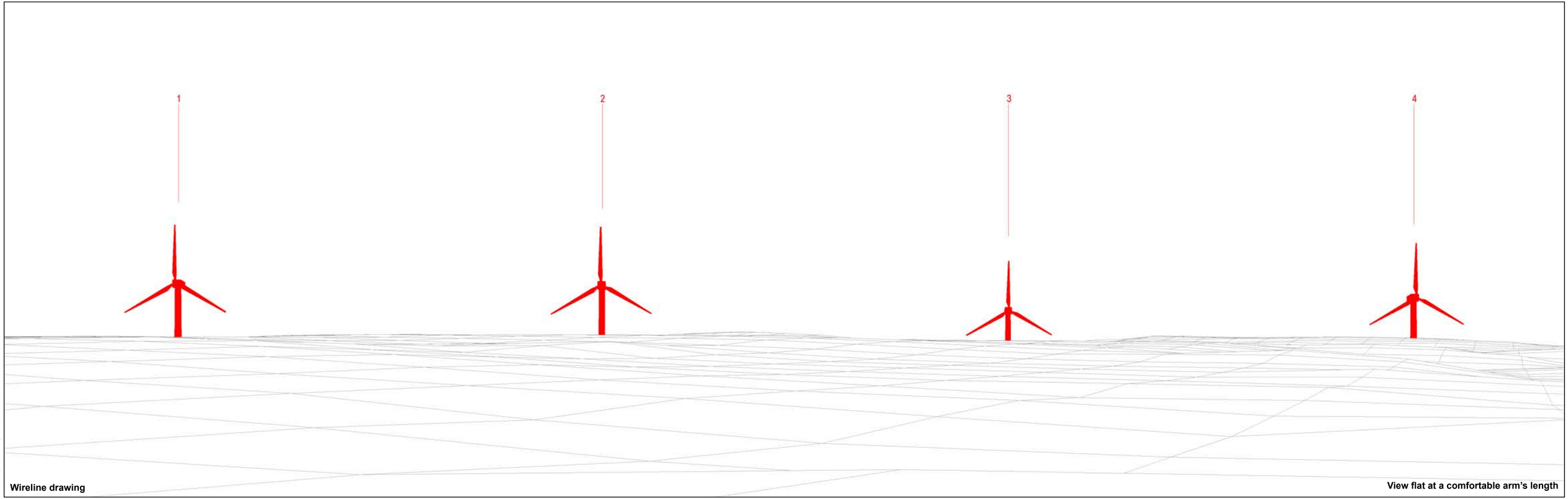
OS reference:	198237E 562779N	Horizontal field of view:	53.5° (planar projection)
AOD:	69.95 m	Principal distance:	812.5 mm
Direction of view:	245°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.76 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.41

Residential Property Group 2a: Lochnaw Cottage



Wireline drawing

View flat at a comfortable arm's length

LUC

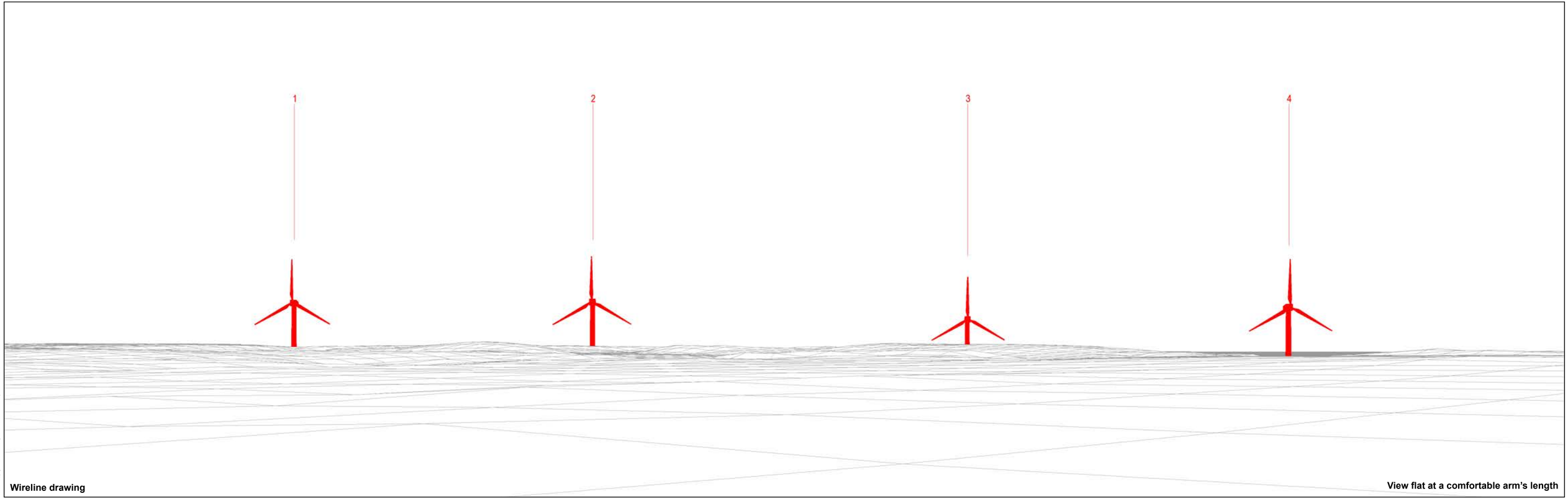
OS reference:	198278E 562795N	Horizontal field of view:	53.5° (planar projection)
AOD:	72.67 m	Principal distance:	812.5 mm
Direction of view:	245°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	1.8 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.42

Residential Property Group 2b: Cairnhapple House



Wireline drawing

View flat at a comfortable arm's length

LUC

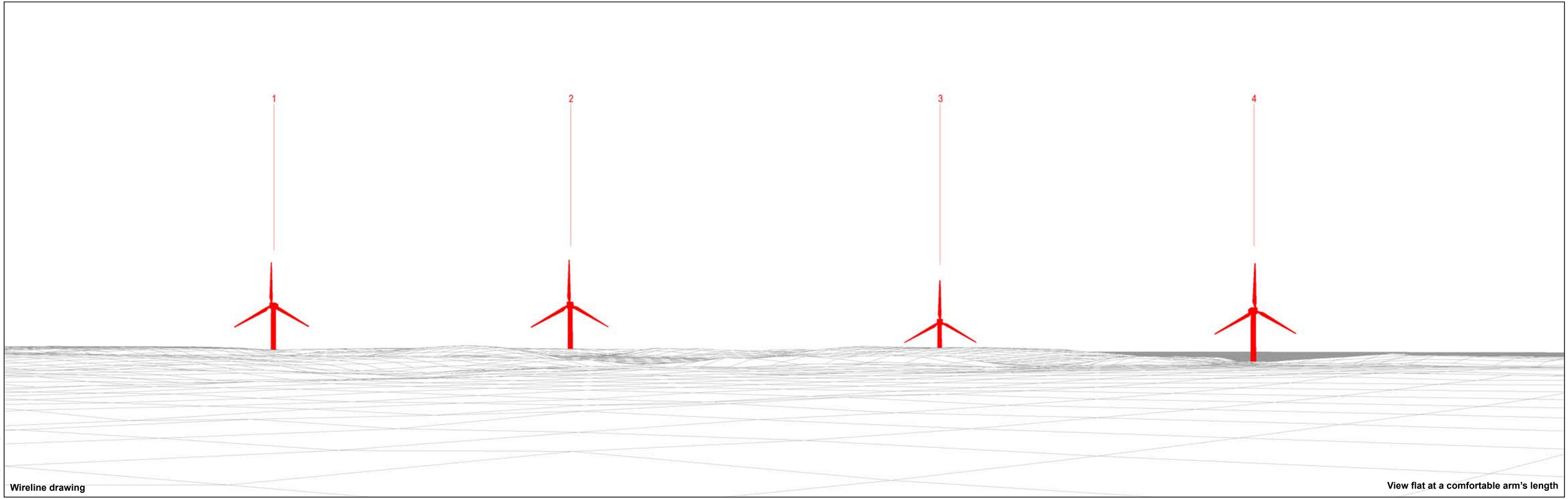
OS reference:	198342E 563504N	Horizontal field of view:	53.5° (planar projection)
AOD:	78.54 m	Principal distance:	812.5 mm
Direction of view:	231°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.27 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.43

Residential Property Group 3a: Cranberry Cottage



Wireline drawing

View flat at a comfortable arm's length

LUC

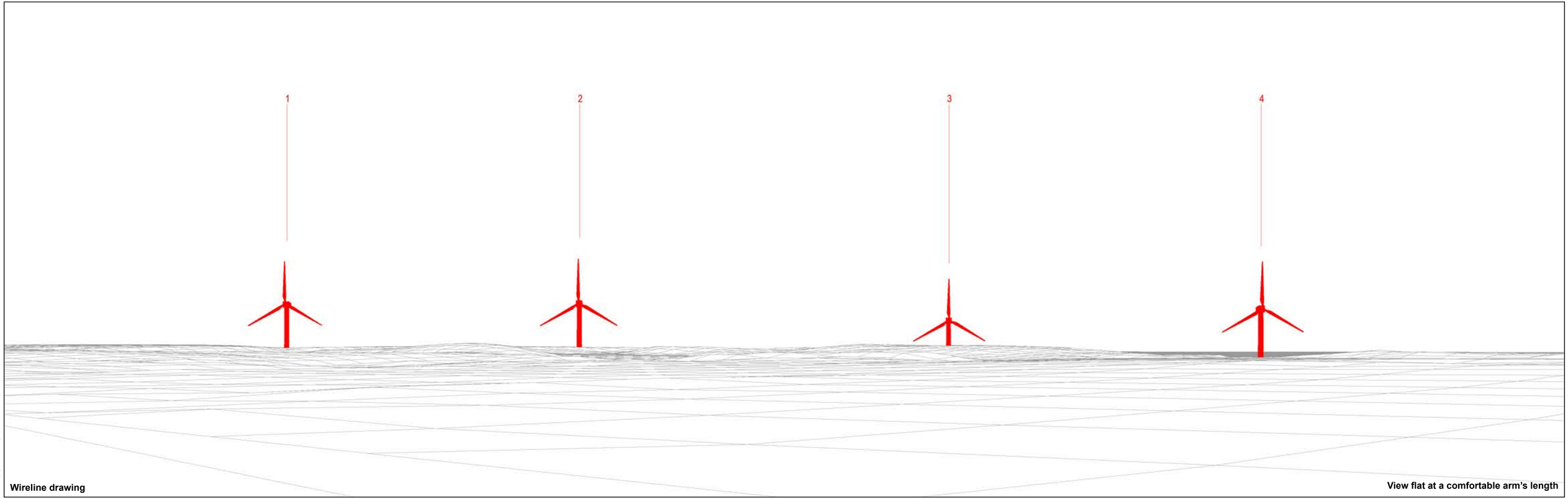
OS reference:	198371E 563523N	Horizontal field of view:	53.5° (planar projection)
AOD:	82.14 m	Principal distance:	812.5 mm
Direction of view:	232°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.3 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.44

Residential Property Group 3b: Galdenoch Farmhouse



Wireline drawing

View flat at a comfortable arm's length

LUC

OS reference:	198360E 563551N	Horizontal field of view:	53.5° (planar projection)
AOD:	79.7 m	Principal distance:	812.5 mm
Direction of view:	231°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	2.3 km	Correct printed image size:	820 x 260 mm

Wind Farm Developments key (by status): Proposed scheme

Larbrax Wind Farm

Figure: 5.3.45

Residential Property Group 3c: Tara