Chapter 3: Site Selection and Design Strategy

Contents

3. Site Selection and Design Strategy

3.1 Introduction

3.1.1 This chapter provides details of the approach that has been taken to site selection and design of the Proposed Development in order to arrive at a layout for the purposes of assessment in the Environmental Impact Assessment (EIA). Details of how and why the turbine layout and associated infrastructure have been modified during the iterative EIA process are provided to explain how the Proposed Development described in **Chapter 4: Development Description** has evolved. This chapter also outlines the site selection process undertaken by the Applicant, and the alternative layouts which were explored in designing the Proposed Development as required by The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the EIA Regulations')[1], Regulation 5(2[d]) and Schedule 4. Details are also provided in relation to the design process adopted for Likely Grid Connection Route (as detailed in **Chapter 4**) which has been assessed in the EIA.

3.1.2 This chapter is supported by the following figures which are referenced throughout the text:

- EIA Report **Volume 3a: Figures**
  - **Figure 3.1: Site Constraints Plan**
  - **Figure 3.2: Site Constraints Plan with Application Layout;** and
  - **Figure 3.3: Turbine Layout Modifications**.

3.1.3 Other figures referenced in this chapter can be found in **Volume 3a**.

3.2 The Site and Surrounding Area

3.2.1 The Site is located on Glenouther Moor and is located approximately 4.5 kilometres (km) north-east of the closest settlement, Stewarton (see **Figure 1.1**) The Site occupies a total area of 205 hectares (ha) at grid reference NS 48337 48922 and is located south of Corsehouse reservoir and directly west of the M77 motorway. The Site slopes from the north (230 m Above Ordnance Datum (AOD)) to the south (210 m AOD) which facilitates drainage from the northern section of the Site to Annick Water, Corsehouse Burn and Corsehouse Reservoir. The southern section of the Site drains towards the Swinzie Burn which forms the southern boundary of the site. The Swinzie Burn is a tributary of Annick Water. The Site is located within an area of privately owned commercial coniferous forest and resides wholly within the East Ayrshire Council (EAC) administrative area, although abuts the East Renfrewshire Council (ERC) administrative boundary to the north.

3.2.2 The Site is surrounded by residential properties and farmsteads which are accessed by the A77 to the east, Clunch Road to the south/south-west and the B769 to the north, however all are at least 1.1 km away from the proposed turbine locations. Within a 5 km radius of the Site, other operational wind farms include Whitelee Wind Farm (to the east), Middleton Wind Farm (to the north) and Neilston Community Wind Farm (to the north-west).

3.2.3 Land cover within the Site and the surrounding area is predominantly Plateau Moorland with densely populated sitka spruce woodland and smaller interspersed areas of Japanese larch and lodgepole pine (see **Figure 4.1.1** of **Technical Appendix 4.1: Wind Farm Forestry Plan**). There are smaller inclusions of blanket bog land across the Site with areas of early-stage woodland running adjacent to the southern boundary, which is likely to be a result of self-seeded sitka.

3.2.4 The Site is largely contained within the Plateau Moorland with Wind Farms – Ayrshire Landscape Character Type (LCT 79)[2]. The key characteristics are as follows:

- "*Comparatively level topography with extensive plateau rising to soft contoured ridges and flatter basins.*
- *Heather and grass moorland, with moss and lochs.*

[1] The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. Available [online] at: https://www.legislation.gov.uk/ssi/2017/102/contents [Accessed: 20th February 2026]
[2] Scottish Natural Heritage (2019) National Landscape Character Assessment – Landscape Character Type 79 – Plateau Moorland with Wind Farms. Available [online] at: https://www.nature.scot/sites/default/files/LCA/LCT%20079%20-%20Plateau%20Moorland%20with%20Windfarms%20-%20Ayrshire%20-%20Final%20pdf.pdf.

- *Extensive areas of conifer forest.*
- *Sparse network of minor roads.*
- *Infrequent farms and houses in valleys and on lower hill slopes on outer fringes.*
- *Extensive operational wind farm development, with associated infrastructure, reducing wild character and sense of remoteness.*
- *Visible as largely horizontal backdrop skyline with wind turbines from the Ayrshire Basin, parts of the Irvine Valley and Glasgow*".

3.2.5 Given the large-scale nature of the landscape in this area and the gently undulating landform, the Site does not contribute to any distinctive skylines or form an important part of the view from the surrounding landscape. In addition, there are no local or designated landscapes within 15 km of the Site.

3.3 Site Selection

3.3.1 Force 9 Energy and its development partners (Vestas) undertake a rigorous review of potential sites for wind farm development before deciding to pursue potential opportunities. Feasibility assessments consider:

- Wind resource;
- Accessibility for construction and turbine delivery routes;
- The presence and proximity of internationally, nationally and locally designated sites (for landscape, archaeology, ecology and ornithology);
- Existing land use constraints;
- The potential for a site to support protected species and/or habitats (including deep peat) and potential opportunities to demonstrate meaningful biodiversity conservation and enhancement;
- The proximity to settlements and residential receptors;
- The location of other operational or proposed wind farm developments in the landscape;
- Grid connection options;
- National and local planning policy considerations, including guidance on landscape sensitivity to wind farm development which support/preclude development; and
- Support from the respective landowner.

3.3.2 The early feasibility work identified that the Proposed Development Site was suitable for a wind farm for the following reasons:

- It has a good wind resource (measured to have a site derived capacity factor of 34.7%[3]);
- It is in proximity to an area which can support a feasible grid connection;
- It is well served by strategic transport routes such as the M77 and A77 allowing for good access for construction traffic and turbine deliveries, as well as being near two existing quarries which provides opportunities for sourcing aggregate materials locally;
- It is not within a National Park or National Scenic Area (NSA) which preclude development of wind farms according to national planning policy (NPF4 Policy 11(b))[4];
- There are no international or national natural heritage designations within the Site or in the immediate surrounding area;

[3] 'Capacity factor' is a measure of the actual electricity output of a wind farm relative to its maximum possible output, depending on location and technology.
[4] Scottish Government (2023) National Planning Framework 4. Available [online] at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf [Accessed 2nd March 2026]

- The existing land use as commercial forestry plantation is compatible with the development of a renewable energy scheme;
- Whilst the Site has deep peat, the existing plantation forestry has degraded the quality of the peat and its effectiveness to sequester carbon, such that there are good opportunities to restore peatland condition within the Site and thereby promote biodiversity enhancement;
- The Site is at distance from major residential areas with the closest being Stewarton approximately 4.5 km to the south-west. Whilst there are residential properties surrounding the Site, it is considered that impacts on residential visual amenity, noise and shadow flicker can be managed by careful design and applying an appropriate set back distance;
- The host landscape (LCT79: Plateau Moorland with Wind Farms) is already defined by the presence of commercial scale wind farms (Whitelee + Extensions and Sneddon Law). Middleton Wind Farm and Neilston Community Wind Farm are also within 5 km of the Site. These wind farms, together with key transport routes, including the M77 motorway and A77, have established a landscape that has a strong sense of human influence through man-made development which reduces the sense of wildness and remoteness which would otherwise be typical of alternative upland landscapes;
- Knowledge of the Site and surrounding area show that there are no key environmental constraints which would preclude development, or which cannot be avoided through design; and
- The Proposed Development falls wholly within the EAC administrative area. The statutory Development Plan for EAC is the East Ayrshire Local Development Plan 2 (LDP2) (2024)[5] as well as NPF4. As part of EAC's Supplementary (Non-Statutory) Guidance, EAC has re-adopted its Landscape Wind Capacity Study[6] which was produced in 2018. This provides guidance with respect to strategic planning for wind energy development and the appraisal of individual wind farms and wind turbine proposals in East Ayrshire across 12 landscape character types. According to the Study, the Proposed Development is considered to comprise *very large turbines* (over 130 m high). The Proposed Development falls within an area of high-medium sensitivity according to the appraisal for character type 18b: East Ayrshire Plateau Moorlands with Forestry and Wind Farms. Whilst the Study identifies that there is no scope for larger turbines (over 130 m high) within this character type due to the existing pattern of other wind farm development within the core of the upland plateau, the Proposed Development will need to be determined based on its own merits and compliance with the wider policy in EAC's LDP2 and NPF4. The NatureScot guidance on Landscape Sensitivity Assessment (2022)[7], discusses the replacement of the term "capacity studies" with "sensitivity studies", stating *"In the past, many "capacity" studies often dealt with susceptibility rather than capacity. Capacity is determined by the need for a target amount of development while sensitivity is not. Most studies should therefore be correctly referred to as sensitivity studies, unless such targets have been set at an appropriate scale" (page 4).* Similar to the capacity studies above, the NatureScot guidance also states, *"Sensitivity studies are never a substitute for a site- and proposal – specific Landscape and Visual Impact Assessment (LVIA). These studies can inform strategic site selection for development, helping to steer it towards better locations and informing LVIA, but they should not be used to determine planning applications. Instead, they should be seen as a complementary source of information which can help inform the decision-making process and environmental assessment" (page 3).* In relation to NPF4, Policy 11 also sets out that *"significant landscape and visual impacts are to be expected for some forms of renewable energy. Where impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered to be acceptable"* (emphasis added). Further details in relation to the planning policy, and an appraisal of the Proposed Development's compliance with such policy, is provided in the **Planning Statement** which accompanies the application.

3.4 The Design Strategy

3.4.1 The design strategy defines the overall approach to the design of the Proposed Development. It provides the starting point for the Proposed Development's design, and subsequent alterations to the design that were made in response

[5] East Ayrshire Local Development Plan 2 (LDP2) (2024). Available [online] at: https://www.east-ayrshire.gov.uk/PlanningAndTheEnvironment/development-plans-and-policies/ldp2/ldp2-information.aspx [Accessed: 2nd March 2026]
[6] East Ayrshire Council (2024). East Ayrshire Landscape Wind Capacity Study – Supplementary Non-Statutory Guidance 2024. Available [online] at: https://www.east-ayrshire.gov.uk/Resources/PDF/L/Landscape-wind-capacity-study.pdf [Accessed: 2nd March 2026]
[7] NatureScot (2022) Landscape Sensitivity Assessment Guidance. Available [online] at: https://www.nature.scot/doc/landscape-sensitivity-assessment-guidance-methodology

to various considerations as identified during the EIA process, including landscape and visual amenity, noise, ecological, ornithological, hydrological and geological (including with respect to peat) constraints and effects, together with wind yield, and feasibility of construction.

3.4.2 The design strategy for the Proposed Development aims to provide a balance between maximising the Site's energy yield and creating a layout that responds to its setting in terms of landform and pattern with other existing and proposed wind farm schemes, whilst minimising environmental impacts on sensitive receptors (including landscape, visual, peat, and residential visual amenity). A key element of the overarching design strategy has also been to revisit the reasons for refusal of the previous Glenouther Renewable Energy Park[8]. The process seeks to design a scheme which achieves, on balance, the best outcome between maximising energy generation, whilst not materially increasing the significance of the environmental effects that were previously considered unacceptable, and which responds positively to current key local and national planning policy tests. A key focus has been in regards to landscape and visual amenity and biodiversity enhancement (NPF4 Policy 3 and 11) – see the accompanying **Planning Statement** for further details on the key planning policy tests of relevance to the Proposed Development.

3.4.3 As such, this has meant that the design process has been led by landscape and visual, residential and visual amenity (RVA) and peat considerations. The design of the Proposed Development layout has aimed to meet the guidance contained within NatureScot's Siting and Designing Wind Farms in the Landscape[9], in so far as possible.

Design Objectives

3.4.4 The key overarching objectives of the design strategy were as follows:

- To maximise the potential energy yield of the Site and create a competitive and financially viable project;
- To use the latest wind turbine technology consisting of more efficient and larger turbines where these can be reasonably accommodated within the landscape, as supported by the Onshore Wind Policy Statement (OWPS)[10] and NPF4[4];
- To create a layout and use a turbine scale that ensures thresholds for visual impact, noise and shadow flicker are not breached in regard to surrounding residential properties;
- To design a small and well composed group of turbines that is seen as a discrete development and does not materially increase the perceived extent of wind farm development across the landscape from key views;
- To design a balanced and coherent layout that minimises 'stacking' of turbines in key views, and reduces notable gaps and outliers;
- To explore opportunities to restore and enhance biodiversity including for birds and peat; and
- To develop a layout that fulfils the above objectives whilst respecting other environmental and technical constraints including noise; ecological, ornithological; hydrological and ground conditions (including peat), telecommunications links and aviation related constraints identified during the EIA and consultation process.

3.4.5 At an early stage in the design process, consideration was given to residential visual amenity impacts associated with an initial five turbine layout comprising heights of up to 200 m to blade tip. Particular attention was given to the properties which were previously considered by the appeal Reporter to be a concern from a residential visual amenity perspective, these being properties at Floak (group of properties), Drumboy (group of properties), Blair Farm, Greelaw Farm, Glenouther Farm and Corsehouse Farm. Consideration was also given to Blacklaw Cottage (group of properties) to understand potential residential visual amenity impacts for properties in the wider area not previously cited by the appeal Reporter, but which could be subject to impacts on residential visual amenity. The study was to ensure that residential visual amenity impacts at these properties were fully understood from the outset, and to acknowledge any restrictions to turbine movements that should be applied in order to avoid breaching the

[8] The previous proposal on the site was the Glenouther Renewable Energy Park (Planning Reference: 15/0584/PP) refused by the EAC on 25th May 2016 for landscape and visual (including cumulative), and residential visual amenity impacts on surrounding properties. The application was appealed (appeal reference: PPA-190-2059-1) and later dismissed with planning permission refused on 2nd October 2018.
[9] NatureScot (Previously Scottish Natural Heritage) (2017) Siting and Designing Wind Farms in the Landscape Guidance Document. Available [online]: https://www.nature.scot/sites/default/files/2017-11/Siting%20and%20designing%20windfarms%20in%20the%20landscape%20-%20version%203a.pdf [Accessed: 3rd March 2026]
[10] Scottish Government (2022) Onshore Wind Policy Statement. Available [online] at: https://www.gov.scot/publications/onshore-wind-policy-statement-2022/documents/ [Accessed: 20th February 2026]

residential visual amenity threshold – see **Technical Appendix 5.2: Residential Visual Amenity Assessment (RVAA)** for further details.

3.4.6 During the design process, computer modelling was also used as a tool to aid design. Zone of Theoretical Visibility (ZTV) models and wireframes were generated and used to aid understanding of potential visual effects of the turbines and to 'test' the design iterations. A particular focus in design was ensuring that the field of view occupied by residential properties was compressed as far as possible within the limitations of turbine spacing to address prior reasons for refusal. Wind yield analysis was also used to determine the optimal locations of turbines in order to minimise wake losses.

3.4.7 Meeting operational noise limits (including cumulatively) has also been key design consideration. Throughout the design process, the layout of the Proposed Development has been 'tested' in relation to noise limits, and the turbine locations have been optimised to ensure these limits can be met.

3.4.8 The main elements of the Proposed Development considered in the initial design iterations were the turbines. The locations of other infrastructure components were largely dictated by the positioning of the turbines and were designed around onsite environmental constraints (see Site Constraints section below), particularly peat depth. Later iterations to the turbine layout involved several alterations to turbine and infrastructure locations, which were reviewed against all constraints.

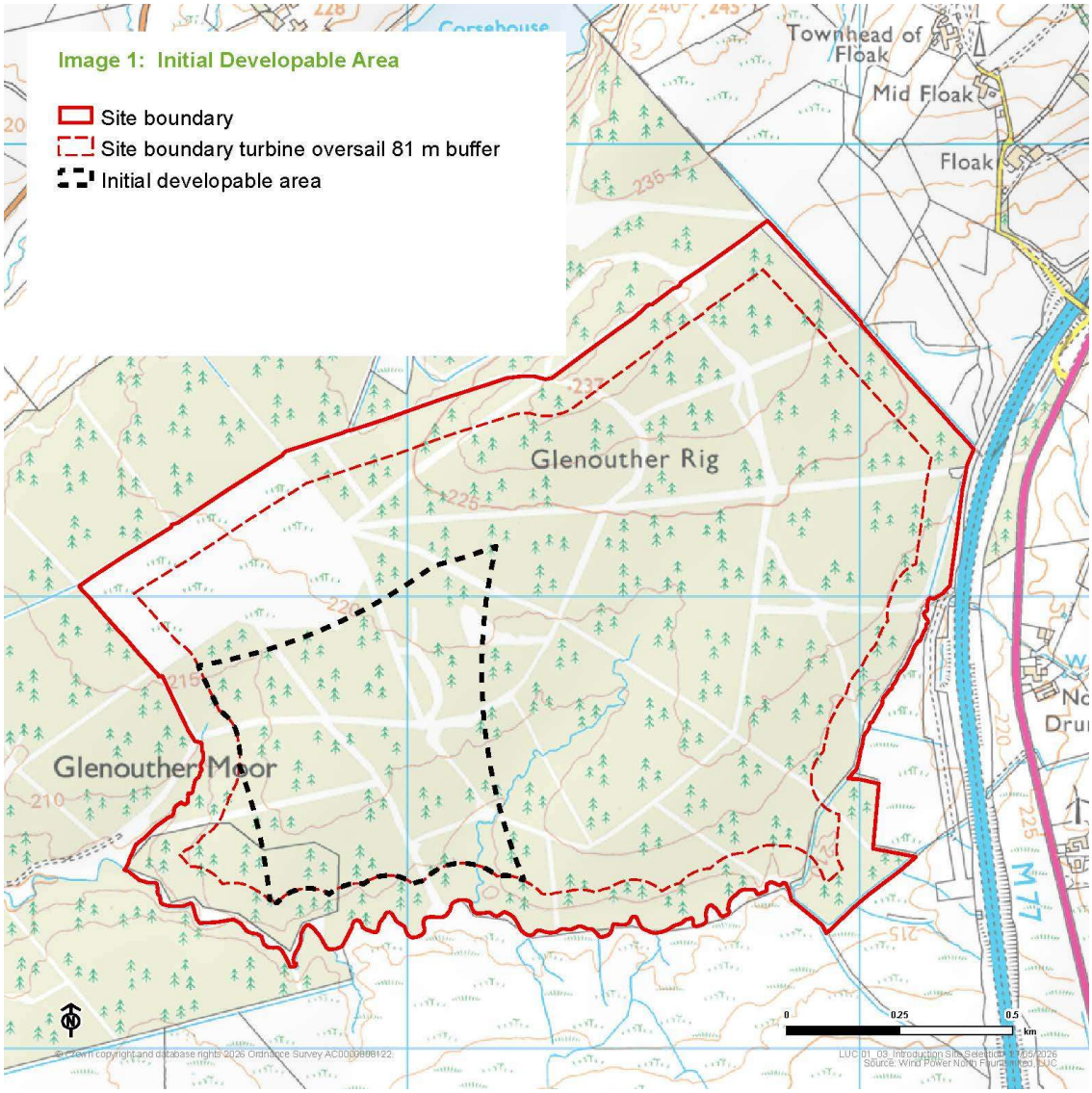
3.5 Site Constraints and Identification of Initial Developable Area

3.5.1 A number of technical and environmental constraints have been considered in the iterative design process and have guided the positioning of both turbines and infrastructure and the formation of site-specific design principles. An illustrative constraints plan is shown on **Figure 3.1**. This plan does not include all constraints that have informed the design (e.g. confidential information on certain protected species for example) and is not presented at the level of detail at which certain constraints were reviewed. Furthermore, various key potential environmental effects of the Proposed Development, including landscape and visual effects, residential visual amenity impacts and noise impacts are not easily depicted by constraints mapping. These effects influenced the design instead by iterative assessment (e.g. the generation of wireline visualisations and ZTV mapping) and running technical models.

3.5.2 Following the completion of the initial environmental baseline surveys (in relation to birds, protected mammals, habitats and peat), as well as feasibility studies in relation to aviation, access, telecommunications and a wind measurement campaign, an initial constraints exercise was undertaken by Force 9 Energy. This was also informed by the key planning policy considerations and Site planning history as well as turbine spacing limitations. This initial exercise was to understand the maximum number of turbines which could be realistically accommodated by the Site, and limitations to the placement of supporting infrastructure to determine the 'Developable Area'. On this basis, consideration was given to the following:

- Ensuring the amenity of properties in the vicinity of the Site in terms of visual effects, noise and shadow flicker is not so affected that those properties become unattractive places in which to live. Particular attention was given to Blair Farm, Corsehouse Farm, Glenouther Farm, Gree Law and properties at Drumboy and Floak, as properties where the Reporter found a level of effect sufficient to refuse the previous development (12 turbines at 126.5 m to blade tip). Focus was given to narrowing the field of view in comparison to the previously refused scheme given less turbines were proposed to be used.
- Seeking to limit development footprint on key habitats.
- Avoiding deep peat (in excess of 1 m) where possible.
- Avoiding placing turbines within a 181 m buffer of an identified Airwave Solutions link passing through the eastern part of the Site;
- Where it is not possible to avoid key habitats or deep peat, ensuring the scope for adequate mitigation and/or compensation is understood.
- Understanding the impact of the project on existing forestry onsite.
- Getting the best out of the Site in terms of energy generation and carefully considering turbine spacing to compress design whilst not compromising operational efficiency.
- Keeping turbines outside an 81 m internal buffer to prevent oversailing onto adjacent land outside the planning redline boundary – see **Figure 1.1**. Micrositing within this area would not be possible.

3.5.3 Through the application of a minimum 1.2 km from the properties which were referenced by the Reporter in the original refusal of Glenouther Renewable Energy Park (1.1 km buffer on all other properties including Blair Farm which was understood to have fallen into disuse at the time), consideration of peat depths, the location of protected species, watercourses (50 m buffer) and telecommunications links, it was clear that turbines would need to be focussed in the south central part of the Site outside the oversail buffer – see **Image 1**. This established the 'Initial Developable Area' as a starting point for the design.



3.5.4 Through additional baseline environmental surveys, desk-study and consultation undertaken as part of the EIA, several other environmental constraints have been identified and factored into the iterative design process. Overall, the key environmental and technical constraints taken into consideration are as follows:

- Residential Properties: The Site is surrounded by residential properties, with adverse impacts on residential visual amenity being one of the reasons for the original refusal of the Glenouther Renewable Energy Park.
- Cumulative Wind Farms: There are a number of other operational wind farms within 5 km of the Site, including Whitelee Wind Farm and Extensions, Sneddon Law, Middleton and Neilston Community Wind Farms which would need to be considered in terms of cumulative landscape and visual impacts and cumulative noise impacts.

- Habitats: There is deep peat onsite, with approximately 66% of peat probes recording peat with depths of >1 m. The deepest areas of peat occur in the north-western and eastern parts of the Site. In addition, NVC habitat survey identified priority peatland habitats across the Site (NVC codes M18 and M19). Most of the M19 habitat occurs within forest rides and a large area of open M18 habitat occurs in the north-western part of the Site. Both habitats are considered to have the potential to raise issues of national interest should they be impacted[11].
- Hydrology: There are two watercourses within the Site which are shown on OS 1:25,000 mapping and which are tributaries of the Swinzie Burn to the south. There is also an extensive network of drainage features and minor watercourses not shown on OS 1: 25,000 mapping which have been mapped during the course of hydrology walkover surveys – see **Figure 9.2a-e**. The Scottish Environment Protection Agency (SEPA) future flood maps indicate that the main fluvial flood risk to the Site is the flood risk area associated with the Swinzie Burn. The Corsehouse Reservoir lies approximately 350 m north of the Site. The reservoir is fed by the Annick Water and drains to the west. The reservoir is no longer used for drinking water supply.
- Private Water Supplies: There are 15 properties identified within 1 km of the Site with potential to be supplied with a private water supply (PWS); however, none of the sources are considered to be hydrologically linked to the Site infrastructure.
- Cultural Heritage: Whilst there are no designated assets within the Site, there are four scheduled monuments (The Moyne prehistoric funerary cairn (SM12856), The Middleton and Bannerbank prehistoric settlements (SM12815; SM12816) and The medieval Robertland Castle (SM3380)), 30 Listed Buildings (two category A, nine category B, and 19 category C), and one Conservation Area (High Fenwick (CA52) within 5 km of the Site.
- Protected Species: Protected mammal species surveys identified otter spraints along the banks of the Swinzie Burn. Small watercourses within the Site also offer foraging and commuting opportunities for otter. Breeding bird surveys identified activity by protected bird species within a 2 km survey area.
- Telecommunications: Additional desk-based study identified another microwave link operated by Arqiva crossing through the western part of the Site, and this was also subject to a 181 m buffer.

3.6 Design Principles

Site Specific Design Principles

3.6.1 Based on a review of the Site and its landscape context, identified environmental constraints (see **Figure 3.1**), the Site's previous planning history/reasons for the original refusal of the Glenouther Renewable Energy Park, initial design work and advice contained in good practice guidance, the following site-specific design principles were adopted and considered throughout the iterative design process:

- Where possible in the context of other competing environmental constraints, maintain a minimum 1.2 km buffer from key residential properties (as noted above) in order to reduce residential visual amenity impacts and achieve operational noise limits (including cumulatively with other wind farms)[12]. Whilst 1.2 km was used as an initial rule of thumb, site specific conditions were also filtered into decision making about design.
- Ensure a well composed and coherent layout is achieved from nearby settlements, including Stewarton and Fenwick (where visible).
- Design a layout and consider the scale of turbines which reduce direct and indirect impacts on landscape character as far as possible, particularly within Landscape Character Type (LCT) 79 - Plateau Moorland with Wind Farms – Ayrshire (host LCT), LCT 214 - Plateau Moorland with Wind Farms - Glasgow & Clyde Valley, and LCT 66 - Agricultural Lowlands – Ayrshire.
- Ensure a coherent and well balanced layout from key transport and recreational routes where there is widespread theoretical visibility, including the M77/A77 (including cycling route), A735 (including Glasgow to Kilmarnock Railway), A719, B778 and B769, and core paths within 5 km.

[11] NatureScot (2023), Advising on peatland habitats and carbon-rich soils in development management, Available [online] at: https://www.nature.scot/doc/advising-peatland-habitats-and-carbon-rich-soils-development-management#priority-peatland-habitat.
[12] Following further analysis of other onsite environmental constraints all properties except those at North Drumboy and Blair Farm are at least 1.2 km from the nearest turbine. See Technical Appendix 5.2.

- Seek to develop a reduced aviation lighting scheme, including mitigation which reduces the intensity of lighting when viewed below the horizontal, to help minimise night-time effects including for nearby residents.
- Avoid deep peat >1m and priority peatland habitats as far as possible within the context of other environmental constraints.
- Avoid near natural area of blanket bog (M18) habitat in the north-western part of the Site (also corresponds to very deep peat).
- Maintain the appropriate disturbance distances to breeding bird locations.
- Consider the impacts on the setting of key designated heritage assets where setting forms a key component of their cultural significance.
- Minimise watercourse crossings;
- Seek to achieve at least a 50 m buffer on all watercourses and water features shown on OS 1:25,000 scale mapping – including Swinzie Burn and its tributaries. For all minor unmapped water features seek to maintain the SEPA recommended riparian corridors for temporary infrastructure or infrastructure requiring excavations of less than 1 m, where possible (see **Technical Appendix 9.1: Watercourse Crossings and Buffer Assessment**).
- Avoid the flood risk zone associated with the Swinzie Burn.
- Seek to maintain at least a 181 m buffer (100 m + blade length) on all three telecommunications links which pass through the Site.
- Maximise biodiversity enhancement in accordance with NPF4 Policy 3, including forest-to-bog opportunities, whilst maintaining good forestry management principles.
- Where possible, adopt a phased approach to felling within the Site boundary in order to retain a degree of screening of ground-based infrastructure from nearby properties until such time as the restocked forestry has reached maturity.

Likely Grid Connection Route

Routing Principles

3.6.2 Routing for the Likely Grid Connection for the Proposed Development has considered the balance of technical feasibility and economic viability with the least disturbance to the environment and to people. On that basis, it is assumed for the purpose of assessment that the connection will be an underground 33kV cable which is considered to give the optimum balance of environmental, technical and economic factors for a connection of this type.

3.6.3 Route options have been guided by the principles established by the Holford Rules, which apply to routing of overhead lines, but which can usefully guide route options for cables. The principles from the Holford Rules applied to the grid connection route options for the Proposed Development are:

- Rule 1: Avoid altogether, if possible, the major areas of highest amenity, by so planning the general route of the line in the first place, even if the total mileage is somewhat increased in consequence.
- Rule 2: Avoid smaller areas of high amenity value, or scientific interest by deviation.
- Rule 3: Other things being equal, choose the most direct line.

3.6.4 The remaining rules refer specifically to overhead lines. These rules are applied in the context of a cable proposal which will generally not be visible during the operational period.

3.6.5 On that basis, a likely route for the cable has been identified following public roads to the point of connection (PoC) as illustrated in **Figure 4.8 of Chapter 4** of the EIA Report. The route selection for the Likely Grid Connection and placement in public roads is considered the most efficient solution in terms of cost and delivery. It also inherently reduces environmental effects because, where installed in the public road and roadside verge, the cable is:

- Easy to access for construction and maintenance;
- Typically placed in areas with a lower environmental sensitivity;

- Typically installed in partly made or disturbed ground;
- Typically ecologically benign being in areas which are disturbed by road traffic and where the verge is trimmed to keep the grass sward short;
- In an area with a typically higher background noise level due to traffic disturbance, therefore helping to limit additional noise for nearby noise sensitive receptors during its construction; and
- In an area which already includes designed drainage pathways.

3.6.6 Routing in the road or roadside verge would therefore generally adhere to the principles established by the Holford Rules. These general factors are all taken into account in the assessment of the Likely Grid Connection Route in **Chapters 5-12** of the EIA Report.

Turbine Size and Scale

3.6.7 Onshore wind continues to be the lowest cost form of renewable energy; however, there is limited UK Government financial support available. The ability to maximise the potential yield from the Site through turbine choice is important for maximising yield and for the financial viability of the Proposed Development.

3.6.8 The supply of smaller turbines (e.g. below 150 m) across Europe is already reducing due to lack of demand as manufacturers are recognising that the world market is shifting to larger machines and are focussing their development work on increasing capacity and efficiency of the turbine technology to secure the highest yield. Larger turbines have longer blades, which significantly improve energy capture. Turbines are required to be spaced apart for operational efficiency and longer turbine blades means that turbines need to be spaced further apart than smaller turbines.

3.6.9 When considering the most efficient route to extracting energy from the wind, several factors therefore need to be taken into account in considering whether a site lends itself to fewer larger turbines (spaced further apart) or more, smaller turbines spaced closer together. Given the wind speed and complexity and the nature of environmental constraints, the Site was considered to lend itself to fewer taller turbines to maximise energy yield because:

- Fewer turbines mean fewer turbine foundations, hardstanding and tracks to service turbines, meaning the physical footprint of the project would be smaller in terms of peat disturbance;
- A compressed layout with fewer turbines would narrow the field of view from residential properties; and
- Fewer turbines would mean a greater visual permeability between turbines.

Visible Aviation Lighting

3.6.10 In the interests of aviation safety in periods of darkness, Article 222 of the Air Navigation Order (ANO) 2016[13] requires that all structures of 150 m or more above ground level should have medium intensity (2000 candela (cd)) steady red lights (one operating and one for back-up should the other fail) installed as close as possible to the top of obstacles, as well as three fixed red 32cd lights on the tower at half the nacelle height (to provide 360 degree coverage). There are, however, exceptions that can be made under Article 222(7) where it is demonstrated to the Civil Aviation Authority (CAA) that a reduced lighting design would still be sufficient for the purposes of managing air safety. A reduced lighting scheme has been derived which satisfies the design criteria set out in Civil Aviation Publication (CAP) 764 and this has been agreed with the CAA (see **Technical Appendix 4.2: Aviation Risk Assessment**). As such, two steady red lights (one of which will be for back up) will be installed on T1, T3, T4 and T5, with no visible lights being installed on T2. No 32 cd lights are required to be installed on the turbine towers. Further details are provided in **Chapter 4**, including when lights can be expected to operate at a reduced intensity. The visual effects of the proposed lighting scheme are assessed in **Technical Appendix 5.3: Aviation Lighting Assessment**.

Outcome of the Application of the Turbine Design Process

3.6.11 Based on the parameters set out in Section 3.6 and consideration of wind turbine spacing requirements, it was decided that the maximum number of turbines that could be reasonably accommodated would be five owing to the limited Developable Area as dictated by environmental and technical constraints – see **Figure 3.2**. Turbine tip

[13] Air Navigation Order (2016). Available online at: https://www.legislation.gov.uk/uksi/2016/765/contents/

heights of up to 200 m would accommodate turbines up to 7.2 MW each, giving an indicative combined output capacity of 36 megawatts (MW) (based on a Vestas V162 candidate). Whilst turbines were sited in areas of shallowest peat possible, it was clear that areas of deep peat within the Developable Area would be unavoidable, and opportunities for mitigation and/or compensation would be required to demonstrate biodiversity net gain (BNG) in compliance with current NPF4 policy and guidance. Given the forested nature of the Site, albeit in poor condition due to being planted on peat, it was identified that the most effective way to secure this would be to consider forest-to-bog restoration whilst maintaining good forest design principles. The proposed turbines will be three bladed serrated edged horizontal axis turbines with a non-reflective pale grey colour, which will be consistent with other nearby cumulative developments.

3.6.12 Whilst the proposed turbines are taller than those previously proposed in the Glenouther Renewable Energy Park application (200 m compared to 126.5 m), the consideration of residential visual amenity impacts (and resulting limited Developable Area) has resulted in a proposal which has a much reduced horizontal extent and simpler design, whilst achieving the same installed capacity.

3.7 Infrastructure Design

3.7.1 The design of the Site components was based on the following objectives, which fundamentally sought to balance environmental objectives by making the Proposed Development footprint as small as possible, whilst ensuring health and safety objectives for site working are maintained:

- To keep overall new track length to a minimum thereby reducing stone imports, excavations and associated potential environmental effects;
- Where avoiding deep peat is not possible, propose alternative solutions to limit peat excavation, such as piled and floated turbine foundations (permanent and temporary) and floating tracks where technically feasible (see **Chapter 4**);
- Minimise the ancillary infrastructure needed to support construction of a wind farm of this scale, such as the size of the construction compound to reduce land-take and habitat loss;
- Minimise the need for new watercourse crossings, and, where necessary, ensure any new crossing structures minimise the impact on biodiversity and flood risk;
- Facilitate safe access to each turbine avoiding ground with potential instability;
- Choose a site access point which provides the most direct and shortest route to the turbine locations whilst meeting the standards required to maintain road safety;
- Position the construction compound and substation in proximity to the Site entrance to facilitate easy access during construction and operation;
- To follow the existing ground topography and contours as much as possible, minimising the requirement for cut and fill engineering works and associated environmental and visual effects.
- Consider the balance of tree felling necessary to allow construction and operation of the Proposed Development and forest to bog restoration for biodiversity net gain.

3.7.2 Proposed infrastructure is discussed in detail in **Chapter 4**.

Turbine Foundation and Crane Hardstanding Design

Peat

3.7.3 As noted above, given the small Developable Area available after taking into account other environmental constraints (see **Figure 3.2**), the interaction between deep peat and infrastructure is unavoidable (albeit the deepest areas of peat within the Site (to the north and north-east) have been avoided). As such, it has been necessary to take an innovative approach to the design of the foundations and crane hardstandings (both permanent and temporary) where they are located on deep peat deposits as determined by the peat depth surveys. The aim of this approach has been to reduce peat excavation and re-use requirements and associated impacts. As shown in **Figure 3.2** and **Figure 9.7a-e**, T1, T2 and T3 and their associated hardstandings are on peat which averages between 3-4 m. A decision has therefore been taken to adopt a piled construction technique for the foundations, permanent crane hardstandings and auxiliary crane pads for these turbines, and a floated construction technique for the temporary

hardstandings – see **Figure 4.3a**. This means that no peat excavation is necessary for these turbines and hardstandings which reduces environmental impact. Further details on these construction techniques are provided in **Chapter 4**. A conventional cut and fill technique will be employed for T4 and T5 (see **Figure 4.3b**) where depths are shallower (between 1-2 m) and peat excavation volumes are less meaning peat re-use is more achievable. Piling is not possible in these locations as the total depth of the pile, pile cap and load transfer platform would lead to a substantial above ground structure and a need to build track up to the finished surfaces (increasing track footprints on the run ins to either side. Further details are provided in **Technical Appendix 9.3: Outline Peat Management Plan**.

Hydrology

3.7.4 A boggy unmapped headwater area associated with a watercourse south of T1 is currently encroached by temporary hardstanding due to other environmental constraints restricting movement in this area including deep peat to the north, turbine spacing parameters and buffers to telecommunications links. It has therefore been necessary to review the standard hardstanding layout typically specified by Vestas for a V162 candidate (as proposed) due to these constraints and design a bespoke hardstanding for T1 which helps to minimise this encroachment at this pre-construction stage – see **Figure 4.4**. Whilst it has not been possible to completely avoid the headwater through bespoke hardstanding design for T1 in accordance with the SEPA recommended riparian corridor buffers, it is proposed that the temporary hardstanding position in relation to the headwater will be amended to achieve at least a 10 m buffer during construction within the 50 m micrositing tolerance. If this cannot be achieved, the channel will be temporarily culverted under the hardstanding during construction. Additional Mitigation (e.g. silt fences/additional Sustainable Drainage Systems (SuDS)) will be installed between the hardstanding areas and the watercourse to reduce the risk of sediment/silt runoff during construction. In addition, a drain is within 10 m of the temporary secondary support crane pad at T1. The temporary hardstanding will be microsited during construction to maintain a 10 m buffer distance from the drain in accordance with the SEPA riparian corridor guidance. If this cannot be achieved, the drain will be diverted during construction. Silt fences/additional SuDS will also be installed – see **Chapter 9: Hydrology, Hydrogeology, Geology and Peat**.

Track Design

3.7.5 Due to the positions of turbines in deep peat, it has also been necessary to propose access tracks within these areas, albeit every attempt has been made to confine tracks to shallower peat as far as possible (see track linking T4 and T5 in the south on **Figure 3.2** as an example). A floating track design is only feasible and effective where certain technical criteria are met, namely slopes are less than 3 degrees and peat is ≥0.5 m over spans of ≥100 m and these criteria were applied to the track design. As a result, 2.8 km of the 4.1 km of track required (approximately 68%) is proposed to be floated. Further details on the floating track method are provided in **Chapter 4**.

Outcome of the Application of the Infrastructure Design Process

3.7.6 Based on the infrastructure design objectives noted and with cognisance to the key onsite environmental and technical constraints, the infrastructure design has been optimised specifically with regards to deep peat and hydrology. This has been done through careful consideration of construction methods to avoid peat excavation such as piling foundations for T1, T2 and T3 and floating sections of tracks where possible. Piling for T1-T3 will save at least 68,000 m^3 of peat from being excavated from footprints alone (i.e. not including earthworks) which would otherwise lead to net excess peat for re-use across the Site. Similarly, floating tracks will save approximately 28,000 m^2 of peat from being excavated from footprints alone. These techniques will therefore save at least 96,000 m^3. Bespoke design mitigation, micrositing and additional mitigation will help to address the potential impacts on the headwater and drain at T1. Further details are provided in **Technical Appendix 9.3** and **Chapter 9**. With regards to hydrology, 12 new permanent watercourse crossings are required to access the Proposed Development, although 10 of these are over minor watercourses or artificial drains which were identified and mapped during the site hydrology surveys (see **Technical Appendix 9.1** and **Figures 9.2a-e**). All new crossings will be designed to pass the 0.5% annual exceedance probability flows, with an appropriate allowance for climate change, as recommended by SEPA. In terms of encroachment into SEPA recommended watercourse buffers, there are five locations (including at T1 in relation to the unmapped headwater and artificial drain) where a 50 m buffer from excavations greater than 1 m could not be achieved. In four of these locations, the SEPA recommended riparian corridor buffer was also not achieved. However, the implementation of the 50 micrositing allowance will enable watercourse encroachment to be avoided as far as possible on balance with other key environmental and technical constraints.

3.8 Forestry Design

3.8.1 Details of the Proposed Development's infrastructure was amalgamated with the forestry baseline data (as shown in **Technical Appendix 4.1: Wind Farm Forestry Plan** to inform the forestry design proposals for the Proposed Development.

3.8.2 The Site is located within part of Glenouther Forest which was planted with commercial conifer crops (predominantly Sitka spruce) over the period 1974 – 1980. Growth rates within the crops are poor with the weighted average Yield Class (YC) across the whole property calculated at YC7 against UK average figures of YC14 – YC16 for Sitka spruce. No timber harvesting has been implemented to-date and sections of the crop could be considered for felling in the next few years though, at present, no felling license or long term forest plan (LTFP) is in place for the property and there is currently no access track into the forest for extraction purposes.

3.8.3 Given the deep peat onsite, and in light of the requirements placed upon developers to secure significant long term biodiversity net gain (BNG) for major projects under NPF4 Policy 3, there is an opportunity to incorporate peatland restoration into restocking proposals following construction of the Proposed Development as part of an overarching LTFP for the property. The overarching design principle associated with forestry within the Site at this stage has therefore been to strike an appropriate balance between complying with good forest management principles (including those set out in the Scottish Government Control of Woodland Removal Policy (CoWRP[14]) and delivering biodiversity enhancement through forest-to-bog restoration in compliance with national planning policy.

3.8.4 Construction of the infrastructure required for the Proposed Development will require the removal of trees from the Site, as illustrated at **Figure 4.1.3** of **Technical Appendix 4.1**, and for some of these areas to be subsequently maintained free of trees to ensure access for operation and maintenance during the lifetime of the Proposed Development. Some crops adjoining the areas to be felled to construct the Proposed Development infrastructure will require further tree clearance due to the predicted instability of these adjacent crops. It is anticipated that windblow damage will develop in the cut faces left in these areas; therefore, it will be safer and more productive to clear these surrounding trees to wind-firm edges along existing tracks, rides and drains at the same time that trees are cut to facilitate infrastructure construction.

3.8.5 Access tracks will be constructed within clearance corridors of up to 16 m wide with additional laybys as required. Clearance around the turbine positions will comprise of 100 m radii to provide access and wider areas to facilitate crane access. A radius of 85.8 m around each turbine will be maintained as open ground post-construction in order to meet requirements for suitable bat-separation distances. Other elements of the infrastructure will have provision for a 20 m boundary buffer to aid access during construction.

3.8.6 As a result, approximately 105 ha of forestry will be removed within the Site to facilitate construction of infrastructure and wider forest management. Of the 105 ha felled, approximately 28 ha will be removed for the construction of infrastructure (and working buffers) and 77 ha for management felling – see **Figure 4.1.3** of **Technical Appendix 4.1**.

3.8.7 When considering restocking proposals, it was also relevant to consider the guidance published by Forest Research[15] covering management options for afforested deep peatland. This guidance suggests that where the previous conifer crop achieved growth rates of less than yield class 8 (YC8) then restoration to peatland and peatland edge planting can be considered. Consequently, all forestry compartments below YC8 have been included within the peatland restoration areas and their inclusion should not trigger a requirement for compensatory planting. The bat exclusion areas (BEAs) for T3 and T5 have also been included as restoration and will not require compensatory planting.

3.8.8 The Proposed Development Species Restocking Plan (see **Figure 4.1.6** of **Technical Appendix 4.1**) shows which woodlands will be restocked and with which species, including forest-to-bog areas. Of the 105 ha initially felled, approximately 58 ha will be restocked (comprising a mixture of coniferous and broadleaved riparian trees to achieve species diversity) and approximately 47 ha will be left unstocked (comprising approximately 6 ha as long-term open ground for wind farm infrastructure and 41 ha for forest-to-bog restoration). The 6 ha of woodland permanently lost will be compensated for by establishing an appropriately designed new planting scheme on a substitute site in order

[14] Forestry Commission Scotland (2009) The Scottish Government's Policy on the Control of Woodland Removal. Available at: https://forestry.gov.scot/publications/285-the-scottish-government-s-policy-on-control-of-woodland-removal
[15] Forestry Research (2015) Deciding future management options for afforested deep peatland. Available at: https://www.forestresearch.gov.uk/publications/deciding-future-management-options-for-afforested-deep-peatland/

to satisfy the requirements of the CoWRP. A substitute site will be used as there is no additional ground suitable for planting with the Site or the wider forest.

3.9 Design Alternatives

3.9.1 Regulation 5 (2)(d) of the EIA Regulations states that an EIAR should include *"a description of the reasonable alternatives studied by the developer, which are relevant to the development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment".* This is not a requirement to detail alternative sites, but rather a requirement to indicate why a particular design choice is made, and what environmental effects result, in cases where alternatives have been considered.

Do-Nothing Alternative

3.9.2 The "do nothing" scenario is a hypothetical alternative considered in the EIA Report as a basis for comparing the Proposed Development with what would reasonably be expected to happen onsite in the absence of the Proposed Development. This scenario is considered to represent the current and future baseline condition of the Site as described in the individual chapters of this EIA Report.

3.9.3 In the absence of the Proposed Development the Site will continue to be used as private commercial coniferous forest. It would eventually be cropped and replanted with second rotation forestry. This would have no beneficial impact with regards to the production of renewable energy, offsetting of greenhouse gas emissions or contribution to Scotland's renewable energy and net zero targets. Habitat management and enhancement measures proposed in **Technical Appendix 7.6: Outline Biodiversity Enhancement Management Plan,** including up to 41 ha of forest-to-bog restoration, will not be implemented in the absence of the Proposed Development. Given the renewable energy and biodiversity restoration and enhancement associated with the Proposed Development and poor productivity of much of the current forest crop, the 'do nothing' alternative is not considered to be the best environmental option for the Site.

Design Evolution

3.9.4 The design strategy and principles outlined above have been taken into account as the design of the Proposed Development has evolved. The design process involved workshops and discussions with technical team members to address identified constraints associated with one or more of the turbines or elements of the associated infrastructure. Each team member also summarised feedback from the relevant technical stakeholders as appropriate to the design process, and comments received through consultation with the local community were given due regard during the evolution of the project design. This design process and consideration of feedback is described in further detail below and shown in **Figure 3.2** (turbines only with **Inset Images 2-4** showing the infrastructure design evolution). As noted in **Section 3.5**, the Developable Area (largely defined by the 1.2 km buffer on residential properties where possible in the context of other environmental and technical constraints) has restricted any material movements to the locations of turbines, and so this has been limited to the consideration of other environmental constraints where they would help to better achieve the design objectives and site-specific design principles.

Turbine Design Layout 1: EIA Scoping/Public Consultation Round 1

3.9.5 The starting point for the design was the EIA Scoping/Public Consultation Round 1 layout provided by the Applicant comprising five turbines of up to 200 m to blade tip. This initial turbine design was a result of the initial constraints led exercise (discussed at Section 3.5) taking into consideration residential visual amenity, noise and shadow flicker impacts (by applying at least a 1.2 km buffer to properties (1.1 km on all other properties including Blair Farm) which were considered to be subject to adverse residential visual amenity impacts by the Glenouther Renewable Energy Park appeal Reporter), limiting footprint on key habitats and avoiding deep peat where possible, avoiding telecommunication links in the eastern part of the Site by at least 200 m whilst maximising the energy generation output from the Site, all within the confines of the established Initial Developable Area. This layout was also subject to initial residential visual amenity review which identified constraints to micrositing certain turbines within the Initial Developable Area (including the position of T3 and T5 relative to properties at Drumboy, T1 and T4 relative to Glenouther Farm and T1 and T3 relative to Corsehouse Farm) in order to avoid the potential for breaching the residential visual amenity threshold.

Turbine Design Layout 2: Optimisation 1

3.9.6 Through additional consultation with telecommunications stakeholders, an additional link operated by Arqiva was identified passing through the western end of the Site. A buffer of 181 m (100 m clearance plus blade length) was applied to constraints mapping to determine the implications for the layout. As a result, T4 was moved 150 m east to clear the buffer and avoid adverse impacts on the operation of the link. In order to improve wind yield, T1 was moved 80 m north-east (also assisted with being further from headwater of defined watercourse), T2 was moved 150 m west, T3 was moved 20 m south and T5 was moved 60 m south. Moving T5 slightly closer to Blair Farm (and therefore beyond the Initial Developable Area – see **Image 1** above and **Figure 3.2**). This was not considered to breach the residential visual amenity threshold because survey of Blair Farm established that a large agricultural building had been constructed north-west between the house and the Site. This layout was then subject to additional noise modelling to confirm that noise limits were still achievable.

Turbine Design Layout 3: Optimisation 2 (Application Layout)

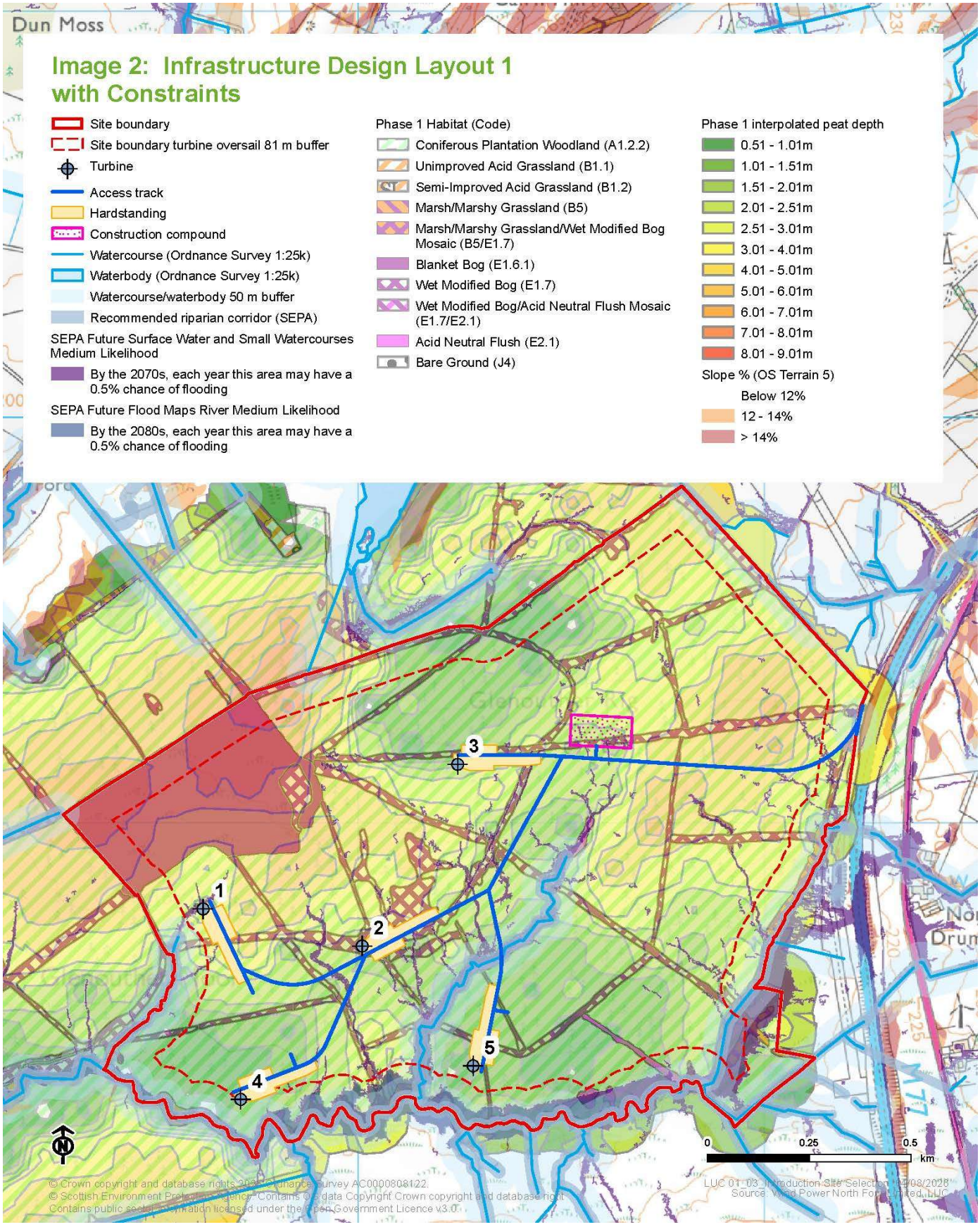
3.9.7 At this stage, a further review of the design was undertaken using wirelines to 'test' the layout from key viewpoints. It was found that the change to the position of T2 in Layout 2 resulted in a less coherent and balanced layout in key views as a result of stacking with T4. T2 was therefore repositioned approximately 170 m north-east to a central position which helped to create a more evenly spaced layout from key viewpoints. In order to improve the layout when viewed from Stewarton, T3 was moved 55 m south-east which reduced stacking with T1 in these views. Whilst T3 now encroached into the 1.2 km residential visual amenity design buffer applied to properties at Drumboy (and therefore beyond the Initial Developable Area – see **Image 1** above), it was considered that there would continue to be no breach of the residential visual amenity threshold, following site survey. In addition, noise modelling continued to show no exceedance of operational noise limits at surrounding properties, including those at Drumboy. A further review of hydrological constraints identified that it was necessary to increase the separation distance of T4 and T5 to Swinzie Burn in order to ensure that supporting infrastructure (including tracks) did not encroach within 50 m of the watercourse and minimised crossover with the flood risk area identified by SEPA mapping. T4 was therefore moved 30 m north-west and T5 was moved 15 m north-east. These changes resulted in the application layout which were presented at the Round 2 public consultation. At this stage, the turbine positions were reviewed to determine the aviation lighting design in accordance with CAP 764[16]. This resulted in the requirement for T1, T3, T4 and T5 to be lit, with no visible lights being installed on T2 (as detailed above).

Infrastructure Design Layout 1: Initial Draft

3.9.8 The initial Site infrastructure draft included the five turbine layout (Turbine Design Layout 1) with hardstanding envelopes, onsite access tracks, and a construction compound adjacent to the Site's eastern track leading to T3. This was based on the environmental constraints information available at the time, including Phase 1 peat data, 50 m watercourse buffer and flood risk, habitat data and topography – see **Image 2**.

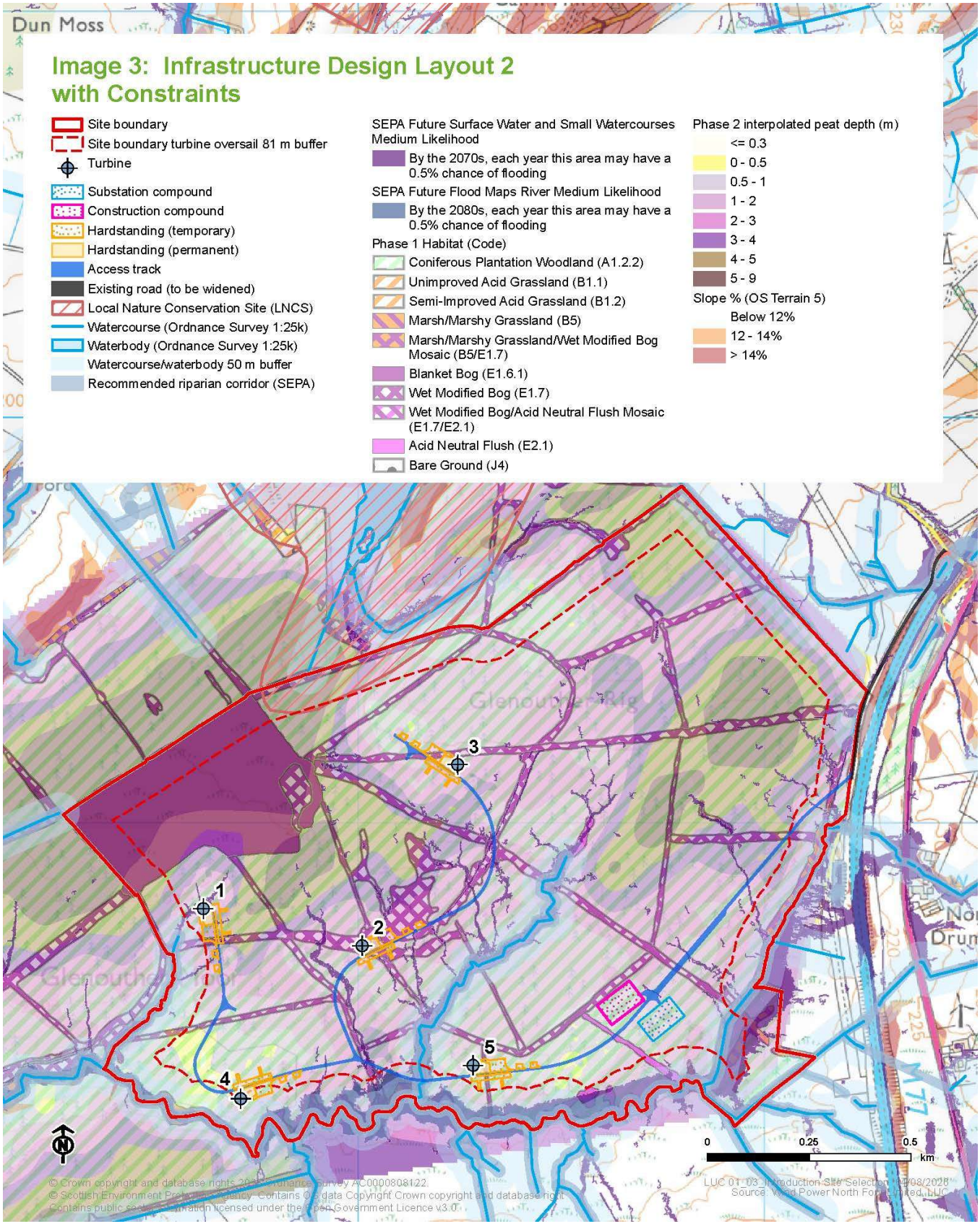
[16] Civil Aviation Policy (CAP) 764: CAA Policy and Guidelines on Wind Turbines. Available [online] at: https://www.caa.co.uk/data-and-publications/publications/documents/content/cap-764// . [Accessed: 17th March 2026]

Image 2: Infrastructure Design Layout 1 with Constraints



Infrastructure Design Layout 2: Design Optimisation 1

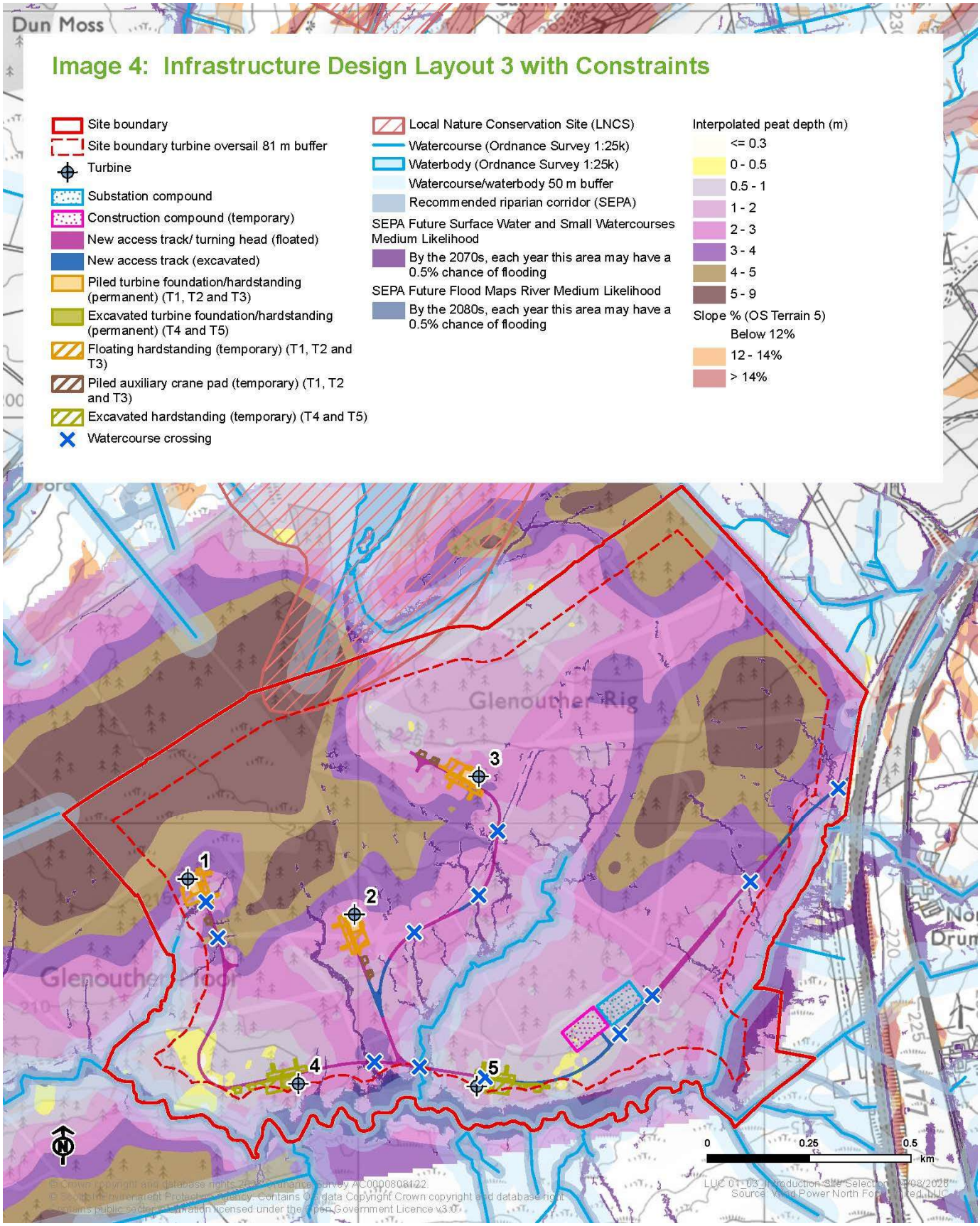
3.9.9 This layout represented the largest change brought about by peat constraints as identified by peat depth surveys. Access into the Site was re-aligned to avoid deep peat/blanket bog in the eastern part of the Site which was identified through Phase 2 peat survey. In this way, a new track was established linking T4 and T5 along the southern boundary to the north of Swinzie Burn where peat depths are shallower. By linking T4 with T1, this removed the need for the track between T1 and T2 which was on deeper peat. The track between T5 and T2 was also removed, reducing the need to cross a tributary of the Swinzie Burn. A decision was also made to relocate the construction compound onto shallower peat to the east of T5. The substation was also established to the south-east of this location. These locations in the vicinity of the Site entrance allowed for direct access during construction and operation – see **Image 3**.


Dun Moss
Image 3: Infrastructure Design Layout 2 with Constraints
Site boundary
Site boundary turbine oversail 81 m buffer
Turbine
Substation compound
Construction compound
Hardstanding (temporary)
Hardstanding (permanent)
Access track
Existing road (to be widened)
Local Nature Conservation Site (LNCS)
Watercourse (Ordnance Survey 1:25k)
Waterbody (Ordnance Survey 1:25k)
Watercourse/waterbody 50 m buffer
Recommended riparian corridor (SEPA)
SEPA Future Surface Water and Small Watercourses Medium Likelihood
By the 2070s, each year this area may have a 0.5% chance of flooding
SEPA Future Flood Maps River Medium Likelihood
By the 2080s, each year this area may have a 0.5% chance of flooding
Phase 1 Habitat (Code)
Coniferous Plantation Woodland (A1.2.2)
Unimproved Acid Grassland (B1.1)
Semi-Improved Acid Grassland (B1.2)
Marsh/Marshy Grassland (B5)
Marsh/Marshy Grassland/Wet Modified Bog Mosaic (B5/E1.7)
Blanket Bog (E1.6.1)
Wet Modified Bog (E1.7)
Wet Modified Bog/Acid Neutral Flush Mosaic (E1.7/E2.1)
Acid Neutral Flush (E2.1)
Bare Ground (J4)
Phase 2 interpolated peat depth (m)
<= 0.3
0 - 0.5
0.5 - 1
1 - 2
2 - 3
3 - 4
4 - 5
5 - 9
Slope % (OS Terrain 5)
Below 12%
12 - 14%
> 14%
1
2
3
4
5
N
0
0.25
0.5
km
© Crown copyright and database rights 2026 Ordnance Survey AC0000808122.
© Scottish Environment Protection Agency. Contains OS data Copyright Crown copyright and database right.
Contains public sector information licensed under the Open Government Licence v3.0
LUC 01_03_Introduction Site Selection 17/08/2026
Source: Wind Power North Four Limited, LUC

Infrastructure Design Layout 3: Design Optimisation 2 (Application Layout)

3.9.10 In response to further turbine position changes made throughout the iterative design process (highlighted above), the infrastructure design continued to be optimised in relation to peat and hydrological constraints. The track linking T4 and T5 was repositioned north further away from the Swinzie Burn to reduce flood risk impact. The substation location was relocated to be adjacent to the construction compound on the northern side of the track by moving the construction compound further west onto shallower peat. The movement of T2 north in Turbine Design Layout 3 meant that the associated track alignment was altered resulting in T2 branching off a spur of the track to T3. This did, however, mean that the T2 hardstanding encroached upon deeper peat. At this stage, a full review of peat excavation was undertaken to determine if a peat mass balance could be achieved across the Site. Given that T1, T2 and T3 were located on deep peat as a result of the need to strike a balance with other key environmental constraints (including landscape and visual amenity and residential visual amenity considerations), it was determined that the foundations and hardstandings for these turbines would be piled/floated to avoid excavation of peat. A further review of opportunities for floating access tracks to avoid peat disturbance was undertaken, and this was incorporated into the final infrastructure design – see **Image 4**.

Image 4: Infrastructure Design Layout 3 with Constraints



3.10 Design Outcome

3.10.1 This chapter sets out the process undertaken to identify the Site and the design strategy, the objectives and site-specific design principles adopted and how these influenced the evolution and exploration of alternative layouts as part of the iterative design process. It also presents details of the approach taken to identify an appropriate potential grid connection route for assessment within the EIA resulting in the Likely Grid Connection Route.

3.10.2 The inherent nature of wind turbines as tall, modern structures means that the form of the Proposed Development as a whole is important. This, along with the planning history of the Site, meant that a clear design strategy was necessary. A key element of the overarching design strategy has been to revisit the reasons for why the previous Glenouther Renewable Energy Park was refused and re-design a scheme which achieves, on balance, the best outcome between maximising energy generation, whilst not materially increasing the significance of the environmental effects that were previously identified, and which responds positively to current key local and national planning policy tests, particularly in regards to landscape and visual amenity and biodiversity enhancement (NPF4 Policy 3 and 11). By developing and applying site specific design principles in relation to landscape and visual amenity, residential visual amenity, hydrology, peat and ecology as identified through the EIA process, most environmental effects associated with the Proposed Development have been avoided or mitigated (particularly with regards to peat excavation where approximately 96,000 m^3 of peat will be left in situ through low impact construction techniques). It is considered that the final design (as shown on **Figure 3.2** and **Figure 4**) strikes the correct balance between minimising environmental impact, maximising generational output from the Site and compliance with planning policy.