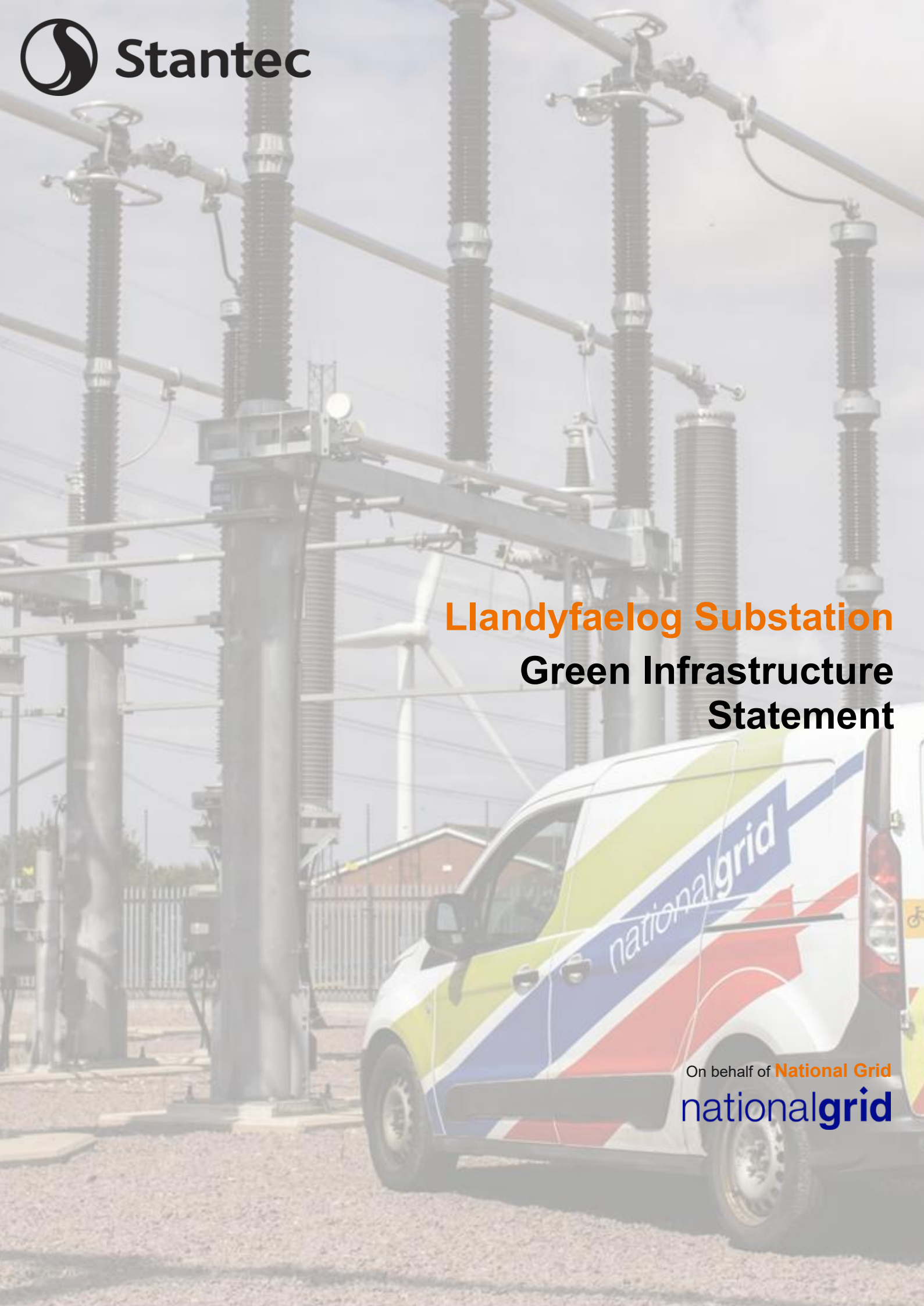
Stantec

Llandyfaelog Substation

Green Infrastructure Statement



On behalf of National Grid

nationalgrid

Green Infrastructure Statement

Llandyfaelog Substation

October 2025

Prepared for:
National Grid Electricity Transmission

Prepared by:
Stantec

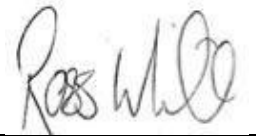
Project Number:
331201429

Revision	Description	Author	Date	Quality Check	Date	Independent Review	Date
P01	First Issue	RW	03.10.25				
P02	Second Issue following review from Client	RW/HM	20.10.25				
P03	Third Issue – including details of species and number of trees	RW/HM	28/10/25				

The conclusions in the Report titled **Green Infrastructure Statement** are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Client (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided by the Client to applicable authorities having jurisdiction and to other third parties in connection with the project, Stantec disclaims any legal duty based upon warranty, reliance or any other theory to any third party, and will not be liable to such third party for any damages or losses of any kind that may result.

Prepared by: 

Signature

Ross White BA (Hons) Landscape Architecture

Printed Name

Reviewed by: 

Signature

James Culshaw MRTPI Principal Planner

Printed Name

Approved by: 

Signature

Lucy Bankhead Project Manager

Printed Name

Contents

Appendix

1 Introduction

1.1.1 This Green Infrastructure Statement ('GIS') has been prepared by Stantec on behalf of National Grid Electricity Transmission ('NGET') ('the Applicant') to support a planning application to Carmarthenshire Council ('the Council'), for the Llandyfaelog Project: a proposed substation, access road, and erection of ancillary buildings ('the Proposed Development') on land directly east of the A484 approximately 900m north of the village of Llandyfaelog and 700m northeast of the village of Upland Arms ('the Site').

1.1.2 The Proposed Development is comprised of the following principal elements:

- Construction of a single level platform (260 metres by 640 metres) on which an Air Insulated Substation (AIS) is sited measuring 155 metres by 602 metres.
- Bellmouth access to the A484 with an operational access road to connect the platform to the A484.
- Modification works to the existing 400kV Overhead Line (OHL) to connect the substation to the existing OHL involving the installation of two new towers (pylons) and one replacement tower (pylon) circa 18 metres and 62 metres.
- Associated drainage, and hard and soft landscaping.

1.1.3 The Site Location Plan is provided at Appendix A, Figure 1 below.

1.1.4 This GIS outlines the approach to site development in accordance with the Planning Policy Wales (PPW), Chapter 6 (February 2024). It highlights the green infrastructure integrated into the site and the Stepwise methodology adopted. The GIS builds upon information already presented in the accompanying drainage strategy, ecological assessments, arboricultural impact assessment, and landscape plans submitted as part of the application.

1.1.5 The structure of the GIS is as follows:

- Background and Policy
- Baseline Data and Surveys
- Stepwise Approach and DECCA Framework
- Conclusion and Planning Balance

2 Background and Policy

2.1.1 **Planning Policy Wales (PPW) 12**[1] sets out the land use planning policies of Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales.

2.1.2 PPW 12 sets out the importance of delivery of Net Benefits of Biodiversity (NBB) and Green Infrastructure (GI), aligning with Section 6 under the Environment Act (Wales) 2016. The following are relevant to NBB and GI within the planning process in Wales: Paragraph 6.2.1 defines GI and outlines its benefits: " *Green Infrastructure is the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places*''. This paragraph goes on to outline that GI can function at a range of different scales; from entire ecosystems such as wetlands and rivers to parks, fields and gardens at the local scale and street trees, hedgerows, roadside verges, and green roofs/walls at the micro scale all of which contribute to GI networks.

2.1.3 Paragraph 6.2.5 states that "*Planning authorities must, as part of adopting a strategic and proactive approach to green infrastructure, biodiversity and ecosystems resilience, produce up to date inventories and maps of existing green infrastructure and ecological assets and networks''. Green Infrastructure Assessments provide key evidence to support the preparation of development plans and where authorities are not already actively undertaking assessments, they should be undertaken as part of development plan preparation*."

2.1.4 Paragraph 6.4.5 states that "*Planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means development should not cause any significant loss of habitats or populations of species (not including non-native invasive species), locally or nationally and must work alongside nature and it must provide a net benefit for biodiversity and improve, or enable the improvement, of the resilience of ecosystems. A net benefit for biodiversity is the concept that development should leave biodiversity and the resilience of ecosystems in a significantly better state than before, through securing immediate and long-term, measurable and demonstrable benefit, primarily on or immediately adjacent to the site''. The Stepwise approach and DECCA Framework should be used as methods to deliver a Net Benefit for any development*."

2.1.5 Paragraph 6.2.12 states that "*A green infrastructure statement should be submitted with all planning applications. This will be proportionate to the scale and nature of the development proposed and will describe how green infrastructure has been incorporated into the proposal."*

2.1.6 Paragraph 6.2.13 additionally outlines what a GIS should include*: "Wider landscape measures, such as the creation of species rich meadows, woodlands and the improvement of linkages between areas of biodiversity value should be considered for larger scale development. In most cases the green infrastructure statement should highlight any baseline data considered and surveys and assessments undertaken, including but not limited to, habitats and species surveys, arboricultural surveys and assessments, sustainable drainage statements, landscape and ecological management plans, open space assessments and green space provision and active travel links".*

2.1.7 **Future Wales: The National Plan 2040**[2]**, Policy 9 (Resilient Ecological Networks and Green Infrastructure)** states that development proposals must enhance biodiversity, strengthen ecosystem resilience, and green infrastructure assets "*through innovative, nature-based approaches to site planning and design of the built environment."*

[1] Welsh Government (2024) Planning Policy Wales, Edition 12, February 2024

[2] Welsh Government (2021) Future Wales, The National Plan 2040

2.1.8 **Carmarthenshire Local Development Plan (LDP) 2006 – 2021[3], Policy EQ5: Corridors, Networks and Features of Distinctiveness** states *"Proposals for development which would not adversely affect those features which contribute local distinctiveness/qualities of the County, and to the management/development of ecological networks (wildlife corridor networks), accessible green corridors and their continuity and integrity will be permitted."*

2.1.9 At the time of writing the Council is yet to publish a Green Infrastructure Assessment. As such, a review of this document has not been undertaken within this GIS.

2.1.10 A pre-application submission (LPA ref: PRE/02162) was submitted to the Council in April 2024 to ask for pre-application advice on the potential proposal. In their feedback, it was identified that the planning submission would need to set out the steps which have been taken towards securing a net benefit for biodiversity, along with the identification/mitigation for landscape/visual impacts. Subsequently, the project team engaged with the Council's Senior Ecologist to discuss the scope of the ecology surveys, approach to mitigation and principles for providing a net benefit for biodiversity on the Site. A summary of the consultation with the Council Ecologist is provided in Section 2.6 of the Ecological Impact Assessment (Stantec, 2025).

2.1.11 This GIS outlines the Applicant's proposed approach to GI, reflecting the Stepwise Approach in a way that is proportionate to the development's scale and character.

[3] Carmarthenshire County Council (2014) Carmarthenshire Local Development Plan 2006-2021

3 Baseline Data and Surveys

3.1.1 The following surveys, assessments and plans have informed the GIS:

- Siting Study (Stantec, 2025).
- Ecological Impact Assessment (Stantec, 2025).
- Designated Sites and Habitats Report (Stantec, 2025).
- Protected Species Walkover Report (Stantec, 2025).
- Badger Survey (Confidential) (Stantec, 2025)
- Hazel Dormouse 2024 Surveys Technical Note (Stantec, 2025).
- Hazel Dormouse Habitat Quality Assessment Report (Stantec, 2025)
- Bat Roost Resource Report (Stantec, 2025).
- Bat Activity Survey Report (Stantec, 2025)
- Great Crested Newt Survey Report (Stantec, 2025).
- Marsh Fritillary Report (Stantec, 2025).
- Arboricultural Impact Assessment (Stantec, 2025).
- Sustainable Drainage Systems (SuDS) Strategy (Stantec, 2025);
- Landscape Strategy Plan (Stantec, 2025); and
- Landscape Detailed Plans (Stantec, 2025);

3.1.2 These documents are drawn upon to clarify GI detail throughout this Statement. Generally, the first ten documents (aside from the Siting Study establish the baseline conditions and the final two present mitigation strategies and enhancements.

3.1.3 The field surveys and desk study identified ancient woodland and habitats of principal importance including purple moor-grass and rush pasture, and native hedgerows within the Site, as well as neutral grassland, modified grassland, mixed scrub and cropland. Protected and notable species recorded or likely to be present within the Site include hazel dormouse (confirmed breeding population), bats (including one roost), birds, reptiles, and species of principal importance.

3.2 Operational Factors Affecting Biodiversity and Landscape Design

3.2.1 Considering the operational factors the following potential impacts could arise as a result of the Proposed Development:

- Direct loss and degradation of habitats. Including the loss of areas of purple moor-grass and rush pasture (2.9 ha), native hedgerows (2.7 km), neutral grassland (10.4 ha) and modified grassland (8.6 ha)
- Fragmentation of green corridors through the Site and beyond for protected and notable species, including but not limited to, hazel dormouse and bats through the loss of native hedgerows.

- Adverse effects to neighbouring land due to more distant environmental effects e.g. air quality, noise, drainage or lighting.

- Disturbance or killing/injury to protected or notable species, including hazel dormouse, bats, birds, reptiles, and species of principal importance, either due to direct impacts on habitats used by the species or due to disturbance from, for example, lighting, traffic.

- Improvement of the hydrological function of the Site through the inclusion of swales and SuDS ponds as detailed in SuDS Strategy (RPT_331201429, Stantec October 2025).

4 Stepwise Approach

4.1.1 The Stepwise Approach in the context of Planning Policy Wales (PPW) is a structured process used to maintain and enhance biodiversity, build resilient ecological networks and deliver net benefits for biodiversity by ensuring that any adverse environmental effects are firstly avoided, then minimised, mitigated, and as a last resort compensated for. Enhancement must be secured by delivering a biodiversity benefit primarily on site or immediately adjacent to the site, over and above that required to mitigate or compensate for any negative impact.

4.1.2 This section outlines how the Proposed Development has followed this Stepwise Approach to avoid, minimise, mitigate and compensate for adverse effects as well as the required enhancement required to deliver the net benefit for biodiversity.

4.2 Avoid and Minimise

4.2.1 There is an identified need for the Proposed Development as set out in the Planning Statement.

4.2.2 A comprehensive Siting Study (Stantec, 2025) was undertaken to identify a preferred location for the proposed substation. The study assessed seven potential sites, with three shortlisted for detailed appraisal. Each site was evaluated against environmental, technical, and socio-economic criteria, including proximity to designated ecological sites, landscape sensitivity, access, and integration with existing infrastructure.

4.2.3 The desk-study exercise undertaken to inform the Siting Study did not identify any known environmental constraints (e.g. statutory designated sites) associated with the Site and that impacts on the ancient woodland within the Site could be avoided.

4.2.4 The Proposed Development location was selected as the least environmentally damaging and most technically viable solution, with the following attributes:

- Situated immediately adjacent to the existing OHL representing minimal environmental, landscape and visual impact from connection to the substation.
- The Site is well contained visually due to hedgerows along existing field boundaries and local highways.
- The Site is elevated within the landscape but comprises a relatively flat landform. Despite its elevation, few visual receptors have been identified, and the substation would be viewed in the context of the immediately adjacent OHL, with sufficient land available to provide screening.
- Whilst there are some neighbouring residential properties, the separation distances involved together with intervening topography and hedgerows/woodland suitably screen the Site from unacceptably impacting upon neighbouring residential amenity standards.
- The site is not subject to notable environmental constraints, and it is not anticipated that there would be any significant residual socio-economic effects at the nearest sensitive receptors and the Public Rights of Way (PRoW).

4.2.5 Avoidance and minimisation measures incorporated into the Design of the Proposed Development included the following:

- Micro-siting to avoid sensitive habitats as much as practicable, including wetter areas to the east of the site and ancient woodland within the south of the site.
- A single platform design to minimise the footprint, and enable a holistic drainage strategy design, including SuDS and wetlands/swales.

- A new access road to avoid loss of hedgerows and trees along the boundaries of the existing C2074.

- Various options for the design of the substation were considered. The primary aim of the design was to minimise the footprint of the Proposed Development, such that permanent impacts on the existing conditions would be as small as possible. In addition, the design aimed to minimise impacts beyond the footprint of the substation itself on the remaining areas of the Site (e.g. through consideration of legacy field boundaries and restricting temporary construction areas to a minimum).

- Incorporation of a lighting design that minimises indirect effects on retained and created habitats adjacent to the substation.

- A drainage strategy that attenuates water on the Site to limit discharges off the Site, prevent pollution incidents during the operation phase and provide biodiversity benefits, further details of the drainage strategy are provided below and the SuDS Strategy.

4.2.6 The majority of potential impacts would arise during the construction phase. The Outline Construction Environmental Management Plan (CEMP) will confirm measures to prevent significant negative impacts arising during the construction phase on receptors within the zone of influence (i.e. the extent to which the Proposed Development would have a direct or indirect impact on receptors) of the Proposed Development.

4.2.7 It is considered that accounting for the implementation of measures set out within the CEMP, significant construction impacts to receptors associated with dust deposition, air pollution, pollution incidents, water quality, light, noise, and vibration would be avoided or minimised.

4.3 Mitigation, Restoration and Compensation Measures

4.3.1 The landscape plans provide details of the on-site mitigation, restoration and compensation measures to provide a net benefit for biodiversity. These are:

- Landscape Strategy Plan - presented within the Landscape and Visual Impact Assessment (LVA) as **Figure L7**.

- Landscape Mitigation Area Planting Plans - presented within the LVA as **Figure L8**.

4.3.2 The landscape plans detail GI improvements through habitat and planting design based upon the findings of the LVA and ecological surveys. The principal GI improvements are:

- Enhancement of existing field boundary hedgerows, to fill in gaps, increase the width, height, species diversity and number of standard trees within the hedgerows.

- Creation of species-rich native hedgerows to include species such as hazel, holly, dog rose and crack willow across the Site to:

    - maintain and/or provide green infrastructure connections across the Site;

    - strengthen existing hedgerow network within the Site and local landscape; and

    - provide valuable sheltering and foraging habitat for protected and notable species including but not limited to hazel dormouse, bats, birds, reptiles, amphibians and badger.

- Earthworks to the southwest of the Proposed Development planted with species-rich native scrub to include species such as hawthorn, blackthorn and honeysuckle to provide:

    - a degree of visual screening from the nearby road network and properties;

- ecological connectivity west to east across the Site; and,
- valuable sheltering and foraging habitat for protected and notable species including but not limited to hazel dormouse, bats, birds, badger, amphibians and reptiles.

- Provision of a strong mixed woodland block transitioning into scrub and species-rich grassland to the west of the Proposed Development to:
  - aid screening of views from nearby properties;
  - provide a net benefit for biodiversity through the provision of valuable sheltering and foraging habitat for protected and notable species including but not limited to hazel dormouse, bats, birds, badger, amphibians and reptiles.
- Planting of a diverse selection of suitable trees such as field maple, beech, and rowan in linear blocks along the eastern extents of the Site to break up views from the east, and in small copses adjacent to the south-western extents of the substation to provide filtering of views where earthworks are not possible due to overhead cables. These trees would provide valuable sheltering and foraging habitat for protected and notable species including but not limited to hazel dormouse, bats and birds.
- Inclusion of an improved drainage system across the Site including swales, one pond (which will retain water throughout the year) and two SuDS basins planted with native aquatic and marginal species providing:
  - valuable wetland habitats for protected and notable species including amphibians and invertebrates;
  - clean surface water runoff and prevent pollution incidents.
- Extensive areas of species-rich grassland across the Site are proposed where agricultural practices would no longer be viable providing value ecological connectivity and habitat for invertebrates and other protected and notable species. In addition, where areas are identified for species-rich grassland the creation of purple moor-grass and rush pasture would be encouraged as a habitat of principal importance.

4.3.3 In total the Project will provide 3.2 ha of species rich hedgerow, 0.5 ha of mixed woodland and woodland edge (approximately 1680 trees), 10.2 ha of species-rich grassland, one pond and two SuDS basins (0.2 ha), 2.1 km of swales, 1.6 km of species-rich native hedgerows, as well as enhancement of existing hedgerows where possible (up to 3.6 km).

4.3.4 The Project will also provide species specific measures including reptile hibernacula, bat boxes, dormouse boxes and bird boxes.

4.3.5 It is anticipated that a sensitive lighting design will be incorporated into the proposed development to avoiding light spill on habitats with suitability for bats and hazel dormice.

4.3.6 In keeping with the Stepwise Approach the Applicant (NGET) will commit to the submission of a Landscape and Ecology Management Plan (LEMP) which will provide the strategy for the delivery and management of habitats and ecological mitigation and compensation features, on land within NGET's control. It is anticipated that the LEMP and its implementation will be secured by condition. The LEMP will set out the:

- maintenance and management proposals for the establishment phase (years 1-5 after implementation); and long term (years 5-25 after implementation);
- plans, specifications, schedules, and timescales;
- proposals for monitoring the effectiveness of the delivery of all landscape and ecological objectives (years 1-25 after implementation);

- timescales for monitoring reviews and reactive identification of any remedial operations, rectification of defects, or required changes to maintenance and management operations, and the mechanism for their implementation; and

- details of the management agent (body or organisation) responsible for implementation of the LEMP.

5 Ecosystem Resilience

5.1.1 This section summarises how the Proposed Development and the associated landscape and habitat delivery contribute to ecosystem resilience. Table 5-1 demonstrates how the Project aligns with the five key attributes of ecosystem resilience (DECCA Framework[4]) as defined by Natural Resources Wales (2016) in the State of Natural Resources Report (SoNaRR)[4] and further supported by the Practitioners' Guide to Resilient Ecological Networks[5].

5.1.2 Ecosystem resilience is defined as "*the capacity of ecosystems to deal with disturbances, either by resisting them, recovering from them, or adapting to them, whilst retaining their ability to deliver services and benefits now and in the future*"[6].

Table 5-1 Proposed Development Delivery Against the DECCA Framework

DECCA Framework Attribute	Proposed Development Response
Diversity between and within ecosystems	The Proposed Development will create a range of native species rich habitats including scrub, hedgerows, woodland, grassland and wetland.
Extent or scale of ecosystems	The creation and enhancement of native species rich hedgerows will provide connectivity between the areas of scrub and woodland planting linking up suitable habitat for a range of species including but not limited to hazel dormouse and bats increasing the extent of suitable habitat for these species. The creation of open swales and wetland will provide valuable wetland habitat which is currently limited within the Site, therefore increasing the extent of this habitat in the local area for aquatic and amphibius species.
Condition of ecosystems and structure/function	The habitats within the Proposed Development will be managed appropriately to increase their species diversity and suitability for a range of protected and notable species. The provision of reptile hibernacula, bat boxes, dormouse boxes and bird boxes will provide suitable sheltering and breeding opportunities for species whilst the created habitats are establishing and maturing.
Connection between and within ecosystems	The creation and enhancement of hedgerows, scrub and woodland will provide connectivity across the Site and to offsite similar habitats within the local landscape. The creation of wetlands and swales within the Site will provide connectivity between aquatic habitats across the Site as well as providing aquatic stepping stones within the local landscape.
Adaptability	The habitats will be planted with a diverse range of native species providing resilience to climate change and disease. Species have been selected that are suited to the local landscape and conditions on the Site. In addition, management measures, which will be outlined within the Landscape and Ecological Management Plan (LEMP), will ensure the longevity of the habitats.

[4] DECCA Framework: Diversity, Extent. Condition, Connectivity, other Aspects of ecosystem resilience (Adaptability, Recovery, Resilience, Resistance) (based on Garrett and Ayling, 2021)

[5] Garrett H.M, and Ayling S.C (2021) Terrestrial and freshwater Resilient Ecological Networks: a guide for practitioners in Wales. NRW Evidence Report No. 483. Natural Resources Wales

[6] Natural Resources Wales (NRW), (2016). The State of Natural Resources Report (SoNaRR): Assessment of the Sustainable Management of Natural Resources. Technical Report. [Online] Available at: https://naturalresources.wales/evidence-and-data/research-and-reports/the-state-of-natural-resources-report-assessment-of-the-sustainable-management-of-natural-resources/?lang=en

6 Conclusion

6.1.1 The Proposed Development has been carefully designed to align with the requirements of PPW), ensuring that green infrastructure considerations are integrated into all stages of site selection, design, and mitigation. The Site has been identified as the most suitable option due to its proximity to existing infrastructure, lower environmental impact, and operational efficiencies.

6.1.2 The measures are designed to deliver a measurable NBB in accordance with the Stepwise Approach and the DECCA Framework. The proposals will:

- enhance and create habitats and improve habitat connectivity;
- support protected and notable species; and
- provide for long-term management and monitoring to secure biodiversity gains.

6.1.3 The Siting Study confirms that all alternative locations would have equal or greater impact on designated sites. Therefore, the chosen site represents the most appropriate and deliverable option. Through a Stepwise Approach, the design has sought to avoid, minimise, mitigate and compensate impacts, while providing enhancements supporting biodiversity and ecological connectivity.

6.1.4 Mitigation, compensation and enhancement measures include species-rich native planting including woodland blocks, hedgerows, scrub, wetlands, grassland, and a landscape bund planted with scrub to provide additional screening of views. These enhancements aim to restore and strengthen the wider green infrastructure network and provide valuable sheltering and foraging habitat for a number of protected and notable species.

6.1.5 In summary, the approach outlined in this GIS demonstrates a comprehensive and proportionate response to the site's environmental context. The measures proposed seek to not only reduce the impacts of the Proposed Development but also deliver long-term improvements for biodiversity, climate resilience, and ecosystem functionality, in accordance with Welsh planning policy and sustainability principles.

Appendix A Site Location Plan

Figure 1: Site Location Plan