Margam Tata Steel Connection Scheme

Sustainability Statement

August 2025

Prepared for:
National Grid

Prepared by:
Stantec UK Ltd

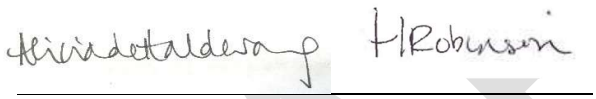
Project Number:
331201497

Revision	Description	Author	Date	Quality Check	Date	Independent Review	Date
01	Sustainability Statement	Alicia de Haldevang	May 2025				
02	Sustainability Statement	Hattie Robinson	June 2025	Rhiannon Smith	July 2025		
03	Sustainability Statement	Alicia de Haldevang	Aug 2025	Rhiannon Smith	Aug 2025	Helen Evriviades	Aug 2025

The conclusions in the Report titled **Margam Tata Steel Connection Scheme Sustainability 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 National Grid (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

Alicia de Haldevang / Hattie Robinson

Printed Name

Reviewed by: 

Signature

Rhiannon Smith

Printed Name

Approved by:

Signature

Printed Name

Contents

Figures

Tables

1 Development and Site Context

The Proposed Development

1.1.1 This Sustainability Statement accompanies a full planning application for Margam Tata Steel Connection Scheme, known as the 'Proposed Development' in this document. The area in which the Proposed Development is the existing Margam 275kV substation, known as the 'Site', which is located in Margam, South Wales, and within the administrative boundary of Neath Port Talbot Council. The 'Applicant' is National Grid. The full application details are below:

Full planning application for the extension of the Margam 275kV substation including the erection of a gas insulated switchgear hall (GIS hall) and the demolition of the existing control and amenities buildings to enable the erection of a new amenities building. Works to include earthworks, surface water management and drainage infrastructure, lighting, CCTV, boundary treatment, car parking, ecological improvements including a wildlife tower and gabion baskets, improved internal access roads, diesel generator and hardstanding, storage building and water storage tank, flood defence wall including flood gates and appropriate landscaping and other associated engineering operations.

1.1.2 A detailed overview of the proposed works to the existing Margam 275kV substation compound is provided below:

- Construction of a GIS hall to house 275 kV electrical switchgear and ancillary equipment;
- The GIS hall to include 12 bays with the provision of 3 spare bays;
- Mechanically Switched Capacitor with Damping Network;
- Realignment of the existing downleads and Super Grid Transformer circuits to new bays within the GIS hall;
- New amenities building to include welfare facilities, meeting room and ancillary office space;
- One diesel generator to be used in a backup situation only and hardstanding for a replacement freestanding diesel generator;
- Security fencing;
- Surface water management and drainage infrastructure including internal drainage systems;
- Flood defence wall (1150mm high and depth 1000mm) and flood gates at existing access points into the existing substation;
- Water storage tank (6m high and 6.1m diameter);
- CCTV;
- Lighting to include 6m medium duty, tilt down tubular steel constructure (exact location to be agreed), 27no. 'label C', 18no. 'label E' and 13no. 'label EX1), dark sky approved.
- Creation of new designated car parking area (four standard bays and two accessible bays).
- Landscaping to incorporate native planting / wildflowers.

- Ecological mitigation to include a wildlife tower and gabion baskets.

1.1.3 The purpose of the substation extension is to connect National Grid and Tata Steel site to enable use of electrical arc furnaces for steel production. This is an environmental benefit over the use of fossil fuel blast furnaces and contributes to the ongoing decarbonisation of the grid.

1.1.4 The Site is located within an industrial area on undeveloped marshland with scattered trees and vegetation. 150m to the east is a woodland area which separates the Site and surrounding marsh from three industrial plant facilities:

- Margam Green Energy Plant
- Western Bio-Energy
- BOC Gas & Gear Limited

1.1.5 Adjacent to the west boundary of the Site is the existing Margam Substation, which comprises hardstanding, a maintenance access road, ancillary buildings, and electrical infrastructure which includes distribution pylons. These pylons lie outside the Site's northern and southern boundaries.

Policy Context

1.1.6 Local development planning policy within Neath Port Talbot (NPT) is set by the Neath Port Talbot County Borough Council Local Development Plan (2011 – 2026). This was adopted in January 2016.

1.1.7 The Council is currently consulting on its Pre-Deposit (Preferred Strategy) for the Replacement Local Development Plan (RLDP) for the period 2023-2038. This RLDP will allocate land for homes and employment, protect NPT's environment and contain policies to provide the basis for decisions on planning applications, as well as bringing forward the Council's Corporate Plan and Wellbeing Plan. Consultation was open until 6 February 2025.

1.1.8 For the purpose of this planning application, the Proposed Development will align to policies in the Neath Port Talbot County Borough Council Local Development Plan (2011 – 2026).

Purpose of this Statement

1.1.9 The purpose of this Sustainability Statement is to:

- Highlight how the Proposed Development will meet the requirements of local, regional and national policies aligned with sustainability and their associated targets.
- Demonstrate how the Proposed Development will seek to reduce greenhouse gas (GHG) emissions.
- Outline the Applicant's aspirations with regards to addressing and mitigating against climate change.

1.1.10 Information to inform this Statement has been provided by three main stakeholders: Stantec, Baker Hicks and Laing O'Rourke (LOR).

2 Policy Context

National Policy Statements for Energy Infrastructure: National Policy Statements

2.1.1 National Policy Statements are pursuant to section 9(8) of the Planning Act 2008. Whilst this project is being determined under the Town and Country Planning Act 1990, these national policy statements still have relevance as the Proposed Development connects directly to projects being determined under the Planning Act 2008 that cannot be delivered effectively without the replacement tunnel and associated infrastructure.

2.1.2 In November 2023, Government published final drafts of its updated national policy statements for energy. Relevant to National Grid Electricity Transmission are:

- EN-1: Overarching National Policy Statement for energy
- EN-5: National Policy Statement for electrical networks infrastructure

National Planning Policy Framework (2024): NPPF 2024

2.1.3 The National Planning Policy Framework (NPPF) outlines that "the purpose of the planning system is to contribute to the achievement of sustainable development including the provision of homes, commercial development, and supporting infrastructure in a sustainable manner", which is defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs".

2.1.4 The NPPF also clarifies that planning law requires that applications for planning permission be determined in accordance with the development plan, unless material considerations indicate otherwise. The NPPF is a material consideration in planning decisions.

"The NPPF states that the planning system has three overarching objectives: economic, social and environmental. The environmental objective is described as follows: "to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."

Neath Port Talbot County Local Development Plan: Neath Port Talbot County Borough Local Development Plan

2.1.5 The Neath Port Talbot Local Development Plan (currently under examination and consultation for updated plans) includes a strong focus on sustainability issues, such as Strategic, and Topic Based Policies below:

- **Strategic Policy SP1: Climate Change:** This policy covers addressing the causes and consequences of climate change through: more cohesive and efficient settlements; minimising greenhouse gas emissions from transport; reduced dependence on private cars; greater contribution to renewables and low carbon energy; greater flood resilience; and habitat protections.
- **Strategic Policy SP2: Health:** This policy covers measures to reduce long term health and sickness through: design of sustainable and safe communities; reducing exposure to harmful elements; encouragement of healthier more active lifestyles; increase accessibility between communities; new employment opportunities.
- **Strategic Policy SP3 Sustainable Communities:** This policy covers methods delivery of sustainable and healthy communities through: settlement hierarchies and locations; limits of settlements; and resisting inappropriate developments.

- **Strategic Policy SP4 Infrastructure:** Developments will be expected to make efficient use of existing infrastructure and where required make adequate provision for new social, economic, cultural and physical infrastructure, ensuring that there are no detrimental effects on the area and community.

- **Policy OS2 Protection of Existing Open Space:** Any proposals which would result in the loss of an existing area of open space will only be permitted where it can be demonstrated that: the open space is no longer needed, and there is no shortfall of provision of that category of open space in the ward, before or as a result of the development; and the site would not be suitable to provide an alternative type of open space for which there is a shortfall.

- **Policy EC5 Employment Uses in the Valleys:** This policy covers employment proposals where sites adjoin settlements; are in sustainable location; with no detrimental impacts on amenities and proportionate in scale and form to the function of the area.

- **Policy TO4 Walking and Cycling Routes:** This policy protects walking and cycling routes with Neath Port Talbot, and any proposals that would prevent or have any adverse impact on their implementation will be resisted.

- **Policy EN2 Special Landscape Areas – Reference EN2/4 Margam:** In order to protect areas of high landscape quality, Special Landscape Areas are designated, including Margam. Development within the designated Special Landscape Areas will only be permitted where it is demonstrated that there will be no significant adverse impacts on the features and characteristics for which the Special Landscape Area has been designated.

- **Policy EN3 Green Wedges – Reference EN3/5 Margam:** In order to prevent the coalescence of settlements and to protect the setting of urban areas, Green Wedges have been designated, including Margam. Within these areas there is a presumption against inappropriate development.

- **Strategic Policy SP15 Biodiversity and Geodiversity:** Important habitats, species and sites of geological interest will be protected, conserved, enhanced and managed through a series of measures such as internationally and nationally designated sites, Special Areas of Conservation (SACs) and Ramsar Sites, Sites of Special Scientific Interest (SSSIs), and National Nature Reserves (NNRs).

- **Strategic Policy SP16 Environmental Protection:** Air, water and ground quality and the environment generally will be protected and where feasible improved through: ensuring no significant adverse effects on water, ground or air quality or significant increase in pollution levels; preference to brownfield sites over greenfield sites; and ensuring developments do not increase the number of people exposed to significant pollution.

- **Policy EN8 Pollution and Land Stability:** Proposals which would be likely to have an unacceptable adverse effect on health, biodiversity and/or local amenity or would expose people to unacceptable risk due to air, noise, light, contamination, land instability or water pollution. Proposals which would create new problems or exacerbate existing problems detailed above will not be acceptable unless mitigation measures are included.

- **Policy EN9 Developments in the Central Port Talbot Area**: Developments in the central Port Talbot area that could result in breaches of air quality objectives during their construction phase, will be required to be undertaken in accordance with a Construction Management Plan submitted as part of the planning process and agreed by the Council.

- **Strategic Policy SP18 Renewable and Low Carbon Energy:** A proportionate contribution to meeting national renewable energy targets and energy efficiency targets will be made, through: encouraging all forms of renewable energy and low carbon technology development; encouraging energy conservation and efficiency measures in all new major developments; and ensuring that development will not have an unacceptable impact on the environment and amenity of local residents.

- **Policy RE2 Renewable and Low Carbon Energy in New Development:** Schemes that connect to existing sources of renewable energy, district heating networks and incorporate on-site zero / low carbon technology (including microgeneration technologies) will be encouraged.

- **Strategic Policy SP19 Waste Management**: Provision will be made for the delivery of an integrated network of waste management facilities through treatment of waste arisings; identification of preferred sites for in-building waste treatment capacity; continuation of the disposal of residual non-hazardous waste and inert waste; and provision is made for the sustainable management of waste in all new developments.

- **Policy W3 Waste Management in New Development:** Proposals for new built development will need to demonstrate that provision is made for the design, layout, storage and management of the waste generated by the development both during the construction phase and occupation, such Site Waste Management Plans.

- **Strategic Policy SP20 Transport Network:** The transport system and infrastructure will be developed in a safe, efficient and sustainable manner through: promoting connectivity and access to public transport; supporting enhancements to walking and cycling network; park and share schemes; efficient use and links to the transport network; restricting developments with unacceptable impacts on highway safety; safe and efficient access and promote sustainable transport; parking provision; and movement of freight by means other than road.

- **Policy TR2 Design and Access of New Development:** Development proposals will only be permitted where: there is safe, effective and efficient use of the highway network and no adverse impact on highway safety; appropriate levels of parking and cycling facilities; safe manoeuvring of any service vehicles; accessible by a range of travel means, including public transport and safe cycle and pedestrian routes; and Transport Assessments and Travel Plans are provided.

3 Energy and Carbon Emissions

Site Context

Peat

3.1.1 A Construction Peat Management Plan was prepared (LOR, July 2025) for this application.

3.1.2 Deposits are present within the Site, lying at between 1.06 m Above Ordinance Datum (AOD) and 2.77 m AOD (approximately 0.50 m to 2 m below ground level). The deposit varies in thickness from 0.3 m in the centre of the Site to 2.3 m in the south, with the thickest deposit only containing only pockets of peat. On average the peat deposits are about 1.2 m thick. The peat deposits are below ground surface, and no active or peat-forming vegetation species were identified in the Phase 1 habitat survey for the Site.

3.1.3 A Peat Technical Note was prepared (RSK, November 2024) which considers the peat not to be actively sequestering carbon; however, it is a carbon store.

3.1.4 The Peat Management Plan assessment indicates that 2,010 m^3 peat soil will be excavated as a result of infrastructure development, of which 1,956 m^3 would be suitable for reburial. This peat soil will be reburied at the identified locations near the proposed Margam substation. The proposed material storage area is in excess of the expected excavation volumes, providing a level of contingency in the event that more peat soil is encountered and to allow for bulking of the peat soil as it is likely to be mixed with other soil materials during construction operations.

3.1.5 Approximately 54 m^3 peat soil is expected to be excavated as a result of augered piling operations. As a result of the augering process, this peat soil will be mixed with other soil and rock materials, and it will not be possible to separate out the peat soils from these other materials. The mixed arisings will be removed from site for disposal at a suitably licensed facility.

3.1.6 Where peat soils are required to be stored, an area adjacent to the reburial location has been assigned as a temporary storage zone, with best practices followed to protect the peat soils from drying out.

Existing emissions

3.1.7 Existing greenhouse gas emissions are associated with the existing substation, such as operational energy to run the facility, transport of staff to Site, and maintenance activities such as the replacement of materials.

Process Emissions

3.1.8 The primary reason of the Site's function is to supply high-voltage electrical infrastructure to support steel production, which involves extremely high and continuous energy demands that cannot be reliably met or meaningfully offset by on-site renewables.

3.1.9 Operational energy use will be required for general operation of the substation. The design of the Proposed Development includes the use of high-quality conductors (e.g. copper and aluminium) that are more resistant which alongside regular maintenance will help to increase efficiency and thereby reduce carbon emissions. The Proposed Development will provide 33kV connection to the adjacent Tata Steel site. This will enable the operation of new electrical arc furnaces proposed at the Tata Steel site to be used for steel production. This will help both to reduce reliance of imports of steel and to transition the UK steel production away from fossil fuel blast furnaces. Electrification of industry is an important step to reduce national emissions in line with 2050 net zero targets and is supported by the UK Governments Industrial Decarbonisation Strategy. As the National Grid decarbonises, this will further reduce emissions associated with the use of electrical arc furnaces at Port Talbot. The Proposed

Development therefore has an indirect, downstream effect that supports the decarbonisation of steel production and the Wales 2050 net zero target.

Potential effects

Construction

3.1.10 *Enabling works and construction*: The Proposed Development will emit GHG emissions through embodied carbon from the purchase of materials, fuel use from equipment and site generators, transport of materials and staff, waste generation, water use, soil disturbance, vegetation clearance and land use change.

3.1.11 *Carbon hotspots:* Steel, aluminium and concrete will be required which are carbon intensive in their production methods.

3.1.12 *Peat*: This will be left undisturbed and in situ wherever possible. However, it is anticipated that a limited amount of peat will be disturbed during construction works and piling. This will lead to the release of carbon stored within peat deposits, particularly if exposed to oxygen or at risk of drying out. Piling techniques, including rotary drilling and driven piling methods will be used across the majority of the Site to minimise excavation and ground disturbance. Horizontal Directional Drilling (HDD) will be used in preference to open trenching to help preserve buried peat deposits. The Peat Management Plan sets out protocols for excavation requirements storage times, water sprays, and locations for re-burying.

3.1.13 *Vegetation*: The Proposed Development has been designed to allow the retention of existing vegetation wherever possible, to help minimise carbon emissions from vegetation clearance.

3.1.14 *Construction Environmental Management Plan (CEMP):* This has been prepared by LOR (August 2025). It includes implementation and operation of environmental risk management measures across water, energy sources, transport, materials, waste and air quality and ecology during construction and operation. For example, no unnecessary idling of engines, maintenance of plant equipment for optimal operations and efficient use of materials to reduce waste. Mitigation of GHG emissions can be achieved by reducing fuel and energy consumption and waste generation during construction.

3.1.15 *Construction Logistic Plan (CLP):* This has been issued by Select Logistics (2024) and sets out routing plans for working and deliveries, scheduling and timing of deliveries, and logistics plans to improve efficiencies and reduce GHG emissions associated with construction traffic.

3.1.16 *Waste Management Plan (WLP) (*LOR, 2024): Wherever possible, the following waste streams will be diverted from landfill:

- The site works shall be designed to retain as much soil on site as possible whilst maintaining protection of human health and the environment.
- The re-use of excavated materials will be applied where possible through optimisation of cut and fill operations.
- All timber and metal will be segregated on site and sent for recycling.
- All inert waste (e.g. bricks, blocks, concrete) will be segregated on site and used under roads, driveways etc as appropriate.
- All mixed waste removed from site shall be taken to a material recycling facility for further segregation to maximise recycling and recovery.
- All hazardous waste shall be segregated from all other wastes and clearly labelled.
- All other site waste shall be segregated on site.

Operation

3.1.17 The reduction of waste generation and the use of recycling facilities over landfill reduce downstream GHG emissions associated with the construction of the Proposed Development.

3.1.18 The Energy Hierarchy, as shown below, applies to occupied buildings operations only, and this is in relation to the amenity building including welfare and office rooms.

Energy Hierarchy:

- **Be Lean:** use less energy and manage demand during operation through fabric and servicing improvements and the incorporation of flexibility measures
- **Be Clean:** supply energy efficiently and cleanly
- **Be Green:** take advantage of opportunities for renewable energy by producing, storing and using renewable energy on-site.

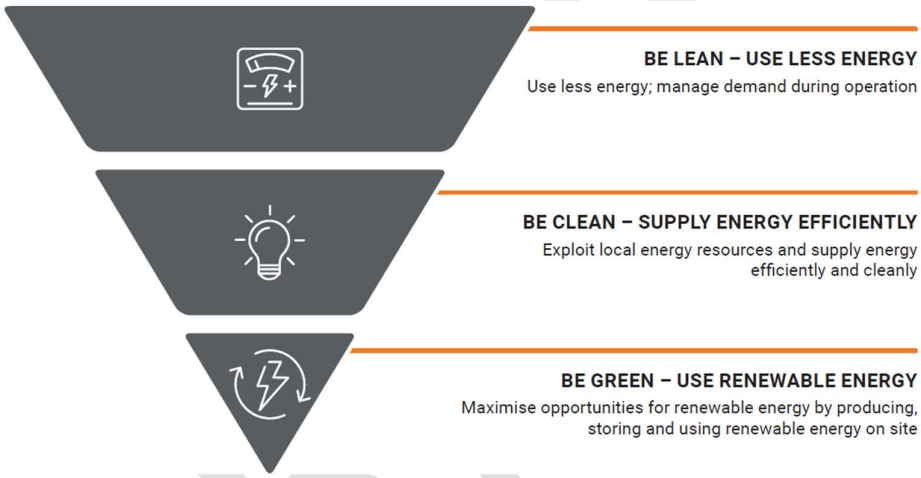


Figure 1: Energy Hierarchy (Stantec, 2025)

Mitigations & Recommendations

Demand Reduction (Be Lean)

3.1.19 A "fabric-first" approach incorporates both 'passive' and 'active' measures to reduce energy demand and use energy more efficiently. 'Passive' measures are design features, which can include building orientation, appropriate internal layouts and building fabric selection, that reduce the buildings' energy requirements. 'Active' measures are building services design features that will increase the efficiency of the energy used, and therefore also reduce the energy demand requirements.

Passive and active design measures for the Proposed Development:

Passive Measures	Active Measures
▪ Use of high thermal performance insultation ▪ Air-tight construction to minimise uncontrolled air infiltration, reducing any heating or cooling load needed for equipment rooms	▪ Use of low energy lighting lamps ▪ External light fittings will be operated by a daylight sensor and passive infra–red movement detectors to limit light pollution and minimise energy use ▪ Connection to the National Grid and Tata Steel site to enable use of electrical arc

	furnaces for steel production instead of fossil fuel blast furnaces ▪ Energy monitoring system to be installed

Table 1: Energy passive and active design measures

Heating Infrastructure (Be Clean)

3.1.20 The new substation and associated cable infrastructure are designed to operate without permanent staff presence. Electric heaters will be used for non-occupied spaces. For example, in the GIS hall, electric heating will be provided for frost protection only, in the case that systems are turned off and temperatures drop below 5 degrees Celsius. An electric heater will be used in the battery room for frost protection.

3.1.21 However, the ancillary rooms or occupied spaces will be heated or cooled primarily by DX units with external condensers.

3.1.22 The primary energy source for the development is proposed to be from the UK'S electricity grid (energy mix unknown), from two 33 kV feeder cables from the National Grid Margam Substation.

3.1.23 An energy monitoring system will be installed to understand energy consumption and feature a live dashboard.

Renewable Energy (Be Green)

3.1.24 A review of the suitability of various renewable and low carbon technologies for the Site has been undertaken to identify options that could potentially be deployed. While technologies such as photovoltaic (PV) solar panels and air source heat pumps (ASHPs) were considered, they are not viable for this development.

3.1.25 As mentioned above, the primary energy source for the development is proposed to be from the UK'S electricity grid (energy mix unknown).

4 Biodiversity and Ecology

Trees and vegetation

4.1.1 A Tree Survey was carried out by Treework Environmental Practice (May 2025) to ensure the sustainability of the resulting landscape of the Proposed Development. 50 trees and 39 tree groups were recorded within the Site. A summary of results are in the table below:

Tree Category	No. of trees	Constraint level
A – trees of high quality	0	n/a
B – trees of moderate quality	13 trees & 5 tree groups	Posing significant material constraint
C – trees of low quality	37 trees & 34 tree groups	Posing minimal constraint
U – those in such a condition that they cannot realistically be retained	0 trees	No constraint on development

Table 2: Tree Survey Summary

4.1.2 There are no trees covered by a Tree Preservation Order and the Site does not fall within a Conservation Area.

4.1.3 There are no ancient or veteran trees on Site.

4.1.4 An Arboricultural Impact Assessment and Tree Protection Plan, by Treework Environmental Practice (May 2025), have been submitted as part of this Application.

4.1.5 Habitats recorded within the Site included a mosaic of swamp, marshy grassland, dense scrub and standing water, neutral semi-improved grassland, hardstanding associated with access road and substation, and ephemeral/short perennial.

Potential / likely impacts from the Proposed Development on ecological sites

4.1.6 An Ecological Impact Assessment (EcIA) was conducted by Stantec (August 2025). The EcIA is based on detailed desk studies, field surveys conducted between 2024 and 2025, and consultation with ecological stakeholders.

4.1.7 Surveys covered habitats and species including bats, birds, reptiles, amphibians, water vole, otter, and invertebrates. The Site supports a complex of wetland habitats which are considered Priority Habitats. Protected and notable species recorded include: water vole, bats (including lesser horseshoe), breeding and wintering birds, reptiles, and invertebrates.

4.1.8 The Proposed Development will result in the permanent loss of approximately 1.67 hectares of SINC and Priority Habitat, but no significant impacts are anticipated on nearby nationally or internationally designated sites due to distance and lack of ecological connectivity. To minimise ecological impacts, the design includes embedded mitigation such as minimising the development footprint, sensitive lighting and drainage design, and diversion of ditches to maintain and enhance the site's hydrological function.

4.1.9 There will be direct impacts to the Junction 38 Wetland Complex Site of Importance for Nature Conservation (SINC) through permanent and temporary loss of habitats within the SINC. Whilst impacts on the SINC cannot be avoided, the footprint of the works has been minimised as much as possible.

4.1.10 The Proposed Development is in close proximity to Eglwys Reservoir Site of Special Scientific Interest (SSSI) and Margam Moors SSSI. There are no possible hydrological impacts or water pollution/sediment impacts possible from the Proposed Development on these SSSI because both the SSSI lie up-stream of the Proposed Development.

4.1.11 The potential for noise or lighting impacts associated with the construction of the Proposed Development on the 2 SSSIs has also been assessed and determined to be not significant.

Net Biodiversity Benefit (NBB)

4.1.12 The Proposed Development is expected to deliver a measurable Net Biodiversity Benefit (NBB), in line with Planning Policy Wales and the Environment (Wales) Act 2016. Long-term management and monitoring plans will ensure the resilience and sustainability of habitats and species.

4.1.13 The stepwise process has been applied, and ecosystem resilience will be achieved through the Proposed Development.

4.1.14 Combined on-site and off-site measures are designed to deliver a measurable NBB in accordance with Planning Policy Wales and the DECCA Framework. The proposals:

- Compensate for the permanent loss of part of the J38 Wetland SINC.
- Enhance the ecological function of retained habitats.
- Enhance and create new priority habitats and improve habitat connectivity.
- Support protected and notable species.
- Provide for long-term management and monitoring to secure biodiversity gains.

Mitigations

Construction

4.1.15 A Landscape and Habitat Management Plan (LHMP) was prepared by Stantec (August 2025) which sets out on- and off-Site mitigation and compensation measures:

- Assumption of full restoration of soils and replacement vegetation cover through natural regeneration using site-won topsoil following Permitted Development works (the latter taking place ahead of, and in parallel with the Proposed Development).
- Restoration and diversion of ditches to improve hydrological and ecological function.
- Installation of water control structures to maintain hydrological and ecological function and to provide enhancement to SINC conditions.
- Provision of landscape planting along diverted and restored ditches, focussing on locally and ecologically suitable planting species mixes which also provide favoured foraging plants for species associated with the SINC.
- Provision of species-specific features elsewhere within the Site including a wildlife tower, reptile hibernacula, and gabion baskets (for invertebrates).
- Lighting design to maintain dark areas for bats.
- Rotational management of reedbed, ditch marginal vegetation and ditch sedimentation, and management of scrub extents, following completion of construction of Proposed Development, to provide enhancement to SINC.

- Monitoring of water levels, vegetation structure, and target species following completion of construction of Proposed Development to provide feedback and inform adaptive management response to provide enhancement to SINC.

4.1.16 To deliver a measurable net benefit for biodiversity, a complementary off-site enhancement scheme is proposed on Tata Steel land at Margam Burrows (Stantec, 2025). This includes:

- Scrub removal around existing dune slack pond to improve conditions for great crested newts (GCN).
- Creation of new dune slacks in low-diversity closed-sward dune grassland areas.
- Re-use of excavated sand from dune slack creation to provide open dune habitat and/or opening up closed-sward on south-facing dunes to benefit invertebrates and early successional species.
- Installation of multifunctional gabion basket features using uncontaminated slag provided by Tata Steel.
- Rotational scrub management, particularly targeting species such as creeping willow, grey willow and sea buckthorn to maintain balance between dune grassland and scrub and rotational management of grassland to support and enhance grassland diversity.
- Dune slack rejuvenation on a 3 year cycle, depending on outcome of habitat monitoring.
- Monitoring and adaptive management to maintain habitat quality and species diversity.

4.1.17 Construction mitigation measures are generally considered to be construction industry standard and would be implemented through a Construction Environmental Management Plan (CEMP), as prepared by LOR (August 2025). Measures include:

- Existing vegetation will be protected from damage in accordance with BS 5837: 2012
- Noise, dirt and dust levels kept to a minimum and local road cleaned regularly where dirt is spread by construction traffic, limiting adverse effects on local character due to the perception of construction activities
- Site compounds and material stockpiles located within the least visually conspicuous parts of the Site where practicable
- Litter within and around the Site removed and the Site kept free from litter throughout construction activities
- To avoid direct impacts to breeding birds, any vegetation removal should be completed outside the main nesting period, e.g. completed during September to February. If not possible, areas to be cleared would require a pre-works check for breeding birds by a suitably experienced ecologist no more than 48 hours before clearance. If an active nest were found, it will need to be left undisturbed with an appropriate buffer. In regard to Cetti's warbler which are afforded a higher degree of protection, any buffer zone would need to ensure there is no risk of disturbing birds away from the nest.
- For protection of reptiles, vegetation clearance on site should follow a two-stage vegetation clearance undertaken with hand tools under the technical oversight of a suitably experienced ecologists.
- To protect animals from entrapment excavations will be covered, or escape ramps will be provided, where excavations are left over-night.

Operation

4.1.18 Measures include:

- The Landscape and Habitat Management Plan (LHMP) for the Site (Stantec, August 2025) and the Habitat Management Plan for the off-site area a Margam Burrows (Stante, August 2025) include a number of prescriptions to promote ecosystem resilience through diversion and reinstatement of ditches and water level management within the Site and the management of habitats in both areas for habitat diversity. Both sites are committed to a 30-year management period including implementation of management, monitoring and adaptive responses to monitoring outcomes.

- Any lighting of the Proposed Development is restricted to that required for safety reasons and that lighting follows best practice standards outlined in the bats and artificial lighting at night guidance note including lighting featuring: motion activation, LED luminaries, warm light (2700Kelvin or lower), peak wavelengths higher than 550nm, cowls or hoods (to limit light spill) and reduced column height. Operational lighting would also be kept to a minimum where required. The lighting would also be informed by the project ecologists to ensure low light spill devices are used for adjacent habitats and also to ensure lux levels are minimised in terms of light-spill into the retained areas of the SINC.

- The LHMP and HMP provide a 30-year management regime for the two areas.

Green Infrastructure, Planting & Habitat Retention

4.1.19 The on-site planting strategy and habitat retention recommendations feature climate resilient plants, existing and new trees, ecological buffers, and groundcover as set out below:

- *Tree species proposed for mitigation area:* oak, birch, alder, hawthorn, hazel, buckthorn, blackthorn, field maple.

- *Mosaic of habitats:* new planting as part of any landscape proposals and/ or Biodiversity Net Gain requirements should aim to include suitable vegetation of native and locally appropriate species, to replicate the existing mosaic of habitats wherever possible.

- Areas of natural regeneration where vegetation has been lost to construction swathes and soil has been compacted will have soils restored, following completion of Permitted Development works and a nurse grass species will be used to the encourage natural regeneration from the seedbed.

- New marginal planting will be provided around the SuDS area

- New marginal planting will be provided along the diverted and reinstated ditches within the Site.

- Creation of gabion basket CO^2 gardens through the re-use of slag from Tata around the SuDS area, and/or as agreed with NPTC

- Inclusion of a ‘wildlife tower’ within the Site which would aim to provide new opportunities for roosting bats, particularly targeting lesser horseshoe bats. An illustrative proven design is provided in the LHMP.

- Temporal enhancements along the existing watercourses through removal of encroaching and over-shading scrub vegetation.

4.1.20 An off-site area 2 km southwest of the Site, partially within Margam Moors SSSI, is proposed for additional mitigation, with proposed measures including:

- Creation of dune slacks / sand dunes in lower value areas currently dominated by red fescue / burnet rose;
- Enhancement of existing dune slack pond through removal of scrub shading out perimeter;
- Creation of an open dune habitat by re-using sand from dune slack creation;
- Open up south facing dunes to create open dune habitat to create habitat diversity and benefit invertebrates; and
- Creation of a gabion basket CO^2 Garden through the re-use of slag from Tata to provide shelter for invertebrates, reptiles and Great Crested Newt.

Landscape design and maintenance

4.1.21 The landscape proposals are designed to support and enhance the wetland mosaic of habitats within the retained area of the SINC, allowing nature to thrive in this unique industrial, coastal setting. The focus is to provide landscape measures which support the ecology and hydrology balance of the site to uplift habitat value and increase biodiversity.

4.1.22 For green landscape maintenance, these habitat areas would continue to develop and likely improve ecologically, under a sympathetic management and maintenance regime (secured through the LHMP and HMP).

4.1.23 In the EcIA, it has been demonstrated how the Proposed Development aligns with the five key attributes of ecosystem resilience, as per the DECCA Framework: *Diversity between and within ecosystems; extent or scale of ecosystems; condition of ecosystems and structure/function; connection between and within ecosystems; adaptability.*

5 Water Management

Site Context & Existing Flood Risk and Drainage

5.1.1 *Flood Risk*: The Site is located in Zone B - areas that are known and have flooded in the past; and Zone C2 – areas without significant flood defence infrastructure.

5.1.2 Fluvial modelling shows the substation site is at risk of flooding in 1 in 1,000-year and 1 in 100-year events (with Climate Change). A draft Flood Consequence Analysis (Baker Hicks, 2025b) recommends a fluvial defence wall with a crest level at 5 m AOD to protect the substation.

5.1.3 *Water courses:* several watercourses are located across the area, consisting of drainage ditches, including the Eglwys Nunydd Reservoir (under the ownership of Dŵr Cymru (Welsh Water).

5.1.4 A Surface Water Management Plan was prepared by LOR (June 2025).

Proposed Development likely impacts

5.1.5 *Groundwater abstraction:* Groundwater abstraction will be required at various locations on-site for different work activities.

5.1.6 *Rainwater-dependent surface runoff:* Site-wide earthworks may generate rainfall-dependent, uncontaminated runoff, which must be appropriately managed to avoid contamination.

5.1.7 *Silt Water generation:* Deep excavations and soil removal activities will expose areas to potential erosion and silt runoff.

5.1.8 *Concrete runoff:* Delivery trucks or pumps will be used on Site for concrete works.

5.1.9 *Drilling activity:* Certain sections of the project will require auger drilling for the placement of foundations. Although "wet drilling" is planned, its exact nature will be confirmed, and the potential for drill water use must be managed.

5.1.10 *Drainage:* The temporary drainage scheme will have waters flowing into catchment chambers. This water will then be transferred via pumps into a treatment system, prior to discharge into the ditch network. Water will flow naturally along a cut-off trench – slip trench is around the perimeter of the working platform – and into existing watercourses via settling ponds or filtration beds.

5.1.11 *Waterways and diversions:* All waterways that intersect with or are affected by construction activities will be re-routed to maintain the continuous flow of water. Any work on these waterways will be carried out in consultation with Natural Resources Wales or the Local Authorities.

5.1.12 *Permit to Pump:* This will be required for any activities involving pumping.

Mitigations & Recommendations

5.1.13 **Mitigations** include:

- *Groundwater Abstraction:* Site-wide engineering controls for groundwater management will be implemented, with external parties involved where necessary. Adequate abstraction consents must be in place for formal discharge or for reuse within construction activities.

- *Rainwater-dependent surface runoff:* Earthworks should allow for the passage of such water and prevent mixing with silt-laden runoff. Uncontaminated water should be routed for natural filtration through drainage systems, such as gravel beds, terram, or similar filtration methods, which will be installed along construction excavations, along with silt traps, sediment barriers, and diversion channels to manage water runoff, prevent erosion, and ensure that uncontaminated water does not pick up sediment or particulate matter.

- *Silt Water generation:* Drains will be constructed to manage water runoff from works so that uncontaminated rainfall does not mix with water containing silt. Only excavation water will be directly removed from the site, varying based on seasonal rainfall. Silt fencing, filtration bags, and matting will be deployed to manage silt generation and meet the Total Suspended Solids standards required by the Local Authority or regulators. A treatment system will be designed to prevent silt entering discharge points in line with Natural Resources Wales requirements.

- *Concrete washout:* A dedicated washout area will be established and where possible, vehicles will return to operations base for washdown procedures. Concrete wash water will be managed in accordance with Pollution Prevention Guidelines and further discharge consent shall be sought via a trade effluent consent. Water should be allowed to evaporate or dry as much as possible with remaining solidified material to be safely contained. Excess water will be dealt with through appropriate discussions with wastewater providers

- *Drilling activity:* This will be carried out using a closed-loop system to prevent water escape. Water will be used solely for lubrication, and any solids generated will be considered for dewatering and filtration. Settlement tanks or Siltbuster systems will be used, with no chemical treatment used unless approved.

- *Drainage:* The cut-off trench will minimise vegetation removal, soil movement, and compaction on the construction swathe corridor. Any rainwater will be directed to cut-off drains and filtered through a filtration bed before entering existing watercourses or further treatment. Systems will be inspected by the construction management team and environmental advisor.

- *Flood defence:* A flood defence wall is proposed to protect the substation, designed to resist extreme flood events.

- *Waterways and diversions*: Each activity will be carefully monitored, and necessary adjustments made. Through proper planning, monitoring, and compliance with the guidelines outlined above, the project aims to protect local water resources and meet all regulatory requirements.

- *Permit to Pump:* A permit must be issued by an environmental staff member, or appropriate correspondence must be made. The applicant will be briefed on the relevant conditions, and confirmation of their acknowledgment required before operations can commence.

- *Alerts*: Site subscription to alert systems, such as the Natural Resources Wales Flood Warnings Service and the Met Office weather alerts, to stay informed of weather events that may necessitate action

- *Monitoring*: This will include site inspections, temporary drainage and sedimentation features, water quality, suspended solids, pH levels, and visual checks.

- *Reporting:* This will include site worker induction, potential issues, environmental incidents, emergency situations, abnormal events relating to water environment, public complaints, corrective actions, immediate mitigation, root cause analysis, and long-term preventative measures.

6 Pollution Management

6.1.1 Pollution management is being assessed regarding the impacts of the Proposed Development on surrounding environments. The closest residential areas to the Site are:

- Taibach – 3km north
- Margam Village (Coed Hirwaun) – 3.75km south east
- Cwmafan – 5.5km north
- Baglan – 7km north west

6.1.2 Larger settlements in proximity to the Site include Port Talbot (4km north west), Bridgend (12km south east) and Neath (11km north west).

6.2 Air Quality

6.2.1 An Air Quality Assessment was carried out for the Proposed Development by Stantec (July 2025). A Geotechnical Considerations report was carried out by LOR (February 2025).

6.2.2 An Air Quality Management Area (AQMA) has been declared in Neath Port Talbot covering an area covering the majority of land and properties between the Corus Steel Works and the M4 Motorway for exceedances of the 24-hour mean PM_{10} NAQO, however there has been a reduction in measured PM_{10} levels since the AQMA was declared in July 2000.

Site Context

Demolition and Construction

6.2.3 The Site currently includes the existing substation and the associated ancillary buildings to the north which will be demolished for the new welfare building. Demolition activities are not expected to occur more than 6 m above ground and do not have the potential to exceed 12,000 m3 of material. Therefore, the dust emission magnitude of demolition activities is judged to be ‘small’.

6.2.4 Proposed earthworks activities comprise clearance of vegetation, soil preparation and landscaping across an area that could potentially be greater than 110,000 m2 however, earthworks activities are not expected to be carried out across the whole site area. The soil at the Site is largely classified as loamy and clayey soils of coastal flats with naturally high groundwater (Cranfield University, 2024) which are considered to be moderately dusty, particularly during periods of dry weather. Based on this, the dust emission magnitude of earthworks activities is judged to be ‘large’ as a precautionary measure.

6.2.5 The total building volume to be constructed is expected to be between 18,000 m3 and 110,000 m3. Construction materials will comprise a mixture of masonry material including those with a high potential for dust release, such as concrete, as well as those with a lower dust potential such as metals and timber. Based on this, the dust emission magnitude of construction activities is judged to be ‘medium’.

6.2.6 The number of HDVs that will exit the Site will vary depending upon the processes occurring at any one time. There are unlikely to be more than 50 outward HDV movements in any one day. Due to the nature of the Site, there could be an unpaved road length greater than 100 m in length comprising moderately dusty surface material. Based on this, the dust emission magnitude of trackout is judged to be ‘large’.

6.2.7 The number of HDVs that will exit the Site on a daily basis is no more than 50 whilst construction activities take place. Due to the nature of the Site, there could be an unpaved

road length greater than 100 m in length comprising moderately dusty surface material. Based on this, the dust emission magnitude of trackout is judged to be 'Large'.

6.2.8 During the demolition and construction periods, there will be an increase of 20 AADT on the road network which includes both LDVs and HDVs. The exact split has not been confirmed but it is expected that the majority of these will be HDVs. Therefore, the increase in LDV traffic flow will be below the threshold of 500 AADT outside an AQMA and of 100 AADT inside the Neath Port Talbot Taibach/Margam AQMA for a detailed assessment to be necessary. The impacts of emissions associated with demolition and construction road traffic on air quality in the local area are considered to be 'not significant'.

6.2.9 The main air pollutants of concern during the construction period are emissions of dust and fine particulate matter (PM_{10}) associated with on-site demolition and construction activities and off-site trackout. Additionally, there is the potential for emissions of nitrogen dioxide (NO_2) and fine particulate matter (PM_{10} and $PM_{2.5}$) from construction related traffic.

6.2.10 Demolition and construction activities may contribute to local PM_{10} concentrations. However, appropriate dust control measures can be highly effective for controlling emissions and to reduce or eliminate adverse effects.

6.2.11 Before mitigation measures, the dust emission magnitude class and risk of each activity has been considered as:

Potential Impact	**Dust Risk Impact**			
	Demolition	***Earthworks***	***Construction***	***Trackout***
Dust soiling	Medium Risk	High Risk	Medium Risk	High Risk
Human health	Negligible Risk	Low Risk	Low Risk	Low Risk

Table 3: Construction Dust Risk Impacts without mitigation, Air Quality Survey

Operation

6.2.12 The main air pollutants of concern during the operational period are NO_2, PM_{10} and $PM_{2.5}$ emissions associated with proposed and existing road traffic and industrial emissions.

6.2.13 The primary energy source for the development is proposed to be from the UK'S electricity grid (energy mix unknown). Energy will be provided by two 33 kV feeder cables from the National Grid Margam Substation.

6.2.14 The operational effects of the Proposed Development are judged to be slight beneficial (Not Significant).

Mitigations & Recommendations

6.2.15 During construction, the CEMP which has been prepared, sets out mitigations to ensure the potential for adverse environmental effects on local receptors is minimised.

6.2.16 To mitigate the residual risk of asbestos, areas of soft landscaping underlain by Made Ground should be subject to a clean cover system, which could be further limited to soft landscaped areas within close proximity to structures/buildings that will be accessed by future workers.

6.2.17 A Materials Management Plan has been developed by LOR (July 2025) including methods to protect soil resources.

6.3 Noise

6.3.1 A Construction Noise and Vibration Assessment and an Operational Noise Impact Assessment (RSK Acoustics, June 2025) were prepared to set out an assessment of noise from the Proposed Development and provide guidance relating to the noise mitigation measures required to meet relevant noise criteria.

Noise Survey

6.3.2 Baseline monitoring was undertaken at various positions representative of nearby Noise Sensitive Receptors (NSRs) during 2018, 2019 and 2022. Following consultation with NPTC it was agreed that the previously gathered baseline data from 2022 is considered representative of the acoustic environment. Additional noise monitoring was undertaken in June 2024 at a comparable alternative measurement position (proxy) that has been used to represent the existing acoustic environment (established baseline) in the absence of the specific sound source (Port Talbot Steelworks).

6.3.3 *Survey locations*: the final proxy location was considered appropriate as it was within a comparable residential area, a similar distance from the M4 motorway to the identified NSRs and did not include contribution from the specific sound source i.e. the Port Talbot Steelworks

6.3.4 *Soundscape*: The statistical analysis of the data collected at the proxy measurement position resulted in background sound levels of 51 dB LA90, 1 hour and 38 dB LA90, 15 minutes. These are considered representative of the background sound level for both daytime and night-time respectively.

6.3.5 All noise impacts during construction and operation of the Proposed Development are considered Not Significant.

Mitigations & Recommendations

Control of Construction Noise Levels

6.3.6 As per the Construction Noise and Vibration Impact Assessment, it is advised that a community engagement exercise should be undertaken focusing on the residential and commercial receptors identified. The methods can include community newsletters (postal and email), posters and boundary notifications (contact details) and project websites. The following information will be made available to the surrounding community at the commencement of the project (overview of project) and prior to any high impact activity at least 2 weeks in advance:

- Project overview
- Start and duration of works
- Proposed working hours
- Steps being undertaken by the team to control noise and vibration
- Any work which might be required out of specified working hours
- A helpline for queries and complaints

6.3.7 During construction, the following guidelines that should be applied are, *whenever possible* or *as far as reasonably practicable*:

- Noisy plant will be situated away from sensitive receptors
- Fabrication will be undertaken off site

- Fixed items of construction plant will be electrically powered in preference to diesel or petrol driven
- The noise from reversing alarms will be controlled or limited by the site layout designed to minimise reversing; banksmen will be utilised to avoid the use of reversing alarms; and reversing alarms will incorporate features such as broadband signals or 'smart alarms' to reduce the level of noise.
- Where an enclosure is available it should be used
- Vehicles and mechanical plant associated with the construction works will be fitted with effective exhaust silencers and will be maintained in good working order
- Machines and vehicles in intermittent use will be shut down or throttled down to a minimum during periods between works
- Screens such as reflective acoustic cladding and louvered screens are recommended to be placed around power units such as compressors, lighting rigs and generators
- Mobile screens will be placed around noisy hand-held equipment
- The movement of delivery materials outside of normal working hours will be kept to a minimum and handled in a manner that minimises noise (i.e. manual handling rather than mechanical)
- All plant, equipment and noise control measures applied to plant and equipment will be maintained in good working order and operated such that noise emissions are minimised as far as reasonably practicable
- Where breaking out activities are necessary the continuous use of percussive or impact breaking equipment/methods will be minimised
- All employees shall be provided with an appropriate induction and ongoing briefings regarding the management of environmental issues such as not generating unnecessary noise when on site or when leaving and arriving
- Two-way radios to be used on site to avoid shouting
- All compressors and generators will be 'sound reduced' models fitted with properly lined and sealed acoustic covers which shall be kept closed whenever the machines are in use, and all pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers
- Noise emitting equipment which is required to run continuously will be housed in a suitable acoustic enclosure
- Engines of all parked vehicles or waiting vehicles waiting to enter any work area will be switched off within two minutes of arrival
- Work compounds will be laid out so that accesses and loading areas are located as far away from sensitive neighbours as practicably possible and so that temporary structures screen noisy areas where practicable
- Stationary plant such as pumps, compressors and generators will be situated as far as possible from residential property and acoustic screens erected if required. Other plant and machinery shall be screened if necessary

Control of Operational Noise Levels

6.3.8 As per the Operational Noise Impact Assessment, predicted noise levels are significantly below both the criteria and the existing ambient sound levels while all the proposed noise emitting plant associated with the extension is operational, therefore it is expected that there will no impact resulting from the substation extension.

6.3.9 Additionally, as the substation is already existing and the wider soundscape is dominated by industrial and man-made noise sources, the noise sources that will be introduced as part of the extension are not considered to be out of character and unlikely to be distinguishable against the existing acoustic environment.

6.4 Lighting

Site Context

6.4.1 External lighting for the Proposed Development will be minimised as far as possible but will be consistent with satisfying requirements for safety and security. The extensive industrial setting of the location would suggest external lighting from the Site will have minimal effect.

6.4.2 Sensitive lighting receptors potentially affected by the Proposed Development are anticipated to be primarily ecological, with limited potential for residential receptors in Margam and Eglwys Nunydd.

Construction

6.4.3 Lighting is required for the safe undertaking of tasks alongside facilitating safe and secure access to offices, compounds, welfare facilities, parking areas, fuel storage areas and plant storage areas. Fixed lighting is anticipated to be limited to site accommodation and plant areas, with temporary task lighting applied to working areas.

6.4.4 The extent and duration of illumination should be minimised as far as practicable, lighting of areas not currently and all-night illumination of storage and compounds should be avoided.

6.4.5 Consideration of construction lighting have been included as part of the CEMP. Temporary lighting will be required to ensure the safety of personnel working on-site, which will be provided by LOR at welfare and working locations.

Operation

6.4.6 The Proposed Development includes lit development in the form of a new substation with exterior lighting for industrial use, underground cable route, and an amenity building containing ancillary office space with changing and WC facilities.

6.4.7 Lighting will include 6m medium duty, tilt down tubular steel constructure (exact location to be agreed), 27no. ‘label C’, 18no. ‘label E’ and 13no. ‘label EX1), dark sky approved.

6.4.8 The principal use of the Site involves large-scale industry. Existing industrial development provides enclosure to the west, east and southeast of the Site, obscuring ground level views.

Mitigations & Recommendations

Construction:

6.4.9 Although lighting is not a permanent design element for the construction phase, the best available techniques will be implemented to avoid light glare and minimise other associated impacts, as featured in the CEMP.

Management and Supervision

- **Use of Appropriately Designed Luminaires:** Only luminaires specifically designed for the required task will be used to ensure adequate lighting without excess spill.

- **Minimisation of Light Break-Out Above the Horizontal:** Lighting will be designed to reduce light spill above the horizontal by using 'low cut-off' and 'full cut-off' lighting systems.

- **Louvres and Shields**: Where appropriate, louvres and shields will be employed to prevent undesirable light break-out and minimise light pollution.

- **Visual Screening:** Visual screening measures, such as on-site spoil or hoardings, will be used to shield construction lighting from sensitive visual receptors.

- **Reducing Lighting Levels Outside Working Hours:** Lighting levels will be reduced to suitable levels during non-working hours to maintain safety and security. Lighting will be dimmed when not required for operational purposes. Security lighting will be kept to the minimum necessary for protection.

- **Automated Lighting Controls:** Automated systems will be used to switch lights on and off according to activity and ambient light levels. Where appropriate, infrared floodlighting and CCTV systems may be considered to reduce the need for visible lighting outside working hours.

- **Directional Lighting:** Construction lighting will be directed to ensure that it does not intrude outside the immediate working area. Lighting will be designed and installed to minimize intrusion onto sensitive habitats, such as hedgerows, mature trees, and woodlands.

- **Appropriate Number of Lighting Units:** Sufficient lighting units will be used to avoid the need for large, tall lighting fixtures, which could create wide, unnecessary light spill over large areas.

- A nominated person within each construction organisation to conduct reviews of proposals for construction lighting installations and verify consistency with the CEMP and minimisation of obtrusive light. Inspection of the lighting installation should be undertaken on initiation of new lighting sources and at appropriate intervals thereafter. Appropriate records of temporary scheme approval and inspection should be retained as part of the CEMP.

6.4.10 **Long-Term Installations, Site Compounds, Offices and Welfare Buildings**

- Luminaires on fixed / long term features to use with dark-sky considerate luminaires, avoiding tilt angles that expose the light source or contribute to upward light; visual screening, such as hoardings can be applied to surrounds of compounds to contain light within those locations. Where practical luminaires should be mounted below the upper height of the screening so light sources are not visible from external to the compound.

- Warmer colour temperatures of ≤3000 K to be used wherever practicable.

- Use low light or infrared flood lighting with CCTV where appropriate.

- Security and access lighting will be controlled through photocell and presence detection wherever practical.

- For vehicle circulation areas where pedestrian movement is not present consideration of unlit routes with passive (retroreflective) markers indicating routes, junctions, and crossings.

- Minimise the external application of linear battens or bulkheads with clear, ribbed or opal polycarbonate diffusers. Whilst providing general illumination the wide distribution of these

luminaires emits a significant percentage of their output as upward light, particularly when mounted on vertical surfaces. Use within structures or on underside of canopies/scaffolding may yield source visibility and some upward light but this is greatly reduced compared to their application along the side of paths or hoardings.

6.4.11 **Operation**:

- The scheme should seek to avoid and minimise light pollution at each opportunity.
- External lighting should be 3000 K or less in correlated colour temperature.
- Luminaires should be fully cut-off wherever possible without detriment to the safety of an area. Uplighting of signage, landscape or architectural features should be avoided, or only applied where suitable canopy or obstruction is in place to limit the continuation of light into the sky.
- Feature lighting such as tree uplighting or decorative luminaires with upward light ratios greater than the threshold for the Environmental Lighting Zone shall be avoided.
- The scheme will use mechanical and electrical equipment such as low energy lighting lamps. External light fittings will be operated by a daylight sensor and passive infra–red movement detectors to limit light pollution and minimise energy use.
- Domestic lighting should be 3000 K or less, preferably 2700 K or less. Cool white, 3200 K and greater shall be avoided.
- Pedestrian entrances and exits can be considered as part of the external lighting and circulation and retained at operational levels providing the well-defined and clear points of access.

7 Waste and Materials

7.1.1 A Construction Logistics Plan was prepared by LOR (June 2025) setting out setting out commitments for waste minimisation, actions and arrangements, training, reporting and permitting. A Materials Management Plan was also prepared by LOR (July 2025) that sets out imports, arisings and reuse strategies, storage and management of materials used during construction.

7.1.2 Waste will be generated during the construction phase from disused construction materials and through the operational phase from the substation uses.

7.1.3 The Proposed Development is anticipated to produce significant amounts of waste during construction due to the use of the following materials: scrap metal, concrete and masonry, refractory, insulation and fireproofing, electric components, plumbing and piping, packaging, protective coatings and paints, miscellaneous construction materials. During operation, any waste and recycling will be collected, recycled and disposed of by the local collection services, in accordance with all applicable legislation and procedure.

7.1.4 Overall, the hierarchy of waste management should be adopted, in accordance with national and local policy requirements. The waste management methods in order of preference are as follows:

- **Waste Prevention:** Through good design and procurement mechanisms
- **Preparation for Reuse:** To provide design features to the Proposed Development to use materials in their current state and form, this can occur either on or off site
- **Material Recovery:** By using waste materials found on site and recycling / recovering them into an alternative form that can be used for construction purposes
- **Other Recovery:** Energy recovery from biodegradable or combustible materials
- **Disposal:** The least preferred option where the waste stream would be subject to a final disposal route, such as landfill

Mitigations & Recommendations

Construction Waste

7.1.5 The effects on the environment and surrounding area from the construction phase will be monitored and managed through the CEMP. This will contain measures to mitigate any creation of new contamination through construction activities, such as siting compounds on areas underlain by impermeable strata, the use of bunded fuel storage, and the maintenance and use of spill kits.

7.1.6 The volume/tonnage of waste generated (or sent off site) as well as the percentage or volume/tonnage reused, recycled, or disposed will be recorded throughout the construction phase.

7.1.7 The Site Construction Manager will be nominated as the Site Waste Champion, and the Environmental Manager will be directly responsible for waste licences protocols and recording of all waste. All persons engaged in earthworks and construction will be made aware of the findings of the intrusive ground investigation and the potential for residual contamination to be present. A Site-specific health and safety plan will be produced in accordance with CDM 2015 Regulations.

7.1.8 During the construction phase, mitigation measures to limit the risk to site workers from any potential contaminants in the ground will be implemented. Specification of appropriate

measures will be the responsibility of the Construction and Environmental Managers and should be based on understanding of the site-specific assessments contained in this report and subsequent recommended assessments.

Specific waste minimisation measures

7.1.9 The WMP will record any major decisions taken to minimise waste across design and construction stages and their corresponding impacts, such as:

- Offsite manufacturing:
  - Prioritise factory manufacture to allow more controlled construction environment – minimising on site wastage.
  - Investigate in-situ concrete works to utilise reusable shuttering systems Substructures
  - Modify design of pile mats and temporary works to prevent materials becoming waste
  - Develop excavated materials strategy to reuse materials on site through developing bunds and landscape features.
- Foundations:
  - Amend approach to piling works to use displacement piling techniques that do not allow waste to be generated
  - Review opportunities to stabilise soils rather than excavate and import stone across all temporary and permanent works
  - Source suitable recycled aggregates for use through scheme
- Control of substances hazardous to health (COSHH) waste:
  - Reduce the volume of hazardous waste on site
- Supply chain engagement:
  - Target supply chain reduction opportunities particularly with turn key packages

Waste management and reporting

7.1.10 Waste data will be recorded on LOR's environmental reporting portal on a monthly basis. Waste identification includes enabling works, canteen and office waste, vegetation clearance, main works (groundworks), substructure, and superstructure, and whether corresponding waste can be reused or recycled on and / or off site.

7.1.11 All waste will be segregated and hazardous waste containers located on site colour coordinated.

7.1.12 A Soil Management Plan will be required, which includes methods to protect soil resources.

7.1.13 Further details can be found in the WMP and Materials Management Plan as part of this submission.

8 Transport

8.1 Site & Proposed Development Context

8.1.1 A Transport Assessment was conducted (Stantec, January 2025) and a Construction Logistics Plan (LOR, June 2025) has been prepared to outline the planned logistic strategies and requirements during construction to document how LOR, suppliers, and all interested parties will comply with legislation, discharge duties, and comply with industry standards and best practice in delivery and logistics management.

8.1.2 The Proposed Development is on land between the M4 and the Swansea – London railway line, south of Harbour Way (A4241). The main strategic highway routes are: M4, and A48.

8.1.3 To access the Site from the strategic highway network, the A48 Margam Road – from both directions – and Cefn Gwrgan Road – as primary access – can be used. Traffic travelling via the M4 will use Junction 38 and approach the Site from that junction, rather than exit and approach via Junction 39.

8.1.4 Cefn Gwrgan Road is a well-maintained private road providing access to an industrial unit (Solar Heat Energy Demonstrator), and subject to a 20mph speed limit from A48 Margam Road towards the Steel Works and 30mph from the Steel Works to Margam Road. A pedestrian crossing is located half way down Cefn Gwrgan Road providing a link between Brynhyfryd Road and Abbots Close.

8.1.5 The nearest railway station is Port Talbot Parkway, located 3.5km north and served by Great Western Railway and Transport for Wales with services to Cardiff, Swansea, and London Paddington.

8.1.6 The nearest bus stop is located 1km north on the A48 at Tollgate Park with 5 services operating at the stop.

8.1.7 A footway runs along the southern side of Cefn Gwrgan, leading towards the Site. A shared pedestrian cycleway runs along the south/west side of A48 Margam Road. Given the Site's location to the industrial port and the Tata Steel Facility, there are few opportunities to walk directly to and from the Site from nearby residential areas or from public transport infrastructure. The type and nature of the Proposed Development means that walking and cycling trips are expected to be minimal.

8.1.8 The EV14 cycle route crosses the Margam Interchange at M4 Junction 38 and runs along A48 Margam Road and is a practical cycle route to be used by the workforce to commute to Site.

8.2 Trip Generation

8.2.1 Trip generation for construction and operation phases been determined using a first principles approach, based on information provided by the Principal Contractor (LOR).

Construction Trips

8.2.2 Construction vehicles accessing the Site include Light Goods Vehicles (LGV) and Heavy Goods Vehicles (HGV).

8.2.3 A flat profile across the construction and movement programme is unlikely and there will be peaks in activity associated with overlaps in the construction programme and more transport intensive activities taking place. Throughout a typical day during construction, deliveries will be scheduled, planned, and coordinated to avoid congestion. Where feasible, deliveries will be scheduled outside of peak network hours. Deliveries will be spread throughout the day to further mitigate congestion.

8.2.4 Anticipated hours of construction are, as proposed in the Construction Logistics Plan:

- 07:00 – 19:00 Monday – Friday
- 07:00 – 13:00 Saturday
- No construction working on Sunday

8.2.5 Scheduled working hours for construction results in workers arriving before 7am and missing the AM network peak and departing across the day or towards the end of the PM network peak. Workforce trip generation is expected to have a negligible impact on the surrounding highway network.

8.2.6 During construction, it is anticipated that the likely maximum number of construction vehicle trips on a single day could be approximately 20 trips (40 movements). On average there will be 30 construction workers on Site per day, with a maximum of 60 construction workers at any one time during peak construction. The anticipated percentage increase on the M4 and A48 Margam Road during the peak construction is 0.20% for M4, and 1.91% for A48. Both increases are considered to be imperceptible and are within the bounds of daily variation of the respective roads, therefore, having a negligible impact.

8.2.7 All vehicles accessing the Site will be processed at a vehicle control point/security station proposed on Cefn Gwrgan Rd before proceeding down the single-track lane to the Site. Traffic marshals will control both ends of the lane.

Operational Trips

8.2.8 Once operational, the Proposed Development is anticipated to be unmanned and monitored remotely. No permanent staff are required to be located on-Site, but occasional maintenance activities will be required, carried out by 1-2 staff, typically for equipment maintenance and substation upkeep. These are anticipated to be 1 – 2 visits per month, using a LGV or car.

8.2.9 There will be no intensification to the number of staff working from the amenities building and it will remain as the existing arrangements. This means that it is likely that staff will be present on site on average twice per month while general inspections and maintenance take place. This is normally undertaken by maintenance workers together with additional supervisors depending on the complexity of the tasks.

8.2.10 The operational trip generation is minimal and would not be expected to result in a material impact on the operation of the adjacent or wider highway network.

8.2.11 Minimum operational life for the Proposed Development is approximately 40 years. Equipment can be removed from the Site at the end of the Proposed Development's operational life (c. 2067).

8.2.12 The installation of the equipment will be designed in a way that it could be deconstructed non-intrusively due to the above ground nature of the development. In the case of decommissioning, all above ground structures would be removed.

8.2.13 The number of vehicle movements associated with decommissioning is not anticipated to exceed that set out for construction.

8.2.14 All vehicles accessing the Site will be processed at a vehicle control point/security station proposed on Cefn Gwrgan Rd before proceeding down the single-track lane to the Site. Traffic marshals will control both ends of the lane.

9 Conclusion and Summary

Sustainability Category	Key credentials of the Proposed Scheme
Energy and Carbon Emissions	A Peat Management Plan indicates that 2,010 m3 peat soil will be excavated as a result of infrastructure development, of which 1,956 m3 would be suitable for reburial at identified locations. Any mixed soils and peat arisings will be removed from site for disposal at a suitably licensed facility. An area adjacent to the reburial location has been assigned as a temporary storage zone, with best practices followed. The Construction Environmental Management Plan (CEMP) includes implementation and operation of environmental risk management measures across water, energy sources, transport, materials, waste and air quality and ecology during construction and operation. For example, no unnecessary idling of engines, maintenance of plant equipment for optimal operations and efficient use of materials to reduce waste. Mitigation of GHG emissions can be achieved by reducing fuel and energy consumption and waste generation during construction. Active and passive measures will be included in design of welfare and meeting rooms, lighting decisions, and an energy monitoring system installed to understand consumption. Electric heaters will be used for non-occupied spaces such as the GIS hall and the battery room for frost protection. The ancillary rooms or occupied spaces will be heated or cooled primarily by DX units with external condensers.
Biodiversity and Ecology	Onsite planting strategy and habitat recommendations will include tree species, mosaic of habitats, areas of natural regeneration, new marginal planting, and wildlife tower for species protection. Additional mitigation at an off-site area partially within Margam Moors SSSI will feature dune slacks, open dune habitats, and a gabion basket CO^2 Garden with bee bricks and other shelters for invertebrates. All ecology, green infrastructure and biodiversity measures will be managed and maintained through the LEMP and CEMP. With the proposed mitigation, compensation, and enhancement measures in place and secured by appropriate planning mechanisms (condition and/or section 106), the Margam Substation Extension is considered ecologically acceptable and will support

	biodiversity conservation and ecosystem resilience in Neath Port Talbot.
Water Management	A flood defence wall is proposed to protect the substation, designed to resist extreme flood events. Any rainwater will be directed to cut-off drains and filtered through a filtration bed before entering existing watercourses or further treatment. Systems will be inspected by the construction management team and environmental advisor. Reporting and management of water on site will be covered by site inspections, corrective actions, immediate mitigation, root cause analysis, and long-term preventative measures.
Air Quality	The dust emission magnitude of demolition activities on Site is judged to be 'Medium'. Proposed earthworks activities comprise of more than 10 earthmoving vehicles at any one time. Over 200,000 m2 of material will be generated from the site levelling. The dust emission magnitude of earthworks activities is judged to be 'Large'. Construction activities comprise the construction of an upgraded slag processing facility, chemical/material storage and transfer infrastructure and pipework (above and below ground), buildings, fume and dust treatment plant, water treatment facility and handling systems. Dust emission magnitude of construction activities is judged to be 'Large'. The CEMP sets out mitigations to ensure potential for adverse environmental effects on local receptors is minimised.
Noise	All noise impacts during construction and operation of the Proposed Development are considered Not Significant. Community engagement exercises should be undertaken focusing on the residential and commercial receptors identified, through a variety of measures, prior to any high impact activity at least 2 weeks in advance. Construction noise mitigation measures include controlled construction and transport hours; reflective screening around power units; two-way radios; acoustic enclosures or screens erected if required. Noise sources that will be introduced as part of the extension operations are not considered to be out of character and unlikely to be distinguishable against the existing acoustic environment.

Lighting	Sensitive lighting receptors potentially affected by the Proposed Development are anticipated to be primarily ecological, with limited potential for residential receptors in Margam and Eglwys Nunydd. Fixed lighting is anticipated to be site accommodation and plant areas, with temporary task lighting in working areas. Extent and duration of illumination should be minimised as far as practicable. Consideration of construction lighting have been included as part of the CEMP. Temporary lighting will be provided by LOR at welfare and working location. Operational lit development will be in the form of a new substation with exterior lighting for industrial use, underground cable route, and an amenity building containing ancillary office space with changing and WC facilities.
Waste and Materials	Effects on the environment and surrounding area from the construction phase will be monitored and managed through the CEMP. This will contain measures to mitigate any creation of new contamination through construction activities, such as siting compounds on areas underlain by impermeable strata, the use of bunded fuel storage, and the maintenance and use of spill kits. The volume/tonnage of waste generated (or sent off site) as well as the percentage or volume/tonnage reused, recycled, or disposed will be recorded throughout the construction phase. The Waste Management Plan and the Materials Management Plan will manage all waste and materials relating to offsite manufacturing, foundations, hazardous to health waste, and supply chains.
Transport	There will be peaks in activity associated with overlaps in the construction programme and more transport intensive activities taking place. Throughout a typical day during construction, deliveries will be scheduled, planned, and coordinated to avoid congestion. The anticipated percentage increase on the M4 and A48 Margam Road during the peak construction is 0.20% for M4, and 1.91% for A48. Both increases are considered to be imperceptible and are within the bounds of daily variation of the respective roads, therefore, having a negligible impact. Anticipated hours of construction are, as proposed in the Construction Logistics Plan: ▪ 07:00 – 19:00 Monday – Friday ▪ 07:00 – 13:00 Saturday ▪ No construction working on Sunday Once operational, the Proposed Development is anticipated to be unmanned and monitored remotely. No

	permanent staff are required to be located on-Site, but occasional maintenance activities will be required, carried out by 1-2 staff, typically for equipment maintenance and substation upkeep. These are anticipated to be 1 – 2 visits per month, using a LGV or car. All vehicles accessing the Site will be processed at a vehicle control point/security station proposed on Cefn Gwrgan Rd before proceeding down the single-track lane to the Site. Traffic marshals will control both ends of the lane.