Landscape and Habitat Management Plan

Margam Substation, National Grid Electricity Transmission

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1 Introduction

1.1 Overview

1.1.1 Stantec was commissioned by National Grid Electricity Transmission (NGET) to produce a Landscape and Habitat Management Plan (LHMP) in relation to the Proposed Development known as the Margam Substation Extension, proposed within land owned by NGET at Margam, Port Talbot. The proposed substation extension (hereafter referred to as the 'Proposed Development') is to be subject of a full planning application. The Ecological Impact Assessment submitted with the planning application (Stantec, 2025b) describes the mitigation, compensation and enhancement that will be delivered by the Proposed Development in order to meet legislative and policy requirements. This LHMP details how habitats within the Site will be retained, created, managed and monitored post-construction for the purpose of contributing towards a net benefit for biodiversity, along with proposed habitat creation and enhancement works at an off-site area known as Margam Burrows. The description of the habitat creation, management and monitoring for Margam Burrows is dealt with in the Habitat Management Plan for that off-site area (Stantec, 2025c).

1.2 Site Location and Proposed Development Description

1.2.1 The proposed development site (hereafter referred to as "the Site") comprises the NGET land at approximate central grid reference SS 78581 86365. The Site comprises an existing substation and area of wetland complex to the east of the Tata Steel Works and Network Rail railway line. The Site lies to the south of the Tata Steel Sports and Social Club (golf course), to the west of woodland and to the north of the BOC Ltd works area, and fields owned by BOC Ltd. Beyond the immediate Site surroundings, the M4 corridor lies to the east, Swansea Bay lies to the west, Eglwys Nunydd Reservoir to the south and Margam town to the north. The Site is shown on **Figure 1.**

1.2.2 The Proposed Development is an extension to the existing Margam Substation, with the full description of the Proposed Development as follows:

1.2.3 The planning application, (the 'Proposed Development'), is for "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 and washroom buildings, water storage tank, flood defence wall including flood gates and appropriate landscaping and other associated engineering operations. 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."

1.2.4 The plans provided at **Appendix A** show the built development footprint of the Proposed Development and the footprint of the permanent works associated with the Proposed Development.

1.2.5 Permitted Development Works

1.2.6 In parallel with, and in advance of the Proposed Development, NGET are bringing forward enabling works (cabling) and temporary works in accordance with the Schedule 2, Town and Country Planning (General Permitted Development) Order 1995 (as amended) ("Permitted Development Works"). These Permitted Development Works commenced in spring 2025 and are taking place within the Site as well as areas beyond the Site which are owned by NGET, BOC Ltd and Tata Steel.

1.2.7 To facilitate the Permitted Development works, a water vole licence (reference S095134/1) was granted by Natural Resources Wales which required the delivery of the Water Vole Management Plan (RSK Biocensus, 2025a). Furthermore, a reptile mitigation strategy was also implemented to facilitate the Permitted Development works within the Site (RSK, 2025b).

1.2.8 Enabling works completed under the Permitted Development works involved vegetation clearance and disturbance to soils. Impacts to habitats and protected/ notable species are subject to avoidance and mitigation measures detailed with the relevant CEMP (Laing O' Rourke, 2025), water vole licence method statement and Water Vole Management Plan (RSK Biocensus, 2025a). Areas of habitat and soils temporarily impacted by the Permitted Development works are to be restored to their previous condition following completion of the Permitted Development works.

1.2.9 This LHMP considers the habitat creation /reinstatement and delivery of habitat and species management and monitoring, following completion of all the works (i.e. Permitted Development works and the Proposed Development works). It also considers species-specific mitigation and management commitments associated with the Permitted Development works; specifically, the Water Vole Management Plan (RSK, 2025a) required under a water vole conservation licence (reference S095134/1) secured from Natural Resources Wales (NRW) and the reptile mitigation strategy also implemented as part of the Permitted Development works (RSK, 2025b)

1.2.10 This LHMP does not cover the soil restoration which is to be implemented as part of the Permitted Development works, but assumptions about the approach and delivery of the soil restoration works taking place under Permitted Development are provided, as the successful

delivery of those soil restoration works predicates the success of the measures set out in this LHMP. For that reason, the delivery of the soil restoration works to the required standard and against the assumptions described in this LHMP are assumed to be a Condition of the Proposed Development, prior to implementation of the Site Establishment works described in this LHMP.

1.3 Planning and Ecological History

1.3.1 The Site was subject to a prior planning application for a new separate sub-station extension in 2009. However, this development was not progressed by NGET. The survey and assessment work undertaken for that prior application provides some historical context relevant to the Site which is considered in this LHMP. The majority of the NGET landholding was designated around the same time as the prior planning application as 'J38 Wetland Complex Site of Importance for Nature Conservation' (SINC), originally designated for its complex of wet woodland, reed beds, ditches, and marshy grassland. At the time of designation, some drier areas supported indicators of the neutral grassland NVC type MG5 (see Phase 1 Habitat Survey Plan from 2008 at **Appendix B** and SINC designation provided at **Appendix C**).

1.4 Report Objectives

1.4.1 The Ecological Impact Assessment for the Proposed Development (Stantec, 2025b) describes the requirement, in line with Planning Policy Wales (Edition 12) and the Section 6 duty of the Environment (Wales) Act 2016, for the Proposed Development to deliver a Net Benefit for Biodiversity (NBB). Furthermore, NGET are mindful of their own reporting requirements to Ofgem to deliver Biodiversity Net Gain through development.

1.4.2 This Landscape and Habitat Management Plan describes the proposed landscape and habitat creation/restoration measures as well as the proposed habitat management and monitoring within the Site[1], also being mindful of NGET's ongoing operational requirements. This report sets out the following:

- An overview of the ecological baseline and landscape context of the Site, in addition to other relevant considerations that contribute to ecological condition within the Site.
- The objectives of the LHMP.
- The Site establishment works, in terms of habitat creation or initial habitat management delivery.
- The ongoing management tasks over the management period, taking into account landscape and habitat delivery to enable NBB but also taking account of NGET's Operational Requirements.
- The monitoring requirements to enable measurement of success, or to determine appropriate adaptation approaches to the habitat/features management.

1.4.3 This LHMP should be reviewed and updated, if necessary, every 5 years.

1.4.4 As described in the Ecological Impact Assessment for the Proposed Development (Stantec, 2025b), the measures described in this LHMP contribute to compensating for the permanent loss of part of the J38 Wetland Complex SINC and temporary impacts on habitats within the SINC, and to positive measures for protected and notable species within the Site. This LHMP should also be considered in combination with the off-site proposals for habitat creation and management within Margam Burrows, as described in the Habitat Management Plan for Margam Burrows (Stantec, 2025c). Taken together, this LHMP and the Habitat Management

[1] Note that this LHMP applies to the land owned and managed by National Grid at Margam only (i.e. the Site). The BOC Ltd land is not available to National Grid for ongoing management or enhancement measures, beyond the commitment to restore existing habitats following completion, due to land access agreements.

Plan for Margam Burrows, demonstrate overall achievement of Net Biodiversity Benefit, in accordance with Planning Policy Wales (Edition 12) (PPW) for the Proposed Development (Stantec, 2025b). Implementation of this LHMP and the Habitat Management Plan for Margam Burrows is required to achieve policy compliance relating to Net Biodiversity Benefit and both should therefore be secured by Condition and/or Section 106, or other appropriate planning mechanism.

2 Site Description and Current Site Conditions

2.1 Ecological Features of the Site – Habitats and Underlying Environmental Conditions

2.1.1 A full description of the ecological baseline and survey work undertaken to determine that baseline is described in the Ecological Impact Assessment (Stantec, 2025b) and associated species survey technical reports, submitted with the pre-application consultation for the Proposed Development.

Habitats

2.1.2 The Site within which the substation is proposed comprises a complex of wetland habitats. The habitat survey work completed through the 2024 season (spring, summer and autumn 2024) mapped habitats using both UKHab2 and Phase 1 Habitat Survey classification. The former, with a view to satisfying NGET's own internal policies with regards to delivery of Biodiversity Net Gain, as calculated using the English Statutory Metric. The JNCC Phase 1 Habitat Survey classification was also used to satisfy NPT requirements; this methodology also enables a comparison with the results of habitat survey work previously undertaken for the Site in 2008, for a prior application in 2009. Further detailed botanical survey (National Vegetation Classification -NVC) was undertaken in June 2025 (Stantec, 2025a).

2.1.3 The majority of the Site is overwhelmingly dominated by common reed *Phragmites australis*. Other species that rarely occurred and at very low levels were creeping thistle *Cirsium arvense*, marsh thistle *C. palustre*, meadowsweet *Filipendula ulmaria*, hogweed *Heracleum sphondylium*, nettle *Urtica dioica* and great willowherb *Epilobium hirsutum*. In wetter areas, such as along ditches, yellow flag *Iris pseudocorus*, hemlock water-dropwort *Oenanthe crocata* or reed sweet-grass *Glyceria maxima* are locally abundant. The NVC plant community that best fits this reed-dominated habitat is S4 *Phragmites australis* Swamps and Reed-beds. This community is characterised by an overwhelming dominance of common reed, with no other species attaining more than occasional frequency overall.

2.1.4 In areas that are slightly less wet, the NVC survey found the plant community to be in transition, as reflected by the patchy nature of the vegetation cover, with expanses of dominant greater pond sedge *Carex riparia* giving way to stands of meadowsweet, and mixed patches of bulky herbs such as fleabane *Pulicaria dysenterica*. These areas have characteristics of three different plant communities but lack the constant occurring species that define each of the assemblages. Whilst these habitats cannot be definitively defined according to established plant classification methodologies, they contribute to the habitat assemblage at the Site and together with the more widespread common reed swamp meet the criteria for the Section 7 Priority habitat 'Reedbeds' BRIG (ed. Ant Maddock) 2008) which encompasses associated habitats with which reedbeds form a mosaic, stating that 'They [reedbeds] tend to incorporate areas of open water and ditches, and small areas of wet grassland and carr woodland may be associated with them.' As such, it also adds to the diversity of wetland habitats that comprise the 'Junction 38 Wetland Complex' Site of Importance for Nature Conservation (SINC).

2.1.5 Other habitats within the Site include willow scrub and ditches, or former ditches (now obscured / overgrown by willow scrub).

2.1.6 The majority of the habitats within the Site fall within the locally designated Junction 38 Wetland Complex SINC which is designated for its wetland and woodland habitats and associated species.

2.1.7 The comparison of the habitat extents recorded in 2024-2025 (B.2 in **Appendix B**) with the habitat mapping submitted with the 2009 planning application (B.1 in **Appendix B**) and the designation information for the Junction 38 Wetland Complex SINC (**Appendix C**) shows that habitats have changed through time, with the extent of reedbed (swamp) and willow scrub

increasing since 2008 and the drier semi-natural grassland being replaced by marshy grassland and swamp, with encroaching willow scrub.

2.1.8 It is considered likely that this change in habitats is as a result of the poor-functioning of the ditches in the Site and surface water drainage (or lack thereof), which combined with the understanding of the hydrogeology of the Site (see **Hydrogeology and Hydrology** below) has resulted in retention of surface water within the Site and a concurrent response in the vegetation composition. This is also supported by observations from the NGET team (Laing O Rourke *pers comm.* June 2025) that the ditches through the Site are blocked where they would otherwise drain surface water into the Upper Mother Ditch, which is the main functioning ditch around the perimeter of the Site that takes water draining north and then west towards Tata's land holding and the sea beyond. Furthermore, the lack of active management of habitats within the Site has also allowed the willow scrub to increase its extent and dominance across the Site.

Hydrogeology and Hydrology

2.1.9 The Hydrogeological Impact Assessment (HIA) undertaken of the Proposed Development (Baker Hicks, 2025b) describes how this document has completed a baseline review of the geology, hydrogeology and hydrology of the Site to develop a "Conceptual Site Model" (CSM) which explains the functioning of the groundwater and surface water environs within the Site and is subsequently used to explore the potential hydrogeological impacts of the Proposed Development. The CSM is based on desk study data and Site Investigations (boreholes and groundwater level monitoring), and the consideration of the hydrology of the Site presented in the Flood Consequence Assessment (Baker Hicks, 2025a), as explained in the HIA.

2.1.10 The CSM within the HIA (Baker Hicks, 2025b) confirms the following of relevance to the Ecological Impact Assessment for the Proposed Development, and this LHMP:

- That the soil horizons comprise four layers; from the surface: tidal flat deposits comprising clays overlying peat with underlying glaciofluvial deposits and cohesive clay dominated deposits. The bedrock is dominated by mudstone with subordinate siltstone and occasional coal.

- Groundwater strike data from the Site Investigations indicates that the primary aquifer was encountered within the granular glaciofluvial deposits where groundwater is being confined by the lower permeability overlying peat and clays. Given the artesian nature[2] of the groundwater it is not possible to determine groundwater flow direction, however it is likely to follow the local topography in a broadly westerly or south-westerly direction towards the coast.

- The overlying peat horizon is likely to be saturated due to upwelling of groundwater from the underlying glaciofluvial aquifer, however given the high clay content and potential impacts of compression from the overlying clay deposits at surface, groundwater flow within the peat itself it likely to be limited.

- The presence of clay at surface indicates that the wetland habitats present within the Site are primarily being fed by surface water run-off due to impeded drainage, as opposed to groundwater baseflow, although given the limited thickness of the clay in places some groundwater input cannot be entirely ruled out. However, the Site drainage network is also considered to be primarily within the loam soils and clay superficials and therefore will receive limited groundwater baseflow.

- There is considered to be no hydraulic connection between the superficial and bedrock aquifers due to the low permeability of the upper strata.

[2] *Artesian groundwater refers to water held under pressure within a confined aquifer, where impermeable layers above and below trap the water.*

2.1.11 Given these findings, the primary consideration for the impacts on the habitats within the Site relates to surface-water hydrology.

2.1.12 The Flood Consequence Assessment (FCA) (Baker Hicks, 2025a) confirms in relation to surface-level hydrology and surface water flows that the low-lying land in the vicinity of the proposed substation between the elevated railway line to the west and higher ground to the east is drained by a network of ditches to the central 'Upper Mother Ditch' 80 m to the east of the substation extension. The ditch drains through a culvert beneath the railway line before passing through a large Sluice Structure 320 m to the northwest (NGR: SS 78299 86666). The Structure is comprised of a series of flow controls before leading to a culvert beneath the TATA Steel Facility (the "TATA Upper Mother Outlet"). It is anticipated that the TATA Upper Mother Outlet discharges into Swansea Bay or is routed through a large reservoir on the western side of the facility, which then drains into the bay. The outfall to the sea is protected by a tide flap.

2.1.13 The detailed hydraulic modelling that informed the FCA indicates that the annual probability of the land in the vicinity of the Proposed Development flooding is between 10% (1 in 10) and 3.3% (1 in 30) and therefore the minor impact in terms of flood extents and levels arising from the displacement of floodwaters would manifest itself only very infrequently and for a limited duration. Therefore, the FCA enables confirmation that the Proposed Development will have no significant impact within the retained areas of the SINC by virtue of increased flood extents or levels (Baker Hicks, 2025a). The Proposed Development does however present an opportunity to improve surface water drainage within the Site to restore surface water flows and control mechanisms, with a view to restoration of the habitats for which the SINC was designated.

Peat Deposits

2.1.14 The National Peatland Action Programme is a 5-year plan of peatland restoration in Wales targeting peatland erosions and drainage, peatland management and restoration of peatlands. The restoration programme for Wales was launched in 2020 by the Welsh Government and is being delivered by Natural Resources Wales (NRW). Peat soils are defined (Welsh Government, Mar 2022) as:

- more than 40 cm of organic (O horizon) material within the upper 80cm, excluding fresh litter and living moss; or
- more than 30 cm of organic (O horizon) material resting directly on bedrock or skeletal material.

2.1.15 The Peatlands of Wales Map does not identify any peatlands within the Site. This is consistent with the observations from site-investigations (see summary in the HIA, Baker Hicks, 2025b), which shows peat is only present at depth and also confirms that there is no actively forming peat present at the Site. As such, the peat is compressed between soil horizons and is not acting as an active carbon sink but is a carbon store. This understanding is relevant in terms of management of peat arisings from the excavation works required to implement the Proposed Development, as the drying out of peat would result in the release of stored carbon. The anticipated volumes and treatment of peat arisings is described in detail in the Peat Management Plan (WRC, 2025) and will be therefore taken into account in the soil restoration works for the Site.

2.2 Ecological Features of the Site - Protected or Notable Species

2.2.1 Key protected or otherwise notable species identified from the Site, or the immediate surroundings, include the following:

- Breeding bird assemblage recorded within the Site, including the specially protected Cetti's warbler *Cettia cetti* of Local value.

- Three species of reptile have been recorded from the Site during reptile surveys undertaken in autumn 2024, spring 2025 and during the Permitted Development work with low populations of grass snake *Natrix helvetica,* common lizard *Zootoca vivipara* and slow worm *Anguis fragilis* recorded.

- Water vole *Arvicola amphibius* was thought to be associated with the SINC at the time of its designation. Some potential feeding signs were identified during surveys in 2024 but no animals were found during licensed exclusion works undertaken by RSK on behalf of Laing O Rourke and NGET in spring 2025 as part of the Permitted Development works. Though no water voles were found, this does not preclude that water voles are present in suitable habitat in the area.

- Harvest mouse *Micromys minutus* - harvest mouse nests were identified within the Site by Ecological Clerk of Works during the Permitted Development works. Whilst this species is not specifically protected by legislation, its conservation status is considered "Vulnerable" in Wales (Mammal Society, 2024).

- Whilst no bat roosts have been identified on the Site, the Site has been found to support low numbers of commuting and/or foraging bats, including low numbers of lesser horseshoe bats *Rhinolophus hipposideros*. The closest known significant roosts of lesser horseshoe roosts are approximately 1.2km to the east (Margam Country Park) and 2.5km south (Kenfig Industrial Estate). A further single lesser horseshoe bat, with observations consistent with a night-time feeding perch was recorded in farm buildings 0.75km to the east of the Site.

- Invertebrates – the Site supports a diverse range of invertebrates including species listed as Threatened on the IUCN Red List and those listed as Priority Species or Species of Principal Importance (SPI) for the purpose of maintaining and enhancing biodiversity in Wales.

- Invasive and Non-Native Species (INNS) - whilst no INNS were recorded from within the Site, Himalayan balsam was recorded within the land to the south of the proposed substation in the south-east corner of the Site, north of Heolcae'r Bont and a stand of Japanese knotweed *Fallopia japonica* has been identified along Heolcae'r Bont.

2.3 Landscape Character

2.3.1 The character of the Site itself is largely patchy, open, wetland complex, aside from the existing substation which exerts an industrial influence on the surroundings. Most of the Site is located within the **Local Character Area (LCA) 1: Margam Marsh** (eastern part), with the proposed northern access extending into **LCA 50: Port Talbot Docks and Margam Works**.

2.3.2 The Site broadly corresponds to the descriptors for LCA 1 as "*flat, marshy wetland pasture, veined with drainage ditches and significant wetland vegetation*" and "*significant areas of marsh, eutrophic water and wetland habitats*" with *"strong visual influence of the surrounding heavy industry".* As described in **Section 2.2** above, part of the Site is designated a SINC with a diverse range of wetland habitats though diversity has reduced in recent years due to inundation caused by inoperative ditches.

2.3.3 The landscape character of the immediate area was predominantly defined by industry, with the Tata Steel Plant influencing the area, particularly in views from the east looking towards the Bristol Channel. Other industrial development such as the Margam Green Energy Plant, Western Bio-Energy and BOC hydrogen plant augment this character. Land to the north between the Site and the settlement of Margam presents some open space, although this is largely set aside for recreational sports use.

2.3.4 The wider landscape character is reflective of National Character Area (NCA) 38: Swansea Bay, being part of the narrow coastal plain, a long lowland area between uplands to the

northeast and the sea to the southwest dominated by heavy industry and its role as a major transport corridor.

3 Landscape and Ecology Design: Management Plan Objectives

3.1 Net Biodiversity Benefit Overview

3.1.1 The Ecological Impact Assessment for the Proposed Development (Stantec, 2025b) describes the requirement, in line with Planning Policy Wales (Edition 12) and the Section 6 duty of the Environment (Wales) Act 2016, for the Proposed Development to deliver a Net Benefit for Biodiversity (NBB). Furthermore, NGET are mindful of their own reporting requirements to Ofgem to deliver Biodiversity Net Gain through development.

3.2 Management Plan Objectives

3.2.1 Taking into account the current Site conditions and identified issues in the preceding sections, the key objectives of this LHMP are:

Objective 1: To improve surface water management across the Site through the diversion, restoration and ongoing maintenance of ditches, including the installation of appropriate water control structures (e.g. natural weirs) where necessary. Management of ditches will aim to maintain a hydrological balance that supports the persistence of the wetland habitat complex and water column suitable to support emergent vegetation for water vole, while also enabling the positive management water balance through the rest of the Site with a view to encouraging development of areas of drier, more floristically diverse marshy grassland or other drier grassland communities.

Objective 2: To manage the dynamic balance between reedbed, marshy grassland, and encroaching scrub and young trees, ensuring the maintenance of habitat diversity and preventing the dominance of any one habitat type to the detriment of others.

Objective 3: To maintain and enhance habitat features that support protected and notable species recorded within the Site, or which have the potential to colonise the Site, including but not limited to: water vole, breeding birds, reptiles, bats, and invertebrates, through targeted habitat management and species-specific interventions.

Objective 4: To implement a programme of ecological monitoring to assess the effectiveness of habitat and species measures, and inform ongoing adaptive management decisions. Monitoring results will be used to identify emerging issues, track progress against defined success criteria, and guide responsive interventions where necessary.

3.2.2 These objectives provide the overall guiding principles for the management and monitoring prescriptions described in **Appendix F**. Note these overarching Objectives and the management and monitoring prescriptions are also devised being mindful of NGET's ongoing operational requirements for the Site such as the maintenance of the substation and its connecting infrastructure to enable delivery of electricity across the local network, taking into account safety clearances and distances required for NGET infrastructure.

3.3 Key Landscape and Ecological Deliverables

3.3.1 In the context of the management plan objectives described above, the key landscape and ecological deliverables for this Site are described below. These deliverables are predicated on the restoration of soils following the completion of the Permitted Development works. Further details are provided in **Sections 5** and **6**.

Habitat Measures

Habitat measures will include the following:

- natural regeneration of reedbed and associated habitats within the Permitted Development footprint;

- diversion of ditches within the Site and reconnection to the wider ditch network, in addition to reinstatement and/or enhancement of ditches within the Site to restore ditch profile and function and connection to the Upper Mother Ditch, the detailed design, including flow control measures (e.g. natural weirs) to enable maintenance/management of ditch water levels[3] has been approved through SAB consent (reference S2025/0037) governing surface water including SuDS, Ditch1 and Ditch 5. Drainage design corresponds to OWC consent (reference FD 20250404) governing enhanced and reinstated ditches and is coordinated with the Water Vole Management Plan (RSK Biocensus, 2025a)

- provision of trees and scrub in appropriate locations;

- management and monitoring of reedbed habitat;

- management and monitoring of the extent of willow and other scrub to maintain balance between scrub, wetland habitats and open ditch habitats; and

- monitoring of the extent of marshy grassland/drier grassland in response to ditch reinstatement and diversion. Consideration will be given to the incorporation of specific management and monitoring prescriptions for grassland, if grassland becomes a feature of the Site.

Species Measures

3.3.2 Species measures will include the following:

- provision of reptile hibernacula;

- provision of a “Wildlife Tower” to provide opportunities for roosting bats;

- provision of gabion baskets for invertebrates;

- maintenance of a mosaic of wet scrub, reedbed and ditch habitats to support a diversity of breeding bird, mammal (water vole and others) and invertebrate species;

- inclusion of a lighting design to maintain dark corridors for use by foraging and commuting bats; and

- monitoring and control of invasive non-native species, where required.

[3] Note that the detailed landscape design is subject to review and confirmation. Given the close interaction between the deliverables described in this LHMP, it is anticipated that the final versions of the Landscape Design and this LHMP will be subject to pre-commencement Condition.

4 Biodiversity Management Plan Responsibilities

4.1 Ownership and Management Responsibilities

4.1.1 This LHMP relates to the Site at Margam which is wholly owned by NGET, as shown in **Figure 1**.

4.1.2 The responsibility for the funding and delivery of this LHMP lies with NGET. It is anticipated the LHMP will be secured by Planning Condition relating to the Proposed Development of the sub-station extension at Margam.

4.1.3 Whilst NGET will be responsible for delivery of the management, Contractors may be appointed by NGET to deliver some, or all of, the elements described in this LHMP. All ecological monitoring for habitats and species will be carried out by suitably qualified ecologists.

4.2 Landscape and Habitat Management Plan Period and Review Schedule

4.2.1 This LHMP refers to post-construction management of the Site over a 30 year period. Periodic reviews, enabling an adaptive response to monitoring outcomes, will be undertaken. Such reviews will take place, as a minimum, every 5 years, with monitoring outcomes and any resultant proposed changes to management and monitoring prescriptions described in this Management Plan, to be agreed with Neath Port Talbot Council.

4.2.2 Monitoring aspects relating to measures for the benefit of water voles will be reported to Natural Resources Wales (NRW), in accordance with the water vole licence conditions (RSK Biocensus, 2025a). Management and monitoring frequencies within this LHMP align with those agreed with NRW by RSK Biocensus and as described in the Water Vole Management Plan written to discharge conditions relating to the water vole licence for the Early Works undertaken within the Site under Permitted Development (see also Ecological Impact Assessment for description of the relationship between the Permitted Development works and those for which planning permission is sought (Stantec, 2025b).

4.3 Operational Requirements

4.3.1 It is acknowledged that the Site is under the control of NGET primarily to fulfil their function as an owner and operator of the high-voltage electricity transmission network. This means that NGET's primary operational requirements for the Site will relate to the maintenance of the substation and the connecting infrastructure. The proposed habitats and management of the same within this LHMP will not conflict with the requirement for NGET to maintain the sub-station and associated infrastructure (for example, woodland planting, in addition to not being ecologically appropriate for the Site would also have the potential to interact with overhead lines as it grew to maturity). NGET will take account of the species considerations identified through the assessment work for the Proposed Development in their future operational management of the NGET assets.

5 Establishment Works

5.1 Landscape and Habitat Creation Measures

5.1.1 The landscape and habitat creation measures proposed for the scheme as described below are shown in the Landscape and Habitat Strategy Plan and the Landscape Designs provided at **Appendix D**.

5.1.2 The delivery of the Landscape and Habitat Strategy Plan and Landscape Designs is dependent on the restoration of soils. The restoration of the soils will be undertaken by the Contractor as part of the Permitted Development Works. It is assumed that the Contractor will adhere to the following standards and good practice methods, such that this provides appropriate soil surface conditions for the delivery of the landscape and habitat creation works described in this LHMP. For this reason, it is assumed that the delivery of the soil restoration works to the required standard and against the assumptions described in this LHMP are assumed to be a Condition of the Proposed Development, prior to implementation of the Site Establishment works described in this LHMP.

5.1.3 Following the completion of temporary enabling and construction works within the Margam Site, areas previously supporting reedbed habitat will be restored. Temporary compounds and haul roads used during construction will be prepared firstly through the removal and suitable storage of topsoil, followed by use of a separation layer (e.g. geotextile membrane) prior to preparation of these temporary working areas using lightweight aggregates and/or trackway. Following completion of works, the temporary works areas will be removed, with the separation layer aiding clean removal. Prior to replacement of topsoil, an assessment of ground compaction will be undertaken by the contractor and any over-compacted soil will be remediated. Smaller areas may be restored through the use of a VOGT geoinjector or air spade (as appropriate to the conditions), or a low disturbance sub-soiler may be used for larger areas; the precise methodology is to be determined by the contractor and their suitably qualified specialists, and secured by Condition as part of the delivery of the soil restoration works.

5.1.4 Please refer to Chapter 4 of the Peat Management Plan for Margam Extension, prepared by WRC Stirling (WRC, 2025). Peat arisings from the Proposed Development should, where possible, be stored as close to the point of excavation as possible and then re-buried as soon as possible, following the provisions in the Peat Management Plan.

5.1.5 Other than the provisions of the Peat Management Plan (WRC, 2025), stripping storage and reuse of topsoil should adhere to the guidelines set out with the *Construction Code of Practice for the Sustainable Use of Soils on Construction Sites* (Defra, 2009), as described in the Construction Environmental Management Plan (Laing O Rourke, 2025).

5.1.6 Once subsoil has been decompacted and suitably prepared, reused topsoil should be spread across the site and graded into smooth contours that are married into existing levels at the edges, refer to drawing MAREXT-STN-XX-XXX-LA-003 for outline specification (see **Appendix D**); the confirmed landscape design is anticipated to be subject to Condition, in parallel with the soil restoration proposals and drainage design. This Landscape and Habitat Management Plan should also be reviewed in line with these designs, accordingly.

Natural Regeneration of Reedbed and Associated Habitats.

5.1.7 It is proposed that re-vegetation of the Site following restoration of the soils in the temporary working areas will take place through a process of natural regeneration. This approach will be underpinned by the re-use of site-won topsoil and the retention of the existing seedbank, which is expected to facilitate the re-establishment of native reedbed vegetation and associated habitats, as described by Maddock (2011). The restoration strategy avoids intensive planting and instead relies on the inherent regenerative capacity of the Site's soils

and hydrology. This is consistent with best practice for wetland restoration in Wales, where passive recovery is often favoured in areas with intact hydrological function and viable seed sources (Welsh Government, 2020). However, given the proximity of the area to the ditch system and to help stabilise soils quickly, an annual nurse grass species is recommended which should help to secure soils and minimise sediment run-off. The nurse grass species proposed to be used is non-persistent and a poor competitor, allowing the natural seedbank to self-generate. It is proposed to use the annual grass variety of *Lolium multiflorum,* Westerwolds Ryegrass as the nurse grass species, subject to agreement with Neath Port Talbot Council.

Ditch Diversion, Reinstatement or Enhancement.

5.1.8 As described in **Section 2.1** the existing ditches within the Site have, for the most part ceased to function as surface water drainage features and, with the exception of the Upper Mother Ditch, have silted up so that standing water within the ditches is shallow (10-20cm) and in pools along the ditch. The ditches are also heavily shaded and overgrown with scrub and young trees and/or dominated by common reed. Ditches lost to the footprint of the permanent development (D6 and part of D4 and D5) are being diverted and reconnected to the retained ditch sections. The diverted ditch will be planted with species appropriate to the location, given this will be a newly-created ditch profile (see **Appendix D** for the Landscape and Habitat Strategy Plan and the Landscape Designs, which are anticipated to be subject to Condition).

5.1.9 Other ditches, including the Upper Mother Ditch and the other retained ditches within the Site are proposed for habitat enhancement or reinstatement (see **Appendix D**) dependent on their current condition. This includes the reinstatement of the connection of the ditches which should enable discharge of the ditches to the Upper Mother Ditch which have previously become blocked. One of the drivers for the proposed ditch works is to accord with the commitments within the Water Vole Management Plan (RSK, 2025a), required under the water vole conservation licence (reference S095134/1), which was secured in order to enable the Permitted Development works to commence.

5.1.10 The Water Vole Management Plan (RSK Biocensus, 2025a) frames the proposed ditch enhancement and reinstatement described in that document as habitat creation and management for the benefit of water voles, with the aim that these ditches will provide, following reinstatement or enhancement, a permanent watercourse with herbaceous vegetation on banksides and marginal shelves, along with an overall ditch profile with suitable banks for water vole burrowing. However, it is also anticipated that the proposed ditch diversion, enhancement and reinstatement will also benefit the habitat diversity within the Site; it is anticipated that these measures will promote better surface water drainage within the Site, supporting a reduction in the dominance of the reedbed monoculture and a move towards the re-establishment of a mosaic of native reedbed vegetation and associated habitats, as described by Maddock (2011) for the Priority Reedbed habitat type, and as described in the J38 Wetland Complex SINC habitat description.

5.1.11 A drainage design has been produced by NGET's contractor (Laing O Rourke) for the project, to determine an appropriate profile and fall for the realigned and reinstated ditches, such that they will function as drainage ditches, allowing discharge into the Mother Ditch and onward to the sea. A preliminary drainage layout was provided in the Margam Drainage Report (Baker Hicks, 2025c). The final detailed drainage ditch design incorporates water control measures where they meet the Mother Ditch (natural weirs). A careful balance of water levels is required, to support the wetland complex within the Site for which the SINC is designated. The lack of functioning ditches has led to the Site becoming too wet in recent years and contributed to the current dominance of monoculture reedbed habitat. However, allowing the drainage to become too efficient and causing the Site to become too dry would be equally detrimental to the habitats within the Site for which the SINC was designated (wetland complex). The detailed drainage design will enable retention of sufficient water within the Site to support wetland habitats, while allowing for controlled drainage to prevent excessive waterlogging and reduce the dominance of reedbed. The implementation of the drainage design, to enable the support of the wetland complex within the Site, will be secured by

Condition. The Landscape Design is also anticipated to be secured by Condition, along with a review and update (where necessary) of this LHMP.

Scrub and Young Trees

5.1.12 The Proposed Development will result in the removal or coppicing of scrub and young trees within the works footprint. Furthermore, the proposed ditch diversion, reinstatement or enhancement described above will result in the removal or coppicing of the scrub and trees that have grown up along the ditch network as a result of lack of management of these features.

5.1.13 Apart from scrub and young trees along ditches, outgrown hedgerows, recorded as scrub in the Phase 1 Habitat Survey baseline 2024-2025 (**Appendix B),** are also present along the Site boundaries and provide linkages across the Site between sections of ditch, which will be retained as the scrub does contribute to the habitat diversity within the Site and the scrubby vegetation in association with the reedbed habitats provides for species such as Cetti's Warber, as well as providing sheltered features for use by foraging bats.

5.1.14 Planning Policy Wales (Edition 12) requires replacement of trees 3:1 compared to those lost to Proposed Development. For this Site, whilst the Arboricultural Impact Assessment (AIA) (Treework Environmental Practice, 2025) has recorded groups of trees within the footprint of the Proposed Development, ecologically these are recorded as scrub as the "trees" recorded in the AIA are dominated by willow scrub. The habitats within the Site are considered to be dominated by the Section 7 Priority Habitat Reedbed; such habitats are identified as being unsuitable for tree planting by Natural Resources Wales guidance for new planting schemes (NRW, 2016). Trees, once established in wetland habitats can result in the drying out of wetland through increased transpiration (the natural process is termed hydroseral succession). Whilst scrub and willow carr is a natural and valuable component of wetland habitats and is the tertiary habitat type if natural succession processes are left unchecked, this would also result ultimately in the drying and shading-out of the Reedbed and associated habitats. It is necessary therefore to consider long-term rotational management to avoid the loss of the Reedbed and associated habitats to willow scrub. Long-term rotational management of willow scrub and young trees is a common management technique used in important wetland habitats (Ausden, 2007). For these reasons, it is considered therefore that planting of trees within the majority of the Site, i.e. within Reedbed Priority Habitat would conflict with the requirement for the development to achieve Net Biodiversity Benefit.

5.1.15 Areas of the Site outside of the Priority Habitat areas provide some opportunity for limited tree and scrub species planting. These include around the proposed SUDS basin (outside of the management strip required for such features) and along the access road to the north, within verges owned/managed by NGET. Please refer to drawing MAREXT-STN-XX-XXX-LA-002 (**Appendix D**).

5.2 Species Measures

5.2.1 The habitat measures described above in **Section 5.1** will support enhancement and diversification of habitats within the retained area of the Site. In turn, this will also provide enhanced diversity and quality of habitats suitable to support:

- Water vole – as aligned with the targets described in the Water Vole Management Plan (RSK Biocensus, 2025a) written to discharge the Condition associated with the Water Vole licence for the Permitted Development works.
- A range of breeding birds including Cetti's warbler, reed bunting *Emberiza schoeniclus*, and sedge warbler *Acrocephalus schoenobaenus*, known to be associated with the Site.
- Diversity of invertebrates, potentially also providing a supporting role to the important invertebrate assemblage associated with Margam Moors SSSI c.0.75km to the south-west of the NGET land, and Kenfig SSSI beyond.

5.2.2 Further specific measures to be created within the Site to provide enhancements for protected or otherwise notable species include the following:

- Provision of reptile hibernacula – 2 no. reptile hibernacula were provided within the Site prior to a reptile translocation and capture exercise undertaken as part of the Permitted Development works mitigation (RSK, 2025b). The location of the provided reptile hibernacula is shown on the Landscape and Habitat Strategy Plan provided at **Appendix D**.

- Provision of a "Wildlife Tower" – as described in **Section 2.2** no bat roosts have been recorded within the Site and the Site lacks any real opportunities for roosting bats. As such, a clear opportunity for biodiversity benefit delivery is the provision of a Wildlife Tower suitable for use by bats. An illustrative example of a proven design for such a Wildlife Tower is shown at **Appendix E**.

- Provision of gabion baskets, 1m^3 gabion baskets filled will clean slag provided by Tata Steel to NGET, topped with site-won topsoil or subsoil and seeded with a floristic species seed mix (e.g. Emorsgate EM6) will provide habitat for invertebrates. An illustrative example of a design for such a feature is also provided at **Appendix E** and in the Landscape and Habitat Strategy Plan at **Appendix D**.

5.2.3 Furthermore, protected and notable species are also being considered in the scheme design. For example, the lighting design has been developed to minimise light-spill into the retained area of the SINC, enabling maintenance of dark corridors along hedgerows and treelines used by foraging and commuting bats, including lesser horseshoe bat.

5.2.4 With respect to breeding birds, vegetation management (e.g. cutting back of scrub and reedbed) will be timed to avoid the nesting season (further information provided on timing for ongoing management and monitoring in **Section 6** and **Appendix F**). Providing a mosaic of reedbed and associated habitats including scrub will provide long-term nesting and foraging habitat for the breeding bird population, in addition to supporting a diverse invertebrate assemblage and providing edge habitat suitable for use by species such as harvest mouse and foraging or commuting bats.

5.2.5 With respect to invasive and non-native species, whilst Japanese knotweed and Himalayan balsam are absent from the Site, the continued absence of these species and any other invasive non-native plant species will be a positive indicator sought during monitoring, with appropriate management put in place should they be identified. The Water Vole Management Plan (RSK Biocensus, 2025a) also requires monitoring for the invasive animal species, the American mink *Neovison vison,* on an annual basis. The Water Vole Management Plan furthermore requires trapping of mink to be undertaken, as also described in this LHMP to match the requirements of the Water Vole Management Plan (RSK Biocensus, 2025a), as approved by NRW.

6 Management and Monitoring

6.1.1 Management and Monitoring Prescriptions by habitat type and by species are provided at **Appendix F**. An annualised calendar of management activities and schedule of activities by management year is provided at **Appendix G**. Note that all management activity frequencies, extents and approached are subject to adjustment, depending on the outcomes of monitoring.

6.2 Assessment Methodology for LHMP Success Criteria

6.2.1 Key attributes for which the success of the LHMP is to be measured against have been established for key ecological features within the Site as summarised below.

6.2.2 The attributes that have been identified will be used to measure the effectiveness of the management prescriptions for habitats and populations of water voles, reptiles, bats and breeding birds over the duration of the LHMP.

Table 6.1. Assessment Attributes

Ecological Feature	Attributes
J38 Wetland Complex SINC	Site continues to meet criteria for designation as a SINC
Reedbed complex	Site supports a maximum of 50% reedbed, with the remaining 50% formed of a complex of open water, scrub and grassland.
	Less than 1 % of the vegetation cover is made up of non-native species
Ditches	Ditches support a diversity of vegetation
	Less than 1 % of the vegetation cover is made up of non-native species
	At least 50% open water is present in the growing season (e.g. March to September) in ditches not specifically managed for water vole benefit (see below)
	Water Vole Management Plan (RSK Biocensus, 2025a) seeks to provide a mean depth of 1.2 m of water depth (or more), remaining above 0.5 m in summer (subject to site topography and hydrology).
	Ditches enhanced or reinstated in accordance with the requirements of the Water Vole Management Plan (RSK, 2025a) (Upper Mother Ditch, D2, D3, retained section of D4, D7, D8 and D9) to have open water along 80% of ditch channel, 90% to be unshaded from trees/scrub[4] and 60-100% of ditch bankside vegetation to comprise emergent/bankside herbaceous vegetation.
Scrub and trees	Trees planted around SUDS basin and along access road have established, with no dead or diseased trees present
	Less than 20% of the vegetation cover across the Site is made up of scrub and scattered trees
Water vole	Ditch supports at least 50% open water with banks supporting a minimum of 50% grassland and reedbed vegetation.
	Less than 20% of the vegetation cover along the banks is made up of scrub and scattered trees
	No mink recorded within the Site Undertaking of water vole surveys in line with monitoring period defined by Water Vole Management Plan (and Section 6.4 below)
Bats	Bat tower supports at least one species of bat

[4] Scrub within 5 m to these ditches will be routinely managed and removed to ensure ditches remain in good condition. However, other scrub e.g. located between ditches D2 and D3, and adjacent to D8 and elsewhere within the Site will be managed in accordance to the management requirements for scrub and trees, due to the additional ecological benefits these habitats provide to the Site's wider biodiversity (i.e.foraging/commuting bats, birds and invertebrates).

Ecological Feature	Attributes
	Site provides a complex of habitats suitable for foraging bats
Reptiles	Presence of suitable open patches and variation in vegetation structures and topography close to ground levels (qualitative assessment based on professional judgement and in agreement with NPTC).
	Hibernacula features remain intact and suitable for use by reptiles
Breeding birds	Bird species composition and number of nesting pairs remains as per the baseline recorded prior to works commencing and/ or there is an increase in diversity
	Site provides a complex of habitat for foraging and nesting birds
Invertebrates	Invertebrate species assemblage remains as per the baseline recorded prior to works commencing and/ or there is an increase in diversity

6.3 Vegetation Management and Monitoring

Reedbed Complex

6.3.1 Monitoring of regenerating areas of Reedbed will be undertaken during the growing season in years 1, 2, and 4 of this LHMP. Should monitoring indicate poor re-establishment of the reedbed complex through the proposed natural regeneration (e.g. <50% reedbed, or associated habitats, or dominance by undesirable species), adaptive measures such as selective planting, seeding or hydrological adjustment may be required.

6.3.2 Following establishment of the reedbed habitat, and for areas of retained reedbed within the Site, there will be a need to manage the reedbed habitats to support diversity, rather than monoculture. The management will be through the implementation of rotational cutting or mowing of the reedbed in strips or blocks, with the cuttings removed and either piled in agreed position within the Site (agreed with ecologist) or removed from the Site. It is proposed that the cutting should take place every 3-5 years from year 5 post-restoration, with a maximum of one third of the reedbed area cut in any one management event. Any management work would need to take place between September and February inclusive (as a guide) to avoid any disturbance to breeding birds and to avoid the water vole breeding season, as well as the breeding season for other species associated with this habitat type (e.g. reptiles and harvest mouse). The management should be undertaken so as to minimise further soil disturbance or compaction. Where machinery is used for reed cutting, a low-pressure machine such as Loglogic's Softrak 120 cut-and-collect system will be used.

6.3.3 Monitoring of the established/ retained reedbed habitat will be undertaken from year 5 and every 5 years thereafter during which the structure and extent of reedbed will be reviewed. Monitoring of reedbed vegetation should pay particular attention to reed density, species composition, and the presence of transitional or mosaic habitats. Monitoring will comprise a botanical survey undertaken in June of each monitoring year following Phase 1 Habitat Survey methodology to map broad habitat types and extents. NVC survey methodology will be used for the parcels of habitats which were the focus of the NVC surveys prior to the Proposed Development (Stantec, 2025a). Photographic fixed-point photography will also be used. Combined, these survey approaches will provide an assessment of overall habitat extents and diversity, compared to the baseline surveys undertaken in 2024-2025. Key targets sought in these surveys will include identification of increased diversity within the Reedbed habitats, absence of undesirable or invasive species, reduction in areas of reedbed monoculture in favour of the more diverse marshy grassland or drier grassland areas and confirmation that scrub cover does not exceed 20% of the Site area.

6.3.4 With the proposed reinstatement and enhancement of the ditches proposed for the Site (see **Section 5.1** above), it is anticipated that the better functioning drainage features will result in a reduction in dominance of the reed monoculture within the Site and promotion / restoration of

purple moor grass/rush pasture and/or other more floristic drier grasslands which were present at the time of the designation of the SINC.

6.3.5 Note that the extent of marshy grassland/drier grassland will be monitored in response to ditch reinstatement and diversion. This LHMP will be updated to incorporate specific management and monitoring prescriptions for grassland, as/when such habitats become a significant feature of the Site. An appropriate timeframe for review in this regard is considered to be at Year 5 of the LHMP period, following the first formal botanical monitoring survey of the Site.

Ditches

6.3.6 The management and monitoring of ditches within the Site are critical to maintaining suitable habitat for water vole (required under the Condition associated with the Water Vole licence for the Permitted Development works (RSK Biocensus, 2025a)) but will also support the broader ecological function of the wetland complex associated with the SINC. This section focuses on habitat-based management, while species-specific monitoring (including for water vole and other species) is addressed in **Section 6.4**.

6.3.7 All ditch management and monitoring activities align with the NRW-approved requirements of the Water Vole Management Plan (RSK Biocensus, 2025a), which is a condition of the water vole licence issued for the Permitted Development works. However, the management approaches proposed are also expected to benefit a wider range of species and contribute to the overall habitat diversity and hydrological resilience of the Site.

6.3.8 Following the reinstatement or enhancement of retained ditches (as described in **Section 5.1**), ongoing management will aim to maintain ditches in good ecological condition. This includes:

- Rotational management of bankside vegetation (trees and scrub) within 5 m of the ditch edge. No more than one-third of the total ditch length will be managed in any one year.
- Rotational cutting of reed and marginal vegetation within the ditch channel to a height of 100–150 mm. Only one bank per ditch will be managed during each management event to retain habitat continuity. Cut material is to be piled on the banks up to a height of 1 m to provide habitat for reptiles and invertebrates.
- De-silting and rhizome removal on rotation, with no more than one-third of the ditch network treated in any one year. The target summer water depth is 0.5–1.2 m.

6.3.9 All vegetation and silt management will be undertaken between September and February, to avoid disturbance to breeding birds, water voles, reptiles, and harvest mice. The frequency of the management activities for the ditches over the 30 year period is described and shown in **Appendix F and G**.

6.3.10 Water level monitoring within the ditches is a key requirement of the Water Vole Management Plan (RSK Biocensus, 2025) and will be used to inform adaptive management of the ditch network. Monitoring will be conducted at least once per season in each monitoring year, with a target minimum summer water depth of 0.5 m. Note that anticipated water depths are subject to confirmation, taking into account Site topography, but will ideally to be in the range 0.5m-1.2m depth.

6.3.11 Monitoring of the water levels in the ditches will be undertaken and, where necessary, de-silting of ditches will occur once every 5 years. Up to 1/3 of all ditches to be de-silted in any one year. De-siting to avoid impacts to banks (to avoid impacts to any water vole burrows present) and marginal vegetation and will occur between September to March.

6.3.12 If water levels are sustained >20 cm above or below the target range, a review of water control structures will be triggered. In addition to water depth, visual indicators of ditch health will be recorded, including:

- Flow conditions

- Presence of algal blooms
- Vegetation dieback or excessive growth
- Invasive or non-native species

6.3.13 Any adverse findings will prompt a review of management practices and remedial action requirements.

Scrub and Trees

6.3.14 The management and monitoring for scrub and trees will consider measures required to enable the successful establishment of the trees and scrub planted around the SUDS basin and along the access road to the north and to implement replacement planting and/or consider adaptive responses to habitat creation and management, should the initial planting in these locations fails.

6.3.15 The preceding section relating to ditch management describes management and monitoring approaches for scrub and trees associated with the ditches. There is also a need to consider the management and monitoring of scrub and trees across the rest of the Site, such that a balance is maintained between the extent of scrub and trees, as part of the mosaic of habitats associated with the J38 Wetland Complex SINC, and the reedbed and marshy grassland habitats. The monitoring will include monitoring of extent of scrub/young tree encroachment through fixed-point photography and/or GPS in the summer every 3 years. This would determine whether the scrub and young tree extent had increased such that above-ground removal (and stump treatment if required) should be undertaken in the following September-February inclusive (avoiding breeding bird season etc).

6.3.16 It is important to note that the retention of some scrub and trees is required to provide sheltered habitat linkages across the Site and to contribute to the overall diversity of habitats within the Site. For example, the maintenance of a mosaic of reedbed, scattered scrub and marshy grassland is ideal to support notable species known to be associated with the Site such as Cetti's warbler and harvest mouse and a diversity of invertebrate species. The decision regarding scrub clearance should therefore consider the extent of scrub and the results of species monitoring together (see **Section 6.4** below).

6.3.17 In addition to the clearance of young encroaching scrub and trees, where required, the management (e.g. through pollarding) of retained scrub/trees that are retained within the Site, where these are considered to be over-shading areas of interest, or where required for NGET operational reasons, will take place also September-February inclusive. These will be monitored and managed on the same schedule as the scrub encroachment extent monitoring described above (i.e. every 3 years).

6.4 Species Management and Monitoring

6.4.1 The habitat management measures described above are primarily intended to benefit water vole populations, in accordance with the Water Vole Management Plan (RSK Biocensus, 2025a). However, it is anticipated that the proposed habitat creation and management will also provide benefits for a wider range of species. The monitoring outlined in this section therefore fulfils the requirements of the Water Vole Management Plan, while also incorporating additional monitoring for other species or species groups. This broader approach will help assess the success of the mitigation, compensation and enhancement measures provided for species within the Site and identify any need for adaptive management to support these other species, as well as water vole.

Water vole

6.4.2 The monitoring described for water vole aligns with the Water Vole Management Plan (RSK Biocensus, 2025a). Monitoring for water vole will occur across all ditches on the Site to determine presence or likely absence of the species. Monitoring will occur between April and September (inclusive) during the water vole breeding period when field evidence is most abundant. During each year of monitoring, surveys will comprise of two survey visits: one survey occurring between 15 April and 30 June, and a second survey visit between 01 July and 31 September (at least 8 weeks apart) in line with current survey protocols (Dean *et al* 2016).

6.4.3 Where evidence of water vole is found, an indication of relative population density will be estimated based on the recorded evidence of number of latrines per 100m of bank-side habitat, as described in Dean *et al.* 2016. The monitoring will take place in years 1-3, 5, 7, 10 and then every 5 years thereafter for the 30 year Management Plan period. A mink control and trap program is also required by NRW and will be implemented following the requirements of the Water Vole Management Plan (RSK Biocensus, 2025a). See the Invasive Species section below.

Bats

6.4.4 Bat monitoring should include monitoring of the Wildlife Tower provided for the scheme to confirm presence/absence of bats. This will take place in June of each monitoring year, with the species of any bats present, and their number, recorded. Any bat droppings present will be collected and sent for DNA analysis. Furthermore, activity monitoring for bats will take place through use of static detectors three times through the season in each monitoring year (covering the spring, summer and autumn periods). The static detectors will be deployed in locations to match, as far as possible, the pre-construction baseline surveys to enable a review of any changes in bat activity as a result of the Proposed Development and the management described in this Management Plan.

6.4.5 The bat monitoring will be conducted in year 3 and every 5 years subsequent for the during of the management plan period.

Reptiles

6.4.6 A low population of reptiles was recorded during baseline survey work. The monitoring proposed is a simple check of the reptile hibernacula (x2) constructed for reptiles to make sure that these features remain suitable for use by reptiles during the Management Plan period. This is considered a proportionate approach given the numbers of reptiles recorded during the 2025 survey and captured during the Early Works undertaken under NGET's Permitted Development rights (Stantec, 2025d).

Breeding birds

6.4.7 A breeding bird survey, undertaken in March-June in each monitoring year, with 6 survey visits spread across the survey period. During each survey visit breeding bird calls and activity will be noted with a view to establishing the breeding bird assemblage present and to give an indication of breeding pairs for each species. The monitoring will enable the determination of any changes in the breeding bird assemblage as a result of the management described in this Management Plan.

6.4.8 The breeding bird surveys will be conducted in years 5 and 10 of the Management Plan period.

Invertebrates

6.4.9 An invertebrate survey will be conducted with, in each monitoring year, invertebrate survey visits including the spring, summer and autumn periods. The survey protocol will follow that

undertaken for the baseline survey work undertaken prior to commencement of the Proposed Development and will seek to determine the species present and their conservation value.

6.4.10 Invertebrate surveys will be conducted every 5 years through the Management Plan period.

Invasive species monitoring

6.4.11 Invasive species monitoring includes monitoring for invasive animal and plant species.

6.4.12 The Water Vole Management Plan (RSK Biocensus, 2025a) sets out the requirement for an American mink control and trap programme for the Site as follows.

6.4.13 “The monitoring of the site to confirm the presence or absence of American mink (Neovison vison) will occur following the enabling work phase and over a 30 year period post-development. Up to five mink rafts (in line with designs provided by GWCT (2015)) will be installed at various locations across the site.

6.4.14 These rafts will be monitored on a monthly basis each year for field signs of American mink. Due to the identification of American mink scat recorded on the site during works in spring 2025, these rafts will be converted into traps to allow the trapping of mink between January 2026 to 15 April 2026.

6.4.15 Following the completion of this trapping window, rafts will be converted back to monitoring mode (i.e. traps removed and replaced with clay to capture footprints) and monitored on a monthly basis for evidence of mink. Rafts would be converted back into traps if/when evidence of mink is recorded on the site. Upon recording evidence of mink activity (and depending on timings) mink trapping would recommence for the duration of the current or next trapping window (whichever occurs sooner). Trapping would continue for the duration of the respective trapping window and until no new evidence of mink is recorded. Should mink activity still be recorded at the end of the respective trapping window, then trapping would continue into the next trapping window.

6.4.16 Trapping windows for controlling American mink are as follows:

- January to mid-April (inclusive): to minimise the potential breeding population (BASC 2025).
- August to December (inclusive): to catch dispersing and wintering animals (BASC 2025)

6.4.17 The mink monitoring and control program will be reviewed after 5 years to assess the need for any changes to the trapping and/or monitoring. Review to occur during the first quarter of 2031 between National Grid and Natural Resources Wales.

6.4.18 No non-native invasive species of plants (as listed under Schedule 9 of the Wildlife and Countryside Act 1981, as amended) have been recorded within the Site. However, Japanese knotweed and Himalayan balsam are known to be present in the local area (within 1 km of the Site). Given the presence of these invasive species in the local area, and the network of watercourses containing flowing water to and from the Site, there is the potential for these species to appear in the future.

6.4.19 Monitoring for Japanese knotweed and Himalayan balsam (and any other non-native species) will occur alongside surveys during the habitat assessment. These surveys will principally concentrate on the ditches but will cover all other areas across the Site as well. If these species are recorded during the monitoring sessions, then appropriate control measures will be implemented to control and prevent further spread of these species. This monitoring will take place concurrently with the water-level monitoring (years 1-3, 5, 7, 10 and then every 5 years after that through the duration of the Management Plan period).

6.5 Remedial Measures

Remedial measures will be necessary where monitoring identifies that the objectives of the LHMP are not being achieved. Changes to management or other measures will be initially identified by NGET and their appointed ecologist and the LHMP will be amended and submitted to NPTC for approval prior to the implementation of any revised management prescriptions.

6.5.1 Any loss, damage, vandalism or other deleterious impact to habitats will require immediate intervention. Any appropriate measures shall be implemented within the appropriate timeframe and as advised by the NGET appointed Ecologist, Arboriculturist or other relevant professional carrying out the monitoring.

6.5.2 After the Initial 5-year period (years 1- 5 of this LHMP) the success of the management prescriptions will be reviewed. Any changes or additions to the approach to management or monitoring will need to be agreed by NPTC through an update to the LHMP. Where monitoring is suggesting that the attributes set out in **Table 6.1** of the LHMP are not being met, suggestions for remedial measures are to be submitted to NPTC for approval.

7 Conclusion

7.1.1 This LHMP sets out a comprehensive framework for the restoration, enhancement, and long-term management of the wetland complex and associated habitats within the Margam Substation Site. Developed in alignment with Planning Policy Wales and the Environment (Wales) Act 2016, the plan supports NGET's commitment to delivering a measurable Net Benefit for Biodiversity (NBB) through the described Site interventions.

7.1.2 The objectives outlined in this plan address the core ecological challenges identified through baseline surveys, including the need for improved water level management, control of scrub encroachment, and the enhancement of habitat features for protected and notable species. A robust programme of monitoring and adaptive management underpins these objectives, ensuring that ecological outcomes can be tracked, evaluated, and refined over time.

7.1.3 Implementation of this plan, alongside the complementary proposals for Margam Burrows, will contribute to the resilience of local ecosystems, support biodiversity targets, and demonstrate best practice in integrating ecological stewardship with essential infrastructure development. The plan will be reviewed on a five-year cycle, or sooner if required, to ensure it remains responsive to Site conditions, monitoring results, and evolving operational requirements.

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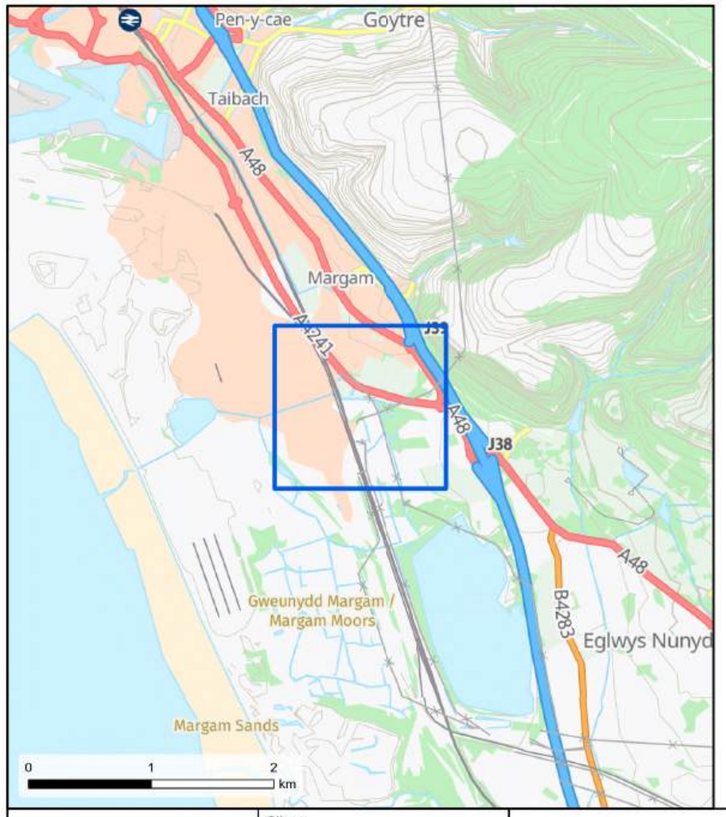
9 Figures

Figure 1: Site Location Plan



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MARGAM PORT TALBOT
Site Location Plan

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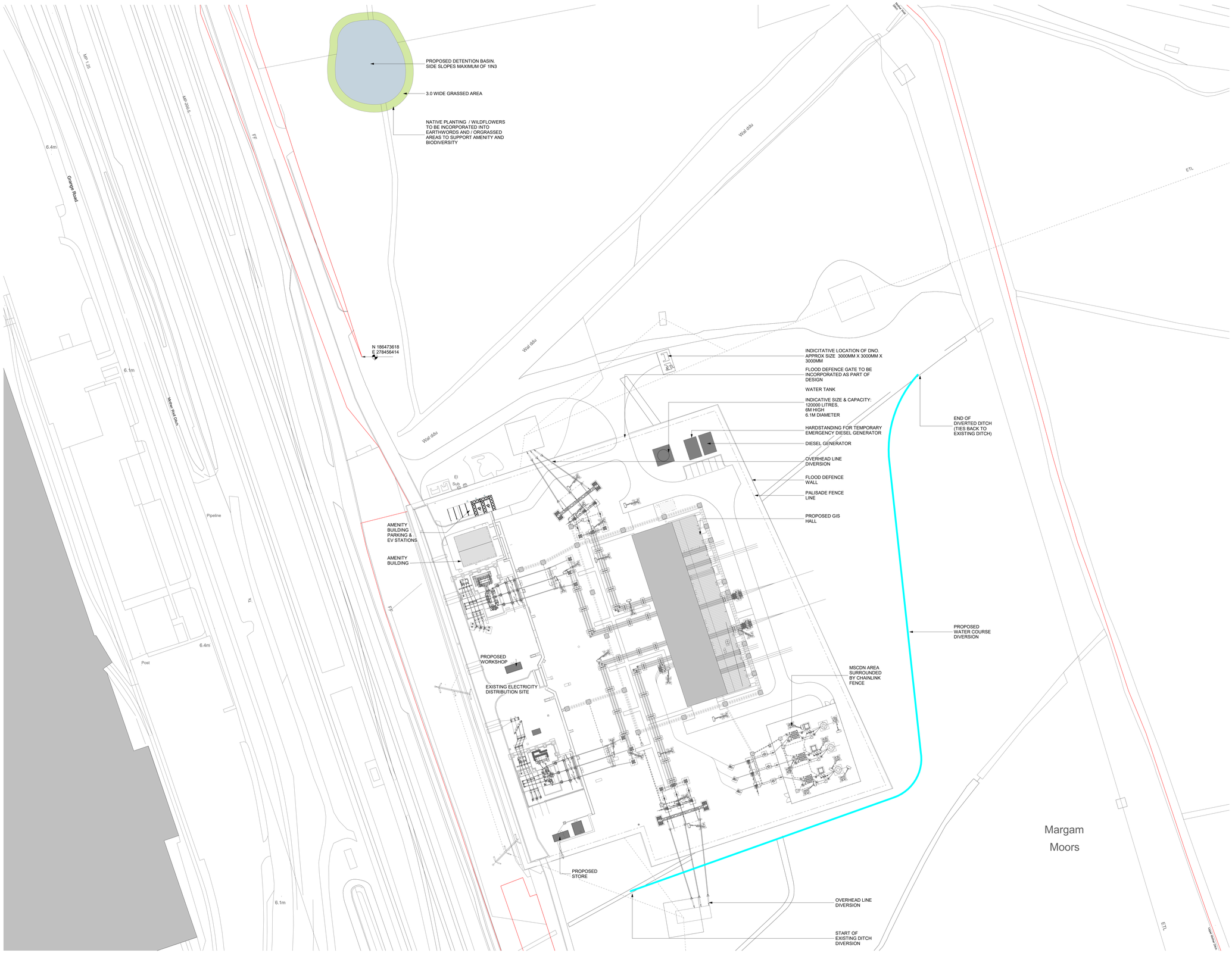
Appendix A Proposed Development



1 Margam Site Plan - Proposed
Scale: 1 : 500

5 0 5 10 15 20 25
SCALE 1:500 m

For Planning

GENERAL NOTES

ALL BAKERHICKS DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE GENERAL NOTES DRAWINGS, THE RELEVANT BAKERHICKS SPECIFICATIONS AND ALL RELEVANT ARCHITECTS AND SERVICE ENGINEER'S DRAWINGS AND SPECIFICATION.

ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM.

ALL DIMENSIONS ARE IN MILLIMETRES (U.N.O)

DO NOT SCALE ANY ENGINEERING DRAWINGS OR DIGITAL DATA. IF IN DOUBT ASK. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES IN DIMENSIONS ARE TO BE REFERRED TO ENGINEER BEFORE WORK IS PUT TO HAND.

THE CONTRACTOR MUST ADVISE THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND/OR SITE CONDITIONS / DIMENSIONS AT THE EARLIEST POSSIBLE OPPORTUNITY.

REVISION NOTES ARE FOR GUIDANCE ONLY. FOR SPECIFIC DETAILS, REFER TO CLOUDED AREA ON DRAWINGS FOR MOST RECENT AMENDMENTS.

ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE BY THE CONTRACTOR OR HIS SUBCONTRACTOR PRIOR TO PREPARING ANY WORKING DRAWINGS OR COMMENCING ON SITE.

ALL WORK HAS TO BE CARRIED OUT WITH THE REQUIREMENTS OF THE RELEVANT STATUTORY AUTHORITIES AND REGULATIONS.

ALL METHOD STATEMENTS SHOULD BE SUBMITTED TO THE ARCHITECT / CDM PRINCIPAL DESIGNER AND ENGINEER FOR REVIEW AT LEAST TWO WEEKS BEFORE CARRYING OUT THE SAID WORKS.

ALL PROPRIETARY PRODUCTS TO BE AS SPECIFIED OR EQUAL APPROVED.

KEYPLAN

SITE KEY

SITE BOUNDARY
SITE AREA:
153601.838 m2)
(15.36 Hectares)
(37.95 Acres)

BUILDINGS

PROPOED WATERCOURSE DIVERSION

NOTE:

DRAWING TO BE PRINTED IN COLOUR

Refer to Peat Management Strategy for location of location of peat burial locations.

Rev.	Description	Cre'd	Chk'd / App'd	Date
P04	S3 - For Review & Comment. Updated Proposed Site Layout following Planning Consultant Feedback	OTr	OT/RC	30/06/25
P03	Issued for planning, comments incorporated following client feedback	GP	OTr / RC	24/04/25
P02	Issued For Planning	DSB	OTr / RW	10/02/25
P01	First Issue	DSB	RW / JK	03/02/25

nationalgrid

Master Scheme No:	Sub-Scheme No:	Site:
101677		MARGAM

Scheme Name: Margam Substation

Document Title: Margam GIS Hall - Proposed Site Plan

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
DSB	30/01/25	RW	30/01/25	JK	30/01/25

Development Eng:	Document Type:	Scale:	Format:	Sheet(s):	Rev:
	DWG	As indicated	A0		P04

National Grid Document Number: 13_LOR_0066

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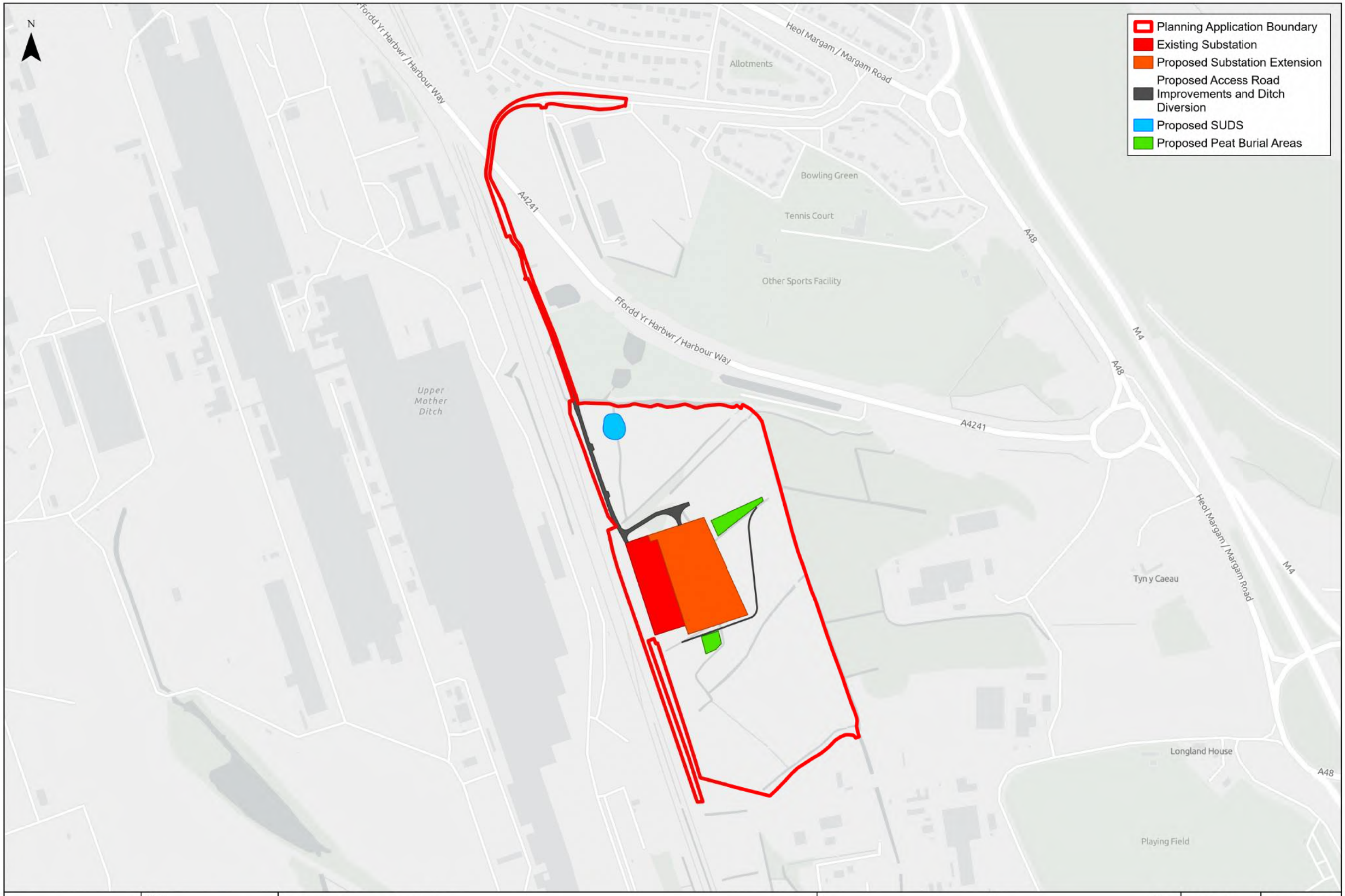

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MARGAM PORT TALBOT
Planning Application Boundary and Proposed Permanent Development Footprint

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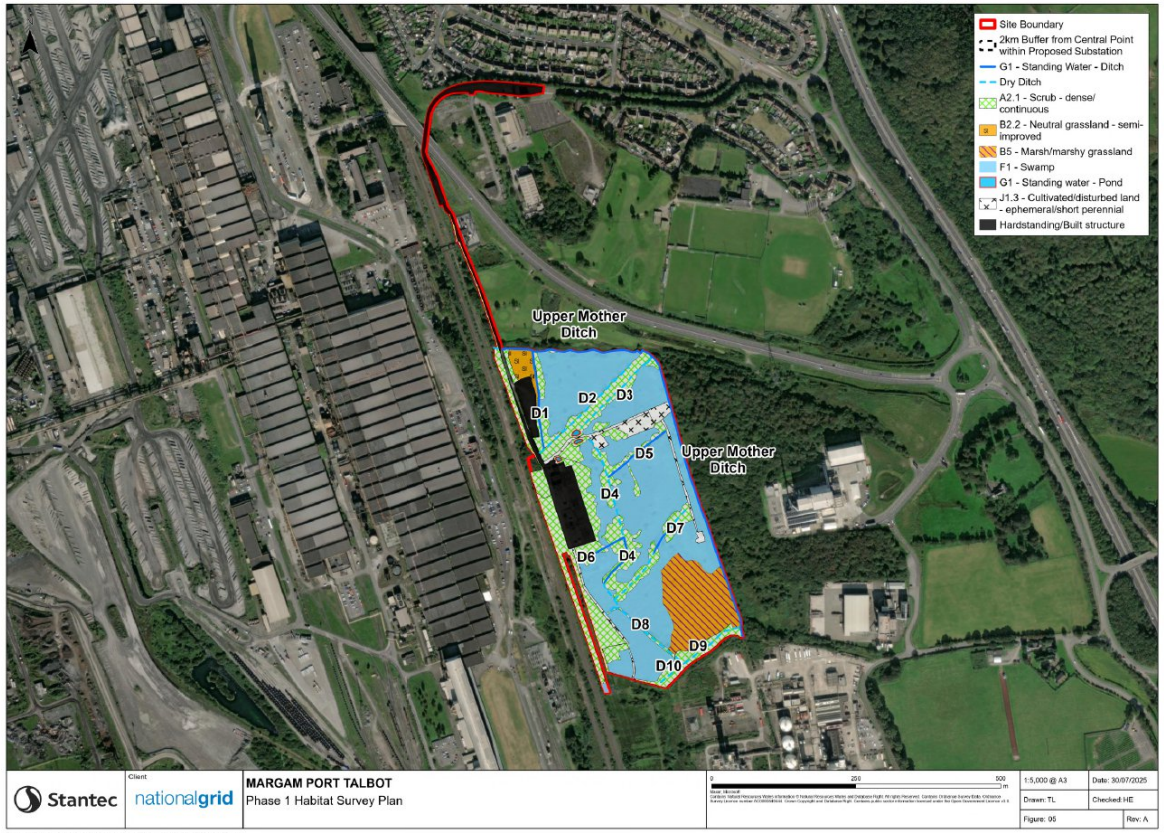
Appendix B Phase 1 Habitat Survey 2024-2025 vs Phase 1 Habitat Survey from 2009 Planning Application

B.1 Phase 1 Habitat Survey 2008

B.2 Phase 1 Habitat Survey 2024-2025

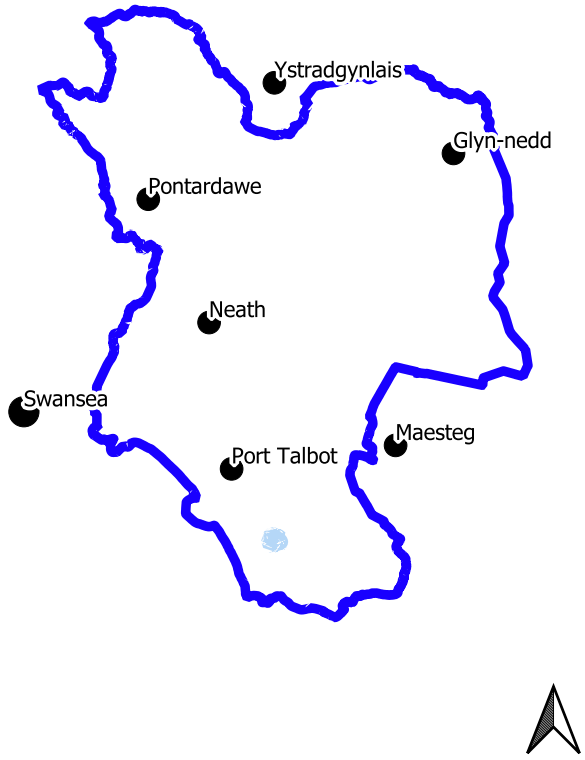


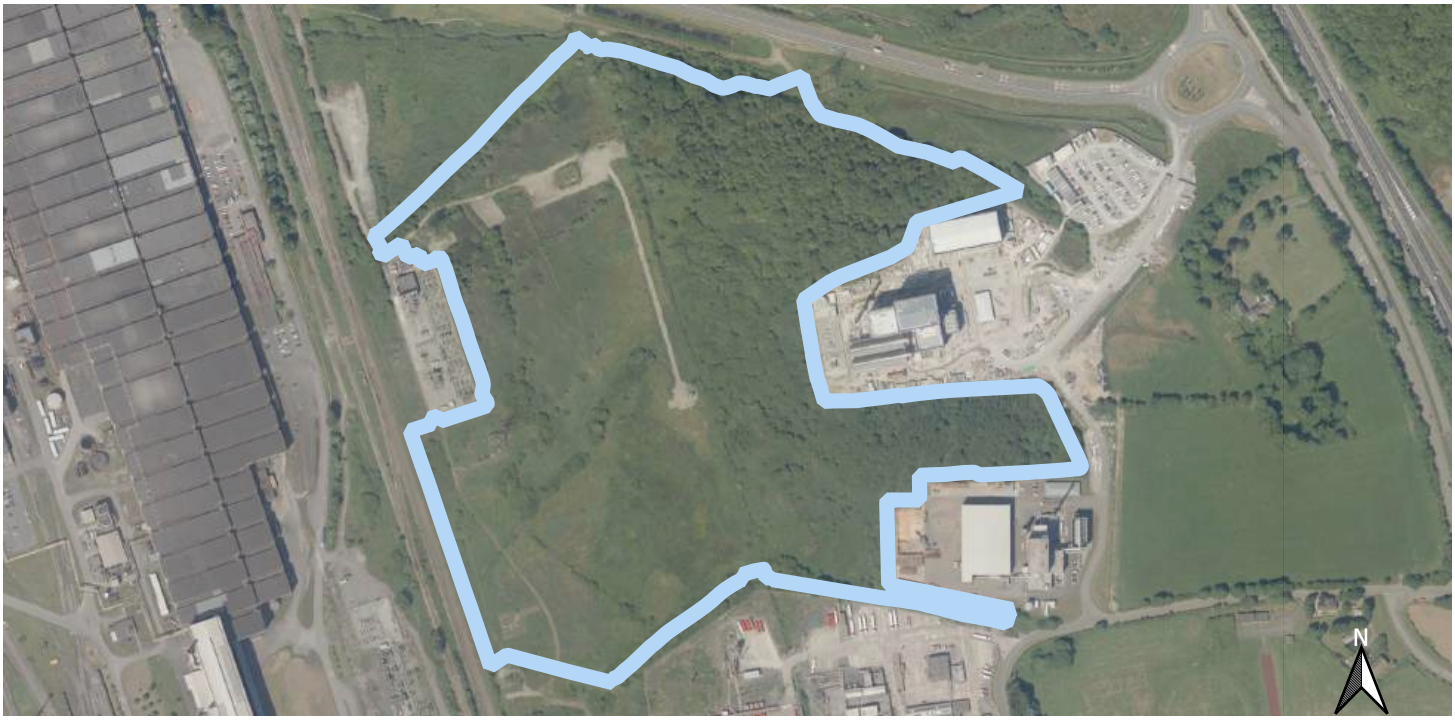
Appendix C J38 Wetland Complex SINC Designation

JUNCTION 38 WETLAND COMPLEX

Reference No: NPTSINC057
Ward: Margam
Grid ref at centre: SS7874586334
Area (ha): 20.47

Reason for selection:
H1:3 Native woodland
H9:2 Lowland Fen
H9:3 Purple moor-grass and rush pastures





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JUNCTION 38 WETLAND COMPLEX

Site Description:

This is a cohesive wetland site comprised of wet woodland, reed beds, ditches, and marshy grassland. Some drier areas support indicators of the neutral grassland NVC type MG5. Much is known about this site because it has been included in several planning applications over recent years. The site is located to the rear of Port Talbot Steelworks near Junction 38 of the M4 motorway. Margam Moors SSSI is approx 800m south west of the site, and is fairly well connected by the network of drains and ditches in the area. Eglwys Nunydd SSSI is about 750m directly south of the site and is designated due to the waterfowl populations it supports and as a SINC (NPTSINC056) it additionally includes the surrounding wetland and scrub habitats. The area is very wet but is occasionally grazed by cattle. There is a National Grid substation directly west of the site and high voltage power lines cross the site in several directions; resilience clearance works are undertaken under these pylons on a fairly regular basis.

Qualifying features

H1:3 Native woodland - A semi-natural woodland with a wet woodland component
H9:2 Lowland Fen
H9:3 Purple moor-grass and rush pastures 20/12

Important species

Species recorded: Water vole, Otter, Grass snake, Common lizard, Reed bunting, Cetti's warbler

Management Recommendations

The western field may one day be managed by the Wildlife Trust as part of a package related to the proposed development of fields to the north. There is Rhododendron in the wet woodland which should be eradicated.

Last surveyed: Surveyor: Author: ER

To be read in conjunction with Wildlife Sites Guidance Wales (WBP 2008) and the NPT amendments. This area has been designated as a Site of Importance for Nature Conservation by Neath Port Talbot County Borough Council. This does not formally protect the site or place any restrictions upon the landowner. Neath Port Talbot Council's Countryside & Wildlife Team will endeavour to support and encourage activities that maintain and enhance the biodiversity interest of the land; where funding is available, funds may be provided to facilitate these activities. The information given is used to ensure that nature conservation is taken into account in planning decisions. The designation itself does not confer any rights of access to the site and places no restriction on the management of the land.