



Tata Steel UK Limited

Electric Arc Furnace

Net Biodiversity Benefit Report

2487033 P&C EAF (Issue for PAC)

AUGUST 2024

EXECUTIVE SUMMARY

This report presents a Net Biodiversity Benefit assessment of the Electric Arc Furnace development site, located within the Tata Steelworks, Port Talbot, South Wales. The development proposals comprise the demolition of existing buildings and structures, and construction of a new electric arc furnace based steel production facility and associated development.

The assessment uses the results of a Phase 1 survey, NVC survey and targeted protected species surveys, undertaken at the site between 2021 and 2024, to provide a baseline measure of biodiversity value at the site.

The existing site was found to comprise a total of seven different habitats, including three habitats of principal importance, and supports the following fauna:

- low population of grass snake;
- good population of common lizard and slow worm;
- low levels of bat foraging activity;
- wintering bird population of local importance;
- breeding bird population of district importance;
- Invertebrate population of regional importance; and
- One outlier badger sett.

The majority of the loss of habitat is accounted for by the loss of 'Open Mosaic Habitats on Previously Developed Land', together with some scrub, and neutral grassland. There will also be some temporary loss of coastal floodplain grazing marsh.

Potential mitigation measures are focused on enhancing areas of retained habitat, restoring and enhancing the floodplain grassland and habitat creation / enhancement including Open Mosaic Habitat. This will result in overall better quality greenfield habitat together with additional areas of brownfield habitats.

The proposed enhancement options would provide multiple high-quality habitats with opportunities for a wide-ranging selection of species. There would also be the opportunity for species populations in the wider area associated with the near-by protected sites to expand into this area.

It is considered that the implementation of the enhancement options within the red-line and blue line boundaries will provide a net benefit for biodiversity in line with the planning requirements.

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1.0 INTRODUCTION

1.1 Purpose of this report

- 1.1.1 This report presents the results of a Net Biodiversity Benefit assessment of the proposed development located within the Tata Steelworks, Port Talbot, South Wales (grid reference SS 77826 85432). The aim was to determine the extent to which biodiversity would be affected by the proposed development and detail the proposed improvements in biodiversity post construction.
- 1.1.2 The pre-construction baseline biodiversity value was first measured using the findings of a suite of ecological surveys, including a Phase 1 Habitat Assessment survey, undertaken at the site between 2021 and 2024.
- 1.1.3 The proposed development footprint was then used to determine habitat loss and the landscape design and ecological mitigation proposals were assessed to determine the targeted post-construction biodiversity value.

1.2 Stepwise Approach

- 1.2.1 The planning investment at Port Talbot and the retention of the location as the principal steel making location for Tata Steel UK has always been the preferred option. The site selection process in Port Talbot has involved the consideration of multiple major investment proposals and site locations at the site. This has included two primary options:
- 1.2.2 An entirely new build facility - a wholly new build facility in the undeveloped green fields in the most southern portion of the established steelworks. The Council is aware of the size and location of the alternative, entirely newly built facility owing to confidential pre-application discussions in 2022 and 2023.
- 1.2.3 Partial new build and partial re-purposing of the existing facility – the proposal (see Section 1.3).
- 1.2.4 The EAF proposal subject to the application is the most efficient means of utilising previously developed land and buildings at the site. It is the most environmentally friendly approach to the targeted regeneration of the facility using best available decarbonised steel making technologies. The inherent protection of the southern fields portion of the steelworks resulting from this site selection is a significant benefit to the site and its immediate surrounds from a green infrastructure perspective.
- 1.2.5 The full stepwise approach to the development proposal selection is outlined in the Green Infrastructure Statement (Turley, 2024).

1.3 Development proposals

- 1.3.1 The Proposed Development will require the demolition of existing buildings and structures, and the construction of a new Electric Arc Furnace (EAF) steel

production facility. The Proposed Development also includes a scrap metal handling facility and associated scrap yards, slag processing facility, chemical and material storage structures, buildings, handling systems, electrical control rooms and power infrastructure, laboratories, offices and ancillary facilities, together with new and amended transport infrastructure, landscaping and associated development.

1.4 Ecological Context

- 1.4.1 The approximately 160 ha site is located to the south-east of the town of Port Talbot. The site is industrial and dominated by buildings and hard standing. The habitats on site are primarily neutral grassland, coastal floodplain grazing marsh and associated ditches, broadleaved plantation woodland, open water and swamp, scrub and ephemeral short perennial vegetation. There is one small lagoon associated with drainage channels and one large lagoon associated with the steelworks, located at the northern extent of the site.
- 1.4.2 The site is immediately bordered to the north, east and west by Tata Steelworks with an access road and Margam Moors SSSI adjacent to the south of the site. The surrounding landscape is a mixture of woodland, hedgerows, waterbodies (reservoir), grassland and residential properties within Margam. Swansea Bay (Bristol Channel) is located approximately 880m west of the site. A review of aerial photographs and Ordnance Survey maps shows that there are two ponds located within 500 m of the site.
- 1.4.3 Habitats recorded within the red line boundary comprise coastal floodplain grazing marsh (semi-improved neutral grassland and ditch network), ditches, dense scrub, reservoirs, open mosaic on previously developed land (comprising semi-improved neutral grassland and ephemeral short perennial vegetation), buildings, hard standing, bare ground and mixed deciduous plantation woodland within an active steelworks site.
- 1.4.4 The existing site was found to supports the following:
 - low population of grass snake;
 - good population of common lizard and slow worm;
 - low levels of bat foraging activity;
 - wintering bird population of local importance;
 - breeding bird population of district importance;
 - Invertebrate population of regional importance; and
 - One outlier badger sett.
- 1.4.5 The development footprint itself is set within predominantly brownfield habitats with only the associated cable works being located within poor quality greenfield habitat.
- 1.4.6 The coastal floodplain grazing marsh (greenfield habitat) is rank and unmanaged with the ditches being scrubbed over with little emergent or aquatic

vegetation resulting in its assessment as poor. The ditches are not in a condition to be classed as Site of Importance for Nature Conservation (SINC) quality habitat using The Guidelines for The Selection of Wildlife Sites In South Wales SINC criteria.

- 1.4.7 The scrub is leggy and not very species diverse mainly comprising buddleia and hawthorn which results in its assessment as moderate. The reservoirs (lagoons) have poor water quality resulting from diffuse pollution from the surrounding areas and not much emergent vegetation resulting in their assessment as poor. The woodland contains some non-native species with very little understory and little diversity in the ground flora (dominated by nettle and bramble). The trees are stressed and stunted due to growing in pulverized coke (fuel) ash resulting in its assessment as moderate. The ditches have poor water quality resulting from the diffuse pollution from piles of fuel ash in the area resulting in its assessment as poor.
- 1.4.8 The open mosaic habitat has become established on substrate such as railway ballast and areas where coke fuel ash and furnace slag has been spread. Due to the industrial operations the continued movements of such substrate across the site ensures this vegetation is continually being kick – started as new plants colonize bare substrate. Due to the nutrient poor status of the substrate and its free draining nature, a vegetation community comprising annual plants, ruderal weeds and bryophytes and lichens has developed. In places this vegetation is species rich. There are also areas notable as the vegetation is growing through a dense matt of lichen, this type of vegetation would be termed Lichen Heath. Where plants have had time to establish, and no fresh spoil has been added vegetation is undergoing succession to neutral grassland and scrub.
- 1.4.9 Three of the habitats on the site qualify as habitats of principal importance: open mosaic habitats on previously developed land, coastal floodplain grazing marsh and ponds under Section 7 of The Environment (Wales) Act, 2016.

Table 1. Habitats and habitat condition assessment results.

Phase 1 Habitat classification	Overall Condition
Coastal Floodplain Grazing Marsh – (Semi-improved neutral grassland and ditch network) [habitat of principal importance]	Poor
Dense scrub	Moderate
Open Water [habitat of principal importance]	Poor
Open Mosaic Habitats on Previously Developed Land – (Semi-improved neutral grassland and ephemeral short perennial) [habitat of principal importance]	Good / Moderate
Buildings	N/A
Hardstanding	N/A
Bare ground	N/A
Mixed deciduous plantation woodland	Moderate

Phase 1 Habitat classification	Overall Condition
Ditches	Poor

2.0 METHODS

- 2.1.1 This study has been carried out as a desk-based exercise, using the results of the ecological surveys, as well as the proposed development footprint provided by the client. The primary documents consulted as part of this study include:
- Electric Arc Furnace Environmental Statement Chapter 8: Biodiversity (RSK Biocensus, 2024);
 - Electric Arc Furnace Environmental Statement Appendix 8.1 – 8.10 (RSK Biocensus, 2024);
 - Electric Arc Furnace Landscape Design (Stephenson- Halliday, 2024)
- 2.1.2 A plan showing the pre-construction habitats is presented in Figure 2.

3.0 RESULTS

3.1 Biodiversity Baseline

3.1.1 The Phase 1 Habitat Plan (*Figure 2*) has been used to determine that twelve different habitat types occur within the study area. The total areas are presented in *Table 2*.

Table 2. Baseline Habitat Area and Length on site.

Phase 1 Habitat classification		Area – Ha
Coastal Floodplain Grazing Marsh – (Semi-improved neutral grassland and ditch network) [habitat of principal importance]		17.12
Dense scrub		7.20
Open Water [habitat of principal importance]		9.94
Swamp		0.08
Open Mosaic Habitats on Previously Developed Land – (Semi-improved neutral grassland and ephemeral short perennial) [habitat of principal importance]	Ephemeral / short perennial	21.95
	Poor Semi-improved grassland	4.61
Buildings		8.78
Hardstanding		46.27
Bare ground		42.41
Mixed deciduous plantation woodland		1.28
		Length - Km
Line of Broadleaved trees		0.45
Ditches		2.39

3.2 Post-development Biodiversity without intervention

- 3.2.1 The proposed development footprint was used to identify that there would be at least a partial loss of all of the baseline habitats currently present within the proposed development site (except woodland and trees which will not be directly impacted), though some of these losses will be temporary.
- 3.2.2 The total areas for the proposed habitats post construction are presented in *Table 3*. Those baseline habitats with limited ecological value, Buildings, bare ground and hard standing, have been removed from the habitat list for ease of understanding.

Table 3. Post-development biodiversity habitat area and length on site without intervention.

Phase 1 Habitat Classification		Area – Ha retained	Area – Ha Permanent Loss	Area – Ha Temporary Loss
Coastal Floodplain Grazing Marsh – (Semi-improved neutral grassland and ditch network) [habitat of principal importance]		16.36	0	0.76 (4.4%)
Dense scrub		5.76	1.44 (20%)	0
Open Water [habitat of principal importance]		9.1	0.84 (9%)	0
Swamp		0.08	0	0
Open Mosaic Habitats on Previously Developed Land – (Semi-improved neutral grassland and ephemeral short perennial) [habitat of principal importance]	Ephemeral / short perennial	14.76	4.05 (19%)	3.14 (14%)
	Poor Semi-improved neutral grassland	2.89	0.26 (6%)	1.46 (32%)
Mixed deciduous plantation woodland		1.28	0	0
Phase 1 Habitat Classification		Length – km retained	Length – km Permanent Loss	Length – km Temporary Loss
Line of trees		0.45	0	0
Ditches		2.39	0	0

3.3 Post-development Biodiversity with intervention

- 3.3.1 The proposed landscape design was primarily focused on biodiversity. The retained areas of habitats will be either maintained in their current condition or their condition will be enhanced. Additionally, areas of open mosaic habitat will be created to compensate for the loss beneath the proposed works and areas of reedbed will be created within the blue line boundary as an enhancement.
- 3.3.2 The total areas for the proposed habitats post construction within the red line boundary are presented in *Table 4* and the proposed habitats post construction within the wider blue line boundary are presented in *Table 5*. Those habitats with limited ecological value, buildings, bare ground and hard standing, have been removed from the habitat list for ease of understanding.

Table 4: Post-construction habitats within the red line boundary following interventions

Phase 1 Habitat Classification		Intervention	Area – Ha
Coastal Floodplain Grazing Marsh – (Semi-improved neutral grassland and ditch network) [habitat of principal importance]		Enhance the condition of this habitat to take it to SINC quality	17.12
Dense scrub		Additional planting	6.61
Open Water [habitat of principal importance]		N/A	9.1
Swamp		N/A	0.08
Open Mosaic Habitats on Previously Developed Land – (Semi-improved neutral grassland and ephemeral short perennial) [habitat of principal importance]	Ephemeral / short perennial	Additional areas created of SINC quality	22.77
	Poor Semi-improved neutral grassland	N/A	4.35
Mixed deciduous plantation woodland		Management proposals to enhance the condition	1.97
Reedbed		Habitat Creation	3.3

Phase 1 Habitat Classification	Intervention	Length – km
Line of trees	N/A	0.45
Gabion Baskets [ephemeral short perennial]	Habitat Creation	0.3
Ditches	Management proposals to enhance the condition to SINC quality	2.39

Table 5: Post-construction habitats within blue line boundary following interventions

Phase 1 Habitat Classification	Intervention	Area – Ha
Coastal Floodplain Grazing Marsh – (Semi-improved neutral grassland and ditch network) [habitat of principal importance]	Enhance the condition of this habitat to take it to SINC quality	0.88
Phase 1 Habitat Classification	Intervention	Length – km
Ditches	Management proposals to enhance the condition to SINC quality	1.41

4.0 BIODIVERSITY PROPOSALS

4.1 Southern Fields

Coastal Floodplain Grassland

- 4.1.1 0.76 ha of the coastal floodplain grazing marsh areas will be temporarily impacted as part of the cable route with 6 m protective buffers around the associated ditches as the cable is tunneled beneath each ditch. Following cabling works this land will be restored and enhanced along with the enhancement of an additional 14.24 ha, across the red line and blue line, ensuring that the condition of the habitat reaches both the habitat of principal importance and SINC habitat criteria (Gwent Wildlife Trust, 2004), that they do not currently meet.
- 4.1.2 The coastal floodplain grassland will be restored and enhanced with improved management and habitat feature creation including:
 - Initial vegetation cut and restoration of the ridge and furrow design;
 - Low level of cattle grazing to diversify and open up existing vegetation;
 - The associated ditches will be enhanced to ensure they qualify at SINC status by implementing a staggered clearance regime to remove chocking vegetation and allow more light in for aquatic plants to establish, as is undertaken within Margam Moors SSSI (see Appendix A);
 - Topography manipulation (creating mounds); and
 - Wetland habitat creation:
 - i. Bunding of sections of fields to create semi-permanent wetland areas
 - ii. Creating scrapes.
- 4.1.3 In order to ensure that ditches remain unaffected it is proposed that a buffer is left so that machinery and animals can navigate the field edges during any season.
- 4.1.4 The effect of restoring the cycle of winter flooding on the areas of coastal floodplain grassland would be a change of community type from pasture to fen. Summer grazing and/or cutting for hay would prevent the establishment of reed in areas where it is not desired and help create margins favoured by a wide variety of bird species.
- 4.1.5 The design would be able to develop in a staged / phased fashion, as the development progresses.
- 4.1.6 Any areas that have vegetation cleared as part of the work will be allowed to regenerate naturally from the surrounding habitat.

Scrapes

- 4.1.7 In order to provide a permanent, year-round wetland feature scrapes will be created in the middle of the coastal grassland fields, an open situation with no adjacent tall hedgerows. The depth of the scrapes should be variable, but with only gentle undulations. The maximum depth would be 1m.
- 4.1.8 There are two fields in which we propose the creation of scrapes. The smaller one will have a semi-permanent scrape covering 100% of the field and the second will have a permanent scrape covering ~70% of this field with the remaining area of field being bunded with a low bund to slow down the loss of winter flooding during the spring.

Reedbed

- 4.1.9 3.3 ha of reedbed will be created within the red line boundary alongside the coastal floodplain grassland. The area will be excavated on a gradient to create a shallow and deep end to support a range of wetland habitats. Excavation depths will range from 150mm to 500mm max. Reed planting will be generated from onsite specimen collection and restricted to planting around the dryer edges to encourage successful establishment. Natural colonisation will prevail over time and will be monitored.

Wildlife Tower

- 4.1.10 Installation of a Wildlife Tower which will provide habitat for barn owl, bats, nesting birds and invertebrates. These have proved effective at other locations within the county. The tower design will be based on the Barn Owl Trust design (see Appendix B for the design plans).

4.2 Main development site

- 4.2.1 Once the development is complete, the use of the site will be the same as it is currently, i.e. the production of steel. Therefore, it is likely that the current biodiversity and open mosaic habitat on previously developed land will naturally re-establish within areas where spoil is available as a substrate. The targets outlined in the LEMP will set the aim that the condition of the habitat reaches both the habitat of principal importance and SINC habitat requirements.
- 4.2.2 The following habitat creation techniques will be implemented to encourage the expansion of this habitat mosaic and to compensate for the area lost beneath the development footprint:
- Spoil crushed slag and railway ballast to create small number of 'mini dunes' to create topographical interest together with gabion baskets to provide three-dimensional substrate for ephemeral habitat (open mosaic habitat) to establish on.
 - Areas of lichen heath to be allowed to form within the proposed rain gardens alongside newly created roadways. They will vegetate naturally from the existing

areas of lichen heath in the wider steel works that will be connected to the new rain gardens via the road network. These also form part of the drainage strategy.

- All of the new railway lines will have extended ballast either side to provide greater opportunity for development of open mosaic habitat and will be allowed to vegetate naturally.

4.2.3 In addition, the following management opportunities will be implemented to enhance the other habitats within the steelworks:

- Grassland Management - Where grass vegetation is well established, implement an annual cutting regime of random areas to diversify grassland – say 5 – 10%, with the arisings removed each year. This cutting would need to be done in a 'messy' way (no straight lines).
- Scrub Management - Ensure scrub does not encroach significantly and if required control scrub when extent is more than 60%. This will help to maintain structural diversity.
- Woodland Management – Existing areas of woodland to be managed via limited coppicing to promote tree heath and create more open areas such as clearings / rides.

5.0 CONCLUSION

- 5.1.1 The majority of the loss of habitat is accounted for by the loss of 'Open Mosaic Habitats on Previously Developed Land'. The proposed gabion baskets, spoil heaps and roadside bunds would use existing site materials (slag) in order to replicate the nutrient poor open mosaic habitat substrate and be allowed to vegetate naturally creating new open mosaic habitat.
- 5.1.2 Additional mitigation measures are focused on enhancing areas of retained habitat, restoring and enhancing the coastal floodplain grassland and habitat creation / enhancement within both the red line and blue line boundaries but outside the main development footprint. This will result in overall better-quality greenfield habitat together with additional areas of brownfield habitats. Including habitats that are rare within Neath Port Talbot County (Coastal floodplain grassland and open mosaic on previously development land).
- 5.1.3 The proposed strategy will provide multiple high-quality habitats with opportunities for a wide-ranging selection of species including those rarer assemblages identified in the baseline surveys. There would also be the opportunity for species populations in the wider area associated with the protected sites (Margam Moors SSSI and Eglwys Nunydd Reservoir SSSI) to expand into this area.

DECCA Framework

- 5.1.4 The Natural Resources Wales Ecosystem Resilience Field Guide together with the Neath Port Talbot Council Biodiversity Duty Plan 2020-2023 highlight the importance of ecosystem resilience and actions that can be undertaken to meet this aim, as required by the Environment (Wales) Act 2016. Resilient ecosystems are those with good levels of diversity, which are of sufficient extent, are in a good condition and have connectivity; referred to as the 'DECCA' framework of measurable attributes. Actions to achieve resilient ecosystems include safeguarding and improving existing ecosystems, restoring degraded habitats and creating new areas of habitat. Measures may also include tackling current pressures, such as removing invasive non-native species and improving air quality.
- 5.1.5 The site baseline has a poor level of ecosystem resilience. The open mosaic habitats without management will transition into scrub and woodland habitat resulting in a loss of an important habitat for rare plant and invertebrate species within the county.
- 5.1.6 The habitats within the southern fields as it stands have been neglected and without intervention there will be a loss of important rare habitats, and those species associated with them. This would also result in the loss of an important green corridor between the dock area to the North and the Margam Moors SSSI to the South. The ditch network has become very overgrown will eventually lose its functionality, preventing the movement of water from the South into the steel works.

Table 6: Assessment of the Biodiversity Proposals against the 'DECCA' Framework

DECCA Attribute	Consideration in the Proposal
<p>Diversity</p> <p>Maintaining and enhancing diversity at every scale, including genetic, structural, habitat and between-habitat levels. This supports the complexity of ecosystem functions and interactions that deliver services and benefits.</p>	<p>The project was designed to retain as much greenfield and brownfield areas as practicable and ensuring that none of the retained areas would become isolated from surrounding habitat. The landscape plan includes the same range of habitats from the baseline with the addition of reedbed. Where the habitats are currently in poor condition, they will be enhanced to increase their diversity and structure.</p>
<p>Extent</p> <p>Incorporating measures which maintain and increase the area of semi-natural habitat/features and linkages between habitats. In general, smaller ecosystems have reduced capacity to adapt, recover or resist disturbance.</p>	<p>The majority of habitat has been retained and enhanced. Where habitat is being lost, the same habitat type is being created in other places within the site, ensuring that there are no isolated areas of habitat. Connections to the wider landscape have been maintained.</p>
<p>Condition</p> <p>The condition of an ecosystem is affected by multiple and complex pressures acting both as short term and longer-term types of disturbance. Both direct and wider impacts should be considered, for example avoiding or mitigating pressures such as climate change, pollution, invasive species, land management neglect etc.</p>	<p>The enhancement proposals are to improve the condition of the habitats within the site. Management strategies are designed for the long-term to help mitigate for expected future pressures i.e. climate change. The creation of reedbed habitat, reinstating the ridge and furrow fields and enhancing the ditch network within the southern fields area will help to minimise the impacts of rising temperatures in the future.</p> <p>The management strategy includes:</p> <ul style="list-style-type: none"> • Invasive species control; • Restoration of land management practices (i.e. grazing) to the southern fields • Restoration of ditch network connected to the wider landscape including Margam Moors SSSI. <p>The development will result in an improvement to the air quality of the area</p>

	by replacing burning of coke with an electric arc furnace.
<p>Connectivity</p> <p>This refers to the links between and within habitats, which may take the form of physical corridors, stepping stones in the landscape, or patches of the same or related vegetation types that together create a network that enables the flow or movement of genes, species and natural resources. Developments should take opportunities to develop functional habitat and ecological networks within and between ecosystems, building on existing connectivity.</p>	<p>Areas of habitat creation have been designed to create green corridors throughout the site linking all areas of greenfield and brownfield habitats. The linkages between the habitats within the site and the wider landscape have also been maintained as part of a larger green corridor along the coastline.</p>
<p>Aspects of ecosystem resilience (adaptability, recovery and resistance)</p> <p>Ecosystem resilience is a product of the above four attributes. Adaptability, recovery and resistance to/from a disturbance are defining features of ecosystem resilience.</p>	<p>The landscape proposals have been designed to minimise disturbance to the site's ecosystem and enhance its resilience.</p> <p>Habitats on site that are currently in poor condition will be enhanced and managed to increase the site's biodiversity and carrying capacity in addition to its connectivity with the wider landscape.</p>

- 5.1.7 It is considered that the implementation of the strategy detailed above within the red-line boundary and the wider blue line boundary would provide an overall net benefit to biodiversity within both the local area and the wider county.

REFERENCES

Neath Port Talbot County Borough Council (2018), *Local Development Plan 2011-2026: Biodiversity and Geodiversity Supplementary Planning Guidance* at https://www.npt.gov.uk/media/9003/spg_biodiversity_geodiversity_may18.pdf

Joint Nature Conservation Committee (2010), *Handbook for Phase 1 Habitat Survey* (revised). JNCC, Peterborough.

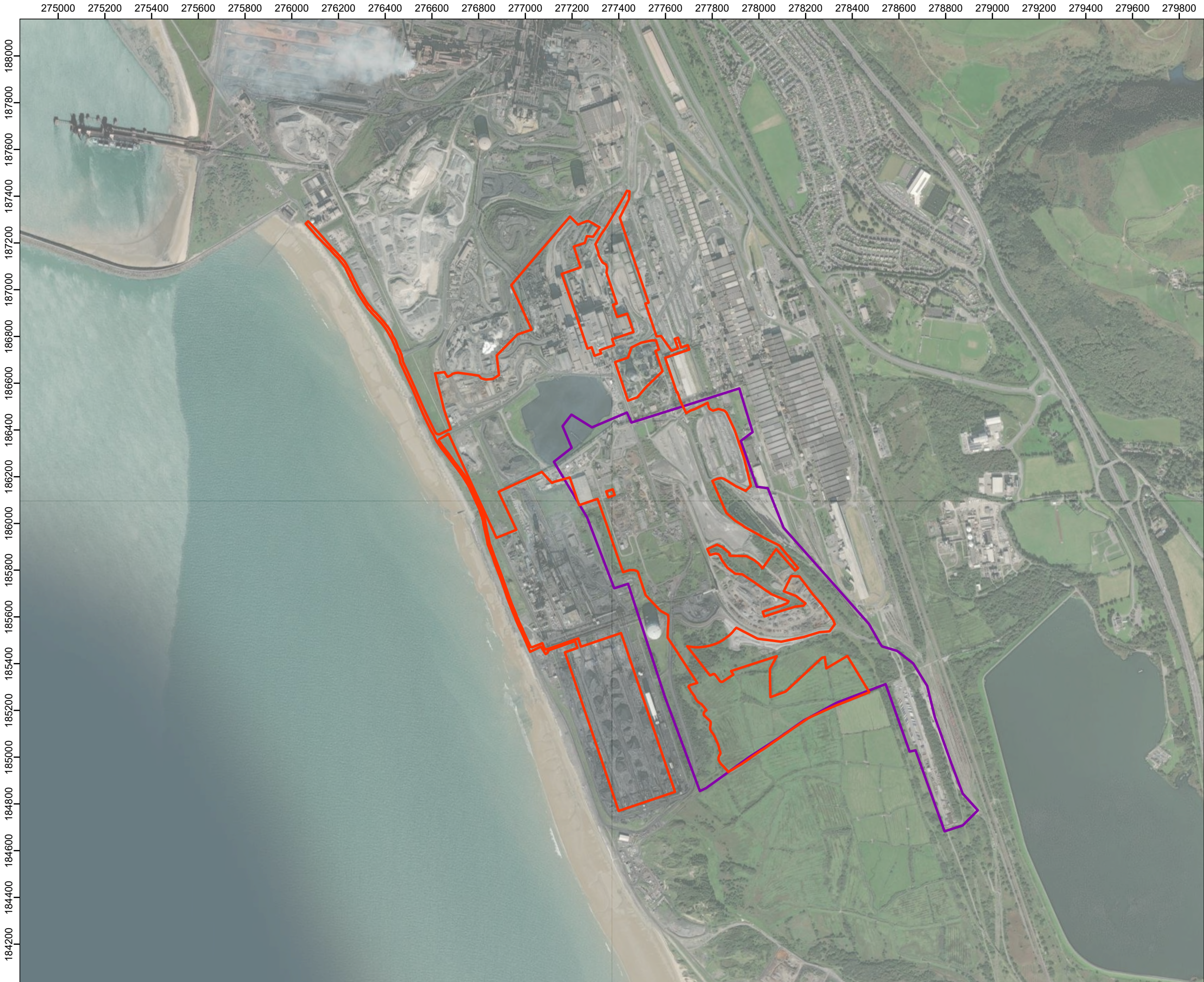
Gwent Wildlife Trust (2004), *Guidelines For the Selection Of Wildlife Sites In South Wales*

FIGURES

Figure 1. Site location plan

Figure 2. UKHab Habitats Plan

Figure 3. Phase 1 Habitat Plan



Legend:

- Site boundary
- 2021/2022 survey area

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P&C EAF

RSK biocensus
EXPERTS IN ECOLOGY

TITLE: Figure 1:
Site Location Plan

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Legend:

- Site boundary
- 2021/2022 survey area
- UKHab Habitats
 - Other neutral grassland
 - Dense scrub
 - Reedbeds
 - Standing open water and canals
 - Open mosaic habitat on previously developed land
 - Developed land; sealed surface
 - Buildings
 - Artificial unvegetated, unsealed surface
 - Built linear features
 - Lowland mixed deciduous woodland
 - Line of trees
 - Ditch

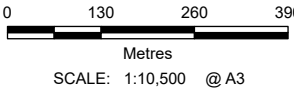


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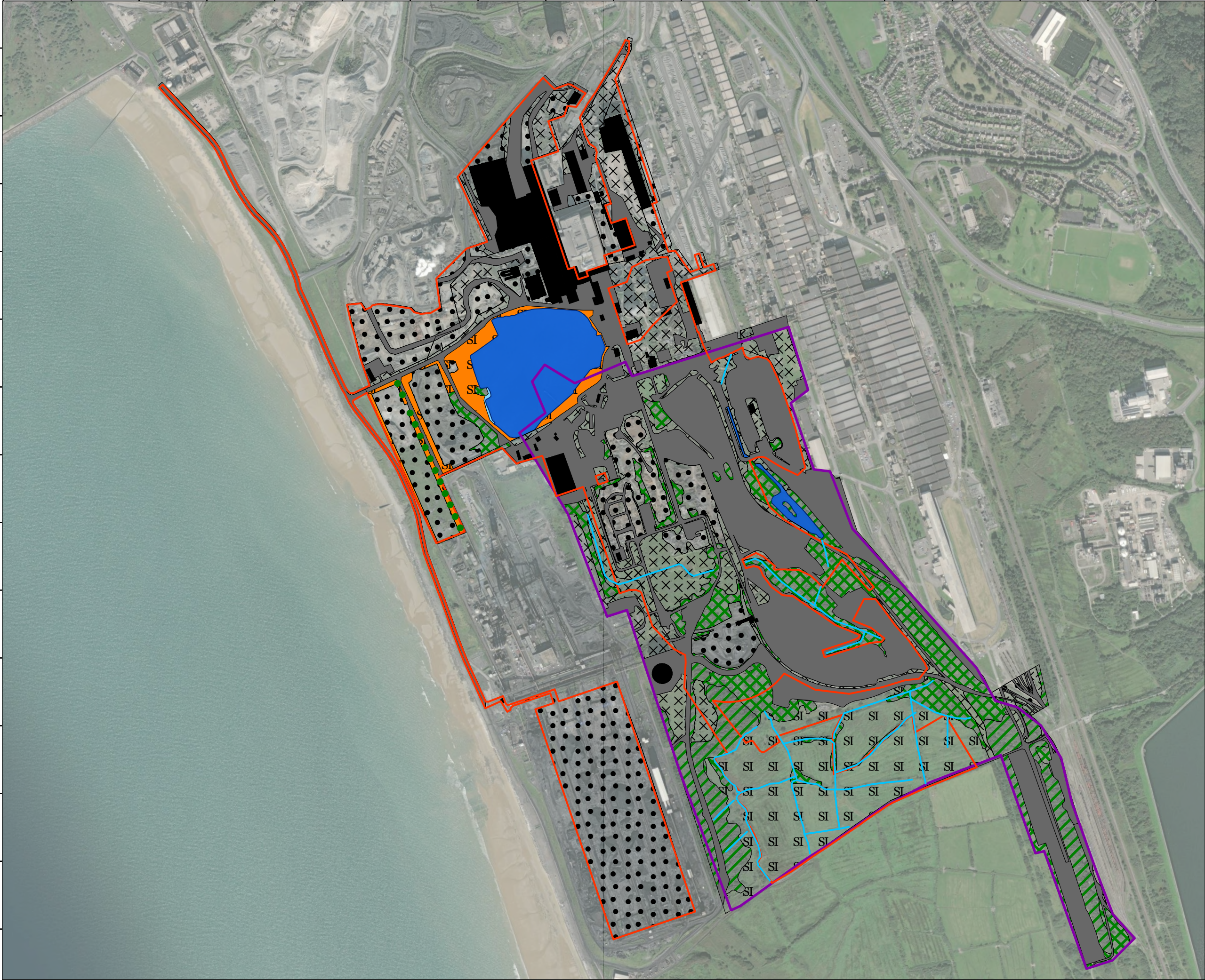


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UKHab Habitats Map



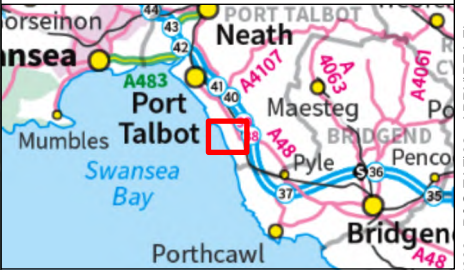
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Legend:

- Site boundary
- 2021/2022 survey area
- Phase 1 Habitats
 - Broadleaved woodland - plantation
 - Dense scrub
 - Poor semi-improved grassland
 - Semi-improved neutral grassland
 - Swamp
 - Standing water
 - Ephemeral / short perennial
 - Bare ground
 - Buildings
 - Hardstanding
 - Line of broadleaved trees
 - Standing water

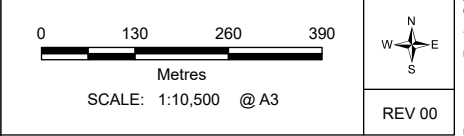


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TITLE: Figure 3:
Phase 1 Habitats Map



Appendix A: Margam Moors SSSI Management Plan

Margam Moors SSSI Management plan

A vital part of the site's management is an appropriate grazing regime and a programme of ditch clearances. Both are positive management required to sustain the features of the SSSI (See appendix IV).

Grazing

Any grazing regime on site should involve cattle and should be maintained to ensure some of the site's features of interest remain in good condition e.g. fen Meadow. To ensure this, we would suggest that the lease agreements be extended to at least 5 years as this would help secure a stable cattle grazing regime on site. NRW are currently in discussion with the land agents for the site, Berrys, regarding the issue of extending the lease agreements.

Ditch clearance

Subject to a Wildlife and countryside S28 consent, all ditch clearance works will be carried out annually in the locations as marked on the Margam Moors Ditch Clearance Map. The clearance of any ditches not marked on the map would need to be discussed on site as these works will be within areas of greater sensitivity (see Appendix I)

These works will only be carried out from October 1st to February 28th, outside of bird breeding season. Prior to any annual works taking place, a site meeting would be required, between a NRW conservation officer and a representative from Darlow Lloyd & Sons., to check, discuss and advise on work. All those carrying out work will need to be fully briefed regarding the site's sensitivities to ensure unintentional damage to habitat is avoided.

The guidance note for the ditch clearance work in Margam Moors SSSI (See appendix II) should be followed when carrying out any ditch clearance work.

Flooding along the coastal path in the South-East section of the SSSI can cause some walkers to stray off route of the coastal path and could be due to potential obstruction to flow through the ditch. We would ask if the concrete slab, located across a ditch on the east end of the SSSI, be removed and a new culvert installed.

Site access to for Monitoring

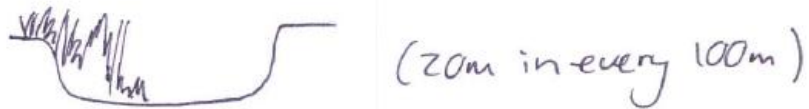
To assess the condition of the site's features of interest, NRW conservation and Biodiversity officers will require access permission and permission to monitor the SSSI's features and survey associated wildlife.

These activities are listed below: -

- Aquatic invertebrate monitoring (2018)
- Aquatic plant Monitoring (2018)
- Watervole, Great Crested Newt and Otter Survey (2018)
- Fen meadow monitoring (July 2023)

Note on ditch clearance at Mangam Meads SSSI

- when excavating, 20m in every 100m should only be half cleared:

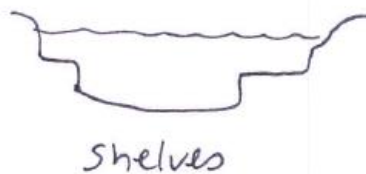
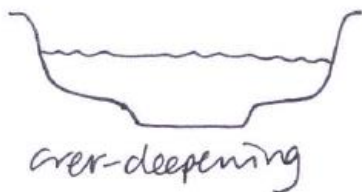


- For the rest, the bank vegetation (top of bank) should be left, where possible:



- what is important is variety in channel depths because different plants like different depths.

Over deepening and creating 'shelves' within the channels is necessary:



-the shelves can be seen from one or both sides, but should always be below water level.

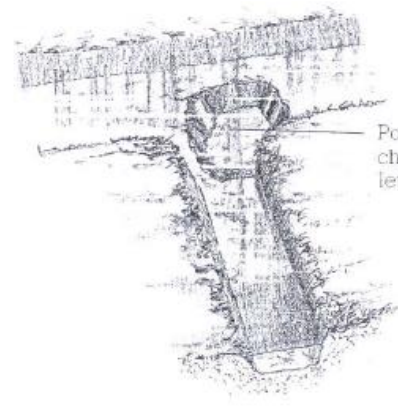
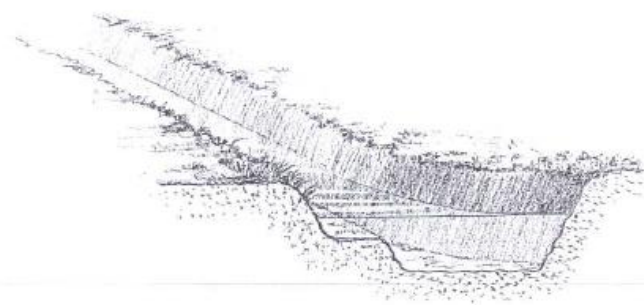
- Over-deepening and shelf creation should try to be more or less random throughout in short (20-30m) sections.

(please also see extracts from booklets)

Channel

Option 8

Creation of pools



Pond or bay cut in the drainage channel at a depth below the base level of the ditch.

Size of watercourse >2 metres

Description An overdeepening of the channel bed to form a pond at the junction of minor ditches. Land take may be necessary and care exercised to retain bank stability.

Purpose To provide permanent and deeper water on smaller watercourses, many of which have a reduced flow or dry out in summer.

Method The profile of the pool is important. Where space permits, this should be stepped with the deepest water in the centre. Overhanging trees should not be part of this feature as they will cause natural enrichment of the static water and reduce the abundance of invertebrates by shading the pond. The spoil may be used for increasing the height of the banks or spread on adjacent land. This may be a suitable task for conservation volunteers.

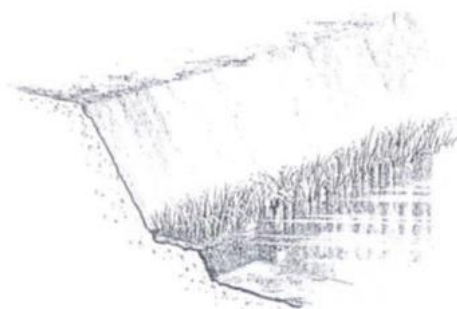
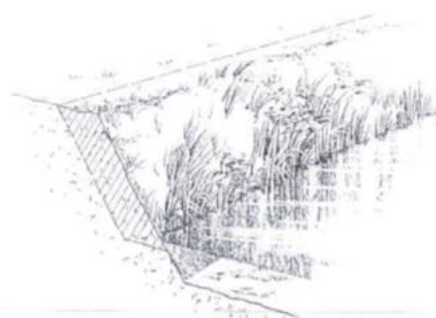
Conservation advantages Creates a refuge for amphibians, invertebrates and possibly fish where there is little residual summer water flow. Many wetland plants and animals cannot adjust to periodically dry conditions. The pools will provide a continuity of habitat for wetland plants and animals.



Margins

Option 20

Submerged berm - method 1



Size of watercourse >2 metres

Description A submerged berm is a narrow ledge formed at the base of the bank just below the normal summer water level and is usually covered with marsh plants. It can be created on one or both sides of the watercourse depending on the width of the channel. This may mean land-take but some farmers may be prepared to co-operate with the IDB or it could be possibly part of a set-aside option.

Purpose To support emergent plants whilst still maintaining a drainage function in the main channel. Although the channel capacity is increased during flood conditions, this option requires extra land take.

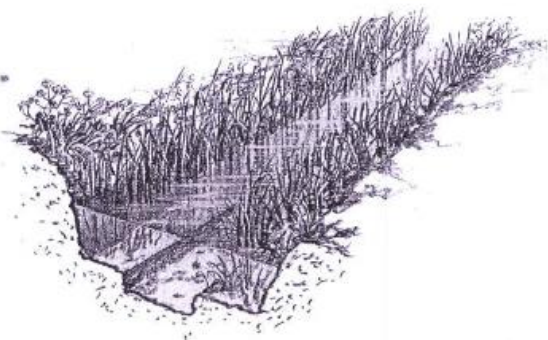
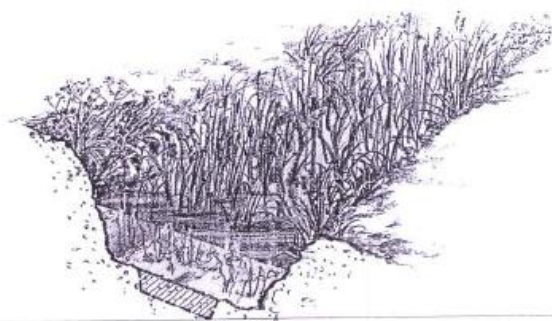
Method Form the berm working from the same bank. Remove existing vegetation and set aside for replanting or use spare vegetation from elsewhere. Favour plants such as common reed, bulrush, sedges and bur-reed rather than reed canary-grass and reed sweet-grass which can form uninteresting monocultures.

Conservation advantages Emergent plants are established in a range of water depths. These provide food for invertebrates and support for flying insects emerging from their aquatic state. A stable vegetation structure encourages water birds such as coot, little grebe and moorhen to breed. The different water depths will also favour different plants, creating diversity and habitat structure. It also provides food and shelter for fish fry.

Margins

Option 19

Control of emergents



Size of watercourse Most. (Not successful where there is substantial movement of bed material or where there is little water.)

Description Management of aggressive emergent plants such as bulrush *Typha latifolia*.

Purpose Retention of the carrying capacity of a watercourse.

Method Overdeepening of the bed should prevent stands of adjacent shallow water emergents spreading into the deeper water. This option may not always be the most appropriate conservation management for aggressive plant species such as reed sweet-grass and reed canary-grass. This method does produce a berm within the existing channel which will be covered or exposed, dependent on the water level. Extra land-take will not be necessary but the berm can only be created if the channel has spare drainage capacity. Aquatic herbicides could be used to control the vegetation but the overdeepening creates greater habitat diversity.

Conservation advantages Retains the continuity of stands of emergent plants within the channel. This benefits invertebrates and provides potential fish spawning areas. It is a possible alternative to herbicide treatment.

Appendix B: Wildlife Tower Design Plans

LITTLE OWL access hole
100 x 100

LITTLE OWL perch



EAST FACING ELEVATION



NORTH FACING ELEVATION



North facing BAT box

Generous roof overhang at each gable end provides required shelter for safe fledging of young birds



PROJECT TITLE
EAF PROJECT, PORT TALBOT

DRAWING TITLE

Wildlife Tower

PROJECT NO	20007	SCALE @ 1:50
DRAWING NO	100 - Project Station - Station - End - Type - Date - Author	100 - Project Station - Station - End - Type - Date - Author
DATE	10/10/2000	10/10/2000
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