Redshaw 400kV Substation

Biodiversity Net Gain (BNG) Report

June 2025

Land & Planning

Contents

Chapter 1
Introduction

Background

1.1 LUC has prepared this Biodiversity Net Gain ('**BNG'**) assessment report on behalf of Scottish Power Transmission plc ('**SPT**') in support of an application to the South Lanarkshire Council ('**SLC**') for consent under Section 32 of the Town and Country Planning (Scotland) Act 1997 as amended, to construct and keep installed, a new 400 kilovolt (kV) /132kV substation at Redshaw, South Lanarkshire (the 'Proposed Development') to meet the requirement for future expansion and accommodation of planned renewable energy projects and potential connections in the area.

1.2 This report presents the results of a BNG Assessment to establish the baseline requirements to achieve 'No Net Loss' ('**NNL**'). The BNG assessment is informed by the project description and baseline data presented in the Ecological Appraisal[1] Report ('**EAR**') for the Proposed Development.

1.3 This report does not include post-consent requirements for delivering NNL as this will require off-site proposals to be developed by the Applicant at a later stage of the project. BNG best practice principles (see **Chapter 2 of this report**) will be applied when identifying delivery partners and projects.

Purpose of Assessment

1.4 The Applicant is committed to achieving NNL of biodiversity across all its projects at a business-wide level and to achieving BNG based on the relevant legislation and policy under which projects are delivered across its license areas in Scotland, England and Wales. To deliver this commitment, in 2022, the Applicant reached agreement with Scottish and Southern Energy Networks ('**SSEN**') to use the latter's Biodiversity Project Toolkit[2] for projects being brought forward within the SPT license area.

1.5 The Applicant considers its commitment to BNG (NNL) addresses the requirements of National Planning Policy Framework 4 ('**NPF4**')[3], in the absence of statutory guidance, particularly in relation to the following NPF4 policies:

[1] LUC (2025) Redshaw 400kV Sub-station - Ecological Appraisal Report (which accompanies the application for planning permission)
[2] SSEN (2022) Biodiversity Net Gain Toolkit User Guide. TG-NET-ENV-526. Revision 2.00.
[3] Scottish Government (2024). National Planning Framework 4. Available [online] at: https://www.gov.scot/publications/national-planning-framework-4/ [accessed 03/06/2025]

- **Policy 1 Tackling the climate and nature crises** is relevant to all developments:
  - *When considering all development proposals significant weight will be given to the global climate and nature crises.*
- **Policy 3 Biodiversity** seeks to "*protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks.*" The following elements of Policy 3 relate to developments that require an Environmental Impact Assessment ('**EIA**'):
  - a. *Development proposals will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats and building and strengthening nature networks and the connections between them. Proposals should also integrate nature-based solutions, where possible.*
  - *b. Development proposals for national or major development, or for development that requires an Environmental Impact Assessment will only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention. This will include future management. To inform this, best practice assessment methods should be used.*
  - *d. Any potential adverse impacts, including cumulative impacts, of development proposals on biodiversity, nature networks and the natural environment will be minimised through careful planning and design. This will take into account the need to reverse biodiversity loss, safeguard the ecosystem services that the natural environment provides, and build resilience by enhancing nature networks and maximising the potential for restoration.*

Proposed Development

1.6 The Proposed Development comprises of the following:

- A new 400kV Gas Insulated Switchgear (GIS) substation building which will house gas insulated electrical switchgear and plant (approximately 91m x 30m x 12m);
- A new 132kV Gas Insulated Switchgear (GIS) substation building which will house gas insulated electrical switchgear and plant (approximately 56m x 17.5m x 10.8m);
- A small distribution 33kV Grid Supply Point (GSP) substation building to provide ancillary power, lighting, heating and ventilation;
- External grid transformers;
- A new permanent access track from local public road (B7078) to substation compound;
- Internal access roads and parking provision;
- Security fence around the live compound;
- Drainage works;
- Landscaping works;
- Temporary construction compound, laydown areas and associated temporary construction works; and
- Proposed farmers access track.

1.7 The Proposed Development will help to reinforce the transmission network in the area, of which an anticipated 2 gigawatts (GW) of renewable energy will be connected into the Proposed Development in the future, and provide more reliable fit for purpose and economical transmission network.

1.8 Construction is anticipated to last six years. An indicative construction programme can be found in **Table 3.1** of **EIA Volume 1 - Chapter 3.** It is anticipated that construction of the Proposed Development will commence at the end of 2025 (following successful receipt of consent). The Proposed Development is considered to be a permanent installation with a minimum operating term of 40-50 years. The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and agreed with the regulator at the time.

1.9 Full details of the Proposed Development are provided in **EIA Volume 1 - Chapter 3**.

Supporting Documents

1.10 This document should be read in conjunction with the Redshaw 400kV Substation EAR[1]. This includes a full description of the Proposed Development and the ecological baseline data that forms the basis of this BNG assessment.

1.11 Redshaw EIA Figure 3.3: Outline Landscape Mitigation and Biodiversity Enhancement Plan ('OLMBEP') shows the proposed layout of the substation, including landscaped areas. This has been used in undertaking the BNG calculations in **Chapter 4** of this report; the figure is included in **Appendix A of this report**.

Chapter 2
Methodology

Phase 1 Habitat Survey

2.1 A Phase 1 Habitat Survey was completed by an experienced ecologist in accordance with Joint Nature Conservation Committee ('**JNCC**') methodology[4] on 17th August 2023 in warm, sunny and dry weather conditions. An update survey was completed on 11th September 2024 in overcast but mild weather conditions.

2.2 The Phase 1 Habitat Survey technique provides a rapid and standardised approach to documenting, classifying and mapping habitats. The Study Area[5] adopted for the survey included the redline boundary of the Site and a buffer of up to 250m. The results of the Phase 1 habitat survey[1] provided the baseline data to inform the calculations within the SSEN Biodiversity Project Toolkit,[2] as discussed further below.

A Metric Approach to BNG

2.3 The Biodiversity Metric (version 4.0)[6] has been developed by the Department for Environment Food and Rural Affairs ('**Defra**') for BNG, and its application to development projects is now mandatory in England. Although BNG has not formally been adopted in Scotland, SSEN has reviewed and adapted earlier versions of the Defra metric to enable it to be used for its development projects in Scotland. The SSEN Biodiversity Project Toolkit yields the Biodiversity Units ('**BU**') that a site is 'worth', based on the type, distinctiveness, extent, and condition of the habitats within it. The toolkit approach can compare the pre-development baseline against the project proposals, accounting for any habitat loses, gains, impacts and enhancements.

2.4 Calculations have been carried out in cognisance of guidance including Biodiversity Net Gain: Good Practice Principles for Development[7] and the British Standards Institute[8,9]. Calculations were undertaken using the SSEN

[4] JNCC (2010) Handbook for Phase 1 Habitat Survey – a technique for environmental audit. Available [online] at: https://data.jncc.gov.uk/data/9578d07b-e018-4c66-9c1b-47110f14df2a/Handbook-Phase1-HabitatSurvey-Revised-2016.pdf [accessed 20/05/2025]

[5] Ecological Study Areas are defined in Chapter 1 of the Redshaw 400kV Substation Ecological Appraisal Report.

[6] Natural England (2023) The Biodiversity Metric 4.0. Available [online] at: https://publications.naturalengland.org.uk/publication/6049804846366720 [accessed 03/06/2025]

[7] Baker, J., Hoskin, R. and Butterworth, T. (2019) Good practice principles for development. A Practical Guide. Available [online] at: https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development/ [accessed 03/06/2025]

[8] BSI (2021). BS 8683:2021, Process for designing and implementing Biodiversity Net Gain – Specification. British Standards Institute, London. Available [online] at: https://knowledge.bsigroup.com/products/process-for-designing-and-implementing-biodiversity-net-gain-specification [accessed 03/06/2025]

[9] BSI (2013). Biodiversity – code of practice for planning and development, BS 42020:2013. British Standards Institution, Bristol.

Biodiversity Project Toolkit in accordance with the SSEN Biodiversity Net Gain Toolkit User Guide[2] and condition sheets associated with the Biodiversity Metric 3.1[10].

2.5 While the SSEN Biodiversity Project Toolkit is the approach taken by the Applicant to calculate BNG, it should not be considered a complete tool in assessing BNG, and therefore professional judgement has been used where appropriate. Where professional judgement has been used, this is outlined in the text and additional references, where required, are provided.

2.6 The BNG assessment has been undertaken by Helen Embleton BSc (Hons) MEnvSc and overseen by Steve Jackson-Matthews CEnv MCIEEM MEnvCW.

Baseline Calculation

2.7 In order to calculate the baseline of the Study Area, a series of assessments were carried out and collated. These are described below.

Phase 1 Survey & Condition Assessment

2.8 Habitats within the Study Area were classified using the Phase 1 Habitat Survey methodology. Consideration was given to whether these habitats satisfied the definitions of habitats listed on the Scottish Biodiversity List ('**SBL**')[11]. Habitats were assigned a pre-set distinctiveness value within the toolkit, indicative of the inherent 'value' of these habitats (see below).

2.9 The area (hectares) of each habitat and length of linear habitats (km) within the Study Area was calculated from Phase 1 habitat mapping using ESRI ArcMap. The results of the Phase 1 habitat survey are presented in **Figure 1, Appendix A**.

2.10 Habitats were subject to a 'Condition Assessment', undertaken in the field. The condition of a habitat is considered to be a measure of its quality and measures its 'working-order' against the optimal potential for the habitat type. Assessment criteria cover broad habitat types, therefore further clarification is provided, and professional judgement used to assign condition where appropriate, using supplementary documentation of Natural England Metric 3.1[10], as per the User Guide[2]. Categories used are Good/Moderate/Poor, while intermediate categories of Fairly Good/Poor may also be used based on professional judgement.

2.11 As noted in the User Guide[2], condition assessment of watercourses is poorly developed in Scotland. Therefore, it is recommended that the Condition is related to Distinctiveness of habitat as outlined in **Table 2.1**.

Table 2.1 Corresponding Condition and Distinctiveness Categories for Watercourses

Condition	Distinctiveness
Good	Very High or High
Moderate	Medium
Low	Low or Vey Low

Distinctiveness

2.12 Habitat distinctiveness is a key parameter and is largely determined by the SSEN Biodiversity Project Toolkit. In several instances, professional judgement is required when collecting field data to determine which of the two levels should be applied; for example, broadleaved semi-natural woodland (JNCC Phase 1 Code A1.1.1) can be either High or Medium Distinctiveness. The categories used and suggested actions are outlined in **Table 2.2**.

Table 2.2 Suggested Actions based on Distinctiveness

Distinctiveness	Suggested Action
Very High	Avoid
High	Avoid, Mitigate or Compensate
Medium	Mitigate, Compensate
Low	Potential to Develop
Very Low	Potential to Develop

Connectivity

2.13 Methods to determine connectivity are poorly developed. As detailed in the User Guide[2], at present the categories therefore mirror the approach originally adopted by Natural England using the Distinctiveness of the habitat to determine the connectivity multiple as outlined in **Table 2.3**

Available [online] at: https://knowledge.bsigroup.com/products/biodiversity-code-of-practice-for-planning-and-development [accessed 03/06/2025]

[10] Panks, S. et al. (2022) Biodiversity Metric 3.1 Auditing and accounting for biodiversity - User Guide. Available [online] at: https://publications.naturalengland.org.uk/publication/5850908674228224 [accessed 03/06/2025]

[11] NatureScot (2020). Scottish Biodiversity List. Available [online] at: https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy/scottish-biodiversity-list [accessed 20/05/2025]

Table 2.3 Corresponding Connectivity and Distinctiveness Categories

Connectivity	Distinctiveness
Moderate	Very High or High
Low	Medium, Low or Very Low

Strategic Significance

2.14 Strategic significance is a key BNG parameter based on the position of a habitat within the landscape. This is determined using publicly available datasets, policy and guidance, and field survey data. The User Guide[2] defines three categories of strategic significance. These are summarised in **Table 2.4.**

Table 2.4 Determining Strategic Significance

Strategic Significance	User Guide Definition	Interpretation Used in this Assessment
High	Formally identified in local strategy, plan or policy.	■ Statutory designated sites[12]. ■ Non-statutory designated sites[13]. ■ Ancient Woodland Inventory (AWI)[14] areas. ■ Locations specified in a Local Biodiversity Action Plan (LBAP).
Medium	Location ecologically desirable but not identified in local strategy, plan or policy.	■ Non-Governmental Organisation ('**NGO**') nature reserves (such as those managed by the Scottish Wildlife Trust ('**SWT**'), or Royal Society for the Protection of Birds ('**RSPB**')). ■ Annex 1 habitats identified by field survey that lie outwith designated sites. ■ SBL habitats identified by field survey that lie outwith designated sites.
Low	Not identified in a local strategy, plan or policy OR no strategy or plan is in place in the area.	■ All other land not covered by the definitions above.

2.15 Baseline inputs (as detailed above) were entered into the SSEN Biodiversity Project Toolkit to calculate the baseline BU of habitats within the Study Area.

Proposed Development

2.16 A similar process was repeated for the Proposed Development, to assess the loss and retention of habitats within the Study Area, as detailed below:

- The loss of baseline habitats (both polygon and linear data) was calculated by overlaying the footprint of the OLMBEP for the Proposed Development onto the Phase 1 habitat mapping using ESRI ArcMap. Using this method, the area of loss to each habitat block was calculated.
- **Redshaw EIA Figure 3.3: Outline Landscape Mitigation and Biodiversity Enhancement Plan (OLMBEP)** shows the proposed layout of the substation, including landscaped areas. These areas have been used to identify the habitats lost and retained as a result of the Proposed Development. The proposals of the landscape plan were translated into habitat types suitable for use in the SSEN Biodiversity Project Toolkit,

[12] Statutory designated sites include Special Protection Areas ('SPA'), Special Areas of Conservation ('SAC'), Sites of Special Scientific Interest ('SSSI') and National Nature Reserves ('NNR').
[13] Non-statutory designated sites include Local Nature Conservation Sites ('LNCS').
[14] NatureScot (2023) A guide to understanding the Scottish Ancient Woodland Inventory ('AWI'). Available [online] at: https://www.nature.scot/doc/guide-understanding-scottish-ancient-woodland-inventory-awi [accessed 03/06/2025]

and consideration was given to the most appropriate habitat type.

Data Summary and Discussion

2.17 The results of the SSEN Biodiversity Project Toolkit are presented as a summary of the baseline BU within the Study Area, separated by habitat type.

2.18 It is important to note that the process of BNG should not consider habitat types in isolation, and any losses or gains must be considered in detail on a like-for-like basis for each habitat group / priority habitat type. This is referred to as "trading rules"[Error! Bookmark not defined.], which set minimum habitat creation and enhancement requirements to compensate for specific habitat losses.

Assumptions and Limitations of Assessment

2.19 To produce this assessment, certain assumptions have been made:

- All ecological surveys represent a snapshot of the faunal and floral assemblages of any given site. While surveys provide an overview of the habitats and species present, they cannot be used to determine long-term trends in species and habitat populations or behaviours. Methods adopted during the surveys represent current good practice but the data collected cannot be used to confirm the absence of a species from the Site. Faunal and floral assemblages are dynamic and can change over short periods of time. However, it is considered that an appropriate level of data has been collected to enable an informed decision to be taken in relation to the identification and assessment of baseline habitats and their condition.
- The SSEN Biodiversity Project Toolkit does not support the inclusion of mosaics of different habitat types. In this instance, the condition assessment has been carried out using the metric associated with the primary habitat

Chapter 3
Biodiversity Net Gain Calculations

Baseline Assessment

3.1 The Study Area was dominated by improved and marshy grassland which was subject to grazing. Habitats present to a lesser extent included small areas of coniferous plantation woodland, dry dwarf shrub heath, hard standing and amenity grassland. The Study Area also included several small open field drains.

3.2 **Table 3.1** provides a summary of the pre-development baseline assessment inputs for area-based and linear habitats. Full condition assessment proformas are provided in **Appendix B**.

3.3 The Study Area is calculated by the SSEN Biodiversity Project Toolkit[2] to comprise a total of 67.28 BU (area-based habitats)[15], and 0.42 BU (linear watercourse habitats).

3.4 The pre-development outcome of the BNG assessment is summarised below:

- A total of 67.28BU (area-based habitats)[15], comprised of:
  - 57.42 BU (85.34%) Improved grassland.
  - 9.64 BU (14.32%) Marshy grassland.
  - 0.23 BU (0.34%) Dry dwarf shrub heath.
- A total of 0.42 BU (linear watercourse habitats):
  - 0.42 BU (100%) Running water.

3.5 A full breakdown of the biodiversity value of the Study Area is provided in the SSEN Biodiversity Project Toolkit[2] under the 'Unit Calculation' tab.

[15] Results are all rounded to 2 decimal places. As a result, there can appear to be a minor discrepancy between the sum of the figures reported for each habitat type (which are rounded individually) compared to the overall total.

Table 3.1 Summary of Pre-Development Baseline Assessment Inputs

Phase 1 Habitat	Distinctiveness	Condition	Area (Ha) / Length (km)	Baseline Biodiversity Units
Area-Based Habitats				
B4 Improved grassland	Low	Fairly Poor	19.14	57.42
B5 Marshy grassland	High	Poor	1.48	9.64
D1 Dry dwarf shrub heath	High	Poor	0.03	0.23
Total			**20.65 Ha**	**67.28 BU**[15]
Linear Habitats				
G2 Running water	Low	Poor	0.21	0.42
Total			**0.21 km**	**0.42 BU**

Proposed Development Assessment Inputs

3.6 **Table 3.2** below provides a summary for retained area-based and linear habitats within the Study Area (i.e. those habitats unaffected by the Proposed Development).

Table 3.2 Summary of Retained Habitats Calculations

Phase 1 Habitat	Condition	Baseline (ha/km)	Retained (ha/km)	% Retained
Area-Based Habitats				
B4 Improved grassland	Fairly Poor	19.14	3.25	16.96
B5 Marshy grassland	Poor	1.48	1.14	77.32
D1 Dry dwarf shrub heath	Poor	0.03	0.03	94.39
Linear Habitats				
G2 Running water	Poor	0.21	0.21	100.00

During Works Biodiversity Units

3.7 The Study Area is calculated by the SSEN Biodiversity Project Toolkit[2] to comprise a total of 67.28 BU (area-based habitats)[15], and 0.42 BU (linear watercourse habitats). Improved grassland comprised the majority of baseline BUs for area-based habitats (85.34%)

3.8 The Proposed Development, in the absence of compensation and enhancement, will result in a loss of 49.82 BU of combined area-based habitats. No linear watercourse ('**linear (W)**') habitats will be impacted by the Proposed Development, and there are no linear hedgerow ('**linear (H)**') habitats within the Study Area. **Table 3.3** and **Table 3.4** provide a summary of the toolkit output.

Table 3.3 Summary of During Works Calculations

Phase 1 Habitat	Total Area (ha) / Length (km)	Condition	Area (ha) / Length (km) Removed	Biodiversity Units – Retained	Biodiversity Units – Removed	% Retained
Area-Based Habitats						
B4 Improved grassland	19.14	Fairly Poor	15.88	9.78	47.64	17.03
B5 Marshy grassland	1.48	Poor	0.33	7.46	2.18	77.40
D1 Dry dwarf shrub heath	0.03	Poor	0.00	0.23	0.00	100.00
Linear Habitats						
G2 Running water	0.21	Poor	0.00	0.42	0.00	100.00

Table 3.4 Summary of Biodiversity Toolkit Results[15]

Habitat Type	Before Works (BU)	Retained During Works (BU)	Removed During Works (BU)	% Change
Area-Based Habitats	67.28	17.47	49.82	-74.04%
Linear (H) Habitats	0.00	0.00	0.00	N/A
Linear (W) Habitats	0.42	0.42	0.00	0.00

Chapter 4
Results and Interpretation

Biodiversity Unit Results

4.1 The Study Area was dominated by areas of improved grassland, with more limited areas of marshy grassland habitat. Small areas of dry dwarf shrub heath and hardstanding were also present within the Study Area. All habitats were assessed to be of poor or fairly poor condition, and of low connectivity and strategic significance. These indicators confirm that the Study Area is of limited ecological value.

4.2 The Proposed Development will unavoidably result in the loss of areas of improved and marshy grassland. Areas of dry dwarf shrub heath will be retained.

4.3 The preliminary BNG assessment using the SSEN Biodiversity Project Toolkit[2] of the Proposed Development shows that in the absence of compensation and enhancement, there will be a net change of -49.82 BU for area-based habitats, which is a net loss of -74.04% from the baseline value of the Study Area. The Proposed Development will retain the linear watercourse habitat units within the Study Area.

Achieving No Net Loss

4.4 To ensure that the Proposed Development achieves the Applicant's internal NNL policy, and therefore NPF4's requirements for biodiversity enhancement, it will be necessary to deliver habitat creation and enhancement measures via a detailed Biodiversity Enhancement Plan ('**BEP**') post-consent.

4.5 The BEP will be prescribed to ensure that on-site habitats - which may be retained, enhanced or created - continue to benefit both habitats and species, and provide connectivity to the wider landscape long into the future.

4.6 The BEP will achieve NNL via delivery of off-site habitat management and creation projects. To achieve NNL, the BEP will required to deliver 49.82 BU for area-based habitats off-site.

4.7 Using the SSEN Toolkit as a guide, the following potential interventions demonstrate biodiversity enhancement measures and their BU value:

- The creation of a 11 ha broadleaved woodland of medium distinctiveness, with a target of moderate

condition and low strategic significance delivered within 15 years, would be equivalent to 51.57 BU.

- The creation of a 9 ha lowland dry acid grassland of high distinctiveness, with a target of moderate condition and low strategic significance delivered within 20 years, would be equivalent to 52.92 BU

4.8 The final level of commitment provided through the BEP will require to be proportionate to the impact of the proposals.

4.9 Crucially, the existing levels of protection afforded to protected species and habitat are not changed by use of this or any other metric. Statutory obligations will still need to be satisfied.

Next Steps

4.10 The BEP will achieve NNL via delivery of off-site habitat management and creation projects, in conjunction with project partners. The next steps therefore entail identifying suitable partners, and working with them to develop proposals for habitat enhancement and creation.

4.11 Off-site BEP proposals should minimise the spatial risk by being within the same Local Planning Authority area as the Proposed Development.

4.12 The off-site BEP proposals should be tailored to address the habitat losses that result from the Proposed Development, in order to satisfy best practice principles.

4.13 In order to finalise the SSEN Biodiversity Project Toolkit, the details of off-site projects will then need to be identified and entered into the toolkit.

Appendix A

Figures

Figure 1: Phase 1 habitat survey

EIA Figure 3.3: Outline Landscape Mitigation and Biodiversity Enhancement Plan

Redshaw 400kV Substation
for SP Energy Networks

LUC

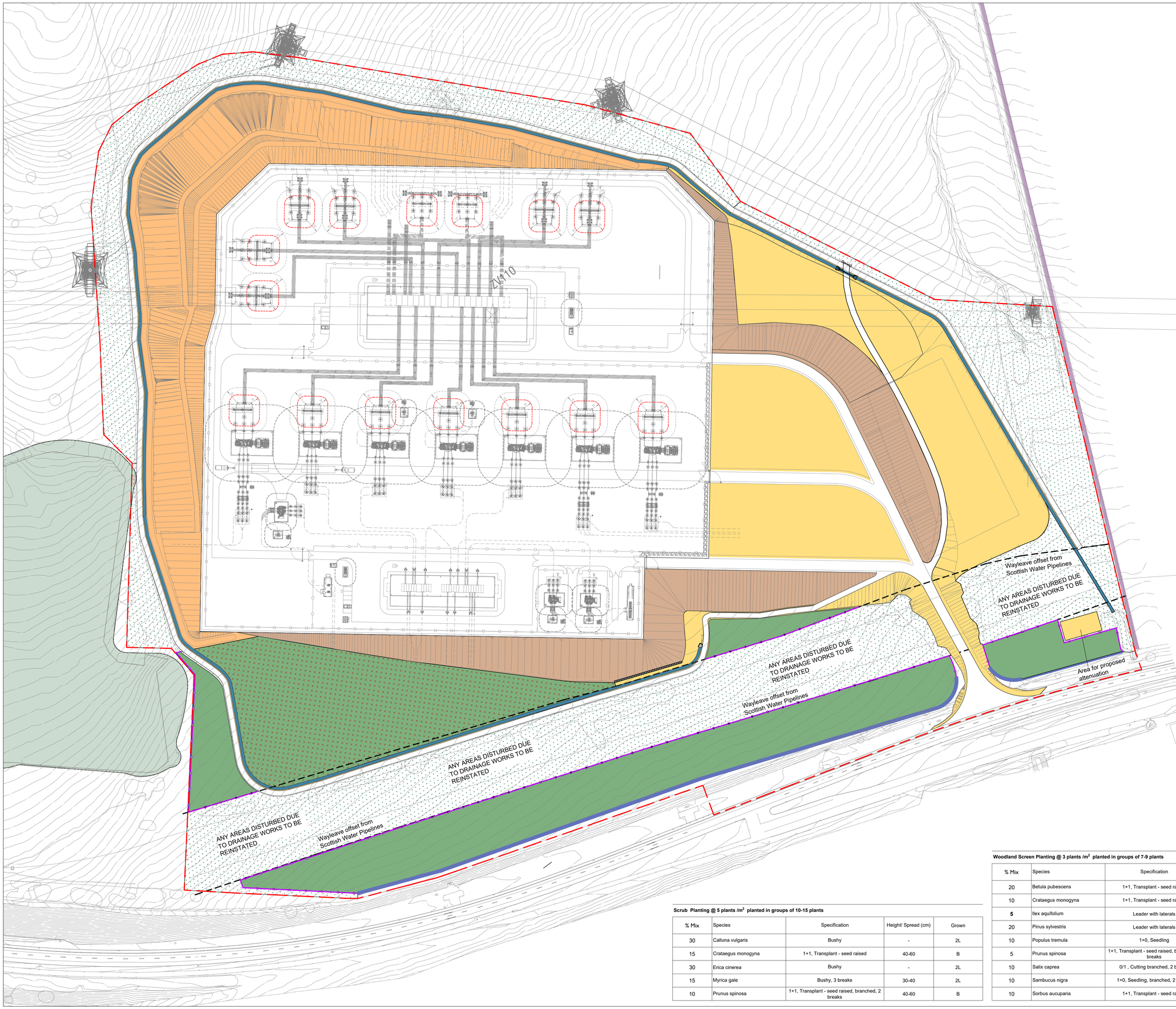
Figure 2: Phase 1 habitat

- Site boundary
- Proposed Redshaw substation
- Proposed temporary compound
- Proposed access road
- Proposed farmer's access track
- Target note

Maxar, Microsoft

EB:cooper_h LUC 12595_Redshaw_Ecology 15/04/2025

Figure 3.3



LEGEND

- Site Boundary
- Existing Woodland — Ancient Woodland Inventory Long Established of Plantation Origin (LEPO) - Currently comprising predominantly by Sitka/ Norway Spruce
- Proposed Woodland Screening — Mixed broadleaf and coniferous trees planted within existing grass land
- Proposed Woodland Screening — Mixed broadleaf and coniferous trees under seeded with meadow
- Proposed Biodiversity Enhancement — Wildflower / Native plant mix
- Proposed Biodiversity Enhancement — Wildflower / Native plant mix to areas of embankment with soil medium
- Proposed Scrubland — Low-level scrub vegetation
- Existing Vegetation Retained — Any disturbed areas to be seeded with wildflower
- Proposed Ditch — Seeded with wet habitat meadow
- Existing Stone Dyke Wall — Repair and restore existing stone dyke along site boundary
- Proposed Stone Dyke Wall — Proposed stone wall to tie in with existing and create formal entrance to primary access road
- Proposed Deer / Rabbit Proof Fence

Ditch Seeding: Wet Meadow Mix, by Scotia Seeds, 3g/m2 (Total Area: 177.21m²)

% Mix	Species
	Wildflowers (20%)
2	Achillea ptarmica
2.25	Centaurea nigra
0.1	Cirsium palustre
2.5	Filipendula ulmaria
0.5	Geranium pratense
0.5	Geum rivale
0.5	Hypericum tetrapterum
0.5	Hypochaeris radicata
1	Iris pseudacorus
1.5	Leucanthemum vulgare
0.1	Lotus uliginosus
1.5	Plantago lanceolata
1	Prunella vulgaris
1	Ranunculus acris
1	Rhinanthus minor
1	Rumex acetosa
1	Scorzoneroides autumnalis
1.5	Silene flos-cuculi
0.5	Succisa pratensis
	Grasses and sedges (80%)
10	Agrostis capillaris
5	Alopecurus pratensis
0.05	Carex ovalis
7.6	Deschampsia caespitosa
36.5	Festuca rubra commutata
20.9	Poa pratensis

Biodiversity Enchancements: Highland Grassland Mix, by Scotia Seeds, 3g/m2 (Total Area: 177.21m²)

% Mix	Species
	Wildflowers (20%)
2.5	Achillea millefolium
1	Alchemilla alpina
2	Calluna vulgaris
1.8	Erica cinerea
0.1	Galium saxatile
1.6	Galium verum
0.2	Luzula multiflora
2	Plantago lanceolata
0.1	Potentilla erecta
2.7	Prunella vulgaris
2.7	Ranunculus acris
1	Rumex acetosella
0.2	Stellaria graminea
0.5	Succisa pratensis
1.1	Trifolium repens
0.1	Veronica chamaedrys
0.3	Veronica officinalis
0.2	Viola riviniana
	Grasses and sedges (80%)
8	Agrostis capillaris
6	Agrostis vinealis
2	Anthoxanthum odoratum
6.3	Deschampsia flexuosa
28.5	Festuca ovina
28	Festuca rubra ssp commutata
1	Molinia caerulea
0.2	Nardus stricta

Meadow Seeding for areas of Woodland Screening: Hedgerow Meadow Mix, by Scotia Seeds, 3g/m2 (Total Area: 408.57m²)

% Mix	Species
	Wildflowers (20%)
2	Alliaria petiolata
0.2	Campanula latifolia
2	Centaurea nigra
0.5	Cruciata laevipes
1	Digitalis purpurea*
2	Geraniumsylvaticum
2	Geum urbanum
0.5	Hypericum perforatum
1	Knautia arvensis
1	Leucanthemum vulgare
0.2	Primula vulgaris
1	Rhinanthus minor
2	Silene flos-cuculi
1	Stachys sylvatica
0.1	Stellaria holostea
1	Teucrium scorodinia
1.5	Torilis japonica
1	Vicia sepium
	Grasses, rushes and sedges (80%)
10	Agrostis capillaris
10	Cynosurus cristatus
25	Festuca rubra ssp commutata
10	Poa nemoralis
25	Poa pratensis
0.3	Phalaris arundinacea

Scrub Planting @ 5 plants /m² planted in groups of 10-15 plants

% Mix	Species	Specification	Height/ Spread (cm)	Grown
30	Calluna vulgaris	Bushy	-	2L
15	Crataegus monogyna	1+1, Transplant - seed raised	40-60	B
30	Erica cinerea	Bushy	-	2L
15	Myrica gale	Bushy, 3 breaks	30-40	2L
10	Prunus spinosa	1+1, Transplant - seed raised, branched, 2 breaks	40-60	B

Woodland Screen Planting @ 3 plants /m² planted in groups of 7-9 plants

% Mix	Species	Specification	Height/ Spread (cm)	Grown
20	Betula pubescens	1+1, Transplant - seed raised	80-100	B
10	Crataegus monogyna	1+1, Transplant - seed raised	40-60	B
5	Ilex aquifolium	Leader with laterals	40-60	2L
20	Pinus sylvestris	Leader with laterals	40-60	2L
10	Populus tremula	1+0, Seedling	40-60	B
5	Prunus spinosa	1+1, Transplant - seed raised, branched, 2 breaks	40-60	B
10	Salix caprea	0/1 , Cutting branched, 2 breaks	60-80	B
10	Sambucus nigra	1+0, Seedling, branched, 2 breaks	40-60	B
10	Sorbus aucuparia	1+1, Transplant - seed raised	60-80	B

Rev	Date	Description	Drn	Chk	App
P05	26.03.25	Drawing title revised.	TS	DW	DW
P04	13.03.25	Layout updated.	TS	DW	DW
P03	24.02.24	Legend updated.	TS	DW	DW
P02	13.01.24	Revised to suit layout	TS	LS	DW
P01	13.08.24	First Issue	HF	DW	DW

Scale 1:1000
0 10 20 30 40 50m

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Project: Redshaw 400kV Substation

Client: SP Energy Networks

LUC Job Nr	Scale @A1	Status
12595	1:1000	S2

Drawing Title: Outline Landscape Mitigation and Biodiversity Enhancement Plan (OLMBEP)

Drawing Nr	Rev
12595-LUC-XX-XX-DR-L-0001	P05

Appendix B
Condition Assessments

On Site Baseline Area Condition Assessments

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)			
Phase 1 Habitat Type(s)			
B4 Improved grassland			
Habitat Description			
Improved grassland was the dominant habitat recorded across the Study Area. This area appears to be either lightly grazed or grown as silage. Ryegrass, Yorkshire fog and sweet vernal grass dominated this habitat. Daisy and white clover were abundant with frequent dandelion and buttercup. Mouse ear and spear thistle were rarely recorded in this habitat. Small areas of marshy grassland were noted, in mosaic with improved grassland. Soft rush was locally dominant in these areas, and they were also heavily grazed.			
Condition Assessment Criteria		**Criterion passed (Yes or No)**	**Notes (such as justification)**
1	There must be 6-8 species per m^2. If a grassland has 9 or more species per m^2 it should be classified as a medium distinctiveness grassland habitat type. **NB - this criterion is essential for achieving moderate condition**	No	Sward was not species-rich.
2	Sward height is varied (at least 20% of the sward is less than 7cm and at least 20% is more than 7cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	No	Grassland was heavily grazed.
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Yes	
4	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused	Yes	-

	by high levels of access, or any other damaging management activities.		
5	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	Yes	
6	Cover of bracken is less than 20%.	Yes	
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).	Yes	
Essential criterion 1 achieved (Yes or No)			No
Number of criteria passed			5
Condition Assessment Result (out of 6 criteria)		**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 6 or 7 of 7 criteria including passing essential criterion 1.		Good (3)	
Passes 3 – 5 Passes 4 or 5 of 7 criteria including passing essential criterion 1.		Moderate (2)	
Passes 0, 1, 2 or 3 of 7 criteria; OR 4, 5 or 6 of criteria (but failing criterion 1)		Poor (1)	Assigned Fairly Poor

Condition Sheet: GRASSLAND Habitat Type (medium, high & very high distinctiveness)			
Phase 1 Habitat Type(s)			
B5 Marshy grassland			
Habitat Description			
Small areas of marshy grassland were noted, in mosaic with improved grassland. Soft rush was locally dominant in these areas, and they were also heavily grazed.			
Condition Assessment Criteria		**Criterion passed (Yes or No)**	**Notes (such as justification)**
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward. **NB - This criterion is essential for achieving moderate condition for non-acid grassland types only**.	No	Grassland did not match a specific grassland habitat type.
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	No	Grassland was heavily grazed.
3	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Yes	
4	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	Yes	
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition1 and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	Yes	
Additional Group (Non-acid types only)			
6	There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	No	Grassland was not species-rich
Essential criterion for Good condition achieved (for non-acid grassland) (Yes or No)			No
Number of criteria passed			3
Condition Assessment Result (out of 6 criteria)		**Condition Assessment Score**	**Score Achieved ×/✓**

Passes 5 of 6 criteria, including essential criterion 1 and 6.	Good (3)	
Passes 3 or 4 of 6 criteria, including essential criterion 1.	Moderate (2)	
Passes 0, 1, 2 criteria of 6 criteria; OR Passes 3 or 4 criteria excluding criterion 1 and 6	Poor (1)	✓

Condition Sheet: HEATHLAND			
Phase 1 Habitat Type(s)			
D1 Dry dwarf shrub heath			
Habitat Description			
A small area of dry dwarf shrub heath/ improved grassland was present within the northwest of the Study Area. This habitat was present on the sloped road verge. Within this habitat, bell heather was locally dominant with a ground cover of grasses including: Yorkshire fog, perennial ryegrass and tufted hairgrass. (See **Appendix 4.1**, **Photo 7** of the Ecological Appraisal Report).			
Condition Assessment Criteria		Condition Achieved (Y/N)	Notes/ Justification
1	The appearance and composition of the vegetation closely matches characteristics of the specific heathland habitat type (see UKHab definition linked above). Indicator shrubs, grasses, herbs and lower plants for the specific heathland habitat type are very clearly and easily visible. **NB - this criterion is essential for achieving good condition.**	No	
2	There are at least two dwarf shrub species frequent, and cover of dwarf shrubs is between 25-75% for Lowland heathland, 50-75% for upland dry heath, or >20% for upland wet heath. **NB - this criterion is essential for achieving good condition.**	No	
3	All age classes (pioneer, degenerate and mature) present with at least 10% pioneer heather in the lowlands or at least 10% degenerate/mature in the uplands. **NB - this criterion is essential for achieving good condition.**	No	
4	Unshaded bare ground is between 1-10%. **NB - this criterion is essential for achieving good condition.**	Yes	
5	No signs disturbance of sensitive areas[1], including managed burns.	No	
6	No more than 33% of heather shoots should be grazed, or flowering heather plants are at least frequent in autumn.	No	
7	There is an absence of invasive non-native species listed on Schedule 9 of WCA, 1981, or shallon *Gaultheria shallon*, and there is less than 5% cover of bracken *Pteridium aquilinum*[2].	Yes	
8	Cover of scattered trees and/or scrub[3] should be less than 20% for upland heaths; less than 15% for lowland dry heaths; and less than 10% for lowland wet heaths.	Yes	

9	No signs of any damaging activites[4] or contamination to the habitat such as: artificial drains, peat extraction, silt, leachate or eutrophication.	Yes	
Essential criteria for achieving good condition 1-4 achieved (Y/N)			No
Number of criteria passed			4

Condition Assessment Result	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 8 or 9 of 9 criteria including all essential criteria 1-4	Good (3)	
Passes 6 or 7 of 9 criteria; OR Passes 8 of 9 criteria excluding any of the essential criteria 1-4	Moderate (2)	
Passes 0, 1, 2, 3, 4 or 5 of 9 criteria	Poor (1)	✓

On Site Baseline Linear Condition Assessments

Condition Sheet: DITCH Habitat Type			
Phase 1 Habitat Type(s)			
G2 Running Water - Eutrophic			
Habitat Description			
The southeast of the Study Area also included a narrow field drain that was largely covered by overhanging vegetation dominated by soft rush. In places the vegetation around the channel was more open and exposed small pools of slower moving water. The north of the Study Area included a mosaic of marshy grassland and improved grassland, there were several small field drains and a small water course present in this area Both of these areas were heavily influenced by grazing.			
Limitations (if applicable)		**Linear length (km)**	0.21
Condition Assessment Criteria		**Condition Achieved (Y/N)**	**Notes/Justification**
1	The ditch is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	Y	Surface of ditch visible
2	A range of emergent, submerged and floating leaved plants are present. As a guide >10 species of emergent, floating or submerged plants in a 20m ditch length.	N	No submerged or floating plants recorded
3	There is less than 10% cover of filamentous algae and/or duckweed (these are signs of eutrophication).	Y	
4	A fringe of marginal vegetation is present along more than 75% of the ditch.	N	
5	Physical damage evident along less than 5% of the ditch, such as excessive poaching, damage from machinery use or storage, or any other damaging management activities.	N	
6	Sufficient water levels are maintained; as a guide a minimum summer depth of approximately 50cm in minor ditches and 1 m in main drains.	N	

7	Less than 10% of the ditch is heavily shaded.	N	Heavily shaded by willow and alder
8	There is an absence of non-native plant and animal species[1].	Y	
		Number of criteria passed	**3**

Condition Assessment Result	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 8 of 8 criteria	Good (3)	
Passes 6 or 7 of 8 criteria	Moderate (2)	
Passes 0, 1, 2, 3, 4 or 5 of 8 criteria	Poor (1)	✓