



# St Fergus Gas 132/11 kV Substation

Extended Phase 1 Habitat Survey

11 September 2019

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## Signature Page

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## Extended Phase 1 Habitat Survey

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## 1. INTRODUCTION

### 1.1 Background

### 1.2 Scope of This Report

Environmental Resources Management Ltd (ERM) was asked to report on the results of an Extended Phase habitat survey and habitat condition assessment <sup>(1)</sup> undertaken on land west of the St Fergus gas terminal in Buchan, north Aberdeenshire. Surveys were undertaken by ERM on behalf of Scottish Hydro Electric Transmission (SHE Transmission) on the 13<sup>th</sup> – 15<sup>th</sup> November 2018 and by Direct Ecology (DEL) on 25<sup>th</sup> June 2019.

SHE Transmission is preparing to replace two transformers from the existing St Fergus Substation with a new substation as there is insufficient space within the existing substation to facilitate the replacement on site. The new location (see Figure 4.1) is west of the A90, whilst the existing site is immediately to the east.

The purpose of the surveys is to inform an Environmental Appraisal (EA) of the substation works, which will also require overhead line (OHL) diversion works to tie in the existing transmission lines, the installation of underground cabling and a new access road.

The Extended Phase 1 habitat survey included checks for the bat roost potential of trees and structures, signs of badger (*Meles meles*) and otter (*Lutra lutra*) activity and potential red squirrel (*Sciurus vulgaris*) dreys within 100 m of the site boundary. Separate monthly Vantage Point (VP) surveys for wintering birds using the site commenced in October 2018 and will be undertaken until February 2019. Further information on the use of the Project site by bird species of conservation concern is provided by these surveys.

(1) ERM were asked to apply 'Higher Level Stewardship Farm Environment Plan (FEP) Manual' habitat assessment criteria to Extended Phase 1 habitats found.

## 2. DESK STUDY

A data request for information on designated sites, species records for the last ten years and the type and distribution of woodland habitats was made to the North East Scotland Biological Records Centre (NESBRC). The search was carried out within a 2 km radius from the approximate centre of the Project site (NK 08655 53612).

One non-statutory designated site is present within the search radius; the Rattray Head to Peterhead Local Nature Conservation Site (LNCS). This site is located approximately 1.4 km from the Project site and is designated for a variety of coastal habitats, including sand dunes, and botanical interest. Fields adjacent to the LNCS are important for roosting and feeding geese, waders and wildfowl.

The records identified woodland in the search radius as being primarily young plantation (mixed and conifer), with an area of mixed (mainly broad-leaved) woodland in the eastern part of the Project site (see *Figure 4.1*). This was confirmed during the Extended Phase 1 habitat survey (see *Section 4.1.1*).

The following records were identified in the search area:

- thirty four bird species of conservation importance, including species listed on Annex 1 of the *EU Birds Directive* <sup>(1)</sup>, Schedule 1 of the *Wildlife and Countryside Act* <sup>(2)</sup>, UK red and amber listed birds <sup>(3)</sup> and Scottish Biodiversity List <sup>(4)</sup> species (see *Annex A* for full details);
- badger (protected under the *Protection of Badgers Act 1992* (as amended));
- two Scottish Biodiversity List mammal species – brown hare (*Lepus europeus*) and hedgehog (*Erinaceus europaeus*); and
- one Scottish Biodiversity List plant species – *Viola tricolor* (wild pansy).

Suitable habitat for most of the species recorded is present in the Project site. No bat records were returned as part of the search.

(1) Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds.

(2) Wildlife and Countryside Act 1981 (c.69).

(3) Birds of Conservation Concern 4 (BoCC4).

(4) <https://www2.gov.scot/Topics/Environment/Wildlife-Habitats/16118/Biodiversitylist/SBL>.

## 3. FIELD SURVEY METHODOLOGIES

### 3.1 Extended Phase 1 Habitat Survey

An Extended Phase 1 habitat survey was undertaken by two ERM ecologists <sup>(1)</sup> on the 13<sup>th</sup> – 15<sup>th</sup> November 2018 and also by a single DEL ecologist on 25<sup>th</sup> June 2019 <sup>(2)</sup>. This focused on the Project site plus a 100 m buffer. In addition, habitats out to 250 m from the Project site were also mapped where possible (see *Section 3.3*) in order to enable the identification of wetlands which are potential Groundwater Dependent Terrestrial Ecosystems (GWDTE). SEPA guidance advises that GWDTE up to 250 m from excavations in excess of 1 m in depth may be affected during development <sup>(3)</sup>.

The Extended Phase 1 habitat survey used the methodology outlined in the Joint Nature Conservation Committee (JNCC) *Handbook for Phase 1 Habitat Survey* (2010) <sup>(4)</sup> as extended for use in Environmental Assessment <sup>(5)</sup>. This involved classifying habitats, determining the dominant plant species and compiling a species list for each habitat type. The locations of field evidence of protected fauna and areas suitable for use by protected fauna are marked on the habitat map as target notes (see *Figure 4.1*) and the target note descriptions are provided in *Annex B*.

The nomenclature of vascular plants occurring within the defined survey area follows Stace (2010) <sup>(6)</sup>.

### 3.2 Habitat Condition Assessment

Habitats recorded within the site footprint and a 100 m buffer and potential GWDTEs within 250 m were assessed for condition in line with the Higher Level Stewardship Farm Environment Plan (FEP) Manual <sup>(7)</sup>. Habitats were categorised as condition category A, B or C in accordance with *Box 3.1*, (effectively relating to ‘good’, ‘moderate’ and ‘poor’ condition respectively), depending on the number of habitat-specific criteria they failed to meet.

Any habitats encountered for which no FEP condition assessment criteria are available were assessed against accepted “*default*” condition assessment criteria <sup>(8)</sup>.

(1) Both members of the Chartered Institute for Ecology and Environmental Management (CIEEM).

(2) A member of the Chartered Institute for Ecology and Environmental Management (CIEEM).

(3) Land Use Planning system SEPA Guidance Note 31 (2017). Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. Version 3. LUPS-GU31.

(4) Joint Nature Conservation Committee (2010) *Handbook for Phase 1 Habitat Survey - A Technique for Environmental Audit*, Joint Nature Conservation Committee (JNCC), Peterborough.

(5) Institute of Environmental Assessment (1995) Guidelines for Baseline Ecological Assessment, Spon, London.

(6) Stace, C. (2010) *New Flora of the British Isles*. 3rd edition. UK. Cambridge University Press.

(7) Natural England (2010). Higher Level Stewardship Farm Environment Plan (FEP) Manual Technical Guidance on the completion of the FEP and identification, condition assessment and recording of HLS FEP features. Third Edition. NE. Peterborough.

(8) Network Rail (2017). Biodiversity Calculator User Guide V2.

**Box 3.1 Determination of Habitat Condition Categories (as summarised in the FEP Manual)**

Number of missed/failed criteria	Condition assessment category
0	A
1	B
2 or more	C

### 3.3 Survey Limitations

As the initial survey was undertaken outwith the optimal survey season (May to September), some flora species may have been missed due to dieback, and for the same reason, not all flora species recorded could be identified to species level. This is not considered to have fundamentally affected the views drawn on habitat condition status, as criteria are generally based on diversity rather than specific species. Whilst a small number of species may have been missed, most were still in the early stages of dieback and it is considered that the probability of overall diversity judgements being affected is low. The second survey was undertaken within the optimal survey season and so these limitations did not apply.

Some parts of the St Fergus Gas Grid facility (hatched in red in *Figure 4.1*) were not accessible during the survey. Based on views across these areas, including using binoculars, they appeared to comprise primarily semi-improved neutral grassland, an area of marshy grassland and industrial buildings. The marshy grassland looked similar to another accessible area of the same habitat type, and hence was assumed to have a similar species composition and value.



## 4. FIELD SURVEY RESULTS

### 4.1 Extended Phase 1 Habitat Survey

The habitat definitions below are presented according to the hierarchical alphanumeric coding system set out in the *Handbook for Phase 1 Habitat Survey* (2003). Under each broad habitat heading, alphanumeric coding is provided to define key sub-habitats. The order of the descriptions that follow are then based in order of abundance of those habitat types in the survey area. The habitat map is presented in *Figure 4.1* and target notes and photographs for the survey area are presented in *Annex B*.

Habitats in the survey area consisted of improved, poor semi-improved, arable land and marshy grassland crossed by a small river and flowing ditches. There were two areas of standing water (a pond which overlaps the Project site boundary and an inundated part of a field within 100 m of the Project site), both of which were associated with separate areas of marshy grassland. A mixed plantation woodland overlapped the eastern extent of the Project site.

#### 4.1.1 Woodland Habitats

**A1.1.2:** Broadleaved woodland – plantation

**A1.2.2:** Coniferous woodland – plantation

**A1.3.2:** Mixed woodland - plantation

**A2.1:** Dense/continuous scrub

**A2.2:** Scattered scrub

Mixed plantation woodland was present in the east of the Project area. Dominated by *Alnus glutinosa* (alder) with abundant *Acer pseudoplatanus* (sycamore) this habitat also supported occasional *Fraxinus excelsior* (ash), *Betula pendula* (silver birch), *Corylus avellana* (hazel) and *Picea sitchensis* (sitka spruce). Most *Picea sitchensis* present has been planted either side of the existing OHL where it runs through the northern corner of the woodland. The majority of trees were semi-mature and of similar age. *Fagus sylvatica* (beech) was frequent and *Sorbus* sp (whitebeam) rare. The understorey was dominated by *Deschampsia caespitosa* (tufted hair-grass), with abundant *Dactylis glomerata* (cock's-foot) and *Heracleum sphondylium* (hogweed). *Holcus lanatus* (Yorkshire fog) was occasional and *Centaurea nigra* (black knapweed) and *Senecio jacobaea* (common ragwort) were frequent. Trees in this area were in obvious rows in a ridge and furrow system typical of plantation woodlands.

East of the A90, adjacent the existing St Fergus Gas Station, was an area of conifer plantation woodland surrounded by broad-leaved plantation upon a bund. The conifer woodland was below the bund and the ground was wet in places. This area was dominated by *Pinus* sp (a non-native pine). The understorey contained abundant *Deschampsia caespitosa*, *Holcus lanatus* and *Dactylis glomerata*, frequent *Juncus effusus* (soft rush) and occasional *Cirsium palustre* (marsh thistle). The physical structure of the habitat was complex with many fallen trees in wetter areas.

The broad-leaved plantation east of the A90 contained young to semi-mature trees dominated by *Sorbus* sp, with frequent *Acer pseudoplatanus* and *Crataegus monogyna* (hawthorn), occasional alder and *Salix* sp (willow), and rare field maple (*Acer campestre*). The trees had been planted in well-defined rows. The understorey contained abundant *Holcus lanatus* and *Dactylis glomerata*, frequent *Juncus effusus*, and occasional *Heracleum sphondylium*, *Pteridium aquilinum* (bracken), *Ranunculus acris* (meadow buttercup) and *Tussilago farfara* (colt's foot).

Dense stands of *Ulex europaeus* (gorse) scrub occurred on the banks of most ditches in the survey area and along the southern edge of the main A90 road. Ruderal vegetation associated with dense scrub included abundant *Dactylis glomerata* and *Holcus lanatus*, frequent *Urtica dioica* (common nettle), and occasional *Cirsium arvense* (creeping thistle), *Galium aparine* (cleavers), *Heracleum sphondylium* and *Ranunculus acris*.

#### 4.1.2 Grassland Habitats

**B2.2:** Semi-improved neutral grassland

**B4:** Improved grassland

**B5:** Marshy grassland

**B6:** Poor semi-improved grassland

Within the survey area, improved and poor semi improved grasslands were the dominant habitat types. Marshy grassland was also present in two locations including a large area surrounding a pond in the east of the Project site.

The improved grassland was dominated by *Lolium* sp (ryegrass), with frequent *Agrostis stolonifera* (creeping bent) and *Ranunculus repens* (creeping buttercup) and rare *Poa annua* (annual meadow-grass). The poor semi-improved grassland had a similar composition to the improved grassland with the addition of *Holcus lanatus* as a co-dominant component. *Agrostis stolonifera* and *Trifolium repens* (white clover) were frequent and a low number of flowering plants occurred rarely, including *Cerastium glomeratum* (sticky mouse-ear), *Senecio jacobaea* (ragwort), *Angelica sylvestris* (wild angelica) and *Knautia arvensis* (field scabious).

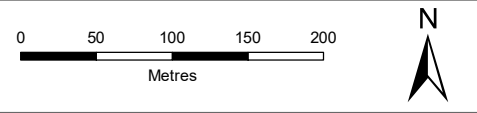
Two areas of marshy grassland occurred within the Project site footprint. One of these surrounded a pond in the east of the surveyed areas and was dominated by *Juncus effusus* with occasional *Juncus conglomeratus* (compact rush) and patches of *Juncus acutiflorus* (sharp-flowered rush). Where waterlogged conditions extended beyond the area dominated by the rush species, *Alopecurus geniculatus* (marsh foxtail) was abundant. Patches of *Phalaris arundinacea* (reed canary grass) were also present in places. *Nasturtium officinale* (watercress) and *Callitriche* sp. (water-starwort) were occasional, with rare *Persicaria amphibia* (amphibious bistort). The marshy grassland was well-established and further species may be apparent in the optimal growing season.

The western marshy grassland area surrounded an inundated area adjacent to the Black Water River. Rushes in this area were predominantly *Juncus effusus* with occasional *Juncus articulatus* (jointed rush) and rare *Juncus bulbosus* (bulbous rush). There was a higher proportion of grasses in this area, including *Dactylis glomerata*, *Holcus lanatus* and *Agrostis stolonifera*. Lying at the low point of the field, it was heavily poached by cattle and included species indicative of nutrient enrichment including *Rumex obtusifolius* (broad-leaved dock) and *Ranunculus repens*. Wetter, more heavily poached areas supported *Nasturtium officinale*, *Callitriche* sp, *Glyceria fluitans* (floating sweet-grass) and *Persicaria amphibia*.

In the north of the site, west of the A90 is a field of semi-improved neutral grassland. The field was identified as poor semi-improved neutral grassland during the initial survey in November 2018; however a wider area was surveyed in June 2019 and was noted to have a reasonable diversity of species present at this time of year. Dominant species were *Holcus lanatus* and *Dactylis glomerata*. *Juncus effusus* was abundant, as was *Ranunculus acris*, *Plantago lanceolata* (ribwort plantain), *Trifolium repens* and *Cirsium arvense*. *Rumex obtusifolius*, *Cynosurus cristatus* (crested dog's tail), *Lotus corniculatus* (bird's-foot trefoil), *Potentilla anserina* (silverweed) and *Leucanthemum vulgare* (oxeye daisy) were frequent, with occasional *Prunella vulgaris* (self-heal) and *Heracleum sphondylium*, and rare *Dactylorhiza purpurella* (northern marsh orchid) and *Phragmites australis* (common reed).



- Target Note
- 100m Buffer of Illustrative Footprint
- 250m Buffer of Illustrative Footprint
- New Cable
- Temporary OHL
- Existing OHL
- Proposed Access Road
- CSE Compound
- New Substation
- Old Substation
- Phase 1 Habitat Type:**
- A2.2 - Scrub - scattered
- G2.1 - Running water - eutrophic
- J2.2.2 - Defunct hedge - species-poor
- J2.6 - Dry ditch
- No Access Available
- A1.1.2 - Broadleaved woodland - plantation
- A1.2.2 - Coniferous woodland - plantation
- A1.3.2 - Mixed woodland - plantation
- A2.1 - Scrub - dense/continuous
- A2.2 - Scrub - scattered
- B2.2 - Neutral grassland - semi-improved
- B4 - Improved grassland
- B5 - Marsh/marshy grassland
- B6 - Poor semi-improved grassland
- G1.1 - Standing water - eutrophic
- J1.1 - Cultivated/disturbed land - arable
- J3.6 - Buildings
- J4 - Bare ground
- J5 - Other habitat



SCALE: See Scale Bar	VERSION: A06
SIZE: A3	DRAWN: WB
PROJECT: 0478671	CHECKED: SM
DATE: 13/09/2019	APPROVED: AB

**Figure 4.1**  
**St. Fergus Gas 132/11kV Substation**  
**Phase 1 Extended Survey Map**



### 4.1.3 Open Water

**G1:** Standing water – Eutrophic

**G2:** Running water - Eutrophic

The pond in the east of the Project area contained abundant submerged and marginal macrophytes. *Potamogeton natans* (broad-leaved pondweed) was dominant throughout and *Lemna minor* (common duckweed) frequent in the margins. *Glyceria fluitans*, *Nasturtium officinale* and *Veronica beccabunga* (brooklime) occurred occasionally. Emergent vegetation included *Sparganium erectum* (branched bur-reed) and *Equisetum fluviatile* (water horsetail). Horsetails are highly invasive and *Equisetum fluviatile* occurred in abundance; particularly around the eastern edge of the pond (between the pond and the ditch) where extremely waterlogged conditions made access difficult. A small stand of possible *Carex rostrata* (bottle sedge) was present toward the centre of the pond, but positive identification was not possible as the stand was inaccessible.

The standing water in the west of the survey area appeared to be largely seasonal, however the area closest to the Black Water River seemed to be permanently waterlogged, as indicated by the presence of *Callitriche* sp and *Glyceria fluitans*.

Ditches crossed the survey area and all contained running water at the time of the survey. All drained into the River Black Water, which ran in a south-westerly direction through the middle of the survey area and was itself little more than a running drain. Most of the running water habitat recorded had a depth range of between 20 and 75 cm. A single silt-laden ditch which supported abundant *Phalaris arundinacea* was noted to be over 2 m deep. This ditch is crossed by the buried cable route planned as part of the Project (*Target Note 8, Figure 4.1*). Elsewhere, substrates vary from silty to gravelly with pebbles and cobbles in localised areas. Vegetation in the ditches included occasional *Veronica beccabunga*, *Nasturtium officinale*, *Glyceria fluitans* and *Caltha palustris* (marsh marigold). Most of the running water habitat contained abundant *Iris pseudocorus* (yellow flag) both in and adjacent to the channel, with rarer and more localised stands of *Sparganium erectum*. Bankside vegetation was dominated by rank grasses (*Deschampsia caespitosa*, *Dactylis glomerata* and *Holcus lanatus*), with occasional *Ulex europaeus*, *Crataegus monogyna*, *Pteridium* sp, *Rosa canina* (dog rose), *Glechoma hederacea* (ground ivy) and eutrophilic herbs including *Cirsium arvense* and *Ranunculus repens*.

### 4.1.4 Cultivated / Disturbed Ground

**J1.1:** Arable

Regularly ploughed farmland used for the sowing of crops was present in the central south of the Project site and to the immediate south.

A field to the north-west initially identified as semi-improved grassland was noted to be in use for growing crops in June 2019.

### 4.1.5 Boundaries

**J2.2.2:** – Defunct Species-poor Hedge

A row of young trees (predominantly *Crataegus monogyna* with some *Corylus avellana*) apparently planted as a hedgerow extended along a dry ditch for approximately 20 m in the centre east of the survey area to the west of the A90. A lack of maintenance meant this feature was little more than a closely planted row of trees.

## 4.1.6 Built-up Areas

### J3.6: Buildings

No buildings were present within the Project site, however, a single building which formed part of the existing gas plant lay within the 100 m buffer area to the east across the A90.

## 4.1.7 Fauna

Three snipe (*Gallinago gallinago*) were noted in the marshy grassland which surrounds the pond at *Target Note 2* (see *Figure 4.1*). Badger fur was found on wire fence and a badger latrine was also found nearby (see *Target Notes 3 and 4* in *Figure 4.1*). This appeared to be associated with a foraging route passing between the mixed plantation woodland to the south and east of the fence, and the semi-improved grassland habitat to the north and west. No badger setts were recorded during the survey and no other signs of protected, or notable species were found. No trees with suitable roost features were noted in the site and 100 m buffer and the only building within 100 m was assessed as having negligible bat roost potential. Signs of roe deer (*Capreolus capreolus*), mole (*Talpa europaea*) and rabbit (*Oryctolagus cuniculus*) were recorded.

A single badger dropping was recorded during the DEL survey towards the west of the site (see *Target Note 20*).

## 4.2 Potential Groundwater Dependant Terrestrial Ecosystems

The only wetland habitat identified during the Extended Phase 1 survey was marshy grassland. Areas of this habitat occurred:

- in the River Blackwater flood zone around the pond and inundation area habitats (in the Project site), suggesting that these habitats were likely to be primarily surface water fed; and
- in the 250 m buffer of the Project site, in the area next to the existing gas terminal to the east of the A90. These areas are not located within the flood zone associated with the river but are in an area prone to surface water flooding<sup>(1)</sup>. They are therefore also considered likely to be surface water fed.

Although *Alnus glutinosa* dominated woodland was present in the survey area, it was not considered to represent a potential GWDTE, as it appeared to be part of a mixed plantation on relatively dry ground.

## 4.3 Habitat Condition Assessment

The condition of FEP listed habitats<sup>(2)</sup> encountered during the Extended Phase 1 habitat survey are categorised in *Table 4.1*. Only potentially affected habitats (ie those within the Project site and 100 m buffer and those within 250 m which may be groundwater-dependent) were assessed. Arable land does not qualify for condition assessment due to the intensively managed nature of this habitat.

(1) <http://map.sepa.org.uk/floodmap/map.htm>

(2) as per Natural England (2010). Higher Level Stewardship Farm Environment Plan (FEP) Manual Technical Guidance on the completion of the FEP and identification, condition assessment and recording of HLS FEP features. Third Edition. NE. Peterborough.

**Table 4.1 Habitat Condition Assessment**

Phase 1 habitat	FEP habitat name and code (where available)	Criteria met	Criteria failed	Condition Assessment Category
A1.3.2 Mixed Woodland-Plantation	T06 Mixed woodland	<p>The woodland must be free from damage (in the last five years) by stock or wild mammals</p> <p>There should be no evidence of machinery storage, signage or other inappropriate management</p>	<p>This should be an area of trees with complete canopy cover</p>	B
A1.1.2 Broadleaved woodland – plantation	T06 Mixed woodland	<p>The woodland must be free from damage (in the last five years) by stock or wild mammals</p> <p>There should be no evidence of machinery storage, signage or other inappropriate management</p>	<p>This should be an area of trees with complete canopy cover</p>	B
A1.2.2 Coniferous woodland – plantation	Non-native plantation (no current FEP code)	<p>Diverse structural variety / diverse form</p> <p>Potential or confirmed presence of protected species</p> <p>None or a limited presence of invasive species</p> <p>No or limited damage from inappropriate use for example by machinery</p>	<p>A diverse age range</p> <p>A diverse species mix</p>	C

<p>A2.1 Dense/continuous scrub</p> <p>A 2.2 Scattered scrub</p>	<p>Scrub not of high environmental value (no current FEP code)</p>	<p>Potential or confirmed presence of protected species</p> <p>None or a limited presence of invasive species</p> <p>No or limited damage from inappropriate use for example by machinery</p>	<p>A diverse age range</p> <p>A diverse species mix</p> <p>Diverse structural variety / diverse form.</p>	<p>C</p>
<p>B2.2 Semi-improved neutral grassland</p>	<p>G02 Semi-improved grassland (no condition assessment required under FEP guidance)</p>	<p>Diverse structural variety / diverse form</p> <p>Potential or confirmed presence of protected species</p> <p>None or a limited presence of invasive species</p> <p>No or limited damage from inappropriate use for example by machinery</p>	<p>A diverse age range</p> <p>A diverse species mix</p>	<p>C</p>
<p>B4 Improved grassland</p>	<p>Improved grassland (no current FEP code and does not need to be recorded under FEP guidance) <sup>(1)</sup></p>	<p>Potential or confirmed presence of protected species</p> <p>None or a limited presence of invasive species</p> <p>No or limited damage from inappropriate use for example by machinery</p>	<p>A diverse species mix</p> <p>Diverse structural variety / diverse form.</p>	<p>C</p>

(1) diverse age range criterion excluded from this habitat as not relevant to it

B6 Poor semi-improved grassland	G02 Semi-improved grassland (no condition assessment required under FEP guidance) <sup>(1)</sup>	<p>Potential or confirmed presence of protected species</p> <p>None or a limited presence of invasive species</p> <p>No or limited damage from inappropriate use for example by machinery</p>	<p>A diverse species mix</p> <p>Diverse structural variety / diverse form.</p>	C
B5 Marshy grassland (includes the inundation area marked as Target Note 17 as well as the mapped marshy grassland to the west of the A90)	G13 Habitat for wintering waders and wildfowl	<p>Cover of rushes should be less than 40%, and on the remainder, the cover of grass, or sedge tussocks should be between 5% and 60%</p> <p>There is standing water on more than 5% of the field and the ground is wet (a 6-inch nail can easily be pushed in) on more than 50% of the field between November and February</p>	The sward height should be between 5 cm and 15 cm in November	B
B5 Marshy grassland (east of A90)	Marshy grassland (no current FEP code)	<p>A diverse age range</p> <p>Diverse structural variety / diverse form</p> <p>Potential or confirmed presence of protected species</p> <p>None or a limited presence of invasive species</p> <p>No or limited damage from inappropriate use for example by machinery</p>	A diverse species mix	B

(1) diverse age range criterion excluded from this habitat as not relevant to it.



<p>G1 Standing water – Eutrophic (Pond at Target Note 2)</p>	<p>W07 – Ponds –BAP habitat</p>	<p>The pond should be set within a semi-natural habitat</p> <p>It should be within 500 m of another wetland feature (such as a pond, river or fen)</p> <p>There should be no obvious sign of pollution or of inappropriate quality of the water supply</p> <p>There should be an absence of damaging non-native plant or animal species</p> <p>The pond should not be stocked with fish or support damaging numbers of wildfowl</p> <p>It should experience only natural fluctuations in water levels</p>	<p>None</p>	<p>A</p>
<p>G2 Running water – Eutrophic <sup>(1)</sup>  (includes the Black Water and influent ditches)</p>	<p>Wet ditches not of high environmental value (no current FEP code)</p>	<p>Diverse structural variety / diverse form</p> <p>Potential or confirmed presence of protected species</p> <p>None or a limited presence of invasive species</p> <p>No or limited damage from inappropriate use for example by machinery</p>	<p>A diverse species mix</p>	<p>B</p>

(1) diverse age range criterion excluded from this habitat as not relevant to it.

J2.2 Defunct species-poor hedge	Line of trees not of high environmental value (no current FEP code)	None or a limited presence of invasive species  No or limited damage from inappropriate use for example by machinery	A diverse age range  A diverse species mix  Diverse structural variety / diverse form  Potential or confirmed presence of protected species	C
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## 5. SUMMARY AND RECOMMENDATIONS

This report presents the findings from an Extended Phase 1 habitat survey and a condition assessment of habitats within of the Project site and 100 m buffer and a check for potential GWDTE within the Project site and a 250 m buffer. The majority of the survey area at the St Fergus site was dominated by improved and semi-improved grassland and arable fields which were of generally low botanical value. The standing water, ditch and marshy grassland habitats had the most diverse botanical interest, though the only habitat which appeared to be in 'good' condition, based on the FEP criteria was a pond which overlapped the Project site boundary. Other habitat types were either moderate, or poor condition.

The marshy grassland habitat on the Project site supported wintering snipe and was also suitable for use by breeding birds. The plantation woodland present was suitable for use by foraging and breeding birds and the grassland habitat was suitable for use by wintering birds including foraging geese and swans. A number of records of bird species of conservation concern in the area were provided by NESBRC and some of these species have been observed using the site during the winter VP surveys.

Records of badger were provided by NESBRC, and a path and associated latrine was noted between the plantation woodland and semi-improved grassland habitats in the survey area. A dropping was recorded by DEL to the west of the Project site on a well-used farm track. No setts, or other confirmed pathways were noted during the survey.

There was no evidence of otter, red squirrel or bats (or suitable roosts) from the records centre information, or from the site survey.

In light of the findings of the survey a number of recommendations are listed below.

- Any changes to the site layout as the Project evolves should be reviewed against the coverage of this Extended Phase 1 survey and further survey undertaken if necessary to capture additional relevant habitat.
- It is considered unlikely that the marshy grassland habitats recorded in the site and 250 m buffer are groundwater fed due to their presence in areas prone to surface water flooding. The superficial geology underneath these habitats and the wider survey area appears to comprise fine-grained lacustrine sediments <sup>(1)</sup>, which are of low permeability. This also suggests none of the habitats in the area surveyed are groundwater fed. This will, however require confirmation by a specialist hydrogeologist.
- Implementation on SHE Transmission's standard mitigation, as outlined in SHE Transmission's Species Protection Plan (SPP) documentation is assumed. This includes a pre-construction survey for badger <sup>(2)</sup> to check that no setts have been created in proximity to the Project site prior to the commencement of works.
- It is understood that the current works programme has been planned to avoid the breeding bird season (March to August). If this changes, however, it is assumed that the mitigation measures outlined in SHE Transmission's Bird Species Protection <sup>(3)</sup> will be implemented, including pre-construction survey.

(1) <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

(2) SHE Transmission (2014). Badger Species Protection Plan (Rev 1). TG-PS-LT-707.

(3) SHE Transmission (2015). Bird Species Protection Plan (Rev 1). TG-PS-LT-718.


## ANNEX A DESK STUDY SPECIES RECORDS

Species	Conservation status
Arctic skua ( <i>Stercorarius parasiticus</i> )	UK Red listed Scottish Biodiversity List
Arctic tern ( <i>Sterna paradisaea</i> )	EU Birds Directive Annex 1 UK Amber listed Scottish Biodiversity List
Barn owl ( <i>Tyto alba</i> )	Wildlife and Countryside Act Schedule 1 Scottish Biodiversity List
Barnacle goose ( <i>Branta leucopsis</i> )	EU Birds Directive Annex 1 UK Amber listed Scottish Biodiversity List
Bar-tailed godwit ( <i>Limosa lapponica</i> )	UK Amber listed Scottish Biodiversity List
Black-headed gull ( <i>Chroicocephalus ridibundus</i> )	UK Amber listed Scottish Biodiversity List
Brown hare ( <i>Lepus europeaus</i> )	Scottish Biodiversity List
Bullfinch ( <i>Pyrrhula pyrrhula</i> )	UK Amber Listed Scottish Biodiversity List
Common tern ( <i>Sterna hirundo</i> )	EU Birds Directive Annex 1 UK Amber listed Scottish Biodiversity List
Curlew ( <i>Numenius arquata</i> )	UK Red listed Scottish Biodiversity List
Dunlin ( <i>Calidris alpina</i> )	UK Amber Listed Scottish Biodiversity List
Eurasian badger ( <i>Meles meles</i> )	Protection of Badgers Act 1992 (as amended)
White-fronted goose ( <i>Anser albifrons</i> )	UK Red listed Scottish Biodiversity List
Golden plover ( <i>Pluvialis apricaria</i> )	EU Birds Directive Annex 1 Scottish Biodiversity List
Great northern diver ( <i>Gavia immer</i> )	EU Birds Directive Annex 1 UK Amber listed Scottish Biodiversity List
Grey partridge ( <i>Perdix perdix</i> )	UK Red listed Scottish Biodiversity List
Hen harrier ( <i>Circus cyaneus</i> )	Wildlife and Countryside Act Schedule 1A EU Birds Directive Annex 1 UK Red listed Scottish Biodiversity List
Herring gull ( <i>Larus argentatus</i> )	UK Red listed Scottish Biodiversity List
Hooded crow ( <i>Corvus cornix</i> )	Scottish Biodiversity List
Kestrel ( <i>Falco tinnunculus</i> )	UK Amber listed Scottish Biodiversity List

Species	Conservation status
Lapwing ( <i>Vanellus vanellus</i> )	UK Red listed Scottish Biodiversity List
Lesser redpoll ( <i>Carduelis cabaret</i> )	UK Red listed Scottish Biodiversity List
Merlin ( <i>Falco columbarius</i> )	Wildlife and Countryside Act Schedule 1A EU Birds Directive Annex 1 UK Red listed Scottish Biodiversity List
Peregrine ( <i>Falco peregrinus</i> )	Wildlife and Countryside Act Schedule 1A EU Birds Directive Annex 1 Scottish Biodiversity List
Redshank ( <i>Tringa totanus</i> )	UK Amber listed
Red-throated diver ( <i>Gavia stellata</i> )	Wildlife and Countryside Act Schedule 1 EU Birds Directive Annex 1 Scottish Biodiversity List
Redwing ( <i>Turdus iliacus</i> )	UK Red listed Scottish Biodiversity List
Reed bunting ( <i>Emberiza schoeniclus</i> )	UK Amber listed Scottish Biodiversity List
Sandwich tern ( <i>Sterna sandvicensis</i> )	EU Birds Directive Annex 1 Scottish Biodiversity List
Short-eared owl ( <i>Asio flammeus</i> )	Wildlife and Countryside Act Schedule 1 EU Birds Directive Annex 1 UK Amber listed Scottish Biodiversity List
Snow bunting ( <i>Plectrophenax nivalis</i> )	UK Amber listed Scottish Biodiversity List
Starling ( <i>Sturnus vulgaris</i> )	UK Red listed Scottish Biodiversity List
Swift ( <i>Apus apus</i> )	UK Amber listed Scottish Biodiversity List
Hedgehog ( <i>Erinaceus europaeus</i> )	Scottish Biodiversity List
Wild Pansy ( <i>Viola tricolor</i> )	Scottish Biodiversity List
White-tailed eagle ( <i>Haliaeetus albicilla</i> )	Wildlife and Countryside Act Schedule 1 EU Birds Directive Annex 1 UK Red listed Scottish Biodiversity List
Whooper swan ( <i>Cygnus cygnus</i> )	EU Birds Directive Annex 1 UK Amber listed Scottish Biodiversity List
Woodcock ( <i>Scolopax rusticola</i> )	UK Red listed Scottish Biodiversity List

All records relate to a 2 km radius around the Project site over the last ten years.

## ANNEX B EXTENDED PHASE 1 HABITAT TARGET NOTES AND PHOTOGRAPHS

Target Note number	Approximate grid reference	Description of evidence/feature	Photograph
1	NK 08656 53610	Overview of survey area from the centre west. Tower 206 is visible centre left. This is the approximate location of the proposed cable seal-end tower taking the OHL underground via a cable.	

2 NK 08803 53725 Pond west of the proposed sub-station location. The pond supports a variety of aquatic plant species including *Potamogeton natans*, *Lemna minor*, *Glyceria fluitans*, *Nasturtium officinale*, *Veronica beccabunga*, *Sparganium erectum* and *Equisetum fluviatile*.



3 NK 08919 53788 Badger fur found on fence south of proposed sub-station location. A badger path is present beneath the fence which leads between woodland habitat and semi-improved grassland.



4 NK 08919 53788 Badger latrine found on bank of rank grassland south of proposed sub-station location close to above badger path under barbed wire fence.



5 NK 08992 53796 Building with negligible bat roost potential located within 100 m of the Project site to the east of the A90 within the St.Fergus Gas Grid Facility. This land was not accessible for survey.





6 NK 08812 53581 Black Water River. The river is 1-2 m wide with an average depth of approximately 30 cm. A variety of substrates are present, comprising gravel and pebbles with some cobbles and a build-up of silt in places. Emergent macrophytes are common in the river.



7 NK 08829 53659 Ditch to the south of the pond described in Target Note 2. This ditch is approximately 0.75 m wide, primarily silty and was on average 40 cm deep at the time of survey.



- 8 NK 08737 53827 Ditch to be crossed by underground cable. This ditch is approximately 1 m wide and extremely deep (>2 m) in places. The substrate is predominantly deep silt and *Phalaris arundinacea* is abundant. An oily sheen was present on the surface of the water in places, as shown in the photograph.



- 9 NK 08706 53602 Dense gorse scrub on banks of a ditch within the Project site boundary. This ditch is on a gradient with an obvious flow and a substrate primarily comprising pebbles, cobbles and bare clay. Water depth in this ditch is shallow (<5 cm).



10 NK 08872 53938 Broad-leaved plantation woodland planted on a bund within the 100 m buffer, east of the A90.



11 NK 08900 53670 Mixed plantation woodland with predominantly *Deschampsia caespitosa* understorey overlapping the Project site boundary in the east. Trees in this plantation are primarily mixed broadleaf with only patchy conifers.



- 12 NK 08910 53777 Defunct planted hazel and hawthorn hedge extending for a length of approximately 20 m along an upper ditch section, which was dry at the time of survey.



- 13 NK 08936 53923 Non-native coniferous plantation woodland within the 100m buffer of the Project site, east of the A90. This plantation is located in a sunken area surrounded by a bund upon which broadleaved trees are planted. Numerous fallen pines are present.



14 NK 08599 53586 Improved grassland, which is the dominant habitat in the west of the survey area. Photograph faces east.



15 NK 08853 53797 Poor semi-improved grassland within the proposed sub-station site.



16 NK 08789 53703 Marshy grassland around the pond described in Target Note 2. Three snipe were flushed from this area during the survey.



17 NK 08643 53693 Western area of marshy grassland by the River Black Water, next to inundation habitat which has been badly poached by livestock.



18 NK 08896 53726 Rank semi-improved grassland adjacent to the mixed plantation woodland. This habitat supports *Phalaris arundinacea* at the base of the bank in places, indicating damp conditions.



19 NK 08918 53696 Disturbed area within mixed plantation through which the existing overhead line runs. This area is free of trees, instead comprising rank grassland habitat (primarily *Deschampsia caespitosa* and *Dactylis glomerata* with frequent *Juncus effusus*) which is similar to the understorey within the broader plantation but a little more damp. Two linear areas of Sitka spruce have been planted on either side of the cleared area.



20 NK 08336 53648 Badger dropping found on well-used farm track to the north-west of the proposed sub-station.



21 NK 08468 53806 Field in north-west noted to be in use for growing crops during June 2019.



22 NK 08682 54064 Field of semi-improved neutral grassland to the north of the existing substation. The presence of rushes indicative of damp ground conditions. Vegetation is dominated by *Holcus lanatus* and *Dactylis glomerata*, with *Juncus effusus*, *Ranunculus acris*, *Plantago lanceolata*, *Trifolium repens* and *Cirsium arvense*. *Lotus corniculatus*, *Potentilla anserina* and *Leucanthemum vulgare*. *Dactylorhiza purpurella* was noted, and also a patch of *Phragmites australis*.

