



**envirotech**

Ecological Consultants  
Environmental and Rural Chartered Surveyors

## Edgehill Park North Area (above Linear Park)

### Ecology Assessment



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## 4.0C Ecology

### 4.1C Introduction

This chapter has been produced by Envirotech NW Ltd based on the previous work of AJT Environmental Consultants and describes the potential impacts of the proposed development on ecology. A review and update of impacts in relation to the North Phase has been requested.

**A reserved matters application is to be submitted to cover the proposed construction of up to 335 dwellings on the site. This is for the balance of the remaining site, construction on the initial phases 1, 2a and 2b having been undertaken or currently on-going.**

**This document uses the same Chapter titles and headings as those submitted with the Environmental Statement for application 4/13/2235/001 but chapter titles have been post-fixed with a “C”**

The chapter is supported by the following appendices and figures:

- Figure 4.1C - Habitat Survey;

### 4.2C Potential Effects

#### 4.2.1C Construction Phase Impacts

The key potential construction phase impacts of the development may involve the following:

- Loss of improved grasslands with likely impacts on bird and bat foraging habitat;
- Loss of arable fields with likely impacts on bird foraging habitat;
- Loss of scrub with some impact on breeding bird and bat foraging habitat;
- Loss and fragmentation of hedgerows, a Section 41 and local BAP priority habitat, with impacts on bird breeding habitat (including tree sparrow) and bat foraging habitat;
- Loss of semi-improved grasslands with loss of plant biodiversity, and impact on bird and bat foraging habitat;
- Increase in lighting, noise and human activity in habitats proximal to the development due to construction operations, with potential impacts on some bird species and foraging bats;
- Potential risk of pollution arising from contractor's plant, stored fuel and lubricants, and waste materials arising from construction operations, with potential impacts off-site on watercourses off-site;

- Potential changes in run-off rates, water quantity and quality (e.g. sediment loading), with potential impacts on watercourses off-site;
- Potential to facilitate the spread of invasive species.
- Reduced pesticide and fertiliser input, due to the cessation of farming with positive impacts on surrounding habitats such as the wooded valley.

#### **4.2.2C Operational Phase Impacts**

Key operational phase impacts of the development may include the following:

- Increased noise, lighting and human disturbance associated with the newly- urbanised environment;
- Increased levels of predation by domestic cats;
- Increased risk of introduction of invasive non-native species derived from garden waste;
- Increased risk of water pollution and sedimentation from the increased area of impermeable and slowly permeable surfaces;
- Increased public use of footpaths in the vicinity of the site;
- Transport of horticultural fertilisers and pesticides from gardens to wetlands and watercourses;
- Increased human and domestic dog disturbance to wooded valley and other surrounding habitat areas to the east and south of the site; as a result of increased recreational use;
- Increase in nesting sites for urban bird species such as house sparrow and starling;
- Supplementary feeding by residents may also result in localised increases in foraging bird density.

#### **4.2.3C Cumulative Impacts**

This assessment considers cumulative impacts relating to Phase 1 and 2 approved under application 4/13/2235/001 along with the northern phase above linear park. There are currently no other known developments in the area which would act in a cumulative manner with the development.

## **4.3C Assessment Methodology**

### **4.3.1C Scope of Investigation**

The scope of ecological surveys was defined by a review of existing data, taking into account the results of surveys undertaken on the site by ECUS in 2008. Survey scope was further refined by the results of initial surveys, and by consideration of ecological data obtained from the local biological records centre and other sources.

The scope of survey and ecological impact assessment is informed by the following documents:

- ECUS (2008). Ecology Survey for Story Homes, High Road, Whitehaven, Cumbria;
- NJL (2011). Story Homes, Land at Rhodia, High Road, Whitehaven, Screening and Scoping Report ;
- Copeland Borough Council (2011). Scoping Opinion under the Town & Country Planning (Environmental Impact Assessment) Regulations 2011. Land at High Road, Whitehaven.
- The following data searches, consultations and ecological studies were carried out in 2012 as part of the ES:
  - Data search of European conservation sites within 2km of the development using the MAGIC (multi-agency geographic information for the countryside) website;
  - Data search of other statutory sites within 2km of the development using the MAGIC database;
  - Data search by Cumbria Biological Data Centre (CBDC) of locally designated sites and protected and priority species within 2km of the development.
  - Search of Cumbria Wildlife Trust website for data on local priority species and habitats;
  - Extended Phase 1 Habitat Survey verification;
    - Breeding bird survey;
    - Protected species survey;
    - Bat activity survey; and

In 2013 as part of the ES:

- Great crested newt survey;

In 2017 as part of the updated ES:

- Great crested newt survey;



- Extended Phase 1 Habitat Survey verification;
- Breeding bird survey;
- Protected species survey;

In 2018 and 2019 as part of ongoing site checks and survey for Phase 2b

- Extended Phase 1 Habitat Survey verification;
- Breeding bird survey;
- Protected species survey;

In 2020 as part of the reserved matters application for the area in the north of the site

- Extended Phase 1 Habitat Survey verification;
- Protected species survey;

The scope and methodology of the ecological impact assessment was further checked against the Scoping responses supplied to Copeland Borough Council by Cumbria County Council, Natural England, Cumbria Wildlife Trust, the RSPB and the Environment Agency.

Full details of survey methods for the 2012 survey programme are given in *Appendices D1 – D3*, and summarised below. All surveys were undertaken by appropriately qualified, experienced and licensed ecologists, in accordance with current standard methodological guidelines.

### ***Phase 1 Habitat Survey Methods***

An extended Phase 1 Habitat Survey was carried out in accordance with the methodology set out by Institute of Environmental Management and Assessment (IEA, 1995), Chartered Institute of Ecology and Environmental Management (CIEEM, 2016). This utilises standard Phase 1 Habitat Survey methods (JNCC, 2010), with an additional consideration of habitat quality for fauna, including protected species.

The whole of the site was walked and habitats mapped according to standard Phase 1 categories. A vascular plant species list was derived from each habitat compartment, with relative abundance assessed on the qualitative Dafor scale (Dominant / Abundant / Frequent / Occasional / Rare). Habitat boundaries were plotted in the field using a differential GPS, or taken from existing boundaries mapped on the topographic survey base. Notes were made of sightings and signs of fauna recorded in the course of the habitat survey, as well as faunal habitat quality and potential occurrence of protected and notable species.

The geographical scope of survey included the Planning Application boundary under application 4/13/2235/001, covering an area of approximately 29.46ha. The survey was carried out on 13<sup>th</sup> June 2012, with supplemental recording carried out during subsequent site visits 5<sup>th</sup>, 17<sup>th</sup> and 18<sup>th</sup> April 2017, 20<sup>th</sup> February 2019, 18<sup>th</sup> March 2019 and 2<sup>nd</sup> September 2020. Buildout of the survey area was ongoing throughout this period with a smaller area of undeveloped land forming part of the application for the northern phase.

### **Breeding Bird Survey Methods**

The breeding bird survey was based on Common Bird Census (CBC) methodology (Bibby *et al.*, 2000; Gilbert *et al.*, 1998; Marchant, 1983). This involves the production of bird species maps that can be used to indicate the density and distribution of territorial breeding birds. It is based on a British Trust for Ornithology (BTO) survey method known as 'territory mapping' which identifies the number and distribution of breeding territories in a specified census area. These can be determined by noting breeding behaviour in accordance with standard BTO breeding evidence assessment.

Visits were made commencing in the early morning (within 1 hour of sunrise), as birds are generally most active at this time of day, and most inactive in the early afternoon. The survey area was walked at a slow walking pace with frequent pauses, so that all birds detected could be identified. Days of inclement weather (persistent rain, high winds, poor visibility) were avoided. The route was organised such that any point within 50m of the survey route was visible. Birds occupying adjacent habitats outside the site were also recorded.

Three surveys were carried out on 26<sup>th</sup> April, 6<sup>th</sup> May and 19<sup>th</sup> June 2012.

Three surveys were carried out on 5<sup>th</sup>, 17<sup>th</sup> and 18<sup>th</sup> April 2017. One survey was undertaken on the 18<sup>th</sup> March 2019. These were undertaken early in the morning. It was noted there was a high level of background disturbance associated with construction activities for Phase 1 and 2 which were ongoing.

### **Protected Species Survey Methods**

A protected species survey was carried out along with the habitat survey.

All accessible areas within the site and immediate surrounds were searched during daytime for signs of use by protected species such as badger or water vole, and assessed for features which may support other protected species such as reptiles, which are less readily detected in a walkover survey.

Feeding remains from hazel dormouse and red squirrel were searched for.

All structures and any suitable trees were assessed for their ability to support a bat roost. The site was also assessed for its likelihood to support feeding and commuting bats, in terms of connectivity, shelter, and suitable foraging habitats.

### **Bat Activity Survey Methodology**

The survey methodology conformed to the Bat Conservation Trust *Bat Surveys Good Practice Guidelines* (BCT, 2007) for bat activity surveys.

Two evening transect surveys were carried out. From dusk, surveyors, equipped with bat detectors, walked a pre-planned route that encompassed the site and surrounding habitats to build a picture of bat use of the site. Bats were counted and the species, time and location of detected bats were noted, as was their direction of flight.

One dawn transect survey was carried out. From one hour before sunrise, surveyors, equipped with bat detectors, walked a pre-planned route that encompassed the site and surrounding habitats to build a picture of bat use of the site. Bats were counted and the species, time and location of detected bats were noted, as was their direction of flight.

Surveys were carried out on 19<sup>th</sup> June, 20<sup>th</sup> June and 8<sup>th</sup> August 2012.

## Great Crested Newt Survey Methodology

A habitat suitability survey exercise was undertaken for the pond on site and for a pond in a field to the east of the site which will be increased in size to form a SUDS pond to assess their ability to support great crested newt.

Further survey work was recommended for the pond to the east of phase 2b. Survey methodology conformed to standards outlined in English Nature's Great Crested Newt Mitigation Guidelines (Whitehurst, 2001). A minimum of 4 visits are required to establish presence- absence, with two additional surveys required to make a population estimate in ponds where GCN are found. Survey methods include torchlight survey, bottle trapping, netting and egg searching. An assessment is also made of the quality of terrestrial newt habitat in the surrounding area.

In 2017, the Pond to the east of Phase 2b within the site was found to be dry. That to the East was tested for GCN eDNA in accordance with Natural England protocols.

During the 2020 survey the swamp in the north eastern section of the site was found to be in the same condition as the 2012 survey, holding no water with the surface being a bed of bulrush (*Typha latifolia*) with some soft rush (*Juncus effuses*), rosebay willowherb (*Epilobium angustifolium*) and bramble (*Rubus fruticosus* agg.) along the margins. As the swamp was dry it was not considered to provide suitable habitat for great crested newts.

## Impact Assessment Methodology

The EIA has been based on a widely used and accepted 'significance matrix assessment approach' which is based on the characteristics of the impact (magnitude and nature) and the sensitivity of the receptor. The detail of how this methodology is specifically applied to the chapter of the EIA is described below.

The starting point for any assessment of impacts is to determine which features should be subject to detailed assessment. Ecological receptors to be subject to more detailed assessment should be a) of sufficient value that impacts upon them may be significant (in terms of legislation or policy), and b) potentially vulnerable to significant impacts arising from the development (IEEM 2006). This approach is consistent with the EIA Regulations, which requires investigation of likely significant effects. A summary of the key points from the relevant guidance, as relevant to this assessment, is provided below.

## Assignment of Value

With respect to the assignment of a value for habitats and species within the application site, the guidelines state that tabulated boundaries between different habitats and species become difficult to define with precision due to the range of factors influencing the definition of value. The guidelines suggest an approach involving professional judgement based on available guidance, information and expert advice. For the purpose of this assessment, value is used and is determined as Very High, High, Medium or Low as detailed in *Table 4.1B*.

**Table 4.1C Methodology for Assessing Value of Receptors**

| Value     | Examples                                                                                                                                                                                                              |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Very High | High Importance and rarity. International scale and limited potential for substitution e.g. Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites.                                     |
| High      | High importance and rarity. National scale or regional scale with limited potential for substitution e.g. Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and European Protected Species. |

|        |                                                                                                                                                                                                                    |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Medium | Medium importance and rarity. Local or regional scale and (limited) potential for substitution e.g. Local Nature Reserves (LNR), County Wildlife Sites (CWS) and features such as old hedges, woodlands and ponds. |
| Low    | Low or very low importance and rarity. Local scale e.g. areas of built development, active mineral extraction or intensive agricultural land.                                                                      |

### ***Valuing Habitats***

In accordance with the IEEM guidelines, the value of habitats is measured against published selection criteria where available. Reference is also made to UK and local (Cumbria) Habitat Action Plans (HAPS) although, as the guidelines note, the presence of a HAP reflects the fact that the habitat concerned is in a sub-optimal state (and hence that action is required) and does not necessarily imply a specific level of importance for the habitat. In accordance with the guidance, features may be assigned greater value if there is a reasonable chance that they can be restored to higher value in the future.

## Valuing Species

In accordance with the CIEEM guidelines, in assigning a level of value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Rarity is an important consideration because of its relationship with threat and vulnerability although since some species are inherently rare, it is necessary to look at rarity in the context of status. A species that is rare and declining should be assigned a higher level of importance than one that is rare but known to be stable.

Reference is also made to UK and local (Cumbria) Species Action Plans (SAPs) although, as with HAPs, the presence of a BAP listed species reflects the fact that the population is in a sub-optimal state and does not necessarily imply any specific level of importance.

## Predicting Magnitude of Impact

Magnitude (scale of change) has been determined by considering the predicted deviation from baseline conditions. Impacts of the proposed developments have been assessed with reference to the baseline environment and stated criteria. The rationale for determining the magnitude of impact is presented in *Table 4.2B*.

**Table 4.2C Methodology for Assessing Magnitude of Ecological Impacts**

| Value    | Examples                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Major    | <p><b><u>Adverse:</u></b><br/>           Loss of, permanent damage to or adverse impact on integrity of any part of a site of international importance;<br/>           Loss of a substantial part or key feature of a site of county importance;<br/>           Loss of favourable conservation status (FCS) of a legally protected species;<br/>           Loss of or damage to a population of nationally rare or scarce species.</p> <p><b><u>Beneficial:</u></b><br/>           Major gains in new habitats (net gains of at least 10ha) of high significance for biodiversity being those habitats, or habitats supporting viable species populations, of national or international importance cited in Annexes I and II of the Habitats Directive or Annex I of the Birds Directive.</p>                                                                    |
| Moderate | <p><b><u>Adverse:</u></b><br/>           Temporary disturbance to a site of international or national importance, but no permanent damage;<br/>           Loss of or permanent damage to any part of a site of county importance;<br/>           Loss of a key feature of local importance;<br/>           A substantial reduction in the numbers of legally protected species such that there is no loss of FCS but the population is significantly more vulnerable;<br/>           Reduction in the amount of habitat available for a nationally rare or scarce species, or species that are notable at a regional or county level.</p> <p><b><u>Beneficial:</u></b><br/>           Larger scale new habitats (e.g. net gains over 1ha in area) created leading to significant measurable gains in relation to the objectives of Biodiversity Action Plans.</p> |

|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Minor      | <p><b>Adverse:</b><br/>Temporary disturbance to a site of county value, but no permanent damage;<br/>Loss of, or permanent damage to, a feature with some ecological value in a local context but that has no nature conservation designation;<br/>A minor impact on legally protected species but no significant habitat loss or reduction in FCS;<br/>A minor impact on populations of nationally rare or scarce species or species that are notable at a regional/county level.</p> <p><b>Beneficial:</b><br/>A small but clear and measurable gain in general wildlife interest e.g. small scale new habitats of wildlife value created where none existed before or where the new habitats exceed in area the habitat lost.</p> |
| Negligible | <p>No effects on sites of international, national or county importance;<br/>Temporary disturbance or damage to a small part of a feature of local importance;<br/>Loss or damage to land of negligible nature conservation value;<br/>No reduction in the population of legally protected, nationally rare, nationally scarce or notable (regional/ county level) species on the site or its immediate vicinity.</p>                                                                                                                                                                                                                                                                                                                 |

### Assessment of Impact Significance

Table 4.3C shows how the interaction of magnitude and sensitivity has been used to determine the significance of an ecological effect. If the nature of the impact is negative then the resulting effect is adverse. If the nature of the impact is positive then the resulting effect is beneficial.

| Table 4.3C Impact Significance Matrix |                        |                        |                    |            |
|---------------------------------------|------------------------|------------------------|--------------------|------------|
| Value of Receptor                     | Magnitude of Impact    |                        |                    |            |
|                                       | Major                  | Moderate               | Minor              | Negligible |
| Very High                             | Substantial            | Substantial / Moderate | Moderate           | Minor      |
| High                                  | Substantial / Moderate | Moderate               | Moderate / Minor   | Negligible |
| Medium                                | Moderate               | Moderate               | Minor              | Negligible |
| Low                                   | Moderate / Minor       | Minor                  | Minor / Negligible | Negligible |

### Limitations

All surveys in 2012 were carried out within acceptable seasonal and weather parameters, and conformed to current guidelines with respect to duration and frequency.

Breeding bird surveys in 2017 did not include a late season survey as required by the BTO protocol. There was noted to be extensive disturbance from Phases 1 and 2.

Breeding bird surveys in 2019 were very early in the bird nesting season.

Netting of the pond on site was not possible in 2012 as it was dry at the time of survey.

## 4.4C Baseline Conditions

### 4.4.1C Ecological Context

#### *European and Internationally Designated Sites*

A Site Check on the Multi-Agency Geographic Information for the Countryside (MAGIC) website for a 3km radius around OS grid reference NX 971 155 showed that there are no European or Internationally designated sites.

#### *Other Statutory Designated Sites*

The 3km radius Site Check report showed that there is one statutory nature conservation site, a Site of Special Scientific Interest (SSSI), located within the search radius:

| Table 4.4C Statutory Sites within 2km |                |          |
|---------------------------------------|----------------|----------|
| Site Name                             | Grid Reference | Location |
| St Bees Head SSSI                     | NX 959 160     | 1km west |

Sites of Special Scientific Interest (SSSIs) are nationally important sites, designated under Section 28 of the 1981 Wildlife and Countryside Act.

#### *Non-statutory Designated Sites*

CBDC were consulted for data regarding Local Wildlife Sites in the area. The records show that there are five County Wildlife Sites within a 2km radius of the proposed development site.

| Table 4.5C Non-statutory Sites within 2km |                |                   |
|-------------------------------------------|----------------|-------------------|
| Site Name                                 | Grid Reference | Location          |
| Roska Park & Bellhouse Gill Wood          | NX 973 148     | 215m south        |
| Woodhouse Quarry                          | NX 971 165     | 344m north        |
| Stanley Pond                              | NX 984 142     | 1.17km south east |
| Midgey Gill                               | NX 980 177     | 1.9km north east  |

#### *Protected and priority species*

The following protected species records were received from CBDC. These include species listed under Annex IV of the EU Habitats Directive, implemented in UK through The Conservation of Habitats and Species (Amendment) Regulations 2012 SI No 1927 (Habitat Regulations); species protected through listing under Schedules 1 & 5 of the 1981 Wildlife and Countryside Act (except those protected from sale only); and the 1992 Protection of Badgers Act. Six-figure grid reference locations were received from GECR, but have been withheld from the table below in order to protect confidentiality. All records are within a 2km radius.



**Table 4.6C Protected Species Records**

| Species                                                     | Status                                   | Location                                         |
|-------------------------------------------------------------|------------------------------------------|--------------------------------------------------|
| <i>Falco peregrinus</i><br>Peregrine falcon                 | Sch 1 W&C Act 1981                       | Coast                                            |
| <i>Lutra lutra</i><br>European otter                        | Sch 5 W&C Act 1981                       | Fish Pond 354m SE                                |
| <i>Meles meles</i><br>European badger                       | Protection of Badgers Act                | South of site                                    |
| <i>Myotis mystacinus/Brandtii</i><br>Whiskered/Brandts' bat | Annex IV Habs Dir.<br>Sch 5 W&C Act 1981 | 1.09km E                                         |
| <i>Pipistrellus pipistrellus</i><br>Common pipistrelle bat  | Annex IV Habs Dir.<br>Sch 5 W&C Act 1981 | 455m E                                           |
| <i>Plecotus auritus</i><br>Brown long-eared bat             | Annex IV Habs Dir.<br>Sch 5 W&C Act 1981 | 892m S                                           |
| <i>Sciurus vulgaris</i><br>Eurasian red squirrel            | Sch 5 W&C Act 1981                       | Woodland and gardens other side of St. Bees Road |
| <i>Tyto alba</i><br>Barn owl                                | Sch 1 W&C Act 1981                       | Rural                                            |
| Unidentified bat                                            | Annex IV Habs Dir.<br>Sch 5 W&C Act 1981 | 589m E                                           |

The following priority species, including species listed under Section 41 of the 2006 Natural Environment & Rural Communities Act, the UK Biodiversity Action Plan (BAP) and Cumbria BAP have been recorded within 2km of the site. Note that this list excludes protected species which are also priority species.

**Table 4.7C Priority Species Records**

| Species                                               | Status                     | Location                    |
|-------------------------------------------------------|----------------------------|-----------------------------|
| <i>Erynnis tages</i><br>Dingy skipper                 | Section 41 NERC;<br>UK BAP | St. Bees Head.<br>1 km W.   |
| <i>Lasiommata megera</i><br>Wall butterfly            | Section 41 NERC;<br>UK BAP | Hensingham & St. Bees Head. |
| <i>Hipparchia semele</i><br>Grayling butterfly        | Section 41 NERC;<br>UK BAP | Kells 1.5km N & Hensingham  |
| <i>Coenonympha pamphilus</i><br>Small heath butterfly | Section 41 NERC;<br>UK BAP | Kells 1.5km N               |
| <i>Ecliptopera silaceata</i><br>Small phoenix moth    | Section 41 NERC;<br>UK BAP | 1.23km E.                   |
| <i>Chiasmia clathrata</i><br>Latticed heath moth      | Section 41 NERC;<br>UK BAP | Saltom Bay<br>750m to NW.   |
| <i>Arctia caja</i><br>Garden tiger moth               | Section 41 NERC;<br>UK BAP | Saltom Bay<br>750m to NW.   |
| <i>Tyria jacobaeae</i><br>Cinnabar moth               | Section 41 NERC;<br>UK BAP | Mainly coastal              |
| <i>Diarsia rubi</i><br>Small square spot moth         | Section 41 NERC;<br>UK BAP | 1.23km E.                   |
| <i>Melanchra persicariae</i><br>Dot moth              | Section 41 NERC;<br>UK BAP | Hensingham                  |
| <i>Amphipyra tragopoginis</i><br>Mouse moth           | Section 41 NERC;<br>UK BAP | 1.23km E.                   |
| <i>Hydraecia micacea</i><br>Rosy rustic moth          | Section 41 NERC;<br>UK BAP | 1.23km E.                   |
| <i>Bombus muscorum</i><br>A bumble bee                | Section 41 NERC;<br>UK BAP | Hensingham                  |



|                                                      |                            |                             |
|------------------------------------------------------|----------------------------|-----------------------------|
| <i>Bufo bufo</i><br>Common toad                      | Section 41 NERC;<br>UK BAP | Stanley pond, 1.17km to SE  |
| <i>Anguis fragilis</i><br>Slow worm                  | Section 41 NERC;<br>UK BAP | 670m west.                  |
| <i>Zootoca vivipara</i><br>Common lizard             | Section 41 NERC;<br>UK BAP | St. Bees Head.<br>1 km W.   |
| <i>Erinaceus europaeus</i><br>West European hedgehog | Section 41 NERC;<br>UK BAP | Housing estates to the east |
| <i>Lepus europaeus</i><br>Brown hare                 | Section 41 NERC;<br>UK BAP | St. Bees Head.<br>1 km W.   |

### Natural Area profile

Natural Areas are defined by Natural England as biogeographic zones with characteristic associations of wildlife and natural features. They provide a subdivision of England based on natural rather than administrative boundaries, and help to set priorities for conservation action.

The site formerly known as Rhodia at Whitehaven is located in West Cumbria Coastal Plain Natural Area. Natural England's summary description is reproduced below:

#### Natural Area 11 West Cumbria Coastal Plain

The West Cumbria Coastal Plain is a largely rural landscape but includes areas of industry in and around the coastal towns of Workington, Whitehaven and Barrow. This Natural Area is situated between the high fells of the Lake District and the Irish Sea. In the south the agriculture is rich dairy pasture land but to the north this gives way to rougher grazing for sheep and beef cattle. The wildlife interest of the area lies in the mossland at the head of the Duddon Estuary, the coastal tarns, basin mires and wet grasslands, the rivers and lagoons, the valley woodlands and the rougher wet grasslands to the north and east of Workington. The western edge of the plain grades into a series of well-developed coastal habitats. Geologically, the area is important for the minerals associated with the old iron-ore workings and mines and the areas of limestone exposed in the many small limestone quarries in the area.

The site is not typical of agricultural land found within the natural area, being mixed arable and pasture and more intensively managed than areas of rough grazing.

The area to be developed to the north was previous arable land which is now semi-improved grassland which appears to be regularly cut for silage.

### Local Ecological Context

The whole site is bordered by residential housing to the north (Windermere Road), agricultural fields and woodland to the east, brownfield land and agricultural land to the west over High Road and Wilson Pit Road, and agricultural fields and St Bees Road to the south. Further to the west is the coast, and residential housing exists beyond the fields to the east. The woodland on the gill forms a corridor that extends east and north, lying between the fields and the housing.

The area to the north is bordered by residential housing to the north, agricultural fields to the east, the existing housing development to the south and high road to the west.

#### **4.4.2C Habitats and Vegetation**

Habitats within the site are described more fully in the Phase 1 Verification and Protected Species Survey. The report provides a detailed description of species composition and is described in a series of target notes in accordance with Phase 1 methodology. The following paragraphs summarise the key habitat features at the site. The spatial distribution of habitats across the site is shown on *Figure 4.1B*.

Prior to the commencement of Phases 1 and 2, the majority of the site was comprised of 6 agricultural fields. A patch of broadleaved woodland bordering a stream, small areas of scrub and marshy grassland and field boundaries comprising a mix of fences to the north and species poor hedgerows to the south make up the remainder of the site. Due to the commencement of Phases 1 and 2, all of the south-west side of the site has now been developed. Phase 2b was still under construction during the 2020 survey. During the 2020 survey small haul roads, areas of soil removal and the site compound and storage area is present immediately above Linear park. The fields beyond this to be developed are fenced off from the compound and soil removal areas.

In 2012, the field to the north west corner of the site was arable and bounded by fences to the west and by residential housing to the north. There is a patch of marshy grassland to the eastern corner of the field where drainage has been impeded. A footpath runs from the south western corner of the field to the north eastern corner and continues along the northern boundary of the site. During the 2020 walkover survey these fields were found to be semi-improved neutral grassland which appear to have been cut for silage. There are areas of longer grassland with scattered scrub which have not been cut, these areas were mapped as semi-improved neutral grassland during the 2012 survey.

To the south of this field there is an area of previously developed land on the western boundary. The buildings have been demolished and this area now contains the site compound and associated storage areas, this area is surrounded by vegetated spoil mounds. To the east lies an area of marshy grassland which has developed over the foundations of a demolished building and this is surrounded by a defunct fenceline and scattered scrub. Further to the east and continuing around the south of the developed area is a field which has been sown with grass species. This field is bounded to the south by a public footpath which bisects the site from east to west. During the 2020 survey soil removal had been undertaken within sections of this field resulting in the area being dominated by bare earth.

During the 2020 survey drainage ditches had been constructed along Linear Park these had bare earth banks and did not contain any aquatic or marginal vegetation. Only a small volume of water was present during the survey.

#### **4.4.3C Fauna**

##### ***Badger***

No signs of badger were encountered and no setts were discovered within the survey area by ECUS or during the 2012 field survey undertaken by AJT Environmental Consultants and 2017, 2019 and 2020 surveys by Envirotech. There were no latrines, snuffle holes, trails or scrapes indicative of badger within the survey area. There were no signs of badger at the site boundaries. Risk of presence of badger is assessed as low.

##### ***Bats***

The transect surveys showed that almost all bat activity was concentrated to the south of the site, with the greatest level of activity along the northern and southern edges of the woodland and the hedgerow bordering Wilson Pit Road and St Bees Road. In contrast, no bat

activity was recorded in the northern part of the site, and very few flights were detected across the main open parts of the site.

At least two species of bat were recorded on site, including the following taxa:

- Common pipistrelle (*Pipistrellus pipistrellus*);
- *Myotis* sp.

All but one of the bats recorded during the surveys were common pipistrelle. Bats were typically recorded accessing the site from the east from just before 20 minutes after sunset. Intensive foraging by small numbers of bats (<10) was observed and recorded until ca. 1.5 hours after sunset.

On the first survey occasion a *Myotis* sp. of bat was recorded feeding around the northern edges of the scrub bordering the eastern edge of the wider site. A further *Myotis* bat was then observed commuting south along the line of scrub. *Myotis* bats could not be confirmed with sufficient confidence to species level.

### **Hazel dormouse**

There are records of hazel dormouse from south Cumbria. The nearest record is an historic record over 30km to the south of the site. No feeding remains were found in the woodland, there is no suitable habitat within the northern section of the site for hazel dormouse.

### **Riparian mammals**

There are no habitats on site suitable for riparian mammals such as otter or water vole. The pond is small and dry with very few burrowing opportunities for water vole and the drainage ditches are newly created with bare earth banks and a very shallow volume of water. There is also no connectivity to sites which would provide habitat for these species.

### **Other mammals**

No red squirrels were observed or their feeding remains found. There were no squirrel dreys in the trees.

### **Birds**

The results of the bird surveys are described in full in *Appendix D3*. *Figure 4.3B* shows transect routes, and the locations of breeding birds on site in 2017. No breeding birds were recorded in 2019 or 2020.

### **Breeding Birds**

In 2012 bird surveys of the whole development site found thirty seven species of bird were observed in and around the site, with fourteen of these assessed as breeding on site. In 2017 three species of bird were observed on or around the site which showed indications of breeding.

Fields to the north of the site have previously been shown to support seven pairs of skylark (*Alauda arvensis*), one pair of meadow pipit and one pair of grey partridge while the scrub supports one pair each of blackbird (*Turdus merula*), wren (*Troglodytes troglodytes*), reed bunting (*Emberiza schoeniclus*) and whitethroat, with two pairs of breeding meadow pipit (*Anthus pratensis*) and whitethroat (*Sylvia communis*) within the hedgerows and scrub around the northern field boundaries.

In addition, house sparrows (*Passer domesticus*) and starlings (*Sternus vulgaris*) which breed in the housing estate (Windermere Road) to the north of the site have been seen to fly into the fields and scrub to forage. In 2012 a lapwing (*Vanellus vanellus*) was also seen in the field on passage.

No birds were found to be breeding on the site of the old works on the western edge of the site, but the spoil heap with colonising vegetation provides a good food source for foraging linnets (*Carduelis cannabina*), goldfinches (*Carduelis carduelis*) and passage wheatear (*Oenanthe oenanthe*), with up to 4 linnets, 4 goldfinches and 7 wheatears observed in 2012.

In addition, in 2012, the eastern slope of the spoil mound held a singing sedge warbler (*Acrocephalus schoenobaenus*) on the third visit only. A sedge warbler was observed singing at the pond on the eastern boundary of the site on the second visit only. This may have been a territory on the slope of spoil heap, or may have been the same bird moving around trying to attract a mate. In 2017 ongoing works this area were apparent which would have resulted in elevated levels of disturbance.

The woodland has been shown to support two pairs of blackcap (*Sylvia atricapilla*), two pairs of wren (*Troglodytes troglodytes*), and one pair each of blackbird, chiffchaff (*Phylloscopus collybita*), great tit (*Parus major*), blue tit (*Parus caeruleus*), goldfinch and chaffinch (*Fringilla coelebs*).

In 2012, the hedgerow bounding the western and southern edges of the southern field supports a breeding colony of tree sparrow (*Passer montanus*). The birds were rather secretive on all visits and so it was difficult to estimate the size of the colony. There appears to be minimum of 10 birds, but the number may be considerably more.

### **Non breeding birds flying over the site**

In 2012 bird surveys of the whole development site found Kestrels (*Falco tinnunculus*), swallows (*Hirundo rustica*) and swifts (*Apus apus*) hunt over the site. Magpies (*Pica pica*) occur throughout and a pair of buzzards (*Buteo buteo*) were observed flying into the scrub around Greenbank Farm on the first visit. milar species were recorded in 2017. During the 2020 survey swallows, swifts and a blackbird were recorded within the northern section of the site.

Other birds flying over the site were herring gull (*Larus argentatus*), collard dove (*Streptopelia decaocto*), carrion crow (*Corvus corone*), rook (*Corvus frugilegus*) and jackdaw (*Corvus monedula*).

### **Birds in adjacent habitats**

In 2012 bird surveys of the whole development site found, the scrubby woodland that borders the east boundary of the site between High House and Greenbank Farm supports two pairs of wren, and one pair each of whitethroat, chiffchaff, song thrush and chaffinch.

The southern edge of the wooded valley supports one pair each of blackbird, song thrush (*Turdus philomelos*), blackcap and wren.

The housing estate to the north supports breeding house sparrow, starling and chaffinch.

The hard standing and derelict land to the east of the site over High Road, supports breeding skylark and meadow pipit with foraging linnets and goldfinches.

## **Reptiles**

A risk assessment of the site undertaken by ECUS in 2008 found no evidence of reptiles on site and concluded that there was limited suitable habitat on site for these species. Refuges such as corrugated iron sheets and items of rubbish which appeared to have been laid down for some time were examined during the 2012 and 2017 surveys, but no reptiles or amphibians were found.

## **Amphibians**

ECUS carried out a risk assessment on waterbodies within the site in 2008, and concluded that it was unlikely to provide suitable breeding habitat for amphibians or sustain juvenile amphibians through their lifecycle. The habitat surveys undertaken in 2012 by AJT Environmental Consultants concur with this assessment; in fact conditions on site in 2012 appeared less suitable for great crested newt than those reported in the ECUS report as the pond was dry at the time of survey.

No other amphibian species are known to have been recorded on site.

Due to a change to the proposed application boundary, a Habitat Suitability assessment (HSI) was undertaken on a pond 85m to the east of the site. The pond was assessed as providing suitable habitat for great crested newt (GCN) and therefore, GCN surveys were undertaken on this pond.

The survey methodology conformed to standards outlined in English Nature's Great Crested Newt Mitigation Guidelines (Whitehurst, 2001). Four survey visits were undertaken during the 2013 survey season to assess the likelihood of great crested newt being present in the pond. No great crested newts have been recorded in the pond. Smooth and palmate newts and both adult toads and toad spawn have been recorded.

In 2017 this pond was tested for Great Crested Newt eDNA in accordance with Natural England protocol and a negative result was returned. This survey data is still considered to be "in date".

During the 2020 survey the swamp in the east of the site was found to be dry. As this swamp was also found to be dry in 2012 it is not considered that this area regularly holds water and therefore it is not considered to provide suitable breeding habitat for amphibians.

There are no known great crested newt breeding ponds within 500m of the site, the nearest records being over 4km to the south, south east.

## **White clawed crayfish**

White-clawed crayfish (*Austropotamobius pallipes*) occur in alkaline small streams, brooks, rivers, lakes, reservoirs and water-filled quarries, which have clear, well-oxygenated water without too much fine sediment, usually on relatively hard, calcareous and rapidly weathering rocks. They make use of crevices in rocks, gaps between stones, submerged plants and tree roots, which all provide refuges for them to hide in. They are very susceptible to pollution and any river works which increase sedimentation.

The newly created drainage ditches on site do not provide suitable habitat. The gill flowing through the southern half of the wider development area also does not provide suitable habitat.



## **Invertebrates**

Invertebrate surveys were undertaken of the whole development site. Butterflies recorded were small tortoiseshell (*Agais urticae*) and common blue (*Polyommatus icarus*). Latticed heath (*Chiasmia clathrata*) moths were seen, and the Wilson Pit Road verge adjacent to Compartment H contained approximately 20 pupal cases of 5 spot burnet moth (*Zygaena trifolii*), some of which had or were emerging on the final survey. Adult 5 spot burnets were observed flying above the marshy grassland.

## **Non-native Invasive Species**

It is possible that the fungus *Chalara fraxinea* which causes Ash dieback disease has been identified in the wooded valley to the south.

### **4.4.4C Ecological Interest Features**

#### **Designated sites**

There is one statutory designated nature conservation site within close proximity of the development: St. Bees Head SSSI, which lies 1km to the west. SSSIs are nationally important sites, designated under Section 28 of the 1981 Wildlife & Countryside Act. However, the site is coastal and notified for its cliff habitats and breeding birds.

#### **Non-statutory sites**

There are four Local Wildlife Sites (LWS) within 2km of the site, the nearest being Roska Park & Bellhouse Gill Wood, 215m south.

#### **Protected Species**

Two species with special legal protection have been recorded on the site, and are listed in *Table 4.8C* below with an assessment of their representation on site. In order to assess the level of value as ecological interest features, it is important to consider the following:

- The extent to which the site contributes to the maintenance of their conservation status in the wider area; and
- Their level of legal protection, in order to address whether the development would comply with current legislation, and assess whether any operations may require a Natural England licence.

Common pipistrelle and *Myotis* bat species are protected under Annex IV. The Habitats Directive is implemented in England and Wales The Conservation of Habitats and Species (Amendment) Regulations 2017 SI No 1927 (Habitat Regulations). Bats are also protected through listing under Schedule 5 of the 1981 Wildlife & Countryside Act, as amended by Variations of Schedules Orders and the 2000 Countryside and Rights of Way Act.

**Table 4.8C Status of protected species on site**

| Species                | Representation in survey area                                                                                                                                                                                                             |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Common pipistrelle bat | No bat activity was recorded in the northern part of the site, and very few flights were detected across the main open parts of the site. Bats were however recorded using the wider site, particularly around the woodland in the south. |
| <i>Myotis</i> sp. bats | No bat activity was recorded in the northern part of the site, and very few flights were detected across the main open parts of the site. Bats were however recorded using the wider site, particularly around the woodland in the south. |

### Priority Species

The following priority species, listed as being of principal importance for the conservation of biodiversity in England under Section 41 of the 2006 Natural Environment and Rural Communities Act, have been recorded within the survey area. These species are also listed on the UK Biodiversity Action Plan (UK BAP).

**Table 4.9C Priority species recorded on site**

| Species                                           | Representation in survey area                                                       |
|---------------------------------------------------|-------------------------------------------------------------------------------------|
| Skylark ( <i>Alauda arvensis</i> )                | Seven breeding pairs across northern fields                                         |
| Grey partridge ( <i>Perdix perdix</i> )           | One pair breeding in arable field                                                   |
| Reed bunting ( <i>Emberiza schoeniclus</i> )      | Probable breeding pair in scrub to the north of the site.                           |
| Tree sparrow ( <i>Passer montanus</i> )           | Breeding colony in hedgerow on south western boundary of site.                      |
| Lapwing ( <i>Vanellus vanellus</i> )              | Foraging in northern field on passage.                                              |
| Linnet ( <i>Carduelis cannabina</i> )             | Up to four birds observed foraging on spoil mound on the eastern edge of the site   |
| Starling ( <i>Sturnus vulgaris</i> )              | Foraging birds observed flying in from the housing estate to                        |
| House sparrow ( <i>Passer domesticus</i> )        | Foraging birds observed flying in from the housing estate to the north of the site. |
| Latticed heath moth ( <i>Chiasmia clathrata</i> ) | Observed over grassland across the site.                                            |

Tree sparrow is of particular interest. Data accumulated from long-term census and survey work indicates that over the past 25 years, the population of tree sparrow has declined nationally by 87% (*BTO Breeding Birds in the Wider Countryside*), and can now be regarded as uncommon in Cumbria.

In the UK, the skylark population halved during the 1990s, and is still declining. In farmland, skylarks declined by 75% between 1972 and 1996. There were estimated to be 1,000,000 pairs in 1997 (*BTO Breeding Birds in the Wider Countryside*).

All of the other species listed above remain common and widespread, but have been subject to significant local declines. The population sizes recorded do not indicate that the site is important for the maintenance of their conservation status in the wider area.

The Section 41 list also includes the protected species occurring on the site, comprising common pipistrelle and *Myotis* sp. bats.

There are no additional local Biodiversity Action Plan Priority species listed in the Cumbria



BAP. Of the species already listed above as protected and / or Section 41 species, the following are also local BAP priority species: skylark, tree sparrow, reed bunting, lapwing, linnet, starling, house sparrow, common pipistrelle and *Myotis* sp. bats and latticed heath moth.

### **Priority Habitats**

Four habitats listed under Section 41 were recorded on the surveyed site, of which three meet the qualifying criteria, only two of these habitats were found within the northern section of the site which required the updated ecological survey:

A pond is located on the north eastern boundary of the site. However, the pond has succeeded to swamp due to encroachment of bulrush, and there is little water remaining. As it is small in terms of surface area and ecologically isolated from other similar habitats, it has reduced ecological value. No “pond life” was recorded during the survey and it is not considered a UK priority habitat as defined by UK Biodiversity Action Plan; Priority Habitat Descriptions (Maddock (ed), 2008).

Arable field margins border four of the five fields and conforms to UK priority habitat criteria as margins providing permanent, grass strips with mixtures of tussocky and fine-leaved grasses and providing suitable habitat for a breeding colony of tree sparrow (Maddock (ed), 2008).

This habitat is not located within the 2020 survey boundary - A hedgerow runs down the Wilson Pit Road verge. Although the hedgerow did not contain a variety of shrubby species and was comprised of mainly hawthorn, it was continuous and therefore meets the qualifying criteria as a UK priority habitat. In addition, the hedgerow has a diverse ground flora associated with its western edge and has ecological connectivity with the woodland belts which extend beyond the site.

This habitat is not located within the 2020 survey boundary - The canopy of the woodland which bisects the site is dominated by sycamore, however there are several species of ground flora present which are indicators of ancient woodland. These are: wood anemone (*Anemone nemorosa*), opposite leaved golden saxifrage (*Chrysosplenium oppositifolium*), yellow pimpernel (*Lysimachia nemorum*), primrose (*Primula vulgaris*) and wood sorrel (*Oxalis acetosella*). The stream running through the woodland was dry during surveys on summer and is not considered a UK priority habitat as defined by UK Biodiversity Action Plan; Priority Habitat Descriptions (Maddock (ed), 2008), however the wooded stream corridor with its diverse ground flora can be collectively regarded as being of at least local interest for nature conservation. This is further enhanced, by its use by foraging bats.

### **Other Interest Features**

As well as the protected and priority species noted above, the breeding birds supported by the site can be considered a feature of local conservation interest. The woodland, scrub and hedgerows support breeding birds of more common species including 10 pairs within the woodland of species such as blackcap, chiffchaff, blackbird, wren, great tit, blue tit and chaffinch; breeding within the scrub across the site were 3 pairs of meadow pipit, two pairs of whitethroat and one pair of blackbird and breeding whitethroat were also noted within the hedgerows.

### **Summary of Ecological Interest Features**

Table 4.10C below summarises the ecological interest features identified on and adjacent to the site, with an assessment of their geographical scale of importance. Statutory designated sites in the wider vicinity of the site, listed in Table 4.4,C can be considered as being of national importance for SSSI sites. Non statutory sites, listed in Table 4.5B, such as LWS sites can be considered as being local to County-level importance for LWS.

**Table 4.10C Receptor Value**

| Species                          | Legal and policy status                                                                            | Representation in survey area                                                                                                                                                                           |
|----------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Common pipistrelle               | Annex IVa of Habitats Directive, 1994 Habitats Regulations; Schedule 5 Wildlife & Countryside Act; | Intensive use of part of site but by relatively small numbers - High value. Limited use of the northern part of the site by bats.                                                                       |
| <i>Myotis</i> sp.                |                                                                                                    | Small numbers and sporadic use – High value. Limited use of the northern part of the site by bats.                                                                                                      |
| Skylark                          | S41 Natural Environment & Rural Communities Act 2006; BTO/RSPB Red list UK BAP; Cumbria BAP        | Seven breeding pairs across northern fields – Medium value                                                                                                                                              |
| Reed bunting                     | S41 Natural Environment & Rural Communities Act 2006; BTO/RSPB Amber list UK BAP, Cumbria BAP      | Probable breeding pair in scrub to the north of the site – Medium value                                                                                                                                 |
| Tree sparrow                     | S41 Natural Environment & Rural Communities Act 2006; BTO/RSPB Red list UK BAP, Cumbria BAP        | Breeding colony in hedgerow on south western boundary of site – Medium value<br>No use noted within the northern section of the site.                                                                   |
| Lapwing                          | S41 Natural Environment & Rural Communities Act 2006;                                              | Foraging in northern field on passage – Low value                                                                                                                                                       |
| Linnet                           | S41 Natural Environment & Rural Communities Act 2006; BTO/RSPB Red list; UK BAP                    | Up to four birds observed foraging on spoil mound on the eastern edge of the site. Low value.                                                                                                           |
| Starling                         | S41 Natural Environment & Rural Communities Act 2006; BTO/RSPB Red list; UK BAP                    | Foraging birds observed flying in from the housing estate to the north of the site – Low value                                                                                                          |
| House sparrow                    | S41 Natural Environment & Rural Communities Act 2006; BTO/RSPB Red list; UK BAP                    | Foraging birds observed flying in from the housing estate to the north of the site – Low value                                                                                                          |
| Latticed heath moth              | S41 Natural Environment & Rural Communities Act 2006; UK BAP; Cumbria BAP                          | Observed over grassland across the site – Low value                                                                                                                                                     |
| Arable field margin              | S41 Natural Environment & Rural Communities Act 2006;                                              | 2-4m margins of low diversity, dominated by rank vegetation, suitable as foraging bird habitat – Low value                                                                                              |
| Hedgerow                         | S41 Natural Environment & Rural Communities Act 2006;                                              | Lacking in diversity of shrub species but continuous with connectivity with the wider landscape and used by foraging bats and breeding tree sparrow – Medium value                                      |
| Lowland mixed deciduous woodland | S41 Natural Environment & Rural Communities Act 2006;                                              | Canopy dominated by non-native species, but with patches of diverse ground flora and connectivity with the wider landscape – Medium value. Habitat not present within the northern section of the site. |
| Stream                           |                                                                                                    | Limited channel features, prone to drying, limited connectivity – Low value. Habitat not present within the northern section of the site.                                                               |
| Breeding birds                   | 1981 Wildlife & Countryside Act (as amended)                                                       | Limited diversity and numbers – Medium value.                                                                                                                                                           |

## 4.5C Mitigation Measures

This section details the potential impacts on the ecological receptors during both construction and operation of the site and the mitigation measures that will be put in place to avoid, reduce, or compensate for identified effect. Mitigation measures have been classified as:

**Inherent mitigation** measures – those ‘designed in’ to the scheme and certain to be delivered.

**Standard mitigation** – e.g. construction mitigation with a high degree of certainty over delivery.

**Actionable mitigation** measures – those that require a controlling mechanism or legal undertaking to be implemented, but are under the control of the applicant and therefore, have a good certainty over delivery.

Mitigation measures specific to each site and receptor are detailed below.

### 4.5.1C Designated sites

There is one statutory designated nature conservation site within close proximity of the development: St. Bees Head SSSI, which lies 1km to the west. SSSIs are nationally important sites, designated under Section 28 of the 1981 Wildlife & Countryside Act. However, the site is coastal and notified for its cliff habitats and breeding birds. There is no ecological connectivity to the surveyed site and no specific mitigation has been recommended for the scheme.

### 4.5.2C Non-statutory sites

There are four Local Wildlife Sites (LWS) within 2km of the site, the nearest being Roska Park & Bellhouse Gill Wood, 215m south. There is no feasible mechanism of impact on this or any of the other LWSs. Therefore no specific mitigation has been recommended for the scheme.

### 4.5.3C Inherent mitigation measures

A number of mitigation measures have been incorporated into the scheme design in order to avoid, reduce or compensate for potential ecological impacts. These include:

- Retention of woodland;
  - Minimising impacts on the woodland corridor;
  - Minimising effects on hedgerow network;
  - Extension of hedgerow network;
  - Creation of new landscape planting;
  - Creation of permanently wet waterbodies; and
  - Design of lighting to minimise light spillage and avoid unnecessary lighting, especially during summer.
-

The woodland will not be impacted by the northern phase of the works.

#### **4.5.4C Standard Mitigation Measures**

##### **Construction Phase**

The area of scrub on the peripheries of the site are largely to be retained during the development. All trees and scrub to be retained will be protected during the construction phase with the use of temporary demarcation fencing. The fencing will extend 5 meters from the edge of the scrub and tree canopy. No excavation will be carried out within the protected areas and no materials will be stored within this area. All fencing and tree protection will comply with BS 5837:2012 Trees in relation to construction. All contractors will be informed of the purpose of the fencing.

Fencing will also reduce disturbance to nesting birds during the construction phase.

Nesting birds have been identified as breeding in the scrub and grassland on site. Section 1 of the Wildlife and Countryside Act (1981), which relates to the protection of birds, states that it is illegal to damage or destroy a nest (whilst being built or in use). To avoid impacting on nesting birds all scrub or grassland clearance works, or any removal of trees and shrubs will be undertaken outside the bird breeding season (March to August inclusive). If any clearance or felling works need to be carried out within the bird breeding season then checks will need to be undertaken by a suitably qualified ecologist prior to works commencing.

Potential impacts from spillages and leaks (i.e. fuel and oil) from plant machinery can be avoided through the implementation of good site management protocols and management in accordance with pollution prevention guidelines published by the Environment Agency. This will include installation of features such as;

- Drainage infrastructure features such as a bypass separator;
- Bunds around storage tanks and
- Impermeable surfaces to act as a barrier to vertical passage of pollutants.

Reduction in disturbance to wildlife in adjacent habitats due to noise, lighting, vibration and human activity by restricting working hours to daylight hours; siting of site compounds away from ecologically sensitive areas such as woodland edges and hedgerows;

There is a risk that the fungus *Chalara fraxinea* which causes ash dieback disease has been found in the wooded valley. The disease causes leaf loss and crown dieback in affected trees, and usually leads to tree death. If the fungus is confirmed then current guidance on avoiding the spread of this disease should be followed and can be found here <http://www.forestry.gov.uk/chalara>. This includes:

- Leaving mature infected trees in situ;
- Prevent removal of leaf litter from the site;
- Ash should also be omitted from the landscape planting plan and replaced by species such as rowan, downy birch, pedunculate oak, sessile oak, bird cherry and goat willow;

There is also a risk that invasive species could be introduced onto site either by machinery or through importation of infill and topsoil. Heavy plant used in clearance or construction works should have any off site debris from tracks / wheels removed before commencing works on site. Vehicles delivering materials to site should be limited to areas of hard standing and any materials such as in-fill or topsoil should come from a reputable source. Landscaping should utilise native species where possible and will not include any known invasive species.

Standard mitigation measures are detailed in Section 6.0 of the Construction Environmental management Plan (CEMP) (*Appendix C1*).

#### **4.6C Assessment of Environmental Impacts**

*Table 4.11C* summarises the ecological impacts associated with the proposed development after mitigation measures.

**Table 4.11C Assessment of ecological impacts**

| Receptor                         | Value of receptor | Magnitude of Impacts                                                                                                      | Application of Inherent and Standard Mitigation | Magnitude of Impacts after Applied Mitigation | Residual Significance of Impact | Application of Actionable Mitigation | Magnitude of Impacts after Applied Mitigation | Residual Significance of Impact | Change in Residual Significance of Impact 2012 to 2020 |
|----------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------------|---------------------------------|--------------------------------------|-----------------------------------------------|---------------------------------|--------------------------------------------------------|
| <b>CONSTRUCTION PHASE</b>        |                   |                                                                                                                           |                                                 |                                               |                                 |                                      |                                               |                                 |                                                        |
| St Bees Head SSSI                | High              | <b>Negligible</b><br>SSSI over 600m to the west, with no feasible mechanisms of impact                                    | N/A                                             | Negligible                                    | <b>Negligible</b>               | N/A                                  | Negligible                                    | <b>Negligible</b>               | <b>No Change</b>                                       |
| County Wildlife Sites within 2km | Medium            | <b>Negligible</b><br>No feasible mechanism of impact.                                                                     | N/A                                             | Negligible                                    | <b>Negligible</b>               | N/A                                  | Negligible                                    | <b>Negligible</b>               | <b>No Change</b>                                       |
| Habitats                         | Low               | <b>Minor adverse</b><br>Loss of habitat of arable and improved fields of low ecological value during site clearance works | N/A                                             | Minor adverse                                 | <b>Minor adverse</b>            | N/A                                  | Minor adverse                                 | <b>Minor adverse</b>            | <b>No Change</b>                                       |
|                                  | Low               | <b>Minor adverse</b><br>Loss of arable field margins during site clearance works                                          | N/A                                             | Minor adverse                                 | <b>Minor adverse</b>            | N/A                                  | Minor adverse                                 | <b>Minor adverse</b>            | <b>No Change</b>                                       |

|          |        |                                                                                                                                                                    |                                                                                                                                                                                   |            |            |     |            |            |           |
|----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|-----|------------|------------|-----------|
| Habitats | Medium | <b>Moderate adverse</b><br>Potential changes in run-off rates, water quantity and quality (e.g. sediment loading), with potential impacts on watercourses off-site | Maintain a riparian buffer of at least 5m during construction activities (CEMP Appendix C1)                                                                                       | Negligible | Negligible | N/A | Negligible | Negligible | No Change |
|          | Medium | <b>Moderate adverse</b><br>Risk of pollution of water courses from heavy plant / machinery                                                                         | Standard good working practice (CEMP Appendix C1)                                                                                                                                 | Negligible | Negligible | N/A | Negligible | Negligible | No Change |
| Bats     | High   | <b>Minor adverse</b><br>Loss of foraging habitat along wooded valley and scrub to western boundary due to increased lighting                                       | Implementation of lighting strategy                                                                                                                                               | Negligible | Negligible | N/A | Negligible | Negligible | No Change |
|          |        | <b>Moderate adverse</b><br>Light spill onto bat foraging habitat                                                                                                   | Restricted working hours during bat activity season unlikely to cause disturbance to bats. Lighting designed to avoid spill onto woodland fringe or hedgerows. (CEMP Appendix C1) | Negligible | Negligible | N/A | Negligible | Negligible | No Change |



|                          |        |                                                                                                 |                                                                                                                                                                                                                                                          |                  |                         |            |                   |                  |
|--------------------------|--------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|------------|-------------------|------------------|
| Birds                    | Medium | <b>Minor adverse</b><br>Disturbance to nesting birds during construction works                  | Avoid site clearance during bird breeding season and protection of breeding bird habitat as stated in CEMP ( <i>Appendix C1</i> )                                                                                                                        | Negligible       | <b>Negligible</b>       | Negligible | <b>Negligible</b> | <b>No Change</b> |
|                          |        | <b>Minor adverse</b><br>Loss of foraging and nesting habitat for farmland birds                 | No mitigation possible however there is suitable habitat in the wider area for these species                                                                                                                                                             | Minor adverse    | <b>Minor adverse</b>    | N/A        | Minor adverse     | <b>No Change</b> |
|                          | Medium | <b>Moderate adverse</b><br>Loss of scrub and hedgerow for breeding birds including tree sparrow | Gapping up of existing hedgerow and scrub around site boundary and extending and increasing the species diversity of the boundary hedgerow. Creation of SUDS providing new nesting and foraging habitat.                                                 | Minor beneficial | <b>Minor beneficial</b> | N/A        | Minor beneficial  | <b>No Change</b> |
|                          | Medium | <b>Moderate adverse</b><br>Light spill onto bird nesting habitat                                | Restricted working hours during bat activity season unlikely to cause disturbance to bats. Compounds sited at least 50m from woodland edges and hedgerow. Lighting designed to avoid spill onto woodland fringe or hedgerows. (CEMP <i>Appendix C1</i> ) | Negligible       | <b>Negligible</b>       | N/A        | Negligible        | <b>No Change</b> |
| <b>OPERATIONAL PHASE</b> |        |                                                                                                 |                                                                                                                                                                                                                                                          |                  |                         |            |                   |                  |
| St Bees Head SSSI        | High   | <b>Negligible</b><br>SSSI over 600m to the west, with no feasible mechanisms of impact          | N/A                                                                                                                                                                                                                                                      | Negligible       | <b>None</b>             | N/A        | Negligible        | <b>No Change</b> |

| County Wildlife Sites within 2km | Medium | Negligible<br>No feasible mechanism of impact.                                                                                                                                                         | N/A                                                                                                                                                                                                                                                 | Negligible       | None                    | N/A                                                                                         | Negligible       | No Change        |
|----------------------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|---------------------------------------------------------------------------------------------|------------------|------------------|
| Habitats                         | Medium | <b>Moderate adverse</b><br>risk of water pollution and sedimentation from the increased area of impermeable and slowly permeable surfaces                                                              | A 5m riparian buffer will be maintained and enhanced with planting of native species of shrub and tree.                                                                                                                                             | Minor beneficial | <b>Minor beneficial</b> | Ecological Management Plan in place to maintain and enhance the Eco value area for wildlife | Minor beneficial | <b>No Change</b> |
|                                  |        |                                                                                                                                                                                                        | SUDS scheme in place to direct, balance and discharge surface water flow from the development site into the existing surface water system                                                                                                           | Minor beneficial | <b>Minor beneficial</b> |                                                                                             | Minor beneficial | <b>No Change</b> |
|                                  |        | <b>Moderate adverse</b><br>potential to transport horticultural fertilisers and pesticides from gardens to wetlands and watercourses                                                                   | A 5m riparian buffer will be maintained and enhanced with planting of native species of shrub and tree<br>SUDS scheme in place to direct, balance and discharge surface water flow from the development site into the existing surface water system | Minor beneficial | <b>Minor beneficial</b> | Ecological Management Plan in place to maintain and enhance the Eco value area for wildlife | Minor beneficial | <b>No Change</b> |
|                                  | Medium | <b>Minor adverse</b><br>Increased human and domestic dog disturbance to wooded valley and other surrounding habitat areas to the east and south of the site; as a result of increased recreational use | Planting of buffer zone along northern and southern edges of the woodland.<br>Construction of footbridge across wooded valley connecting the north and south site at a higher level                                                                 | Minor beneficial | <b>Minor beneficial</b> | Ecological Management Plan in place to maintain and enhance the Eco value area for wildlife | Minor beneficial | <b>No Change</b> |

| Habitats | Medium | Moderate adverse<br>risk of introduction of<br>invasive non-native<br>species derived from<br>garden waste                                                                                | N/A                                                                                                                                                                                                                                                                                                                                                      | Moderate<br>adverse | Moderate<br>adverse | Ecological<br>Management<br>Plan in place to<br>maintain and<br>enhance the Eco<br>value and SUDS<br>area for wildlife | Negligible          | Negligible          | No<br>Change |
|----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|--------------|
| Bats     | High   | <b>Minor adverse</b><br>Loss of foraging habitat<br>along wooded valley<br>and scrub to western<br>boundary due to<br>increased lighting                                                  | Implementation of lighting<br>strategy                                                                                                                                                                                                                                                                                                                   | Negligible          | Negligible          | N/A                                                                                                                    | Negligible          | Negligible          | No<br>Change |
|          |        | <b>Minor adverse</b><br>fragmentation of existing<br>hedgerows from<br>construction of access<br>roads on to site resulting<br>in loss of foraging and<br>habitat and commuting<br>routes | Gapping up of existing<br>hedgerow<br>Planting strategy to<br>increase diversity of native<br>plant species within<br>hedgerow and to introduce<br>hedgerow trees<br>Extension of hedgerow<br>network along western<br>boundary of site boundary                                                                                                         | Minor<br>beneficial | Minor<br>beneficial | N/A                                                                                                                    | Minor<br>beneficial | Minor<br>beneficial | No<br>Change |
|          |        |                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                          |                     |                     |                                                                                                                        |                     |                     |              |
| Birds    | Medium | <b>Moderate adverse</b><br>Increased noise, lighting<br>and human disturbance<br>associated with the<br>newly-urbanised<br>environment                                                    | Implementation of lighting<br>strategy<br>Protection of nesting<br>habitat within wooded<br>valley by planting of buffer<br>zone and construction of<br>footbridge<br>Gapping up and extension<br>of hedgerows providing<br>additional nesting<br>opportunities around the<br>perimeter of the site<br>SUDS scheme providing a<br>variety of nesting and | Negligible          | Negligible          | N/A                                                                                                                    | Negligible          | Negligible          | No<br>Change |
|          |        |                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                          | Negligible          | Negligible          | Ecological<br>Management<br>Plan in place to<br>maintain and<br>enhance the Eco<br>value and SUDS<br>area for wildlife | Negligible          | Negligible          | No<br>Change |
|          |        |                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                          | Minor<br>beneficial | Minor<br>beneficial |                                                                                                                        | Minor<br>beneficial | Minor<br>beneficial | No<br>Change |
|          |        |                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                          | Minor<br>beneficial | Minor<br>beneficial |                                                                                                                        | Minor<br>beneficial | Minor<br>beneficial | No<br>Change |

|  |                                                                                                                                | foraging habitats |                  |                         |     |                  |                         |           |  |
|--|--------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------|-------------------------|-----|------------------|-------------------------|-----------|--|
|  | <b>Minor adverse</b><br>Increased levels of predation by domestic cats                                                         | N/A               | Minor adverse    | <b>Minor adverse</b>    | N/A | Minor adverse    | <b>Minor adverse</b>    | No Change |  |
|  | <b>Minor beneficial</b><br>Increase in nesting sites for urban bird species such as house sparrow and starling.                |                   | Minor beneficial | <b>Minor beneficial</b> | N/A | Minor beneficial | <b>Minor beneficial</b> | No Change |  |
|  | <b>Minor beneficial</b><br>Supplementary feeding by residents may also result in localised increases in foraging bird density. |                   | Minor beneficial | <b>Minor beneficial</b> | N/A | Minor beneficial | <b>Minor beneficial</b> | No Change |  |

## 4.7C Summary

The proposed development will not directly impact upon statutory designated sites. Potential indirect impacts will be avoided by measures to prevent an increase in surface water run-off rates and the pollution and siltation of watercourses draining the site.

The assessment has identified a number of ecological interest features on site, of which foraging bats utilising the scrub along the western boundary and within the wider site the woodland edge, scrub and hedgerows to the west and south of the site are the most important in both legislative and nature conservation terms. No bat activity was recorded in the northern part of the site, and very few flights were detected across the main open parts of the site. There is evidence that the southern part of the site which is already under development may be important for the maintenance of a small population of common pipistrelle in the local area, and it is used occasionally by small numbers of *Myotis* bat. These bats may utilise the scrub along the boundary of the northern section of the site for commuting and low levels of foraging.

Farmland bird species such as skylark were found to nest in the grassland and arable fields that occupy the majority of the site. These areas have been reduced by phases 1 and 2. Ongoing disturbance to the site during construction is as predicated, with a minor adverse effect of displacement of birds on and adjacent the site. The northern half of the site which was previously dominated by arable land is now grassland which would reduce suitability of use by these species.

The development of the site for residential housing would comply with protected species legislation. With the exception of species dependent on arable farmland, the development would maintain the favourable conservation status of the protected and priority species identified on site.

Ecological mitigation and enhancement proposals implemented as part of the landscaping scheme are designed to link into the most valuable habitat in the south-eastern part of the wider site and are targeted towards achieving real benefits in habitat quality for key elements of the site's fauna. The landscaping scheme also recognises how the development relates to the wider landscape in terms of species movement, maximising the likelihood of habitat utilisation and maintenance and strengthening of existing wildlife corridors. In this way, the probability of a net positive biodiversity benefit is increased.

On the basis of the ecological impact assessment it can be concluded that the residual impacts resulting from the proposed development are either of **negligible** significance, or involve **minor adverse** impacts during construction which would be mitigated by habitat creation. There is not considered to be any change in the predicted impact for the northern phase of the development above the Linear Park as originally identified in 2012.

Habitats on the site mostly comprise improved grassland which appears to have been cut for silage and scrub.

During construction there will be some loss of habitats listed in Section 41 of the 2006 Natural Environment & Rural Communities Act, including some arable field margins.

There is potential risk of causing the spread of invasive species as a consequence of the development if ash dieback is confirmed in the woodland. Implementation of the CEMP will ensure that habitats to be retained in the development and adjacent to the development will be protected during the construction phase.

By extending the hedgerow network along the western boundary and gapping up of defunct parts of the existing hedgerow and creating wetland habitats within the site, additional foraging and breeding opportunities will be created for the benefit of local species leading to a **minor**

**beneficial** impact during the operational phase. There is not considered to be any change in the predicted impact for the northern phase of the development as originally identified in 2012.

| Target Note | Description                               | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BTN1        | Semi-improved grassland                   | This area was previously arable fields and has now been sown with grassland and appeared to have been recently cut for silage. Abundant species recorded within the grassland include creeping bent ( <i>Agrostis stolonifera</i> ), Yorkshire fog ( <i>Holcus lanatus</i> ), Rough meadow grass ( <i>Poa trivialis</i> ). Other species such as creeping buttercup ( <i>Ranunculus repens</i> ), white clover ( <i>Trifolium repens</i> ), broadleaved dock ( <i>Rumex obtusifolius</i> ), meadow foxtail ( <i>Alopecurus pratensis</i> ), Timothy-grass ( <i>Phleum pratense</i> ), soft rush ( <i>Juncus effusus</i> ) and black medick ( <i>Medicago lupulina</i> ) were occasional or rare. |
| BTN2        | Marshy grassland with some standing water | Abundant plants were rosebay willowherb ( <i>Epilobium angustifolium</i> ), field horsetail ( <i>Equisetum arvense</i> ), creeping thistle ( <i>Cirsium arvense</i> ) and rough meadow grass ( <i>Poa trivialis</i> ). Northern marsh orchid ( <i>Dactylorhiza purpurella</i> ) was frequent, with soft rush, cuckoo flower ( <i>Cardamine pratense</i> ), marsh foxtail ( <i>Alopecurus geniculatus</i> ), scurvy-grass ( <i>Cochlearia officinalis</i> ), and springy turf moss ( <i>Rhytidiadelphus squarrosus</i> ).                                                                                                                                                                         |
| BTN3        | Semi-improved grassland                   | This habitat was found within the field in the north of the site within areas which had not been cut. The dominant species was false oat grass ( <i>Arrhenatherum elatius</i> ), with abundant sweet vernal grass ( <i>Anthoxanthum odoratum</i> ). Stinging Nettle ( <i>Urtica dioica</i> ), Bramble ( <i>Rubus fruticosus</i> agg) and broadleaved dock were locally abundant, and frequent species included creeping bent, red fescue ( <i>Festuca rubra</i> ), creeping thistle, Hogweed ( <i>Heracleum sphondylium</i> ) and Cocksfoot ( <i>Dactylis glomerata</i> ).                                                                                                                       |
| BTN3a       | Scrub                                     | Scattered goat willow ( <i>Salix caprea</i> ) and hawthorn ( <i>Crataegus monogyna</i> ) scrub and dense bramble were identified within this area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| BTN4        | Semi-improved grassland and scrub         | The bund to the south of the compound area has developed into grassland with scattered scrub. Abundant species were false oat grass and field horsetail, with locally abundant meadow vetchling ( <i>Lathyrus pratensis</i> ), hogweed, bramble and broadleaved dock. Frequent species include coltsfoot ( <i>Tussilago farfara</i> ), Spear thistle ( <i>Cirsium vulgare</i> ), Yorkshire fog, rosebay willowherb, stinging nettle, creeping thistle and Dandelion ( <i>Taraxacum officinale</i> ).                                                                                                                                                                                             |
| BTN4a       | Scattered trees                           | Scattered small trees including hawthorn and common whitebeam ( <i>Sorbus aria</i> agg.).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |



|       |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BTN5  | Semi-improved grassland                          | As with BTN 1 this area was previously arable fields which have now been sown with grassland and appeared to have been recently cut for silage. Species composition is the same as that in BTN 1.                                                                                                                                                                                                                                                         |
| BTN5a | Semi-improved grassland on field boundary        | The dominant species was false oat grass, with abundant sweet vernal grass. Frequent species were creeping bent, red fescue, creeping thistle, hogweed and cocksfoot. Rare species included common spotted orchid ( <i>Dactylorhiza fuchsia</i> ) and bloody cranesbill ( <i>Geranium sanguineum</i> ).                                                                                                                                                   |
| BTN5b | Semi-improved grassland and scrub                | A bund running along the north boundary of the site with a track along the top of it. Yorkshire fog was abundant with false oat grass locally abundant. Frequent species included broadleaved dock, creeping buttercup, Ribwort Plantain ( <i>Plantago lanceolata</i> ) and meadow foxtail. A patch of dense bramble and gorse ( <i>Ulex europaeus</i> ) scrub was also present within this area. Evidence of fly tipping was identified along this bund. |
| BTN6  | Pond with no water (swamp)                       | Along the eastern boundary is a pond with no water and the surface is a bed of bulrush ( <i>Typha latifolia</i> ). Some soft rush and rosebay willowherb are present on the pond margins and banks. The banks beyond this vegetation are dominated by dense bramble scrub.                                                                                                                                                                                |
| BTN7  | Bare ground with area of semi-improved grassland | This area was formerly marshy grassland overlying concrete but is now a combination of a storage compound, areas of bare ground where soil is being excavated with pockets of remaining semi-improved grassland.                                                                                                                                                                                                                                          |
| BTN7a | Scrub                                            | A line of scrub along the fence line, with debris including rubble and corrugated iron. Scrub species are hawthorn and goat willow. Red fescue was abundant with stinging nettle, bramble and field horsetail.                                                                                                                                                                                                                                            |
| BTN8  | Semi-improved neutral grassland                  | Semi-improved neutral grassland forming the margins and boundaries to many of the fields. Abundant species included cocksfoot, false oat grass and rosebay willowherb. Stinging nettle and meadow foxtail were locally abundant.                                                                                                                                                                                                                          |
| BTN9  | Hard standing                                    | Hard standing compound and storage area in the south west of the site.                                                                                                                                                                                                                                                                                                                                                                                    |
| BTN10 | Ephemeral/short perennial growth on spoil heap   | Frequent species were white clover, prickly sow-thistle ( <i>Sonchus oleraceus</i> ), scentless mayweed ( <i>Matricaria perforata</i> ), creeping bent and common mouse ear ( <i>Cerastium fontanum</i> ). Other species include wild mignonette ( <i>Reseda lutea</i> ) and yarrow ( <i>Achillea millefolium</i> ). During the 2020 survey further species                                                                                               |

|       |                                                  |                                                                                                                                                                                                                                                                    |
|-------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       |                                                  | including those identified within BTN 4 were identified on the bund along with ragwort ( <i>Jacobaea vulgaris</i> ), bramble, silverweed ( <i>Argentina anserina</i> ) and ribwort plantain.                                                                       |
| BTN11 | Bare ground with area of semi-improved grassland | This area was formally an improved grassland field but now comprises areas of bare ground from soil excavation with pockets of grassland.                                                                                                                          |
| BTN12 | Drainage ditch and haulage road                  | A drainage ditch containing a very shallow volume of water with bare earth banks and no aquatic or marginal vegetation and haulage road were identified between the existing housing development and the area of semi-improved grassland and soil excavation area. |
| FTN1  | GCN                                              | Pond on the eastern boundary of the site was found to be dry during the 2012 survey and still dry during the 2020 survey resulting in this feature not being suitable for breeding great crested newts.                                                            |
| FTN2  | Birds                                            | Birds may use the grassland, scattered trees and scrub on site for foraging and nesting.                                                                                                                                                                           |

**Table 1** Details of Botanical and Faunal Target Notes.

