Whitcher Wildlife Ltd.
Ecological Consultants.

BARROW ROAD, BARTON-UPON-HUMBER.

OS REF: TA 04218 21589.

ECOLOGICAL IMPACT ASSESSMENT.

Ref No: **220776/EcIA/3.**

Date: **31st August 2023.**

Cliff Edge, Cliff Road, Darfield, Barnsley, S73 9HR.
Tel. 01226 753271. Fax. 01226 270993.
info@whitcher-wildlife.co.uk www.whitcher-wildlife.co.uk
Company No. 4401613.

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1. INTRODUCTION.

1.1. Strata are applying for planning consent to build one hundred and seventy-three new residential dwellings on an area of arable land to the south of Barrow Road, to the east of the town of Barton-upon-Humber.

1.2. Whitcher Wildlife Ltd have been commissioned to carry out a Preliminary Ecological Appraisal and bird surveys for the site to establish whether there are any ecological matters that may affect the proposed development.

1.3. All surveys have now been completed and landscaping plans have been finalised, which allows for the conversion of the Preliminary Ecological Appraisal into an Ecological Impact Assessment.

1.4. This document is designed to state the impact of the development on both habitats and wildlife.

1.5. Appendices I to II of this report provide additional information on specific species and are designed to assist the reader in understanding the contents of this report.

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2. SURVEY METHODOLOGY.

2.1. Prior to visiting the site, the survey area was cross referenced to maps and aerial photographs to give a general idea of the habitats and potential issues within the area and to identify potential access and walking routes.

2.2. The survey area was walked where access was agreed and public rights of way were used where no access was agreed. All habitats within and immediately around the survey area were documented and the dominant species within that habitat listed in line with the JNCC Handbook for Phase 1 Habitat surveys.

2.3. The survey area and immediate surrounding area was thoroughly searched for evidence of badger (*Meles meles*) activity by looking for the following signs in line with Harris S, Cresswell P and Jefferies D (1989). *Surveying Badgers*. Mammal Society: -

* Badger setts.
* Badger latrines or dung pits.
* Badger snuffle holes and evidence of foraging.
* Badger paths.
* Badger prints in areas of soft mud.
* Badger hairs caught on fencing.

2.4. The survey area was searched for watercourses and where found all watercourses within the survey area and for approximately 100m in each direction were thoroughly searched for evidence of water vole (*Arvicola amphibius*) activity by looking for the following signs, in line with Dean M, Strachen R, Gow D and Andres R (2016). *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series).* Eds Fiona Mathews and Paul Chanin. The mammal Society, London: -

* Water vole burrows.
* Water vole faeces and latrines.
* Water vole feeding stations.
* Water vole runs.
* Water vole prints in areas of soft mud.
* Water vole lawns.
* Predator field signs.

2.5. The survey area was searched for watercourses and where found all watercourses within the survey area and for approximately 50m in each direction were thoroughly searched for evidence of otter (*Lutra lutra*) activity by looking for the following signs in line with the P Chanin (2003). *Monitoring the Otter* and *Conserving Natura 2000 Rivers: Monitoring Series No10 Guidelines: -*

* Otter prints in soft mud.
* Otter spraints.
* Otter Holts.

2.6. The survey area was searched for watercourses and waterbodies. Where found, and where safe to enter the water, all were thoroughly searched for the presence of crayfish, for approximately 50m in each direction of the site, by searching under rocks and logs. Where stated, crayfish traps were also deployed into the watercourse. All survey work was carried out in accordance with the *Conserving Natural 2000 Rivers Monitoring Series No 1, Protocol for Monitoring the White Clawed Crayfish*.

2.7. The survey area was searched for trees and structures and where found these were checked for potential bat roosting sites in line with Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)* by looking for the following signs: -

* Holes, cracks or crevices.
* Bat Droppings.

2.8. The land immediately adjacent to the survey area was assessed for bat roosting potential and bat foraging potential. Connective routes and flight lines were also assessed whilst on site and using maps of the area.

2.9. The area within 500m of the survey site was cross referenced to maps to highlight all ponds close to the site. Where possible, all ponds identified were accessed using agreed access or public rights of way to assess the potential for great crested newts (*Triturus cristatus*) to be present.

2.10. The survey area was assessed for the potential for reptiles and suitable reptile habitats. Where applicable the area was also searched for the presence of reptiles.

2.11. Where appropriate, the habitat within and surrounding the survey area was searched for species such as hazel, oak, honeysuckle, bramble and other species which may provide potential habitat for hazel dormice (*Muscardinus avellanarius*). Field signs such as feeding remains and nests were also searched for where possible, in line

with P Bright, P Morris and T Mitchell-Jones *The Dormouse Conservation Handbook 2nd Edition*.

2.12. Where appropriate, the area within and surrounding the survey area was assessed for its potential to house habitat for red squirrels. Field signs of red squirrels were searched for at least every 50m, looking for any dreys, feeding signs or sightings of red squirrels.

2.13. All surveys were carried out in line with the Chartered Institute of Ecological and Environmental Management (CIEEM) survey standards and advice.

2.14. This document is prepared in line with The National Planning Policy Framework (NPPF). This sets out the government policy on biodiversity and nature conservation and places a duty on Planning Authorities to give material consideration to the effect of a development on legally protected species when considering planning applications. The NPPF and the Planning Practice Guidance on "Natural Environment" also promote sustainable development by ensuring that developments take account of the role and value of biodiversity and that it is conserved and enhanced within the development.

2.15. This report is prepared in line with the Natural Environment and Rural Communities (NERC) Act that came into force on 1st Oct 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England.

2.16. The survey was undertaken by Mitchel Greenhalgh, an ecological consultant with an array of experience in conducting surveys on a variety of flora and fauna in a professional capacity. Mitchel holds a level two Natural England survey licence in respect of both bats and great crested newts, a NatureScot licence in respect of bats and Natural England class licences for various invertebrates. He is also working towards gaining further survey licences. He has attended courses run by CIEEM and the FSC and also holds a BSc in environmental science attained from the University of Leeds. He is an associate member of CIEEM and he is therefore committed to continuous professional development.

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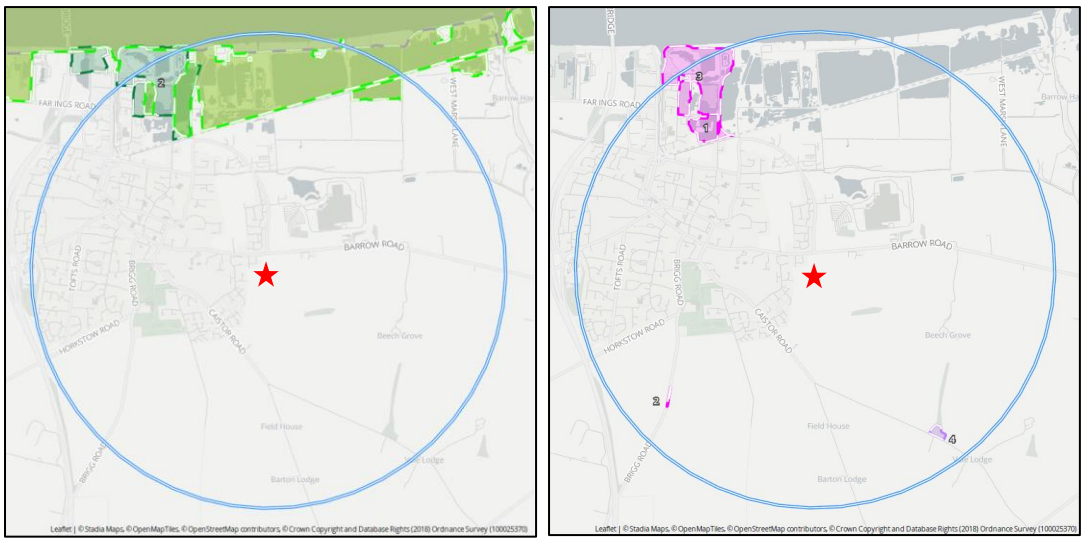
3. BASELINE ECOLOGY.

3.1. Data Search Results.

3.1.1. A request was submitted to the Greater Lincolnshire Nature Partnership (GLNP) to identify the presence of any protected species or designated sites within a 2km radius of the site.

3.1.2. GLNP provided the below maps, showing the proximity of both statutory and non-statutory sites to the survey area. None of these sites are relevant to the survey area and most refer to the Humber Estuary. Statutory sites are shown in the map to the left, and non-statutory sites are shown in the map to the right.



3.1.3. GLNP provided records of common bat species. The closest of these is of a noctule bat, located approximately 250m west, although most grid references provided are unspecific.

3.1.4. GLNP provided records of water vole, otter, badger. However, none of these records are relevant to the survey area.

3.1.5. GLNP provided thousands of records of bird species within a 2km radius. However, the vast majority of these are from a small number of sites, such as the Humber Estuary, Barton Pits or Barrow Haven Reedbed. None are located within the survey area.

3.1.6. GLNP provided no other records of protected species within a 2km radius of the survey area.

3.1.7. The data search cannot be made public but is available to the client upon request.

3.2. The Survey Area.

The survey area comprises the section of land including, and mostly to the south of Barrow Road / A1077 shown in the aerial image below.

3.3. Description of Habitats.

Appendix III of this report contain annotated maps marked up with the varying habitats that are cross referenced to target notes in Appendix IV of this report. The habitats on and adjacent to the site are: -

- Arable Land
- Species-poor, Intact Hedgerow
- Species-poor, Defunct Hedgerow

- Ornamental Hedgerow
- Improved Grassland
- Tall Ruderals
- Fence
- Bare Ground

3.3.1. Arable Land.

3.3.1.1. The site comprises almost entirely arable land, which at the time of the survey had a wheat crop.

3.3.1.2. There is no condition assessment criteria for arable land.

3.3.2. Species-poor, Intact Hedgerow.

3.3.2.1. There are a number of hedgerows bordering the site. These are all listed and described individually below and are mapped and labelled in an anti-clockwise order in the map shown in appendix V.

3.3.2.2. ***Hedgerow A.*** **–** Hedgerow A runs the western border of the site and backs on to the rear gardens of the properties of Danson Close. This hedge comprises predominantly hawthorn (*Crataegus monogyna*) along with elder (*Sambucus nigra*), bramble (*Rubus fruticosus*) and cherry laurel (*Prunus laurocerasus*). One ash (*Fraxinus excelsior*) tree is also present within the hedgerow and Virginia creeper (*Parthenocissus quinquefolia*) is overgrowing from a neighbouring garden.

3.3.2.3. **Hedgerow B. –** Hedgerow B is the longest length of hedge on site and extends most of the southern boundary. It comprises almost entirely hawthorn (*Crataegus monogyna*) along with small amounts of dog rose (*Rosa canina*).

3.3.2.4. **Hedgerow C.** – Hedgerow C comprises the southern half of the eastern boundary. The hedgerow is mainly hawthorn (*Crataegus monogyna*) with some elder (*Sambucus nigra*).

3.3.2.5. **Hedgerow G**. Hedgerow G is a small length of beech (*Fagus sylvatica*) hedge between the field and a property on Glebe Way.

3.3.2.6. The habitat condition for these hedgerows is shown below. All four hedgerows score 'poor'.

Attributes and functional groupings (A, B, C, D & E)	**Criteria (the minimum requirements for 'favourable condition'**	**Pass/Fail**			
		A	**B**	**C**	**G**
A1. Height	>1.5 m average along length	**P**	**P**	**F**	**P**

A2. Width	>1.5 m average along length	**F**	**F**	**F**	**F**
B1. Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length (unless 'line of trees')	**P**	**P**	**P**	**P**
B2. Gap - hedge canopy continuity	· Gaps make up <10% of total length and · No canopy gaps >5 m	**P**	**F**	**P**	**P**
C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · measured from outer edge of hedgerow, and · is present on one side of the hedge (at least)	**F**	**F**	**F**	**F**
C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	**F**	**F**	**F**	**F**
D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	**P**	**P**	**P**	**P**
D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	**F**	**F**	**F**	**F**
Condition		**Poor**	**Poor**	**Poor**	**Poor**

3.3.3. Species-poor, Defunct Hedgerow.

3.3.3.1. **Hedgerow D.** Hedgerow D is classed as the northern half of the eastern hedgerow. This section is consistently gappy and intensively managed.

3.3.3.2. **Hedgerow E.** This hedgerow makes up the northern boundary of the site. It comprises of newly planted hawthorn (*Crataegus monogyna*) that are not yet of a density to class the hedgerow as intact.

3.3.3.3. The habitat condition for these hedgerows is shown below. Both hedgerows score 'poor'.

Attributes and functional groupings (A, B, C, D & E)	**Criteria (the minimum requirements for 'favourable condition'.**	**Pass/Fail**	
		D	**E**

A1. Height	>1.5 m average along length	**F**	**F**
A2. Width	>1.5 m average along length	**F**	**F**
B1. Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length (unless 'line of trees')	**F**	**F**
B2. Gap - hedge canopy continuity	· Gaps make up <10% of total length and · No canopy gaps >5 m	**F**	**F**
C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · measured from outer edge of hedgerow, and · is present on one side of the hedge (at least)	**P**	**F**
C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	**F**	**F**
D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	**P**	**P**
D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	**F**	**F**
Condition		**Poor**	**Poor**

3.3.4. Ornamental Hedgerow.

3.3.4.1. **Hedgerow F**. At the north-west corner of the site, close to Barrow Road, there is a very small length of Leyland Cypress hedgerow. This is classified as a non-native, ornamental hedgerow.

3.3.4.2. No condition assessment is required for ornamental hedgerow as they automatically score as 'poor'.

3.3.5. Improved Grassland.

3.3.5.1. **IG1.** Between the site borders and the crop, there is a strip of grassland averaging approximately 1m in width. A species list was gathered during the initial survey, but by the September bird survey, this had all been cut. Species within this habitat include false oat grass (*Arrhenatherum elatius*), perennial rye grass (*Lolium perenne*), common oat (*Avena sativa*), barren brome (*Bromus sterilis*), nettle (*Urtica dioica*), cow parsley (*Anthriscus sylvestris*), creeping thistle (*Cirsium vulgare*), curled dock (*Rumex crispus*), hogweed (*Heracleum sphondylium*) and field bindweed (*Convolvulus arvensis*).

3.3.5.2. **IG2.** To the north of the site, there are areas of grassland which form the grass verges along the roadway. These comprise predominantly perennial rye grass (*Lolium perenne*) and other common species, but the sward is far too short to survey properly.

3.3.5.3. The condition assessment for this habitat is shown below. Both IG1 and IG2 pass three of the seven criteria and are therefore assessed as being 'poor' condition.

Grassland – low value (modified grassland)

	Description of criteria.	**Pass / Fail**	
1	There must be 6-8 species per m^2. Note - if a grassland has 9 or more species per m^2 it should be classified as a moderate distinctiveness grassland habitat type. **NB - this criterion is non-negotiable for achieving good condition.**	**F**	**F**
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which	**F**	**F**

	provide opportunities for insects, birds and small mammals to live and breed.		
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	**P**	**P**
4	Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	**F**	**F**
5	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	**F**	**F**
6	Cover of bracken less than 20%.	**P**	**P**
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species[1] make up less than 5% of ground cover.	**P**	**P**
Condition		**Poor**	**Poor**

3.3.6. Tall Ruderals.

3.3.6.1. Between the southern boundary hedgerow and the south-west corner of the site, there is a strip of tall ruderals. Species here inlcude false oat grass (*Arrhenatherum elatius*), nettle (*Urtica dioica*) and hogweed (*Heracleum sphondylium*).

3.3.6.2. The condition assessment for this habitat is shown below. The habitat passes one of the three criteria and is therefore assessed as being ‘poor’ condition.

Sparsely vegetated land - Ruderal/ephemeral

	Description of criteria.	**Pass / Fail.**
1	Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.	**Fail**
2	There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife. NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife).	**Fail**
3	Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area. NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	**Pass**
Condition		**Poor**

3.3.7. Fence.

Fences are frequently present throughout the site, typically forming the boundaries between the survey area and residential gardens, although they often cannot be seen for the hedgerows.

3.3.8. Bare Ground.

Barrow Road and its associated pavements are present to the northern end of the survey area. These areas are all classified as bare ground.

3.4. Description of Fauna.

3.4.1. No badger setts or their field signs were identified within the survey area and no records of badger are present close to the site.

3.4.2. There is no watercourse within or close to the site to provide suitable habitat for otter, water vole or white-clawed crayfish.

3.4.3. There are no structures within the survey area to provide potential features for roosting bats.

3.4.4. There are no trees within the survey area to provide potential features for roosting bats.

3.4.5. The habitat within the survey offers poor suitability for foraging and commuting bats due to its extensive arable nature. However, the hedgerows are likely to be used to some extent for commuting and foraging.

3.4.6. There are no ponds within a 500m radius of the survey area to provide suitable breeding habitat for great crested newts and other amphibians. Furthermore, there are no records of great crested newts close to the site.

3.4.7. *Birds.*

3.4.7.1. The habitat on site offers moderate habitat for nesting birds within the nesting season, which extends from March to August inclusive. This is due to the site's potential for both arable nesting birds such as curlew and skylark along with smaller hedge nesting species around the perimeter. It is situated within 2km of the Humber Estuary and therefore also has potential for use by migratory birds.

3.4.7.2. More details regarding bird surveys are listed in section 3.5 of this report.

3.4.8. The habitat offers limited suitable habitat for reptiles due to its arable nature and lack of water sources. However, suitable grassland habitat is present immediately east of the site which could be used by reptiles.

3.4.9. The survey area lies outside of the known natural home range of both red squirrel and hazel dormouse.

3.4.10. Virginia Creeper (*Parthenocissus quinquefolia*), which is an invasive, non-native plant species listed on schedule 9 of the Wildlife and Countryside Act (1981) is present within the western hedgerow on the site.

3.5. Bird Surveys.

3.5.1. As the site lies approximately 1.8km south of the Humber Estuary RAMSAR site, bird surveys were undertaken to understand how the land is used by various species.

3.5.2. Three surveys in total were carried out during the months of August, September and October. Although this is outside of breeding season, it still helps gain an understanding of which species use the site, particularly during important migratory months.

3.5.3. The site is assessed to provide suitable habitat for arable and hedge nesting species.

3.5.4. Shown below are details of all surveys carried out.

3.5.4.1. Survey One.

3.5.4.1.1. The first survey was undertaken alongside the preliminary ecological appraisal on August 1st, 2022, between the hours of 07:00 and 08:00 with a temperature of 18℃ with a light breeze.

3.5.4.1.2. Birds seen on site were wood pigeon (30), carrion crow (3), linnet (1), house sparrow (2).

3.5.4.1.3. Birds seen flying over site were kestrel (1), magpie (2), wood pigeon (18).

3.5.4.1.4. Further house sparrows could be heard singing from hedgerows, along with a brief call from a greenfinch.

3.5.4.1.5. This survey was largely quiet with bird activity at a minimum. The weather had been warm and dry for a prolonged period of time which likely reduced activity.

3.5.4.1.6. The site contained a wheat crop at the time, reducing what could be seen on the ground.

3.5.4.2. Survey Two.

3.5.4.2.1. The second survey was undertaken on September 9th, 2022, between the hours of 06:30 and 07:30 with a temperature of 15℃ with a light breeze and mist in the air.

3.5.4.2.2. Birds seen on site were wood pigeon (60), carrion crow (1), collared dove (2), house sparrow (20), starling (100+), magpie (1).

3.5.4.2.3. Birds seen flying over site were wood pigeon (30), black headed gull (3), herring gull (1), skylark (1).

3.5.4.2.4. Calls heard on site were predominantly from house sparrows within hedgerows, with one curlew heard calling to the east.

3.5.4.2.5. This survey was still largely quiet with bird activity low, but higher than the first survey, likely due to better recent weather conditions. The only birds using the site in large numbers are wood pigeon and starling, although the starlings were mainly perching on the telephone wires.

3.5.4.2.6. The site had also been cropped, which meant ground visibility was much higher than the first survey.

3.5.4.3. Survey Three.

3.5.4.3.1. The third survey was undertaken on October 24th, 2022, between the hours of 07:30 and 08:30 with a temperature of 12℃ with a moderate breeze and mist in the air.

3.5.4.3.2. Birds seen on site were carrion crow (6), starlings (50+), herring gull (50+), blackbird (6), house sparrow (14), pheasant (5), long-tailed tit (10) and skylark (1).

3.5.4.3.3. Birds seen flying over the site were kestrel (1), herring gull (20+), starlings (50+), wood pigeon (3), magpie (3).

3.5.4.3.4. Calls heard on site included pheasant, curlew from the east and blackbirds and house sparrows in the hedgerows surrounding the site.

3.5.4.3.5. This survey showed slightly higher levels of activity than the previous two. The birds using the site in large numbers were starlings and herring gulls.

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4. IMPACT ASSESSMENT, MITIGATION AND RESIDUAL EFFECTS.

4.1. Designated Sites.

4.1.1. Assessment.

The data search results show that the survey area lies approximately 1.8km south of the Humber Estuary. The proposed works will have no impact on any of the estuary or impact upon any reason for its designation.

4.1.2. Mitigation.

There will be no impact on any designated sites therefore there is no requirement for any mitigation.

4.1.3. Residual Effect.

There will be **no negative impacts** on any of the designated sites in the area at a local level.

4.2. Habitats.

4.2.1. Assessment.

4.2.1.1. The habitats on site are of low value, with the exception of the hedgerows. The vast majority of the site is arable with only a small grassland margin, which does not qualify as an arable margin priority habitat as it is not managed in the interest of wildlife. The only remaining habitat is a small strip of ruderals.

4.2.1.2. The entirety of the on-site habitat is to be lost to facilitate the development. The area will be mostly replaced by residential housing and associated vegetated gardens, along with some areas of scrub planting, both native and ornamental, and small areas of grassland.

4.2.1.3. Biodiversity calculations were carried out using the Biodiversity Metric 3.1, which is the most current version at the time of writing this report. The baseline on the

site was calculated at 12.39 Habitat Biodiversity Units (Bu) and 1.55 Hedgerow Bu as shown in the tables below.

Habitat Type	Area in ha	Distinctiveness	Condition Assessment	Biodiversity Units.
Cereal Crops	5.6755	Low	N/A	11.35
Modified Grassland	0.2908	Low	Poor	0.58
Modified Grassland	0.1993	Low	Poor	0.4
Ruderal/Ephemeral	0.0273	Low	Poor	0.05
Developed Land	0.36841	V.Low	N/A	0
Total	6.56ha			12.39Bu

Hedgerow Type	Length in km	Distinctiveness	Condition Assessment	Biodiversity Units.
Native Hedgerow	0.774	Low	Poor	1.55
Total	0.774km			1.55Bu

4.2.2. Mitigation.

4.2.2.1. Mitigation will be provided by the creation of new areas of grassland and scrub, predominantly throughout the northern area of the site. A variety of species-rich and amenity grasslands will be seeded around the development and a section of native scrub will be planted too. Eighty-three new trees are also included within the development and will be scattered throughout to increase wildlife connectivity. These created habitats will deliver a score of 8.44Bu as shown in the table below.

Habitat Type	Area in ha	Distinctiveness	Condition Assessment	Biodiversity Units.
Developed Land; Sealed Surface (Created)	3.7866	Low	N/A	0.00
Developed Land; Sealed Surface (Retained)	0.3146	Low	N/A	0.00
Vegetated Garden	1.6228	Low	N/A	3.13
Mixed Scrub	0.0229	Medium	Moderate	0.15
Modified Grassland (created)	0.1008	Low	Poor	0.19

Modified Grassland (retained)	0.1791	Low	Poor	0.36
Other Neutral Grassland	0.5319	Medium	Moderate	3.56
Urban Trees*	0.3418	Medium	Moderate	1.04
Total	6.56ha			8.44bu

*Urban trees not included in area calculation.

4.2.2.2. The majority of the hedgerows on site are to be retained, with the exception of a section where the new road is to be installed. However, this will be mitigated for by the creation of 269m of new native hedgerow. The linear habitats will deliver a score of 1.69Bu as shown in the table below.

Hedgerow Type	Length in km	Distinctiveness	Condition Assessment	Biodiversity Units.
Native Hedgerow (Retained)	0.660	Low	Poor	1.32
Native Hedgerow (Created)	0.269	Low	Poor	0.52
Total	0.929km			1.84Bu

4.2.3. Residual Effect.

4.2.3.1. Overall, there will be a residual net loss of 3.95 (-31.83%) habitat Bu and there will be a residual net gain of 0.29 (18.81%) linear Bu. This is assessed to have a **moderate negative residual impact** on the biodiversity at a site level.

4.3. Species – Bats.

4.3.1. Assessment.

The site offers no suitability for roosting bats due to its current lack of trees or structures. The extensive arable nature of the site also makes for poor commuting and foraging habitat, although the hedgerows do provide wildlife corridors which may be used by small numbers of bats.

4.3.2. Mitigation.

4.3.2.1. All hedgerows which could be of value to bats are to be retained, with the only substantial section to be removed being the one that is already currently roadside, immature and well illuminated, making it unlikely to be used by bats. Furthermore, an additional 269m of native species hedgerow is to be planted around the site, increasing the potential of the site for use by foraging and commuting bats.

4.3.2.2. Any new lighting to be implemented around the perimeters of the site will be in the form of a sensitive lighting scheme, comprising downward directional lighting that does not directly illuminate any of the external hedgerows around the site. This will also benefit other species who use the hedgerows around the site.

4.3.3. Residual Effect.

With the above mitigation in place there will be **no negative impact** on either roosting bats or foraging and commuting bats.

4.4. Species – Birds.

4.4.1. Assessment.

4.4.1.1. The survey area is entirely arable but does offer some suitable habitat for arable ground nesting birds, although this is hampered by its close proximity to the main road. Given the extensive areas of potential arable habitat to the south of the site, it is considered unlikely that the site is of particular importance to ground nesting birds.

4.4.1.2. Due to the proximity of the site to the Humber Estuary RAMSAR site, the site was considered for its potential to host migratory birds. Three surveys were carried out during the autumn migration period and only common species were found to use the site, with no indication that site is of any importance to migrating birds.

4.4.2. Mitigation.

4.4.2.1. Where possible, the works will be carried out outside the nesting bird season. If it is necessary to undertake works within the nesting season, they will be immediately preceded by a nesting bird survey and in the event that any active bird nests are found, they along with a suitable buffer around them will be left undisturbed until the young have fledged.

4.4.2.2. Any new lighting to be implemented around the perimeters of the site will be in the form of a sensitive lighting scheme, comprising downward directional lighting that does not directly illuminate any of the external arable fields around the site. This will allow any birds nesting in surrounding fields to remain undisturbed.

4.4.2.3. All hedgerows which may be used by hedge nesting birds will be retained. Along with this, 269m of new hedgerow will be planted, and 229m^2 of native scrub will be planted within the site. This will offer new opportunities for scrub and hedge nesting birds within the site.

4.4.3. Residual Effect.

By implementing the above mitigation measures and ensuring no impact on neighbouring arable fields, there will be **no negative impact** on birds.

4.5. Species – Invasive Plants.

4.5.1. Assessment.

One Virginia creeper plant was identified within the survey area, overgrowing the hedgerow at the south-west of the site. This is an invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act (1981).

4.5.2. Mitigation.

Prior to any works commencing within a 10m radius of the plant, it will be cut back as far as is reasonably possible. The cuttings will then be collected and then disposed of in a biosecure manner.

4.5.3. Residual Effect.

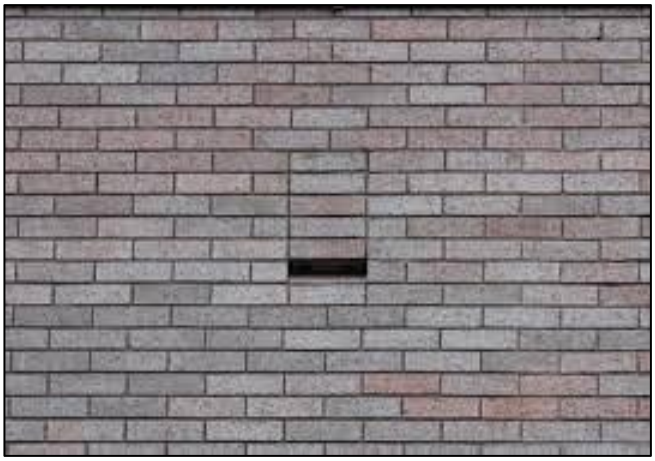
With the above mitigation in place, the works will have a **positive residual impact** on invasive species.

****

5. COMPENSATION AND ENHANCEMENT MEASURES.

5.1. Biodiversity enhancements will be provided within the development in line with the requirements of the NPPF.

5.2. Integrated bat bricks will be installed in at least 10% of the new buildings on site. These will be built into the gable end walls of the new dwellings. These will be as similar to what is shown below and matched to the finish of the wall.



5.3. Integrated bird bricks will be installed in at least 10% of the new buildings on site. These will be built into the gable end walls and will be a mixture of sparrow terraces, swift boxes and starling boxes as shown below.

5.4. Locations for both the integrated bat and bird boxes are shown within Appendix VI of this report.

5.5. Where possible, all rear gardens will be furnished with at least one 130mm square access to enable hedgehogs free access to move around the site and between gardens.

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Prepared by:	
Mitchel Greenhalgh. BSc, ACIEEM.	Date: 31st August 2023.

Checked by:	
Ruth Georgiou. BSc, MCIEEM.	Date: 1st September 2023.

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Appendix I. NESTING BIRD INFORMATION.

Ecology

The nesting season will vary according to the weather each year but generally commences in March, peaks during May and June and continues until September. It is also worth remembering that some birds nest in trees and scrub, but others are ground nesting or prefer man- made structures or buildings.

Surveys

Nesting bird surveys search for potential nest sites in vegetation, buildings etc. Potential nesting sites are observed over a suitable period of time for bird movements or calling male birds that would indicate the presence of a nest. The presence of a nest can be identified from the field signs without the necessity to see the nest itself, thereby avoiding any disturbance of the nests. The best way to avoid this issue is to plan for vegetation clearance to be carried out outside the bird-nesting season.

Legislation

Nesting birds are protected under The Wildlife and Countryside Act 1981.

Part 1. -(1) Of the Act states that: - If any person intentionally: - kills, injures or takes any wild bird; takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or takes or destroys an egg of any wild bird, he shall be guilty of an offence.

Part 1.-(5) of the Act states that:- If any person intentionally:- disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on, or near a nest containing eggs or young; or disturbs young of such a bird, he shall be guilty of an offence and liable to a special penalty.

The Countryside and Rights of Way Act 2000 amends the above by inserting after “intentionally” the words “or recklessly”.

Appendix II. INVASIVE PLANT SPECIES INFORMATION.

Ecology

The Government has acknowledged the problems that can be caused by non-native invasive species. In 2008 the Government launched "The Invasive Non-Native Species Framework Strategy for Great Britain". The strategy provides a framework for a more co-ordinated approach to invasive species management. It seeks to create a stronger sense of shared responsibility across government, key organisations, land managers and the public.

The Non-Native Species Secretariat has been established to oversee the implementation of the strategy. Details of the secretariat including risk assessments and action plans for some species are available at www.nonnativespecies.org.

In general, there are four basic methods of controlling weeds; mechanical, chemical, natural and environmental.

- ***Mechanical control*** *includes cultivation, hoeing, pulling, cutting, raking, dredging or other methods to uproot or cut weeds.*
  Where this method is used all plant material must be considered "controlled waste" and must be disposed of properly.
- ***Chemical control*** *uses approved herbicides.*
- ***Natural control*** *uses pests and diseases of the target weed to weaken it and prevent it from becoming a nuisance.*
- ***Environmental control*** *works by altering the environment to make it less suitable for weed growth, for example by increasing or decreasing water velocity.*

Surveys

A site will be searched for invasive plant species growing on site, from mature plants to new shoots. A site will also be searched for dead stems indicating that plants that may have seasonally died back are present.

Legislation

Invasive species listed under Schedule 9 are prohibited from release into the wild. Schedule 9, Section 14(2) prohibits 'planting' or 'causing to grow' in the wild of any plant listed in Part 2 of Schedule 9.

The following is a list of all the species of plant listed under Schedule 9 of The Wildlife and Countryside Act 1981.

Common Name	**Scientific Name**	**England & Wales**	**Scotland**
Alexanders, Perfoliate	*Smyrnium perfoliatum*	✓	
Algae, Red	*Grateloupia luxurians*	✓	
Archangel, Variegated Yellow	*Lamiastrum galeobdolon subsp. Argentatum*	✓	
Azalea, Yellow	*Rhododendron luteum*	✓	
Balsam, Himalayan	*Impatiens glandulifera*	✓	
Cotoneaster	*Cotoneaster horizontalis*	✓	
Cotoneaster, Entire Leaved	*Cotoneaster integrifolius*	✓	
Cotoneaster, Himalayan	*Cotoneaster simonsii*	✓	
Cotoneaster, Hollyberry	*Cotoneaster bullatus*	✓	
Cotoneaster, Small Leaved	*Cotoneaster microphyllus*	✓	
Creeper, False Virginia	*Parthenocissus inserta*	✓	
Creeper, Virginia	*Parthenocissus quinquefolia*	✓	
Dewplant, Purple	*Disphyma crassifolium*	✓	
False-acacia	*Robinia pseudoacacia*		✓
Fanwort	*Cabomba caroliniana*	✓	✓
Fern, Water	*Azolla filiculoides*	✓	✓
Fig, Hottentot	*Carpobrotus edulis*	✓	✓
Garlic, Three-Cornered	*Allium triquetrum*	✓	
Hogweed, Giant	*Heracleum mantegazzianum*	✓	✓
Hyacinth, water	*Eichhornia crassipes*	✓	✓
Kelp, Giant	*Macrocystis angustifolia*	✓	✓
Kelp, Giant	*Macrocystis integrifolia*	✓	✓
Kelp, Giant	*Macrocystis laevis*	✓	✓
Kelp, Giant	*Macrocystis pyrifera*	✓	✓
Kelp, Japanese	*Laminaria japonica*	✓	✓
Knotweed, Giant	*Fallopia sachalinensis*	✓	

Knotweed, Hybrid	*Fallopia japonica x Fallopia sachalinensis*	✓	
Knotweed, Japanese	*Fallopia japonica*	✓	
Knotweed, Japanese	*Polygonum cuspidatum*		✓
Leek, Few-flowered	*Allium paradoxum*	✓	✓
Lettuce, water	*Pistia stratiotes*	✓	✓
Montbretia	*Crocosmia x crocosmiiflora*	✓	
Parrot's-feather	*Myriophyllum aquaticum*	✓	
Pennywort, Floating	*Hydrocotyle ranunculoides*	✓	
Potato, Duck	*Sagittaria latifolia*	✓	
Primrose, Floating Water	*Ludwigia peploides*	✓	
Primrose, Water	*Ludwigia grandiflora*	✓	
Rhododendron	*Rhododendron ponticum*	✓	
Rhubarb, Giant	*Gunnera tinctorial*	✓	
Rose, Japanese	*Rosa rugosa*	✓	
Salvinia, Giant	*Salvinia molesta*	✓	✓
Seafingers, Green	*Codium fragile*	✓	
Seafingers, Green	*Codium fragile tomentosoides*		✓
Seaweed, Californian Red	*Pikea californica*	✓	✓
Seaweed, Hooked Asparagus	*Asparagopsis armata*	✓	✓
Seaweed, Japanese	*Sargassum muticum*	✓	✓
Seaweeds, Laver (except native species)	*Porphyra sp. except -* *P. amethystea* *P. leucosticta* *P. linearis* *P. miniata* *P. purpurea* *P. umbilicalis*	✓	✓
Shallon	*Gaultheria shallon*		✓
Stonecrop, Australian swamp	*Crassula helmsii*	✓	✓
Wakame	*Undaria pinnatifida*	✓	✓
Waterweed, Curly	*Lagarosiphon major*	✓	✓
Waterweeds	*All species of the genus Elodea*	✓	

Appendix III. ANNOTATED MAP OF THE SURVEY AREA - BASELINE

Site: Barrow Road / Baseline

Reference: 220776

Date: 01.09.2023

Produced by: Mitchel Greenhalgh

Appendix IV. TARGET NOTES.

T1. Barrow Road.

T2. Location of Virginia creeper.

T3. Hedgerow A.

T4. Hedgerow B.

T5. Hedgerow C.

T6. Hedgerow D.

T7. Hedgerow E.

T8. Hedgerow F.

T9. Hedgerow G.

Appendix V. ANNOTATED MAP OF THE SURVEY AREA. – POST DEVELOPMENT.

Site: Barrow Road / Post

Reference: 220776

Date: 01.09.2023

Produced by: Mitchel Greenhalgh

Appendix VI. BAT AND BIRD BOX LOCATIONS.

Site: Barrow Road / Bat & Bird Box

Date: 02.09.2023

Reference: 220776

Produced by: Mitchel Greenhalgh

Appendix VII. LANDSCAPING MASTERPLAN.