

- Tunnel silting or blockage [jetting out or other cleaning methods]
- Damage to interpretation boards [repair or replace]

Timing and responsibilities should be clearly set out in a management and maintenance plan. For a typical scheme, the plan should be in place for at least 4 years following completion of the development, and ideally longer. For high impact developments, management may be required in perpetuity. The decision on timing will depend on the likely management needs, the importance of the population, and the impacts of development. There should be reasonable certainty that the population's management needs will be accommodated following completion of the main management plan period, through the routine land management practices. In some cases, responsibility for undertaking and paying for management may be passed to the new landowners after a period. The inclusion of receptor sites in green belt land is not enough on its own to guarantee future good management, nor are letters of intention from landowners (though these may be well-meaning, a more binding agreement is preferable).

There are a number of options for securing the finance for appropriate management and maintenance after development. A commuted sum (similar to that which is paid by developers to local authorities in order for them to adopt public open space, roads, footpaths, etc.) may be made available. The setting up of a trust fund, or agreements with local wildlife groups, may be an option. Local authorities may take on management if the receptor site is part of or linked to a Public Open Space. Whatever method for delivering management and maintenance, it should be ensured through a binding planning obligation, normally a Section 106 agreement.

The management and maintenance requirements should be decided on prior to finalising a mitigation plan. They can be incorporated into the plan itself, or for high impact schemes where a considerable amount of post-development management is required, a stand-alone management and maintenance plan can be written and appended to the mitigation plan (see [10. Presenting mitigation plans](#)). In some circumstances, for instance where the receptor site is a nature reserve, the operations may need to be incorporated into a wider management plan which addresses other issues relating to the receptor site.

8.5.2 Population monitoring

A monitoring plan should be put in place to assess whether the great crested newt population has responded favourably to the mitigation, and to inform ongoing habitat management. If consistent methods are used pre- and post-development, it will be easier to compare population trends. The level of monitoring required depends on the population assessment and the impact of development. For some small schemes, no monitoring is required, while for developments which will result in significant impacts, a considerable monitoring commitment is required. The table below gives guidance on the minimum requirements.

Site status assessment/ population size class (see 5.8.3, 5.8.5)	Impact type and size (see 6. Predicting the impact of development)		
	Low	Medium	High
Small population/ low importance	None	Presence/absence; 2 years	Presence/absence; 4 years
Medium population/ medium importance	None	Pop size class assessment; 4 years	Pop size class assessment; 6 years
High population/ high importance	Pop size class assessment; 2 years	Pop size class assessment; 6 years	Pop size class assessment; 10 years

Table showing the methods, effort and timing for monitoring great crested newt populations. None = no monitoring required. Presence/absence = follow methods and effort set out in 5.7.1. Pop size class assessment = follow methods and effort set out in 5.7.2. X years = minimum number of years post-development for which monitoring should take place.

Note that it is important for certain qualitative checks to be made when undertaking monitoring, such as the presence (and use of) egg-laying plants, presence of late-stage larvae (July-August), and pond permanence. A commentary on such aspects should be included in monitoring reports. The table gives recommended minimum standards; for some high impact, large population schemes, statutory bodies may require additional monitoring, especially where active management will continue for longer.

Monitoring may be incorporated into (and used to inform the implementation of) the management and maintenance plan. It should clearly outline who is responsible for undertaken monitoring, when and by what methods. The results should be sent to DEFRA and English Nature through licence returns, to the English Nature Local Team, to the Local Planning Authority, and to local and national recording schemes as appropriate.

8.6 Welfare considerations for capture programmes

8.6.1 General

Capturing and trapping great crested newt is a skilled processes, controlled by both conservation and welfare legislation. Poor standards can lead to prosecution if newts are found to be unlawfully killed, injured or to have suffered unduly while in traps. Trapping should not take place in periods of extreme weather conditions where any newts taken may be at risk from extremely high or low temperatures or from drying out. When not in use, traps must be removed, or closed securely, as appropriate. Broken traps must be removed for safe disposal.

Where newt populations are to be surveyed for study (rather than being captured as part of a translocation programme), any animals taken must be released at the site of capture immediately following examination and should be handled as little as possible to obtain the survey data required. Day time release of night captives on land should be into thick ground cover. Traps must be robust and designed, wherever possible, to prevent harm to, or predation of, trapped animals.

A daily log of captures from each numbered trap should be kept for several reasons:

- to assist in site assessment, for example, which water bodies and terrestrial parts of the site are most or least used by newts
- as evidence that adequate survey effort has been employed to justify any conclusions reached
- to assist with reporting to the licensing authority (normally a condition of the licence)
- to refine the location and/or density of trap deployment to improve trapping efficiency.

For translocations any amphibians captured must be moved to the receptor area and released as soon as possible, using suitable, lidded containers with air-holes. These should be labelled with species type, source and destination, marked 'This side up' and (for terrestrial phase animals) have ample moist vegetation for padding. When putting amphibians into containers for transport, species must not be mixed, and animals must have suitable space (no 'stacking' should occur). When transporting larvae, care should be taken to separate large and small animals as cannibalism may occur.

8.6.2 Pitfall traps

If pitfall traps are used in areas where shrews occur, the traps must be designed to allow shrews to escape, or a separate shrew trapping licence is required from English Nature, which will have its own conditions that must be followed. Pitfall traps must be checked at least once in every 24 hours between 06.00 and 11.00 hours; preferably they should be checked more frequently.

Pitfall traps must be furnished with a sufficient quantity of suitable vegetation to act as an amphibian refuge. This material must be kept moist at all times and must be replenished as necessary. A mammal ladder, consisting of a twig not more than 1cm in diameter must be installed in each pitfall. Where buckets are liable to flooding, a floating raft such as tree bark must be added. Care must be taken not to expose the animals to undue stress (eg through high temperatures) during the trapping and translocation process.

Newts should be released into the cover of a similar habitat to the one from which they have been captured (ie pond to pond, grassland to grassland, etc), normally on the opposite side of the fence to capture. However, note that for interception at the 'outside' of ring-fences around pond margins during immigration, release directly into the pond is more appropriate. When operating ring-fences and significant lengths of fence-lines for survey purposes, it is important to open traps each day that suitable weather conditions prevail in order to allow (assisted) newt movement across the barrier, otherwise migration patterns will be disrupted, and there is a risk of fragmenting the site.

8.6.3 Bottle traps

Submerged bottle traps containing an air bubble must not go unchecked for longer than 17 hours overnight, and should be checked between 0600 and 1100 hours. They must be held firmly in place to prevent tilting and loss of the air bubble. If used without an air bubble, they must not be left unattended longer than 12 hours in March-April, 10 hours in May, 8 hours in June, 7 hours in July-August and 8 hours in September-October. Marking the top of the canes used to secure bottle traps in place with high-visibility, fluorescent paint is recommended to make it easier to find all traps in poor light or heavily vegetated areas.

Traps should ideally be set at dusk, and checked and removed early the following morning. Bottle traps must not be set in full summer sunlight or at night during periods of very hot weather, as the temperature of water inside the trap may rise considerably and oxygen levels will be reduced. Larvae are especially prone to such risks, and it is advisable to switch to another method if such conditions prevail.

Any deaths of great crested newts must be immediately reported to the licensing authority. If more than one death occurs in a bottle trap or if newts are found unconscious and they then recover, then trapping must be suspended and advice sought from the licensing authority. Details of all casualties must be included in the report presented at the end of the licence period. Any unconscious newts

should be placed in damp moss in a cool, airy container; recovery may take a number of hours. The animals should then be released into damp ground cover adjacent to the pond from which they had been taken. Great crested newt larvae may be vulnerable to damage, predation or suffocation in bottle traps (normally found in peak numbers late June to October.) Trapping should be suspended if more than two larvae are found dead and advice sought from the licensing authority. Where the consultant considers that there is a reasonable chance of capturing other protected species (eg water shrews), steps should be taken to address appropriate licensing issues, to modify trapping methods, or to avoid trapping altogether, as necessary. Should water shrews be trapped inadvertently, the licensing authority should be informed and trapping halted; a note of the occurrence of this species should be sent to the Local Records Centre, as it is very under-recorded.

9. Model examples

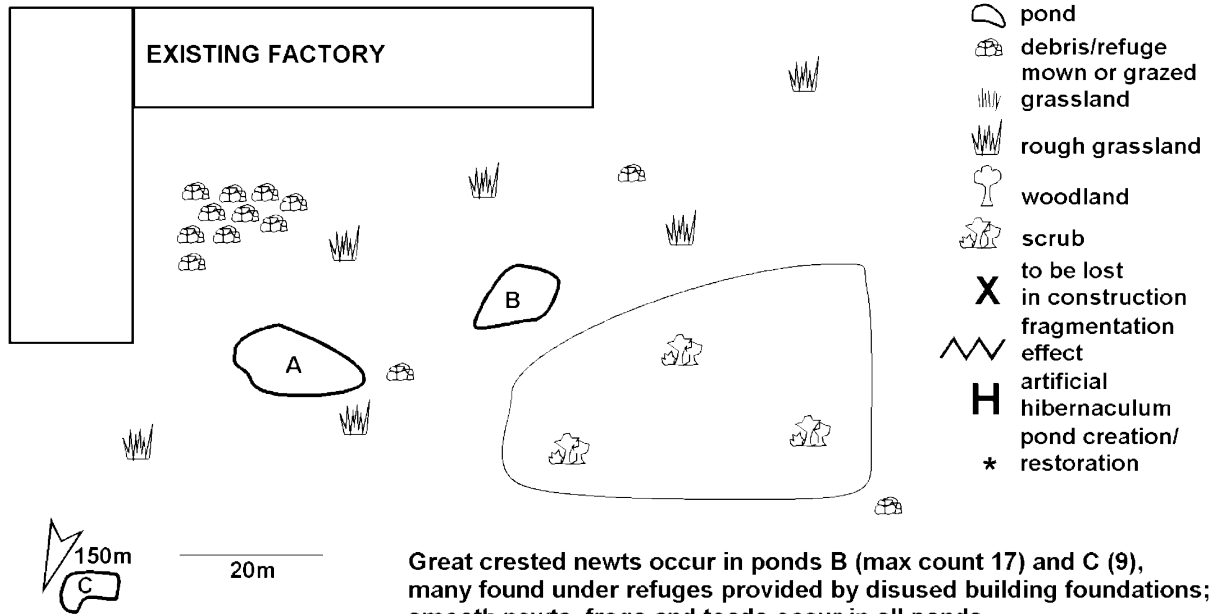
9.1 Introduction

These examples are given to illustrate the main aspects of capture, exclusion and habitat creation. For clarity, no details are given about the exact location of fencing and other methods used, nor on post-development management and monitoring. It is expected that actual mitigation plans will provide considerably more detail than is given here. These examples show a range of commonly encountered situations, varying from total site loss through to low impact. None of the examples relates to large impacts on sites of high importance, as such cases are likely to be so site specific that it might be misleading to provide very general guidance here.

Each example shows in stages an outline of the site and key survey information, predicted impacts, and finally the mitigation required. This approach distils the main information expected in mitigation plans, for which consultants and developers are recommended to follow the structure given in the next section (see [10. Presenting mitigation plans](#)).

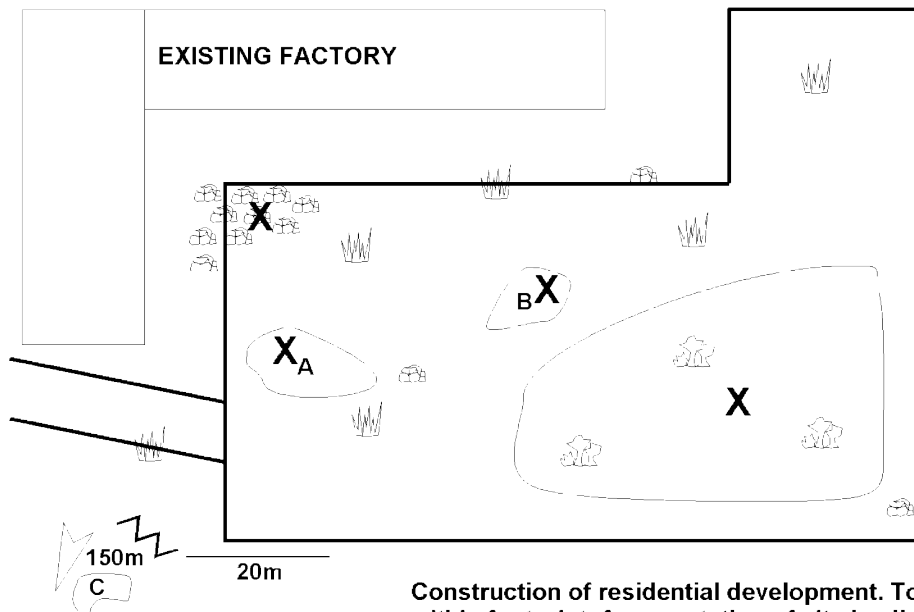
9.2 Example 1: total site loss

A. Site layout and newt status



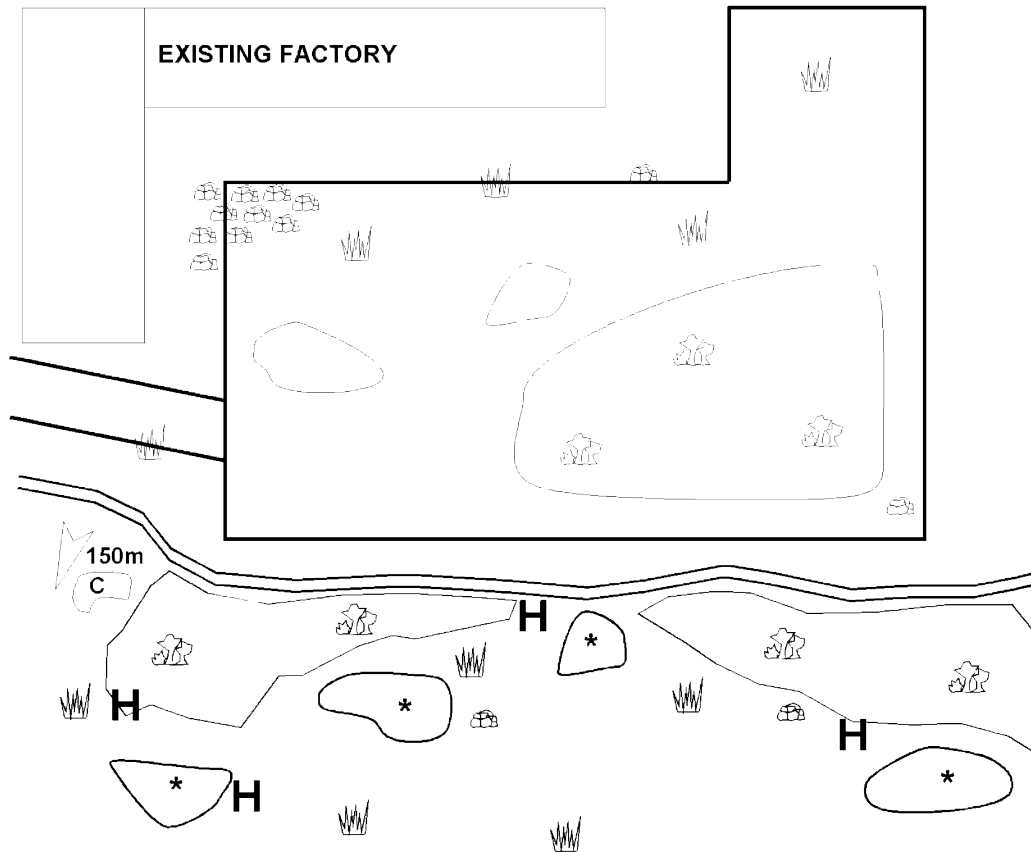
Great crested newts occur in ponds B (max count 17) and C (9), many found under refuges provided by disused building foundations; smooth newts, frogs and toads occur in all ponds.
 Site assessment: low count in a local context; breeding occurs; habitats are not unusual for great crested newts in this area (rough grass, scrub on brownfield site); no other ponds within 500m; little disturbance as site is fenced; overall site importance is low.

B. Development proposals and predicted impacts



Construction of residential development. Total loss of habitats within footprint; fragmentation of site leading to isolation of pond C; likely increase in interference to pond C; likely changes to hydrology of pond C; possible increased mortality from proposed kerb/gully pot drainage system.

C. Mitigation



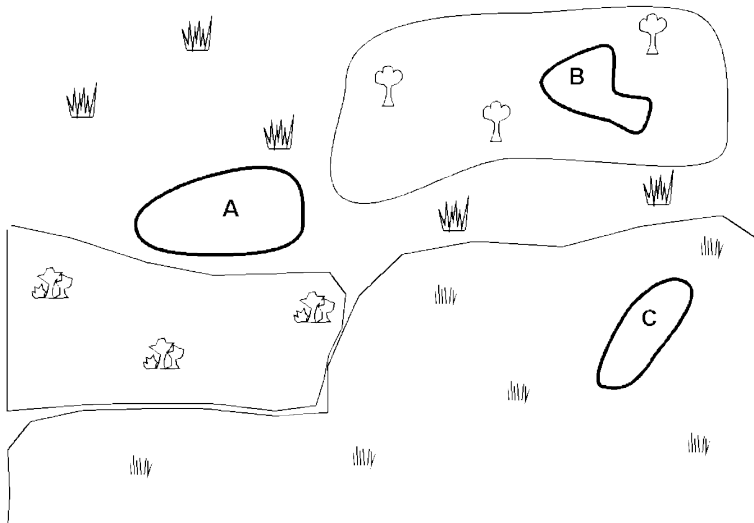
Capture/exclusion: ring-fence ponds A and B Feb - June;
 pitfall trap across development footprint Feb - June;
 additional searches and dismantling June - July; temporary
 exclusion around development. Pond infilling, site clearance
 in August.

Habitat creation/enhancement: (all on former arable land -
 ie previously of relatively low value for newts) creation of 4
 new ponds, positioned to prevent isolation of pond C;
 scrub and grassland planting; bund creation along site
 boundary with secure fencing and screening; creation of
 hibernacula and refuges

Construction: development uses SUDS to avoid gully pots etc
 and prevent major changes in hydrology

9.3 Example 2: partial site loss

A. Site layout and newt status

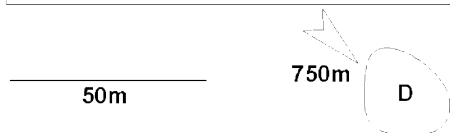
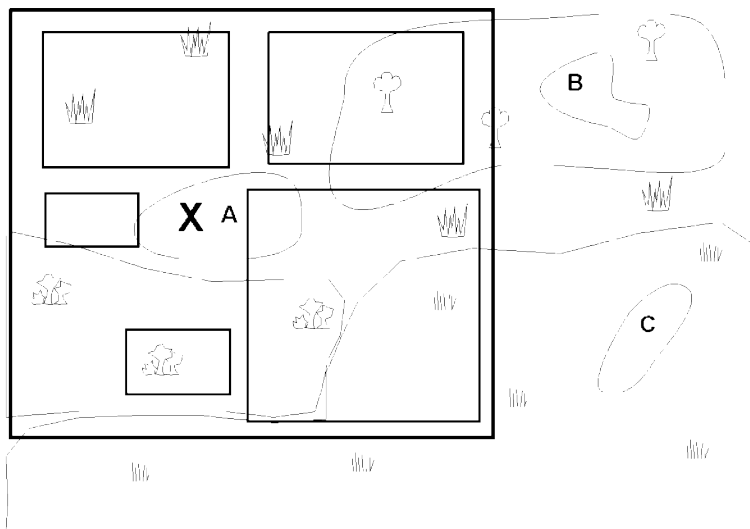


- Key**
- pond
 - debris/refuge
 - mown or grazed grassland
 - rough grassland
 - woodland
 - scrub
 - X** to be lost in construction
 - fragmentation effect
 - H** artificial hibernaculum
 - pond creation/restoration
 - *** restoration



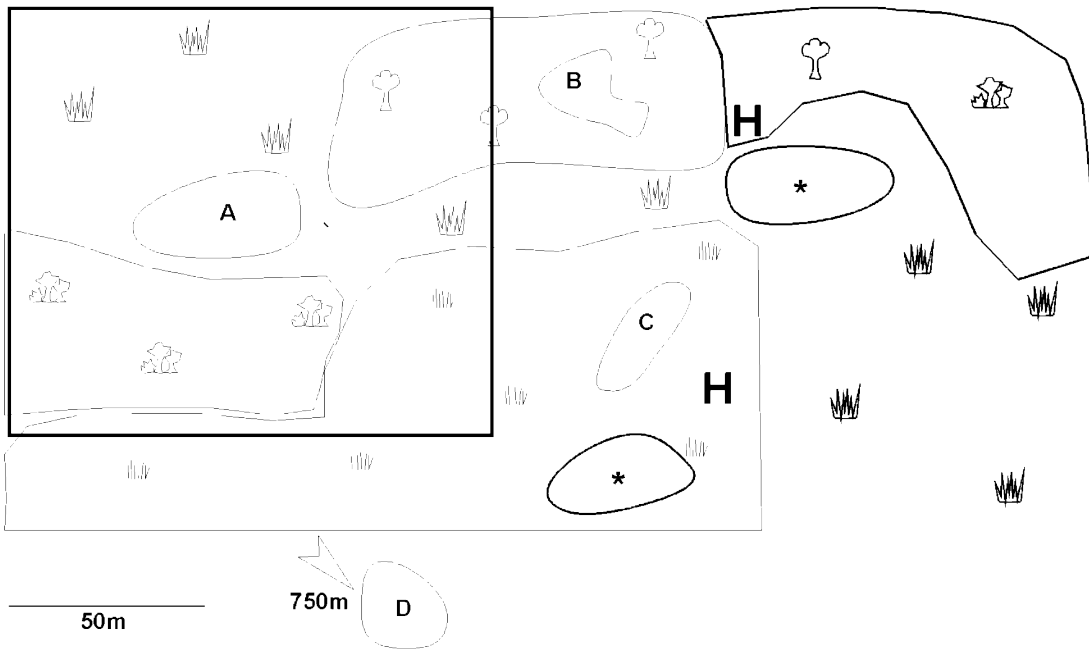
Great crested newts occur in ponds A (max count 36), B (3), C(5) and D (3). Smooth newts, frogs and toads also occur. Site assessment: medium sized population; breeding occurs; habitats not unusual in the local area; B is very shaded, C contains fish, D is isolated; no other linked ponds; site not of high local importance - at least 10 other sites with higher counts and site integrity within 10km.

B. Development proposals and predicted impacts



Construction of 3 large and 2 small industrial units. Rest of site will be amenity grassland or tarmac. Impacts: Loss of pond A; loss of grassland, scrub and woodland habitats; possible change in water quality and levels in B, C; increased mortality due to gully pot/kerb drainage system.

C. Mitigation



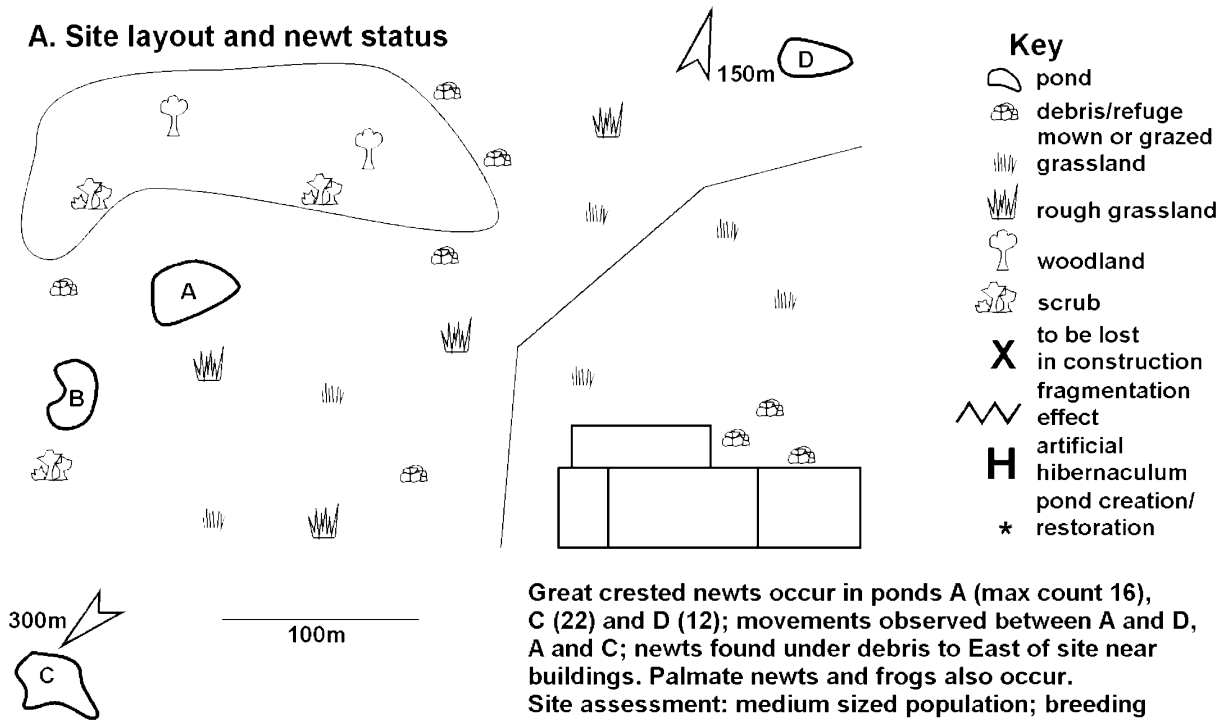
Capture/exclusion: Ring-fence and pitfall trap around pond A, Feb - June; pitfall trapping Feb - June across remaining development footprint along with exclusion fence.

Habitat creation/enhancement: 2 new ponds; woodland planting; enhancement of grassland management; construction of hibernacula.

Construction: uses SUDS (no kerbs, no gullies); hydrological tests ensure no water level/quality effects.

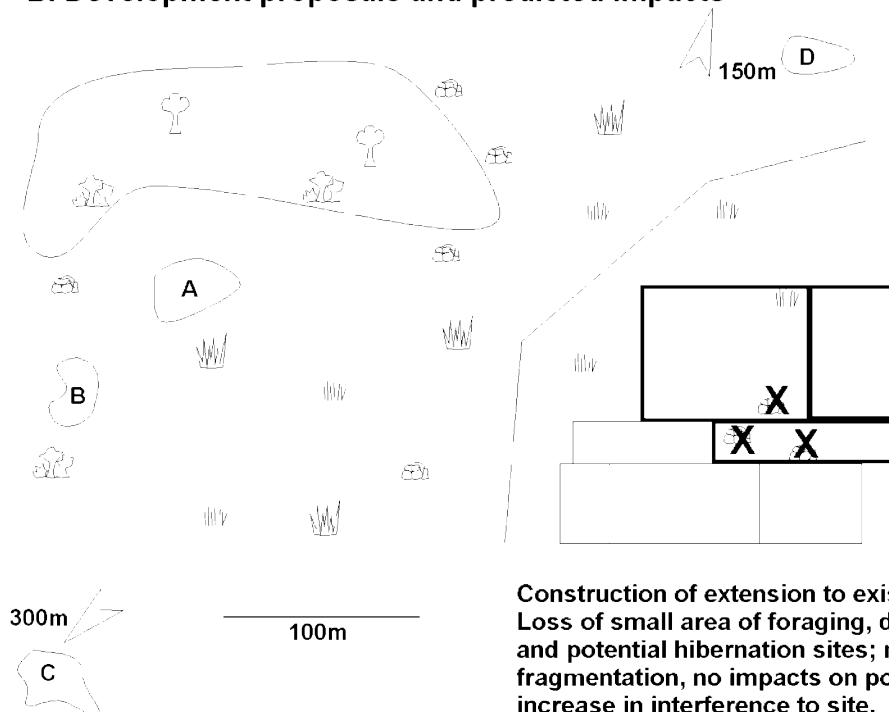
9.4 Example 3: marginal impact

A. Site layout and newt status



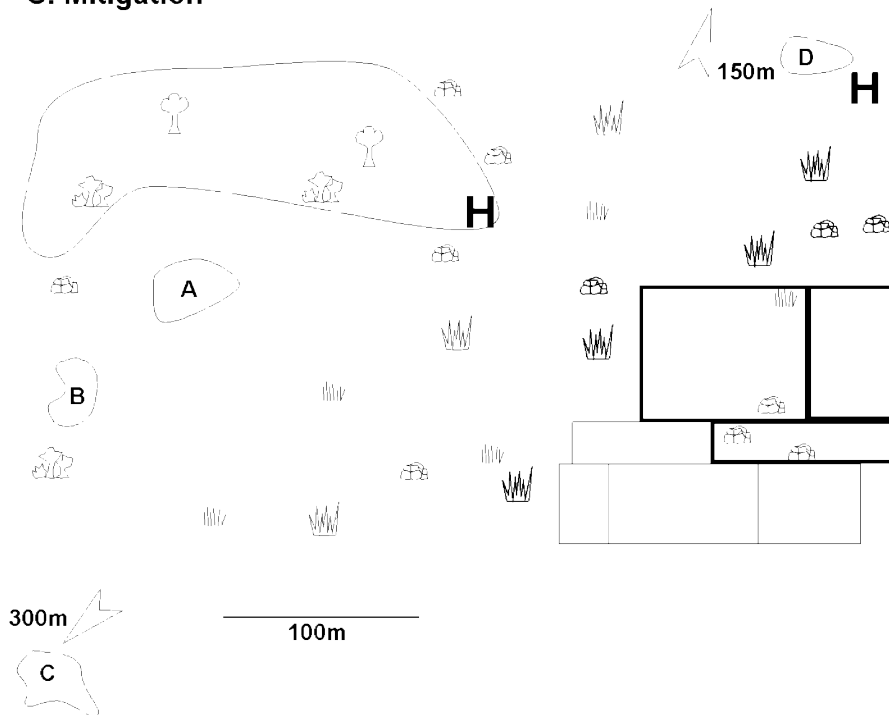
Great crested newts occur in ponds A (max count 16), C (22) and D (12); movements observed between A and D, A and C; newts found under debris to East of site near buildings. Palmate newts and frogs also occur. Site assessment: medium sized population; breeding occurs; many ducks on B; A and C are shallow, temporary ponds; habitats are unusual in the local area (sandy soils and temporary ponds); site of medium-high local importance

B. Development proposals and predicted impacts



Construction of extension to existing buildings. Loss of small area of foraging, daytime shelter and potential hibernation sites; no significant fragmentation, no impacts on ponds, no increase in interference to site.

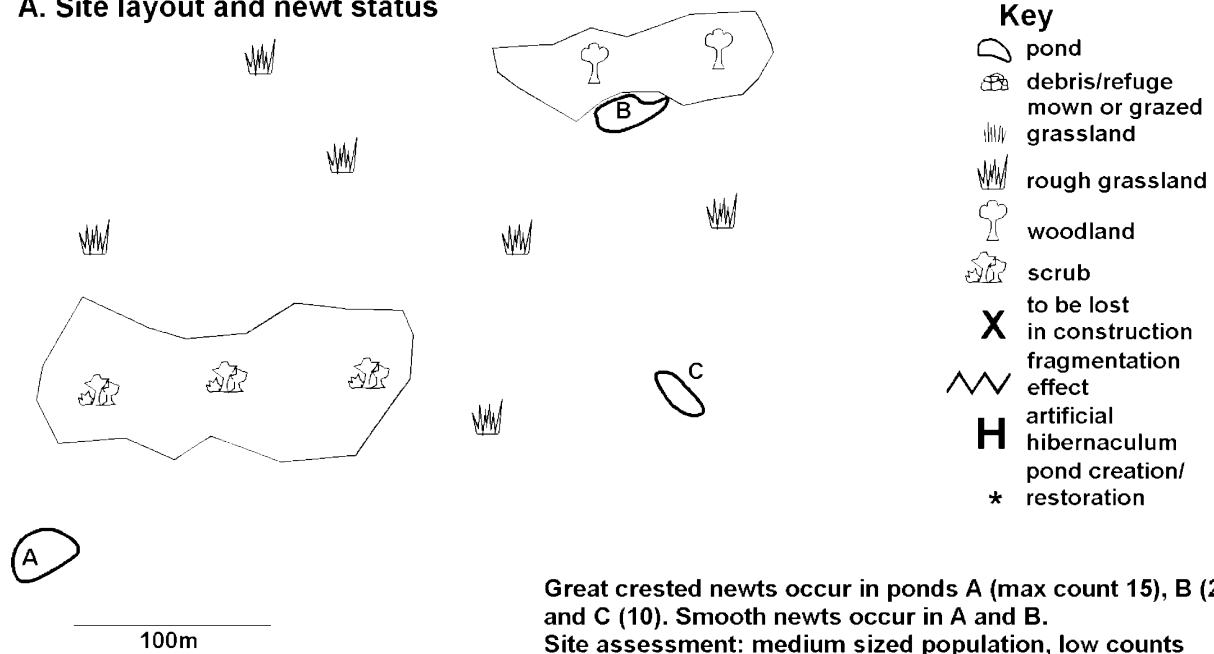
C. Mitigation



Capture/exclusion: pitfall trapping across development footprint for 30 trapping days plus hand dismantling of refuges; temporary exclusion fence.
Habitat creation/enhancement: new hibernacula; new refuges; enhanced grassland management around extension (modify mowing regime to produce better sward structure in previous amenity grassland area).

9.5 Example 4: temporary disturbance

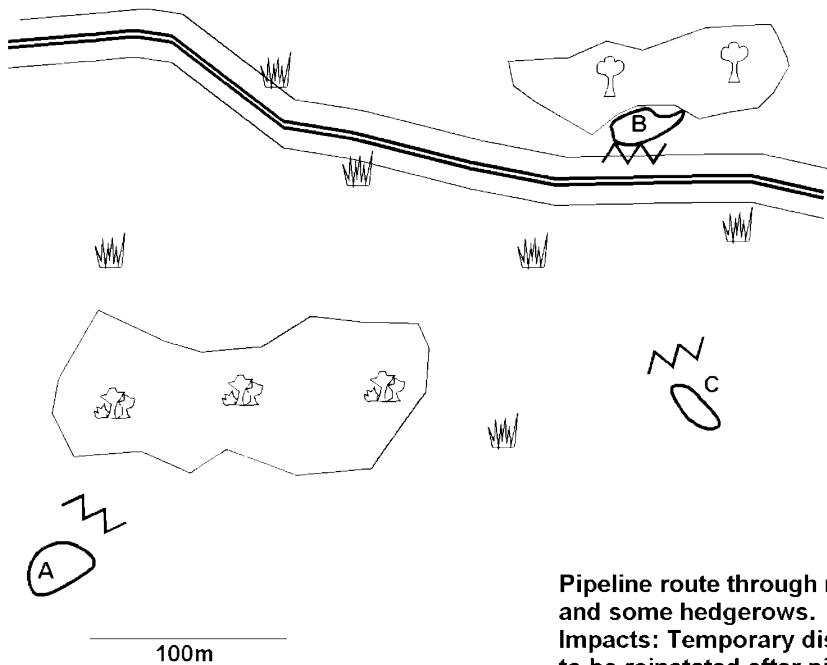
A. Site layout and newt status



- Key**
- pond
 - debris/refuge
 - mown or grazed grassland
 - rough grassland
 - woodland
 - scrub
 - X** to be lost in construction
 - fragmentation effect
 - H** artificial hibernaculum
 - pond creation/restoration

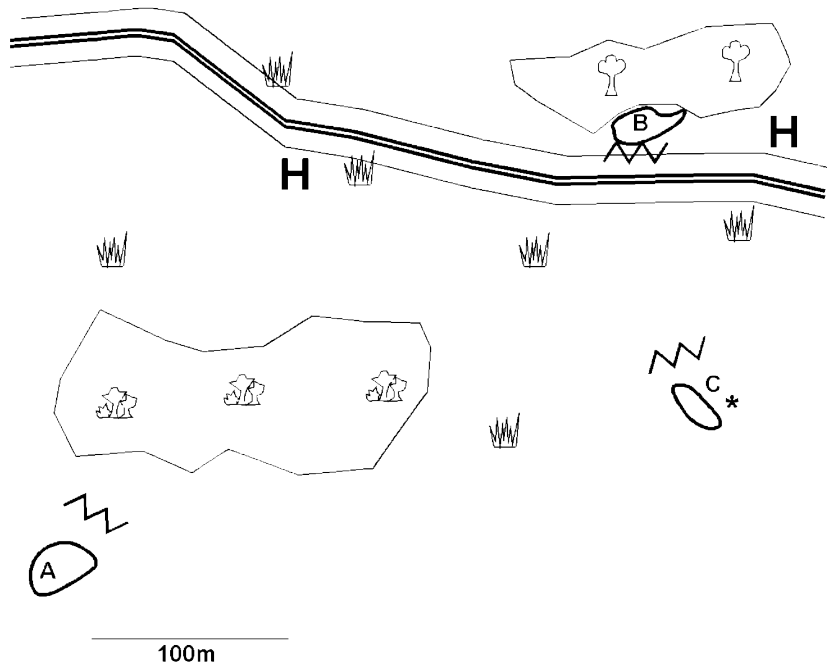
Great crested newts occur in ponds A (max count 15), B (23) and C (10). Smooth newts occur in A and B. Site assessment: medium sized population, low counts for this local area; habitats are typical; ponds A and C are shaded, pond B recently restored. Overall site assessment low-medium importance.

B. Development proposals and predicted impacts



Pipeline route through mainly pasture, rough grassland and some hedgerows. Impacts: Temporary disturbance only: ground to be reinstated after pipeline installation. Fragmentation of ponds, preventing migration. Only small long-term loss of terrestrial habitat (short lengths of hedgerow).

C. Mitigation



Capture/exclusion: fence off pipeline working width where within 250m of pond; pitfall traps and refuges used to remove newts from corridor (30 days); pitfall traps installed along outside 50m length in vicinity of ponds, in order to capture newts attempting to cross corridor (newts transferred to opposite side)

Habitat creation/enhancement: reduce shading around pond C; create hibernacula to compensate for short-term loss of hedgerow sections; plant new hedgerows to replace lost sections in long term

10. Presenting mitigation plans

Mitigation plans will often need to be understood, and commented on, by several organisations or individuals. As mitigation can be complex, it is important that the proposals are clear and allow the reader to quickly understand the key points. This will facilitate the processing of licence applications. The structure below proposes a structure with section headings which would be appropriate for most typical schemes. Comments on content are given in square brackets. Further details on the kind of information required are given in the appropriate section in these guidelines. Note that a mitigation plan based on this structure can form the basis of a Method Statement for use in a DEFRA licence. Colour photographs, maps and diagrams can be very useful, but bear in mind that several colour copies may be required since monochrome photocopies of colour images can make it very difficult to pick out detail. The front cover of the plan should show the author and revision history (the latter being useful for assessing how previous consultation comments have been incorporated).

10.1 Suggested mitigation plan structure

A Contents

B Introduction

- B1 Background to development [location, ownership, general landuse, type of and need for the proposed development, planning history, land allocation in Local Plan (or equivalent), etc]
- B2 Consideration of alternative solutions [eg consideration of other sites, or site layouts, and why they have been discounted]

C Survey and site assessment

- C1 Pre-existing information on great crested newts at survey site
- C2 Status of great crested newts in the local/regional area
- C3 Objective(s) of survey
- C4 Survey area
- C5 Habitat description [based on daytime visit(s); to include pond and terrestrial information]
- C6 Field survey
 - C6.1 Methods
 - C6.2 Timing
 - C6.3 Weather conditions
 - C6.4 Personnel
- C7 Results [to include raw data, any processed or aggregated data, and negative results as appropriate; record other amphibians observed]
- C8 Interpretation and evaluation
 - C8.1 Presence/absence
 - C8.2 Population size class assessment
 - C8.3 Site status assessment [combining quantitative, qualitative, functional and contextual factors]
 - C8.4 Constraints [factors influencing survey results]
- C9 Map(s) of survey area [with habitat description, marking ponds and any other features sampled; summary of survey results marked on map if appropriate. Map should show area within a radius of 500m of any breeding ponds on an Ordnance Survey (or similar) base-map]
- C10 Cross-referenced photographs of key habitat features [if appropriate]

D Impact assessment

- D1 Pre- and mid-development impacts
- D2 Long-term impacts [habitat loss, modification, fragmentation, etc]
- D3 Post-development interference impacts [disturbance, fish introduction, etc]
- D4 Other impacts
- D5 Summary of impacts at the site level
- D6 Summary of impacts in a wider context
- D7 Map(s) to show impacts [clear indication of which areas would be affected and how]

E Mitigation and compensation

- E1 Mitigation strategy [overview of how the impacts will be addressed in order to ensure no detriment to the maintenance of the population at a favourable conservation status]
- E2 Receptor site selection
 - E2.1 Existing great crested newt status [give survey data]
 - E2.2 Location, ownership and status
 - E2.3 Habitat description, size, boundaries
- E3 Habitat creation, restoration and/or enhancement [as appropriate]
 - E3.1 Aquatic habitats
 - E3.2 Terrestrial habitats
 - E3.3 Integration with roads and other hard landscapes
 - E3.4 Integration with other species/habitat requirements
- E4 Capture, exclusion and translocation
 - E4.1 Timing, effort, methods, layout of capture/exclusion methods, translocation
- E5 Post-development site safeguard
 - E5.1 Habitat management and maintenance [either set out details here, or if complex then give outline here and give details as an annexed stand-alone plan]
 - E5.2 Population monitoring
 - E5.3 Mechanism for ensuring delivery [eg section 106 agreement; include who will undertake the work, and reporting details]
- E6 Work schedule [phasing diagram to include all works associated within section E, and to indicate construction works timing]
- E7 Map to show location of receptor site in relation to development site
- E8 Map to show capture and exclusion works
- E9 Map to show habitat creation, restoration and/or enhancement
- E10 Map to show post development management [if appropriate]
- E11 Diagram to show capture/exclusion apparatus [only required if non-standard techniques are proposed]

F Summary

- F1 Summary of development and mitigation [NB to include overall consideration of the three main licensing criteria: effect on conservation status, purpose, and alternatives; see [2.2 Exceptions and licensing](#) for details]

G References

H Annexes

- G1 Management and maintenance plan
- G2 Section 106 agreement / planning permission / other planning documents as appropriate
- G3 Pre-existing survey report(s)

11. Further reading

11.1 Literature on great crested newt ecology, conservation and mitigation

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<http://www.legislation.hms0.gov.uk/acts/acts2000/20000037.htm>

Habitats Directive:
http://europa.eu.int/eur-lex/en/lif/dat/1992/en_392L0043.html

Bern Convention:
<http://www.nature.coe.int/english/cadres/bern.htm>

(Note: There does not appear to be a full text of the Wildlife and Countryside Act 1981 on the internet.)

12. Document information

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APPENDIX 6: ECOLOGICAL IMPACT ASSESSMENT FOR THE LINK ROAD PLANNING PERMISSION

South Humber Bank Link Road Ecological Impact Assessment

North East Lincolnshire Council

January 2018



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This document does not purport to provide legal advice.

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Non-technical Summary

Application Site Details	South Humber Bank Link Road, Healing, Grimsby. The Application Site is approximately 9 ha in area and 2.5km in length.
Scheme Details	The Scheme comprises construction of a link road between Moody Lane and Hobson Way. The carriageway is proposed to be 8.3m wide, including a 1m hardstrip on the south side to accommodate surface runoff into a new adjacent open drainage ditch. A 3m wide shared footway/cycleway is proposed on the northern side of the carriageway. Two sections of new ditch associated with ecological mitigation will be provided.
Desk Studies and Field Surveys	<ul style="list-style-type: none"> • Desk study of notable species, habitats and sites of conservation value - October 2015 and November 2016; • Extended Phase 1 habitat survey -17th June 2016; • Bat activity transect survey - 29th September 2016, 31st May 2017 and 24th July 2017; • Badger survey – 7th March 2017; badger monitoring surveys (ScarboroughNixon Associated Ltd) - 30th June 2017, 17th August 2017 and 29th September 2017; • Otter and water vole presence / likely absence surveys - 2nd November 2016 and 13th April 2017; water vole monitoring surveys (ScarboroughNixon Associated Ltd) - 30th June 2017, 17th August 2017 and 29th September 2017; and • eDNA survey for Great Crested Newts (GCN) -18th April 2017.
Relevant Ecological Features	<p>The Application Site lies approximately 0.8km west from the Humber Estuary which is designated as a Ramsar Site, Special Protection Area (SPA), Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). Two Local Wildlife Sites (LWS) lie within 300m (to the south-west and east) of the Application Site and a Site of Nature Conservation Interest (SNCI) lies adjacent to the Application Site to the north.</p> <p>The Application Site's alignment passes through arable farmland and adjacent to industrial factories. It is crossed by a network of ditches and drains, including Town's Croft Drain, Mawmbridge Drain and Old Fleet Drain which provide suitable habitat for water voles, with water vole presence confirmed adjacent to the Application Site in the wider survey area. These drains also provide suitable otter commuting habitat, although no evidence of otter was found during the survey. The ditches provide some suitable habitat for GCN, however, the eDNA survey results were negative for GCN.</p> <p>Small numbers of common species of bats were found to use the Application Site for foraging and commuting. The Application Site also contains an outlier badger sett and some areas suitable for common reptile species.</p> <p>Hedgerows, trees and scrub within the Application Site offer suitable nesting habitat for common bird species.</p>
Avoidance, Mitigation and Compensation Measures	<p>The Proposed Development will be undertaken following a Precautionary Method of Working (PMW) with regards to birds, bats, amphibians, water voles, otters and reptiles. It is anticipated that no active water vole burrows will be disturbed or destroyed during the works and therefore, it is not currently envisaged that the works will need to be conducted under either a Natural England displacement or conservation licence. However, monitoring of affected reaches of drains and ditches for water vole burrows will be required prior to construction.</p> <p>The outlier badger sett will require closure under a Natural England licence.</p> <p>The creation of a new ditch, profiled to provide suitability for water voles, will be undertaken to replace habitat lost as a result of culvert crossings.</p> <p>A planting scheme of native trees and shrubs, and installation of bat and bird boxes to compensate for loss of potential nesting or roosting habitat will be employed.</p>
Significance of Residual Effects	No significant residual effects on habitats, species or designated sites are anticipated as a result of the Scheme. The overall effect is anticipated to be neutral for biodiversity.

1. Introduction

1.1. Terms of Reference

Atkins Limited (Atkins) was commissioned by North East Lincolnshire Council (the Applicant) to undertake an Ecological Impact Assessment (EclA) in connection with a detailed planning application for the construction of a new road between Immingham and Grimsby, to link Hobson Way to Moody Lane (hereafter referred to as the Scheme).

The Scheme location is shown on the Site Location Plan (drawing reference 5150174-ATK-DR-C-0100) in **Appendix A**. The Scheme is hereafter referred to as the Application Site.

This EclA has been undertaken with reference to current good practice¹ and forms part of the technical information lodged with the planning application submission.

1.2. The Application Site

The Application Site is approximately 2.5 km long measured from the roundabout at the southern end of Hobson Way to the junction of Moody Lane and Woad Lane. It lies within a semi-industrial context and currently encompasses the northern part of Moody Lane, a two-lane access road servicing Lenzing Fibers Grimsby Limited, Bluestar Fibres Company Limited and BASF Performance Products PLC. The northern part of the Application Site is located adjacent to a fishing lake and within an area of currently undeveloped land (where Hobson Way ends).

The approximate central Ordnance Survey national grid reference of the Application Site is TA 241 116. The surrounding area consists of a mixture of farmland and commercial development. Three named drains flow across the area: Town's Croft Drain, Mawmbridge Drain and Oldfleet Drain. The following land uses are present within the surrounding area:

- **North:** farmland, BASF Performance Products, Bluestar Fibres Company Limited, Lenzing Fibers Grimsby Limited and the Humber Estuary.
- **East:** Novartis and Great Grimsby Business Park.
- **South:** farmland, railway line, Europarc Business Park and the A180.
- **West:** farmland and South Humber Bank Power Station.

The Application Site is approximately 9 ha and comprises of arable land, species poor semi improved grassland, broadleaved woodland, dense and scattered scrub with areas of tall ruderal, a hardstanding access road, flowing water and standing water.

1.3. The Scheme

The Scheme comprises the installation of a link road between Woad Lane at the south-east of the Application Site and Hobson Way at the north-west. The current detailed design is shown on ENGIE's drawing HD01-15_001-06 'Site Plan' provided in **Appendix A**. The Design proposes an 8.3 m wide carriageway (including a 1m wide hardstrip) alongside a 3 m wide shared footway/cycleway and associated embankments. Junction improvements are proposed to Moody Lane / Wood Lane at the south-eastern extent. A new ditch along the length of the carriageway is to be created to convey drainage from the road. Two further sections of ditch are to be created to provide mitigation for water voles and one of the new culverts will contain mammal ledges. A dry mammal underpass will also be installed to reduce potential impacts on biodiversity and maintain connectivity.

¹ CIEEM (January, 2016). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

The proposed Application Site boundary is shown on the Phase 1 habitat Plan in **Appendix B**.

1.4. Scope of the Assessment

This report presents ecological information obtained during the following:

- A desk-study and walkover survey undertaken on 17th June 2016;
- Surveys for notable species, namely bats, badgers, otters and water voles undertaken between September 2016 and September 2017; and
- eDNA survey for presence/likely absence of great crested newts undertaken on 18th April 2017.

This EclA describes the ecological baseline and evaluates the nature conservation value of ecological features present within the Ecological Zone of Influence (EZoI) for the Scheme (see Section 2.3 for further details), characterises the impacts and the effects (both positive and negative) of the Scheme on important ecological features², sets out agreed avoidance, mitigation and compensation measures, and assesses the significance of the residual effects (both positive and negative) of the Scheme on the important ecological features.

A Habitat Regulations Assessment (HRA) in accordance with Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (as amended) (the Habitats Regulations) has been undertaken for the project and deals with all impacts associated with the Humber Estuary Ramsar Site, Special Protection Area and Special Area of Conservation. Therefore, any impacts on ecological features within the Humber Estuary Ramsar, SPA and SAC have been excluded from the impact assessment within this EclA. Impacts relating to the Humber Estuary SSSI have been assessed as part of this EclA.

² See **Appendix B** for more information on important ecology features.

2. Methodology

2.1. Ecological Zone of Influence

The EZoI is an area defined by the assessment in which there may be ecological features subject to impacts and subsequent effects (both positive and negative) as a result of the Scheme. The EZoI is determined through an assessment of many interacting factors (see **Appendix C** for more details).

The EZoI of the Scheme during both construction and operation has been determined at two stages of the assessment. The first stage (initial EZoI) is to determine the geographical area for obtaining ecological data through desk and field based studies based on the potential impacts and effects of the Scheme on ecological features. The second stage (final EZoI) is to determine the geographical area for assessing the impacts and subsequent effects (both positive and negative) of the Scheme on important ecological features based on all the available information.

The initial EZoI is detailed in **Appendix C**. The final EZoI is detailed in Section 4.1.

2.2. Desk Study

A desk study was undertaken in October 2015 and updated in November 2016 to obtain ecological data relevant to the Scheme and the EclA, including a review of the Lincolnshire Biodiversity Action Plan³, ecological studies undertaken for nearby developments, records of statutory and non-statutory designated sites and protected and notable species within the initial EZoI of the Scheme.

Natural England were contacted to obtain their comments on the proposals for the Scheme, as they are set out above in Section 1.3.

A review of local planning policy relevant to the Scheme was undertaken as part of the desk study. To inform the cumulative impact assessment for the Scheme, the review included obtaining details of major committed developments as well as proposed strategic developments which have a high level of certainty within the next five years (collectively referred to as identifiable developments). Further detail on the cumulative assessment methodology is provided in **Appendix B**.

Full details of the desk study methodology are provided in **Appendix B**. A summary of relevant planning policy is provided in **Appendix D**.

2.3. Ecological Surveys

2.3.1. Extended Phase 1 Habitat Survey

An ecological walkover survey of areas within and adjacent to the Application Site, including land up to 50 m from the Application Site boundary where access was allowed (the Phase 1 Survey Area – as shown on the Phase 1 Habitat Survey drawings 5150174-ATK-LR-DR-ECO-0111 and 1510174-ATK-LR-DR-ECO-0112 provided in Appendix B), was undertaken on 17th June 2016 broadly following the Phase 1 habitat survey methodology⁴. The walkover survey records information on the habitats within the Survey Area, and was extended to include a search for evidence of the presence of, and an assessment of the potential of each habitat to support, notable and protected species as recommended by CIEEM⁵.

Full details of the extended Phase 1 habitat survey methodology are provided in **Appendix C.3**. The results of the extended Phase 1 habitat survey, including target notes and map, are provided in **Appendix B**.

³ Lincolnshire Wildlife Trust. (2006) *Lincolnshire Biodiversity Action Plan. 2nd Edition*.

⁴ Joint Nature Conservation Committee (2010). *Handbook for Phase 1 habitat survey - a technique for environmental audit*.

⁵ Chartered Institute of Ecology and Environmental Management (2012). *Guidelines for Preliminary Ecological Assessment*.

2.3.2. Phase 2 Surveys

Based on the results of the desk study and extended Phase 1 habitat survey, the following Phase 2 ecological surveys were undertaken to support this EclA:

- **Otter:** two otter presence / likely absence surveys of the watercourses within and adjacent to the Application Site were undertaken in November 2016 and April 2017;
- **Water vole:** two water vole presence / likely absence surveys of the watercourses within and adjacent to the Application Site were undertaken in November 2016, April 2017 (with additional monitoring for water vole evidence on affected reaches of drains within proposed application site boundary in June 2017, August 2017 and September 2017);
- **Bat:** three bat activity transect surveys (with associated static monitoring) within and adjacent to the Application Site were undertaken in September 2016, May 2017 and July 2017;
- **Badger:** one badger survey within and adjacent to the Application Site was undertaken in March 2017 (with additional monitoring of sett activity in June 2017, August 2017 and September 2017); and
- **Great crested newt:** an eDNA survey of suitable waterbodies was undertaken in April 2017.

Appendix C.4 provides the Phase 2 survey methodologies. **Appendix E** includes the survey areas and further details on the survey results.

2.3.3. Survey Limitations

The search for water bodies within 250 m of the Application Site was undertaken using Ordnance Survey plans and aerial photographs only. These sources may not show all ponds and or water bodies within 250 m of the Application Site boundary and therefore some water bodies may not have been identified.

Due to the dense scrub restricting access it was not possible to identify the bat roost potential of all the trees within the broadleaved woodland within and adjacent to the Application Site. Due to the small areas not assessed and the age and structure of the woodland this is not considered a significant limitation (see mitigation section 5.4.1.3 below).

Due to changes in design and Scheme boundary there is a total area of 0.153ha (equivalent to 1.64% of the Application site) which was not surveyed during the Phase 1 field survey. Furthermore, access up to 50m from the Application Site boundary was not granted in all areas around the Application Site. The unsurveyed areas within the Application Site have been assessed from aerial imagery and appear to include a combination of amenity grassland, hardstanding and scattered scrub. As this is a small area and the habitats have been assessed through desk study, this is not considered a significant limitation. The unsurveyed areas within 50m of the Application Site have also been assessed from aerial imagery and appear to include a combination of amenity grassland, scattered scrub, hard standing, and buildings. Due to the habitat types in this area being of limited ecological value this is not considered a significant limitation. It was not possible to start the water vole surveys until 2nd November 2016 which is outside the recommended core survey season. Water vole surveys are recommended between mid-April and 30th September⁶ (with limited surveys in July and August due to vegetation cover); water voles hibernate through the winter. However, the results of the April 2017 survey were consistent with the findings from the first survey and the timing of the November survey was not deemed to be a significant limitation for the following reasons:

- the period of time outside the core survey season was relatively short;
- the onset of spring 2016 was late and warm weather conditions were experienced into September and October 2016;
- water vole activity was still apparent and there was an abundance of water vole evidence encountered during the survey.

⁶ Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*. Eds Fiona Mathews and Paul Chanin. The Mammal Society. London.

The list of invasive plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is extensive and these plants are found in a range of different habitats, including aquatic habitats. The extended Phase 1 habitat survey checked for the presence of Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, Himalayan balsam, rhododendron and cotoneaster species. Other invasive species, in particular those associated with aquatic habitats, may not have been recorded, but it is considered that this survey is sufficient to identify any constraints posed by invasive species.

Due to the presence of the railway line to the south-west of the Application Site and given that no access was granted beyond 50 m to the south-west, the surveys of water bodies/watercourses were restricted. Guidance for water vole surveys suggests that surveys should normally be carried out along suitable watercourses up to 200 m upstream and downstream of the works⁷. However, due to the size and scale of the Scheme and the fact that water vole evidence was found adjacent to the Application Site, it is not considered to be a significant limitation that surveys did not extend further in this direction.

Otters are presumed to be using the watercourses within and adjacent to the Application Site for commuting. However, no suitable habitats for otter holts were found within 50 m of the Scheme and due to the size and scale of the Scheme and the fact that otter commuting routes have been considered in the design of the Scheme, it is not considered to be a significant limitation that surveys did not extend further in all directions.

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The ecological surveys undertaken to support this EclA have not therefore produced a complete list of plants and animals and the absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future. However, the results of these surveys have been reviewed and are considered to be sufficient to undertake this EclA.

2.3.4. Temporal Scope

Potential impacts on ecological features have been assessed in the context of how the predicted baseline conditions within the EZol might change between the surveys and the start of construction.

Construction is programmed to begin at the Application Site in Summer 2018 and is due to be completed in Winter 2019. Once construction is complete, based on discussions with the client, the assessment has assumed that the operational phase of the development will last for the foreseeable future. The ecology baseline discussed in this report is unlikely to change significantly prior to construction unless a long unforeseen delay in the programme occurs.

2.3.5. Nature Conservation Evaluation and Impact Assessment

The methodology for assessing the nature conservation value of an ecological feature, and the assessment of impacts and effects (including both positive and negative effects and cumulative impacts and effects) of the Scheme are provided in **Appendix B**.

2.3.6. Mitigation Hierarchy

The principles of the mitigation hierarchy^{8,9} have been adopted and used when considering impacts and subsequent effects on ecological receptors within the EZol.

The principles of the mitigation hierarchy are that in order of preference impacts on biodiversity should be subject to:

1. Avoidance;
2. Mitigation; and
3. Compensation.

⁷ Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*. Eds Fiona Mathews and Paul Chanin. The Mammal Society. London.

⁸ Department for Communities and Local Development (2012). National Planning Policy Framework, para 118. <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

⁹ CIEEM (January, 2016). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal 2nd edition, Paragraph 1.16*. Chartered Institute of Ecology and Environmental Management, Winchester.

3. Existing Baseline Conditions

Sections 3.1 to 3.4 below summarise the ecological baseline relevant to the Scheme recorded during the desk and field based studies undertaken to inform this EclA.

3.1. Designated Sites, Priority Habitats and Ancient Woodland

Table 3-1 Designated Sites within 1 km of the Application Site

Designated Site	Approximate Location of Designated Site ¹⁰	Features of Interest (including qualifying features of internationally designated sites ¹¹ ¹²)
Humber Estuary Ramsar ¹³	0.9 km north-west	Site comprises dune systems, humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons. Site supports a breeding colony of grey seals. Site supports assemblages of international important numbers of wintering waterfowl. The Humber Estuary also acts as an important migration route for both river lamprey and sea lamprey.
Humber Estuary Special Area of Conservation (SAC)	0.9 km north-west	Designated for sandbanks (which are slightly covered by sea water all the time), estuaries (for which this is considered to be one of the best areas in the United Kingdom), mudflats and sandflats (not covered by seawater at low tide), coastal lagoons, Atlantic salt meadows, embryonic shifting dunes (which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares). Dunes with sea buckthorn (which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares), fixed dunes with herbaceous vegetation, sea lamprey, river lamprey and grey seal.
Humber Estuary Special Protection Area (SPA)	0.9 km north-west	Site is important for breeding birds and large numbers (regularly up to 153934 individuals) of overwintering birds.
Humber Estuary Site of Special Scientific Interest (SSSI)	0.9 km north-west	Component habitats of intertidal mudflats and sandflats and coastal saltmarsh and the associated saline lagoons, sand dunes and standing waters. The site is also of national importance for the geological interest at South Ferriby Cliff (Late Pleistocene sediments) and for the coastal geomorphology of Spurn. The estuary supports nationally important numbers of wintering birds, and a nationally important assemblage of breeding birds of lowland open waters and their margins. It is a nationally important site for breeding colony of grey seals, river lamprey and sea lamprey, a vascular plant assemblage and an invertebrate assemblage.
Field to west of Power Station Notified Site of Nature Conservation Interest (SNCI)	Adjacent to north-west of Application Site	No Citation. Qualifying features unknown.

¹⁰Where designated sites are situated outside of the Application Site boundary, the distance and direction is given at the closest point of the designated site from the Application Site

¹¹Internationally designated sites include the following: Special Protection Areas (SPA), Special Areas of Conservation (SAC), Ramsar wetlands of international importance, potential SPA and candidate SAC sites.

¹²Data provided by Lincolnshire Environmental Records Centre (LERC)

¹³Ramsar Sites are designated as Wetlands of International Importance

Designated Site	Approximate Location of Designated Site ¹⁰	Features of Interest (including qualifying features of internationally designated sites ¹¹⁾¹²
Town's Croft Drain SNCI	0.7 km south	A mixture of blackthorn and hawthorn hedgerow and parallel drain. Suitable as a wildlife corridor.
Sweedale Croft Drain Selected Local Wildlife Site (LWS)	0.1 km south-west	The Site comprises semi-improved neutral grassland and running water with fairly diverse neutral grassland flora and aquatic flora.
Tioxide West Field Selected LWS	0.3 km east	The Site comprises brownfield mosaic, drain and semi-natural woodland. The Application Site supports a diverse fauna associated particularly with the marginal habitats includes willow warbler, reed warbler, reed bunting, chaffinch, four-spotted chaser, azure damselfly and common blue. Water voles occupy the marginal drain, while curlews are known to roost in the substantial area of grassland.
Healing Cress Beds LWS	1 km west	This Site comprises nine watercress beds, a newly created pond and a little surrounding habitat. 52 species of aquatic invertebrates demonstrate a fauna of High Conservation Value.

The locations of these designated sites are shown in **Appendix F**. Full citations for all designated sites (excluding 'Field to west of Power Station Notified Site of Nature Conservation Interest (SNCI)' which is unavailable) are also given in **Appendix F**. A summary of the current legislation for the above designated sites can be found in **Appendix G**.

Table 3-2 Priority habitats¹⁴ within 1 km of the Application Site

Priority Habitat	Approximate Location of Priority Habitat ¹⁵	Features of Interest
Open mosaic habitat on previously developed land	335 m east	Brownfield site
Lowland meadow	550 m west	This habitat comprises Sweedale Croft Drain
Coastal saltmarsh	815 m south east	This salt marsh is an important resource for wading birds and falls within the Humber Estuary Ramsar/SAC/SPA/SSSI
Coastal saltmarsh	900 m north east	This salt marsh is an important resource for wading birds and falls within the Humber Estuary Ramsar/SAC/SPA/SSSI

The locations of these priority habitats are shown in **Appendix F**.

There are no ancient woodlands within 1km of the Scheme (see **Appendix F**).

3.2. Main Habitats

All of the main habitats are indicated on the extended Phase 1 habitat survey plans (Drawing No. 1510174-ATK-LR-DR-ECO-0111 and 1510174-ATK-LR-DR-ECO-0112 included in **Appendix B**) with specific features

¹⁴ Lincolnshire Biodiversity Action Plan, *Action for Wildlife in Lincolnshire 2nd Edition* (2016)

¹⁵Where designated sites are situated outside of the Application Site boundary, the distance and direction is given at the closest point of the designated site from the Application Site

highlighted by target notes (TN) on the drawings. TN descriptions and photographs are also provided in Appendix B.

Table 3-3 Main Habitats within Application Site

Habitat Type	Summary Description of Habitat	Relevant Target Notes	Approximate Area of Habitat/ Distance of Linear Feature	
			Hectares (ha) / Metres squared (m ²)	% of Application Site
Broadleaf woodland	Broadleaf woodland containing hazel, horse chestnut and sycamore species. Provides suitable habitat for badgers, nesting birds and foraging habitat for bats. No potential for roosting bats was recorded.	TN16	0.130 ha	1.39%
Hedgerow	The intact species poor hawthorn hedgerow does not qualify as a priority habitat of conservation importance. It provides limited foraging and nesting sites for birds and foraging and commuting opportunities for bats.	TN4	20m ²	<0.02%
Broadleaf scattered trees	Scattered trees provide some suitable habitat for nesting birds.	TN2 and TN8	15 m ²	<0.02%
Scattered scrub	Scattered scrub provides some suitable habitat for reptiles and nesting birds.	TN11	2.417ha	25.84%
Dense scrub	Dense scrub provides suitable habitat for badgers and nesting birds.	TN12	0.28ha	2.99%
Semi-improved grassland	The unmanaged grassland provides suitable habitat for reptiles as well as foraging and nesting sites for birds.	TN1	2.292ha	24.49%
Tall ruderal	Tall ruderal vegetation provides suitable habitat for reptiles and nesting birds.	TN3 and TN14	0.319ha	3.41%
Wet drain/ ditch	Network of wet drains and ditches provide suitable habitat for water vole and GCN and the banks provide habitat for nesting birds.	TN6	46m ²	0.05%
Dry ditch	Dry ditches) may provide some suitable habitat for water vole and the banks provide habitat for nesting birds.	TN6	0.071m ²	0.76%
Amenity grassland	Amenity grassland is regularly mown and species poor and does not provide suitable habitat for protected species.	TN13	0.208ha	2.22%
Hardstanding	Access track along part of the Application Site.	TN17	3.478ha	37.17%
Unsurveyed area	From arial imagery appears to consist of amenity grassland, hardstanding and scattered scrub.		0.153 ha	1.64%

Table 3-4 Main Habitats outside of the Application Site but within the Survey Area

Habitat Type	Summary Description of Habitat	Location of Habitat ¹⁶	Relevant Target Notes
Arable	The arable fields provide habitat for breeding, roosting and foraging birds and limited foraging habitat for species of mammal (i.e. rodents, deer, stoat, badger, fox and rabbit).	Adjacent, west of Application Site	TN7
Standing water	Large fishing lake with small vegetated island provides suitable habitat for water vole and nesting birds.	Adjacent, north west of Application Site	TN15
Wet drain/ ditch	Network of wet drains and ditches provide suitable habitat for water vole and GCN and the banks provide habitat for nesting birds.	Adjacent, east and west of Application Site	TN6
Dry ditch	Dry ditches) may provide some suitable habitat for water vole and the banks provide habitat for nesting birds.	Adjacent, east and west of Application Site	TN6
Building – Anglian Water Metering House	Small building with no bat roost potential.	Adjacent west of Application Site	TN18

3.3. Protected and Notable Species

The results of the desk study and field surveys (including the extended Phase 1 habitat survey) undertaken for protected and notable¹⁷ species are detailed below in **Table 3-5** and provided in **Appendix E**.

A more detailed summary of the Phase 2 species survey results is provided in **Appendix E**. A summary of the extended Phase 1 habitat survey and Phase 2 species survey methodologies is provided in **Appendix C**. A summary of the current legislation surrounding the following protected species can be found in **Appendix G**.

Table 3-5 Protected and Notable Species within Application Site and/or initial EZoI

Species or Species Group	Desk Study Records ¹⁸	Field Survey Results ¹⁹
Bats (Potential Roost Features)	No records of bats exist within the Application Site, although bats are likely to be present in the area.	All accessible Potential Roost Features (PRFs) within the survey area were assessed as having negligible potential for roosting bats (see limitations in Section 2.3.3).
Foraging and Commuting Bats	Four records of bats (including noctule, Daubenton's, and common pipistrelle species) have been recorded within 1 km of the Application Site.	Activity surveys have revealed low numbers of common pipistrelle and one soprano pipistrelle bats foraging along the railway track and around the lake at the northern end of the Scheme.
Great Crested Newt (GCN)	There are no records from the local record centre of GCN within 1km of the Application Site.	All water bodies within the Application Site and the wider GCN survey area were either scoped out or surveyed for eDNA. eDNA results were negative with one inconclusive.

¹⁶The distance and direction is given at the closest point of the main habitat from the Application Site

¹⁷Notable species are taken as principal species for the conservation of biodiversity listed under Section 41 of the Natural Environment and Rural Communities Act 2006; any species listed in an IUCN Red Data Book; and any other species listed under LOCAL BAP.

¹⁸Only recent records of species are provided here, where recent is taken to be in the last 10 years

¹⁹Further details are provided in Appendix E

Species or Species Group	Desk Study Records ¹⁸	Field Survey Results ¹⁹
Water vole	There are 11 records of water vole (mostly latrines) within 1km of the Application Site. The three closest records are Approx. 100m from the Application Site on Old Fleet Drain (NW), near Mawmbridge Drain (W) and near Town's Croft Drain (E).	Water vole surveys have revealed a water vole population using the network of ditches along the length of the Scheme and in the wider survey area, including the lake at the northern end of the Scheme. However, no burrows have been found within the footprint of the Application Site. The closest evidence of water vole was on Old Fleet Drain, approximately 11 m from the Application Site.
Otter	Three records of otters (all dead) have been recorded within 1km of the Application Site. Two of these were near Sweedale Croft Drain (approx. 700m SW of the Application Site) and the third was near Town's Croft Drain (approx. 350m SW of the Application Site).	No evidence of otters was identified within the Application Site or wider survey area.
Badger	There are three records of badger within 1km of the Application Site. One record is a sett and the other two are road casualties.	Badger activity (guard hairs and a latrine) was observed at a four-hole sett found within the Application Site (OS grid ref: TA 23282 12404). Activity was then monitored using motion-sensor cameras and the sett was confirmed to be an active outlier sett. A suspected further sett (surrounded by dense bramble scrub) was also found approximately 100m to the east of the Application Site (OS grid ref: TA 23443 12388).
Common Species of Reptile	There are no records of reptiles within 1km of the Application Site.	No evidence of reptiles was recorded during the Phase 1 habitat survey. The scrub, tall ruderal and semi-improved grassland within the Application Site are suitable for grass snake, slow worm and common lizard.
Nesting birds (not associated with the Ramsar/SPA/SAC)	51 species of birds have been recorded within 1km of the Application Site (see Appendix F).	<p>The banks of the Old Fleet Drain offer some suitable nesting habitat for Kingfisher. However, no observations of potential kingfisher nest sites were observed during the April 2017 water vole surveys and no sightings of kingfisher were recorded. The other ditches and streams are sub-optimal for kingfisher. There are no other suitable habitats for any other Schedule 1 species within or immediately adjacent to the Site.</p> <p>The Arable land to the east offers some suitable habitat for farmland bird species. The scrub, woodland, hedgerow and semi-improved grassland within and adjacent to the Application Site offers some suitability for nesting birds.</p>

No other notable species were recorded within the EZoI of the Scheme. Based on the geographical location of the Application Site and the habitats present, no other notable species are considered likely to be present within the EZoI of the Scheme.

3.4. Non-native Invasive Plant Species

The extended Phase 1 habitat survey checked for the presence of Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, Himalayan balsam, rhododendron and cotoneaster species.

No evidence of these species was recorded within the Survey Area.

4. Evaluation of Ecological Features

4.1. Final Ecological Zone of Influence

Once the data gathering exercises from both the desk study and field surveys were completed and all Scheme details were available, the initial EZoI was finalised for both the construction and operational phases of the Scheme, as detailed below.

4.1.1. Designated Sites and Priority Habitats

Owing to the linear nature of the Scheme and the generally localised nature and level of the impact of the construction and operational works, it was considered appropriate to assess impacts only on those designated sites and priority habitats which are present within or directly adjacent to the Application Site or which the Application Site crosses. In setting the EZoI for designated sites, through discussion with the Applicant it has been assumed that the Guidance for Pollution Prevention²⁰ (GPP), Pollution Prevention Guidelines (PPGs) and CIRIA guidance will be implemented to prevent any impacts on watercourses or notable aquatic habitats. With suitable pollution measures in place, direct impacts will only result where any in-channel works are required. It is further assumed that any in-channel works will be confined within the Application Site boundary.

4.1.2. Main Habitats

Owing to the scale and nature of the Scheme proposals and the predicted level of the impact of the construction and operational works, it was considered appropriate to assess impacts only on those main habitats which are present within or directly adjacent to the Application Site.

4.1.3. Protected and Notable Species

The final EZoI for protected and notable species either recorded within, or considered likely to be present within, the Application Site has been defined on a species-specific basis based on the likely effects of the Scheme as detailed in **Table 4-1** below (distances are taken from the Application Site boundary).

Table 4-1 Ecological Zone of Influence for Impact Assessment on Protected and Notable Species

Species	Distance from the Application Site boundary		Justification
	Construction	Operation	
Foraging/ commuting Bats	30 m	Application Site boundary	Although bats are known to commute large distances between roosts and foraging habitat, direct construction impacts are only likely to occur to commuting, foraging and roosting habitat within 30 m of the Scheme boundary. Minor disturbance is likely to occur during operation on bats commuting through the Application Site.
Water vole	Application Site boundary	Application Site boundary	Impacts to water voles could occur through habitat loss, however, due to the mitigation measures incorporated within the Scheme design (including mammal ledges in one of the culverts and creation of a new suitable ditch) suitable habitat will be slightly increased and fragmentation of the population will be prevented.
Badgers	30 m	Application Site boundary	Although badgers are known to commute large distances, direct construction impacts are only likely to occur when active setts are located within 30 m of the Application Site boundary. Fragmentation of a territory could result from the Scheme.

²⁰ Available at: < <http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/> > [Accessed 13 November 2017].

Species	Distance from the Application Site boundary		Justification
	Construction	Operation	
Commuting otters	50 m	Application Site boundary	Disturbance impacts are likely to occur to otters commuting along watercourses within 50 m of the Application Site. No impacts are expected during the operation of the Scheme due to the mitigation measures incorporated within the Scheme design (including mammal ledges in one of the culverts).
Reptiles	Application Site boundary	Application Site boundary	Although reptiles are known to utilise a variety of habitat types, direct construction impacts are only likely to occur to reptiles within the Scheme boundary. No impacts are expected during the operation of the Scheme
Nesting birds	Application Site boundary	Application Site boundary	Although birds are known to breed in a variety of habitat types, direct construction impacts are only likely to occur to birds nesting within the Scheme boundary. No impacts are expected during the operation of the Scheme.

4.2. Evaluation of Ecological Features

All the ecological features present or considered likely to be present within the final EZol of the Scheme have been valued according to the criteria outlined in **Appendix B**.

Features outside the final EZol will not be affected by any activities or processes involved in the Scheme and are therefore not considered further in this EclA.

Table 4-2 Evaluation of Ecological Features within the Final EZol

Ecological Feature(s)	Nature Conservation Value	Rational for Valuation
Foraging and Commuting Bats	Local	Common bat species have been recorded foraging within the Application Site. For this reason, the assemblage of bat populations is considered to be of Local importance.
Water vole	Local	Evidence of water voles has been recorded within the Application Site and within the EZol. The water vole distribution is abundant in this area and in the wider county (the Lincolnshire BAP states that "Lincolnshire is now a National stronghold for water voles" ²¹) and for this reason, the water vole population is considered to be of Local importance.
Otters	Local	No evidence of otters was recorded within the Application Site or the adjacent habitats. Otters are likely to only be using the habitats within the Scheme for commuting. For this reason, the otter population is considered to be of Local importance.
Badger	Application Site	Evidence of badger has been recorded within the Application Site and within the EZol and badger appear widespread in the area. For this reason, the badger population is considered to be of importance within the Application Site.

²¹ Lincolnshire Biodiversity Action Plan, *Action for Wildlife in Lincolnshire 2nd Edition* (2016)

Ecological Feature(s)	Nature Conservation Value	Rational for Valuation
Reptiles	Application Site	Some suitable habitat for reptiles has been recorded within the Application Site and within the EZoI. For this reason, if present any reptile population would be considered to be of importance within the Application Site.
Nesting birds	Application Site	Some suitable nesting habitat for common nesting bird species has been recorded within the Application Site and within the EZoI. For this reason, nesting birds are considered to be of importance within the Application Site.

4.3. Determination of Important Ecological Features

Habitats, species and species groups that are considered to have a nature conservation value in the context of the Application Site and its immediate environs are not considered important ecological features²² in the context of this EclA. Any impact on such a feature as a result of the Scheme is considered unlikely to have a significant effect on the conservation status of such habitats or species on a local, regional, national or international scale.

Therefore, features of nature conservation value in the context of the Application Site, or those considered to have negligible nature conservation value, have been scoped out of the ecological impact assessment in Section 5.

²² See **Appendix C** for more information on important ecology features.

5. Impact Assessment, Agreed Mitigation Measures and Significance of Residual Effects

This Section characterises the impacts and the subsequent effects (both positive and negative) of the Scheme on the important ecological features within the final EZoI, sets out agreed avoidance, mitigation and compensation measures, and assesses the significance of the residual effects (both positive and negative) of the Scheme on these features.

The Applicant has agreed that the general mitigation measures identified in Section 5.1 onwards will be incorporated into the detailed design proposals for the Scheme and implemented as part of the overall development of the Application Site.

5.1. General Mitigation Measures

5.1.1. Design Mitigation Measures

The following avoidance, mitigation and/ or compensation measures have been incorporated into the design of the Scheme to comply with national and local planning policy, current legislation and good practice:

- Replacement of all mature broadleaf trees to be lost during the construction phase will be on a ratio of 1:1 as detailed in the Landscape drawings (TPS-HLR-001);
- Loss of potential nesting habitat for birds will be compensated for by the installation of 5 Schwegler bird boxes. These will be incorporated into the design in locations suitable for species which breed in and around the Application Site;
- A strategically placed mammal friendly culvert will incorporate mammal shelves to allow passage of mammals such as otters, water voles and badgers;
- A strategically placed dry mammal underpass will allow passage of mammals such as badgers;
- A new 452 m length of ditch will be created parallel to the road to mitigate for the loss of water vole habitat across the Scheme. The ditch will be profiled to provide suitable burrowing habitat for water voles.

5.1.2. Construction and Operation Mitigation Measures

The following avoidance, mitigation and/or compensation measures will be implemented during the construction phase of the Scheme to comply with national and local planning policy, current legislation and good practice:

- General measures to avoid or alleviate negative impacts upon ecological receptors including following the pollution prevention guidelines²³;
- Measures to protect any trees to be retained within and immediately adjacent to the Application Site boundary²⁴;

²³Pollution prevention guidelines (PPGs) with particular reference to PPG1 (general guide to the prevention of water pollution), PPG3 (use and design of oil separators in surface water drainage systems), PPG5 (works near or liable to affect watercourses) and PPG6 (working at construction and demolition sites). Pollution Prevention Guidelines (PPGs) are a series of documents developed by the Environment Agency for England and Wales, the Northern Ireland Environment Agency (NIEA) for Northern Ireland and the Scottish Environment Protection Agency (SEPA) for Scotland. Each PPG is targeted at a particular type of business or activity and covers environmental good practice to minimise pollution. The PPGs also make reference to environmental legal obligations, but that information is currently out of date and requires updating. All of the PPGs are available from <http://webarchive.nationalarchives.gov.uk/20140328084622/http://www.environment-agency.gov.uk/business/topics/pollution/39083.aspx>

²⁴ British Standards Institution (2012). *Guide for Trees in relation to design, demolition and construction: recommendations*. BS 5837:2012.

- An Ecological Clerk of Works (ECoW) will be employed to oversee key stages of works under a precautionary method of working (PMW) and any works on/over watercourses for the duration of construction of the Scheme and for pre-construction site clearance works to ensure that measures to avoid or alleviate impacts on nature conservation receptors are implemented;
- Site clearance will be undertaken following a PMW to prevent injury, death or disturbance to nesting birds, amphibians and reptiles. Methods included in the PMW will include the requirement for hand searching for reptiles/amphibians by an ecologist or appropriately briefed ecological representative within any small areas of suitable habitat, such as the base of scrub vegetation and along woodland edges;
- Where possible, tree felling and vegetation clearance will be minimised and undertaken outside the core bird nesting season (1st March and 31st August, though it should be noted that variation in dates is possible, for example from geographical variations in climate, or due to a particularly mild winter) to avoid damage or destruction of occupied nests or harm to breeding birds. If this cannot be achieved, works within the core bird nesting season will require an inspection of vegetation to be cleared for breeding birds and their occupied nests by a suitably qualified ecologist no more than 24 hours prior to any works being undertaken. If any nesting birds are identified during the survey they will be left *in situ* for their entire nesting period and alternative approaches to the work proposed. This may include leaving an exclusion zone around the nests to avoid disturbance; and
- To prevent death or injury to any terrestrial mammals during construction works, including otter and badger, open trenches will have a sloping end or ramp to allow any animals that may fall in to escape, and any pipes over 200mm in diameter will be capped off at night to prevent animals entering.

5.2. Designated Sites

5.2.1. Construction Impacts, Mitigation and Residual Effects

Impacts on the Humber Estuary SPA, SAC and Ramsar site will be discussed in an Appropriate Assessment (AA) as part of a Habitat Regulations Assessment (HRA) which is presented as a separate report by others. Therefore, any impacts on the qualifying features of the Humber Estuary SPA, SAC and Ramsar site will not be discussed further in this EclA. The Humber Estuary SSSI will be assessed in this EclA.

The Humber Estuary SSSI lies approximately 0.8 km north east of the Application Site at its closest point. After an assessment of the Humber Estuary's location in relation to the Application Site, local landscape features and hydrology, it is considered that the Humber Estuary SSSI is outside the Ecological Zone of Influence. The general mitigation outlined above and the mitigation proposed for works near the SNCI such as prevention of pollution, no night time working and use of directional lighting will ensure there are no significant impacts to the Humber Estuary SSSI during the works.

Considering the avoidance measures to be implemented to address the potential impacts on the Humber Estuary SSSI, Sweedale Croft Drain and the field west of the power station SNCI, it is not expected that the Scheme will have a significant negative effect on the conservation objectives of these designated sites.

The proposed development works will be localised and will not result in the loss of any habitats within any designated site. There is likely to be minimal disturbance effects on the habitat within the adjacent SNCI owing to the nature of the works being localised and undertaken from within the Application Site, minimising encroachment. The Scheme will provide habitat planting and improved connectivity with neighbouring habitats through the creation of a new open drain. The general mitigation above such as prevention of pollution, no night time working and use of directional lighting away from the SNCI will ensure there are no additional impacts to the SNCI during the works.

Due to the works being localised, the nature of the proposed works and the location of the SNCI in relation to the Application Site (upstream of the Application Site), no negative impacts or disturbance are anticipated on the SNCI west of the power station as a result of the Scheme.

There are no negative impacts or disturbance anticipated on the LWSs as a result of the Scheme due to the localised nature of the proposed works, and the distance of Sweedale Croft Drain LWS and Tioxide LWS in relation to the Application Site (both over 200m from the Application Site).

There are no negative impacts or disturbance anticipated on the priority habitats as a result of the Scheme due to the localised nature of the proposed works, and the distance of the four priority habitat areas in relation to the Application Site (all over 300m from the Application Site).

5.2.2. Operational Impacts, Mitigation and Residual Effects

Due to the small scale and localised nature of the Scheme no operational impacts are anticipated on the Humber Estuary SSSI, Sweedale Croft Drain LWS, Tioxide West Field LWS and the SNCI.

5.3. Main Habitats

5.3.1. Construction Impacts, Mitigation and Residual Effects

The Scheme is anticipated to result in the culverting of approximately 420 m of open ditches and the permanent loss of up to 18 individual trees and 11 groups of trees/bushes.

To compensate for the permanent loss of these habitats, the scheme design will incorporate the following features:

- **Aquatic habitats:** Creation of approximately 450 m of open water habitat in the form of a ditch designed to benefit biodiversity, with planting of key aquatic and marginal plant species and placement of log piles around water body edges to provide suitable foraging and refuge habitat for invertebrates, amphibians, reptiles and small mammals;
- **Broadleaf scattered trees:** Landscaping design to detail a planting regime to include a mix of native tree species. Replacement trees will be planted on a ratio of 1:1 resulting in the planting of approximately 8,445 m² of compensatory woodland.

Following maturity, the compensation habitat creation and planting would reduce impacts to a level at which they will not result in any significant effect on the conservation status of the habitats concerned.

5.3.2. Operational Impacts, Mitigation and Residual Effects

Due to the small scale and localised nature of the Scheme no operational impacts on notable habitats are anticipated.

5.4. Notable Species

5.4.1. Construction Impacts, Mitigation and Residual Effects

5.4.1.1. Breeding birds

Considering the agreed mitigation measures detailed above, the Scheme will result in the removal of nesting and foraging habitat for breeding birds in the scrub habitat, woodland and arable land to the north of the Application Site. There will also be disturbance caused by construction activities to breeding birds in the arable land to the south east of the Application Site.

Where possible, vegetation clearance and building works will be programmed for outside the core breeding bird season (typically March to August inclusive).

If any vegetation clearance is required during the core breeding bird season a detailed inspection for nesting birds will be carried out by a suitably qualified ecologist no more than 24 hours prior to any works being undertaken. This minimises opportunities for nest building between the survey and the start of the works. Any nest in use or being built during this inspection will need to be left undamaged, with an appropriate buffer (determined by the ecologist) of surrounding vegetation, until the young have fledged.

Retained woodland and scrub in the surrounding areas will provide alternative nesting and foraging opportunities. Bird boxes suitable for species known to breed in the area will be installed on the edge of the retained belts of broad-leaved and/or plantation woodland facing adjacent semi-natural habitat to compensate for lost nest sites, as recommended in **Appendix H.1**.

Pre-works checks for kingfisher nest sites would need to be undertaken on Old Fleet Drain to ensure there is no disturbance caused to schedule 1 species.

Although the development will result in an overall loss of some suitable nesting and foraging habitat for breeding birds, the proposals include installing nest boxes, planting trees to replace trees lost and retention of the habitats where possible.

Following implementation of mitigation, the significance of the effect of the proposed scheme on breeding birds is anticipated to be **not significant**.

5.4.1.2. Water voles

Four of the drainage channels (including Mawmbridge Drain, Townscroft Drain and Old Fleet Drain) within the Application Site were found to contain evidence of water voles. These drains will all be directly affected during construction and will be culverted to allow the road to be constructed over them. However, there are no active water vole burrows within the sections of drain to be lost. Should new water vole burrows be found within the footprint of the scheme prior to or during construction a licence will need to be sought from Natural England.

To compensate for the loss of habitat suitable for water vole (approximately 420 m in total) two lengths of open ditch (approximately 450 m in combined length) will be created parallel to the new road. The ditch is to be profiled to offer suitable habitat for water voles, and will comprise a steep sided V-shaped ditch suitable for water voles to create burrows. Although there will be a short-term loss of suitable habitat whilst the planted vegetation along the banks establishes, there will be an overall gain of approximately 35 m in length of suitable ditch habitat which will also be of improved quality as this has been designed specifically to provide optimal burrowing habitat for water voles.

The stretches of drains directly affected by construction will undergo vegetation maintenance periodically prior to and throughout construction to reduce the likelihood of future water vole colonisation of these small areas. All works to be carried out on drains used by water voles will be done under a PMW and with the advice of an on-Site ecologist.

Following implementation of mitigation, the effect of the proposed scheme on water voles is anticipated to be **not significant**.

5.4.1.3. Bats

Should bats be utilising the Application Site for commuting between habitats of higher value for foraging, there are potential effects of the direct mortality of bats due to road construction and moving traffic. Furthermore, the Application Site is currently unlit. Should there be installation of temporary lighting during construction of the proposed scheme, this has potential to create disturbance to bats using the scheme footprint and immediate environs for foraging and commuting.

It is understood that most of the construction activity will not be carried out at dusk or dawn or in night time hours. If lighting is required, as a precaution light spill from the works will be minimised with the use of directional lighting with hoods and cowlings. Lighting will be directed away from hedgerows and broadleaf woodland.

Removal of the broadleaf woodland will be done under a PMW and an inspection for bats will be carried out on any trees with suitability for bats by a bat-licensed surveyor prior to any works in this area.

The Application Site is currently used by small numbers of common bat species, utilising features (such as the fishing lake) which are to be retained and therefore, construction activities are unlikely to have a significant effect.

Following implementation of mitigation, the effect of the proposed scheme on bats is anticipated to be **not significant**.

5.4.1.4. Badgers

An outlier sett was found within the Application Site. This sett will be directly affected during construction and will need to be closed. To prevent harm to badgers, a badger licence will be required from Natural England to close the sett. Closure and subsequent destruction of the sett will be carried out under licence and supervised

by an experienced ecologist named on the licence. Construction works within 30 m of the sett will only commence once the sett has been closed and fully destroyed.

Following implementation of mitigation under a badger licence from Natural England (if required), the effect of the proposed Scheme on badgers is anticipated to be **not significant**.

5.4.1.5. Otters

No evidence of otters was found during the otter survey within or adjacent to the Application Site, however, otters are known to utilise the network of ditches in the area and are likely to commute along ditches within the Application Site. Furthermore, the Application Site is currently unlit. Should there be installation of temporary lighting during construction of the proposed scheme, this has potential to create disturbance to otters using the scheme footprint and immediate environs for foraging and commuting.

It is understood that most of the construction activity will not be carried out at dusk or dawn or in 'night time' hours. If lighting is required, as a precaution light spill from the works will be minimised with the use of directional lighting with hoods and cowlings and lighting will be directed away from watercourses.

Following implementation of mitigation the effect of the proposed scheme on otters is anticipated to be **not significant**.

5.4.1.6. Reptiles

Considering the agreed mitigation measures detailed above, the Scheme will result in the removal of some habitat suitable for reptiles in the scrub and woodland habitats within the Application Site.

Removal of any suitable hibernacula will occur outside of the hibernation period and will be disassembled by hand with on-site advice from a suitably qualified ecologist. If any reptiles are found during the works, the works will stop and the reptiles will be allowed to leave the area before the works continue.

Retained woodland and scrub in the surrounding areas will provide alternative habitat opportunities.

Although the Scheme will result in an overall loss of some suitable habitat for reptiles, the proposals include planting trees and woodland to replace trees lost, planting of wild flower meadow and retention of the habitats where possible which will provide some optimal habitat for reptiles.

Following implementation of mitigation, the effect of the proposed scheme on reptiles is anticipated to be **not significant**.

Considering the agreed mitigation measures for protected species detailed above, the Scheme will result in no net loss of notable habitats or protected species. There will be no fragmentation or isolation of the water vole or badger population as the ditches to be lost will be replaced with sufficient culverts designed to allow access for water voles to pass from one side of the road to the other within the channel. The culvert on Old Fleet Drain will have mammal ledges built into the design suitable for badgers and water voles and a dry mammal underpass will be installed between ditch 13 and ditch 15 in the area with highest badger activity.

5.4.2. Operational Impacts, Mitigation and Residual Effects

The strategically placed dry mammal underpass and mammal friendly culvert (containing mammal ledges) will be suitable to allow passage of mammals such as badgers, otters and water voles from one side of the Application Site to the other to maintain connectivity and reduce the likelihood of road casualties.

Due to the small scale and localised nature of the Scheme which includes the provision of mammal crossing points, no operational impacts on protected species other than bats detailed below are anticipated.

5.4.2.1. Bats

Should bats be utilising the Application Site for commuting between habitats of higher value or foraging, there are potential effects of direct mortality of bats during the operation of the scheme due to moving traffic. Furthermore, the Application Site is currently unlit. Where there will be installation of permanent lighting for the operation of the proposed scheme, this has potential to create long term disturbance to bats using the scheme footprint as foraging and commuting habitat. The design of the new lighting proposed during the

operation of the scheme will follow good practice guidance in relation to bats; Bats and Lighting in the UK²⁵. This will include downward pointing, low level, directional lighting to reduce light spill.

Five bat boxes will be installed within suitable habitats adjacent to the Application Site (i.e. within the broadleaf woodland) to enhance the area's suitability for roosting bats. Two bat box designs are proposed, designed to be attractive to common and soprano pipistrelle bats which were noted during the bat transect survey, as detailed in **Appendix H.2**.

5.5. Cumulative Impacts and Effects

With agreement from North East Lincolnshire Council, identifiable developments which have been included in the assessment of cumulative impacts and effects of the Scheme are detailed in Table 5-1.

Table 5-1 Development proposals neighbouring the Application Site Boundary.

Application Reference and address	Application Validated	Proposal	Status	Approximate Distance (m) and direction from Site
DM/1109/16/FUL Lenzing Fibers Ltd, Energy Park Way, Grimsby, North East Lincolnshire, DN31 2TT	31/03/2017	Erection of steel engineering equipment store	Approved on 19/05/2017	Directly adjacent west of the Application Site
DM/0195/17/FUL Vireol Plc, Energy Park Way, Grimsby, North East Lincolnshire DN31 2TT	13/03/2017	Erection of industrial building and adjoined two storey office/control room to create power plant (18MW Energy From Waste) including construction of associated access, hardsurfacing, erection of 55m chimney stack and installation of necessary plant and machinery	Approved on 01/08/2017	Directly adjacent west of the Application Site
DM/0780/17/DEM Bluestar Fibres Energy Park Way Grimsby North East Lincolnshire DN31 2TT	14/08/2017	Prior notification application to demolish 4 ancillary buildings and partial demolition of the north factory bale store	Prior approved on 06/10/2017	Approx. 130 m west of the Application Site
DM/0737/17/CND Unit 1, Pegasus Way, Healing, Grimsby, North East Lincolnshire DN37 9TS	28/07/2017	Details in Discharge of Condition 3 (Drainage) pursuant to DM/1143/15/FUL (Erect detached single storey packaging store).	Conditions applied with 07/09/2017	Approx. 240 m west of the Application Site

²⁵ Bat Conservation Trust (2014) Artificial lighting and wildlife. Interim Guidance: Recommendations to help minimise the impact.

Application Reference and address	Application Validated	Proposal	Status	Approximate Distance (m) and direction from Site
DM/0847/17/FUL Five Star Fish Athenian Way Grimsby North East Lincolnshire DN37 9SY	08/09/2017	Erection of free standing pallet store.	Approved with conditions 24/10/2017	Approx. 240 m west of the Application Site
DM/1184/16/FUL South Humber Bank Power Station South Marsh Road Stallingborough Grimsby North East Lincolnshire DN41 8BZ	21/02/2017	Erection of new gatehouse/induction centre with air conditioning units, installation of bio disk tank, security barriers, car parking, new fencing, new parking bays, relocation of flag poles and other associated works.	Approved with conditions 04/04/2017	Approx. 470 m North of the Application Site
DM/1074/17/HS Synthomer Ltd South Marsh Road Stallingborough North East Lincolnshire DN41 8DB	04/12/2017	Hazardous Substance consent for the storage and processing of Liquefied flammable gas (160 tonnes), Section H - Health Hazards - Part 1, H2 (166 tonnes), Section E - Environmental Hazards - Part 1, E1 (200 tonnes) and Section E - Environmental Hazards - Part 1, E2 (166 tonnes) in association with a polymerisation production facility.	Pending considerations	Approx. 600 m North of the Application Site
DM/0304/17/FUL Former Huntsman Tioxide Uk Ltd Moody Lane Grimsby North East Lincolnshire DN31 2SY	06/04/2017	Alterations to include new vehicular accesses, fencing and installation of lighting for the storage and distribution of vehicles associated with import/export activities at the Port of Grimsby.	Approved with conditions 13/10/2017	Approx. 330 m North of the Application Site
DM/0382/17/CND Grimsby Gas Engines Npower Cogen Moody Lane Grimsby	13/04/2017	Details in Discharge of Condition 4 (Traffic Management Plan) pursuant to DM/0104/16/FUL (Replacement of existing obsolete power generation equipment with new, containerised, gas-engine generators, to act as a reserve generation site. The site will comprise up to 14 containerised generators, with a combined	Conditions complied with 13/10/2017	Approx. 630 m North of the Application Site

Application Reference and address	Application Validated	Proposal	Status	Approximate Distance (m) and direction from Site
North East Lincolnshire DN31 2SY		electrical export capacity of 20MW - the same as the existing plant. The new plant will utilise the existing electrical grid connection infrastructure and gas supply).		
DM/1032/14/OUT Land Off Woad Lane & Moody Lane Grimsby North East Lincolnshire	16/10/2014	Creation of a business use site with office facilities and associated service yard and parking areas with all matters reserved.	Approved on 22/05/2015	Directly adjacent, south west of the Application Site
DM/1018/16/FUL BASF Moody Lane Grimsby North East Lincolnshire DN31 2SY	11/11/2016	Installation of 3 portacabins to provide temporary contractor facilities to include offices and toilet and creation of new car parking	Approved Limited Period on 29/12/2016	Directly adjacent, east
DM/0455/14/OUT (former) Acordis Moody Lane Grimsby North East Lincolnshire	09/05/2014	Outline approval for the creation of multiple business units of class B1 (Business), B2 (Industry) & B8 (Storage/Distribution), with the modification of the existing private site access to link Hobson Way with Moody Lane to be considered.	Approved 29/06/2015	Directly adjacent, north west
DM/0934/16/FUL Lenzing Fibers Ltd Energy Park Way Grimsby North East Lincolnshire DN31 2TT	30/09/2016	Erection of a single storey portacabin to provide office for a temporary period of 2 years	Approved on 30/11/2016	130m north east
DM/0433/14/FUL Energy Park Way Vireol Bio-Industries Plc Grimsby North East Lincolnshire DN31 2TT DN31 2TT	02/05/2014	Demolition of existing ancillary buildings including a 'link' building between the existing technical building & warehouse, provision of car & cycle parking & alterations to existing buildings roof & façade.	Approved with conditions on 05/06/2014	40m east

Due to a lack of detailed information on each of the proposed schemes, it has been assumed for this cumulative assessment that appropriate avoidance, mitigation and compensation to offset these impacts will be employed at each of these sites given the planning and legal obligations that must be met when protected species are present. The predicted mitigation has been outlined below:

- Where bat roosts will be lost through development, it is assumed that these will be replaced, with the exact requirement of roost replacement dependent upon the significance of the roost to be lost;
- Landscape planting of native species and the retention of mature trees and hedgerows will be required to offset the loss of foraging habitat. A Construction Environmental Management Plan for each development that includes proposals for the siting of compounds and artificial night-time lighting away from areas of suitable foraging and commuting habitat is likely to be required to prevent impacts to foraging and commuting bats.

Impacts on the drainage network are unlikely due to the nature of the proposals. Loss of watercourse habitat associated with this Scheme is not going to be significant as the habitat will be replaced.

With the assumption that the above mitigation will be implemented, and the distances between these sites and the Scheme, it is not expected that the Scheme will have a significant negative cumulative effect on the conservation status of roosting, foraging and commuting bats.

6. Conclusion

The Applicant has agreed that the avoidance and mitigation measures identified in Section 5.1 above will be incorporated into the detailed design proposals for the Scheme and implemented as part of the overall development of the Application Site. The Scheme has maximised opportunities to incorporate and enhance biodiversity within the proposals wherever possible.

The Scheme has sought to minimise impact on habitats and wildlife through providing appropriate planting within the Scheme boundary with a focus on creating and maintaining a continuous corridor of habitat in the form of new ditches along sections of the road and mammal access through culverts. Taking that into account, the Scheme conforms in respect of biodiversity to the National Planning Policy Framework (NPPF)²⁶ Section 11 (*minimising impacts on biodiversity and providing habitat corridors*), North East Lincolnshire Local Plan Strategic Objective SO6 (*built, Historic and Natural Environment*) and Policy 40 (*Biodiversity and Geodiversity*).

Impacts from the construction or operational phases of the Scheme are predicted to result in none of the following significant negative residual effects within the final EZoI:

- Undermine the conservation objectives or condition of designated sites and their features of interest;
- A change in ecosystem structure and function;
- Threaten the conservation status of undesignated habitats or protected and notable species.

Temporary impacts on water voles may occur during construction through short term habitat loss. However, due to the small scale of the works and the fact that no active water vole burrows will be lost under the footprint of the Application Site this short-term loss is not considered to be significant.

Short term loss of suitable habitat for nesting birds is not considered to be significant due to the availability of suitable nesting habitat in the wider area and the replacement planting of new trees on a 1:1 basis.

The Scheme will result in no net loss for biodiversity.

²⁶ Communities and Local Development (2012). *National Planning Policy Framework*.

Appendices

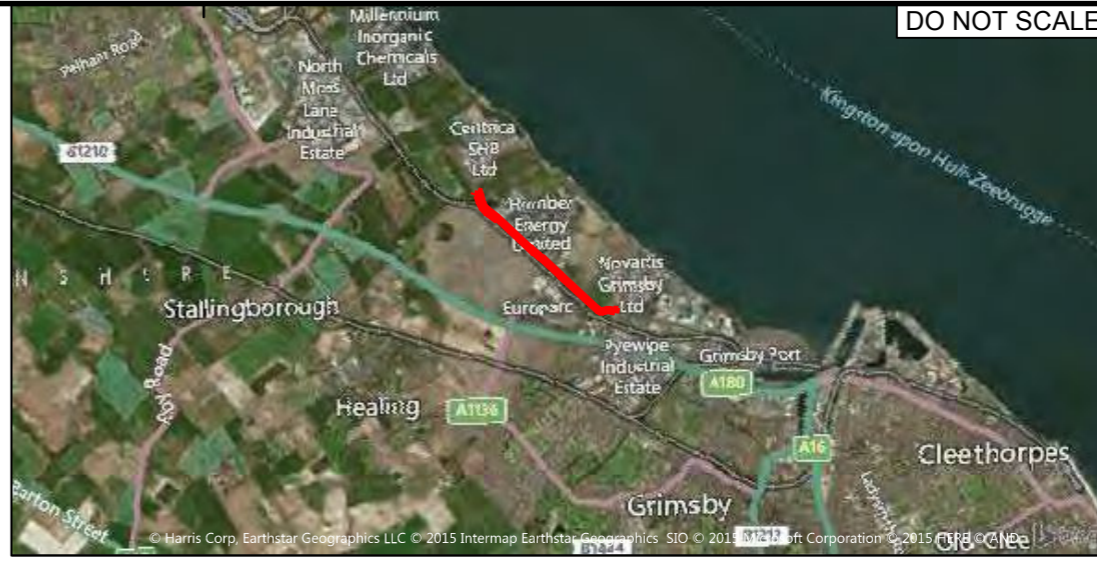
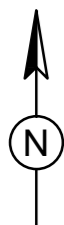


Appendix A. Site Location Plan and Scheme Drawing

A.1. Site Location Plan

5150174-ATK-DR-C-0100

100
0
10
Millimetres



DO NOT SCALE

NOT TO SCALE

KEY: █ APPROXIMATE SITE BOUNDARY

Rev.	Date	Description	By	Chkd	Appd
P2	21.10.16	BOUNDARY AMENDED TO REFLECT ENGINE OPTION 4 ONLY	CO	KMR	KMR
P1	16.06.16	FIRST ISSUE	CO	KMR	KMR

FOR INFORMATION S2

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Project Title
**SOUTH HUMBER INDUSTRIAL INVESTMENT PROGRAMME
HUMBER LINK ROAD**

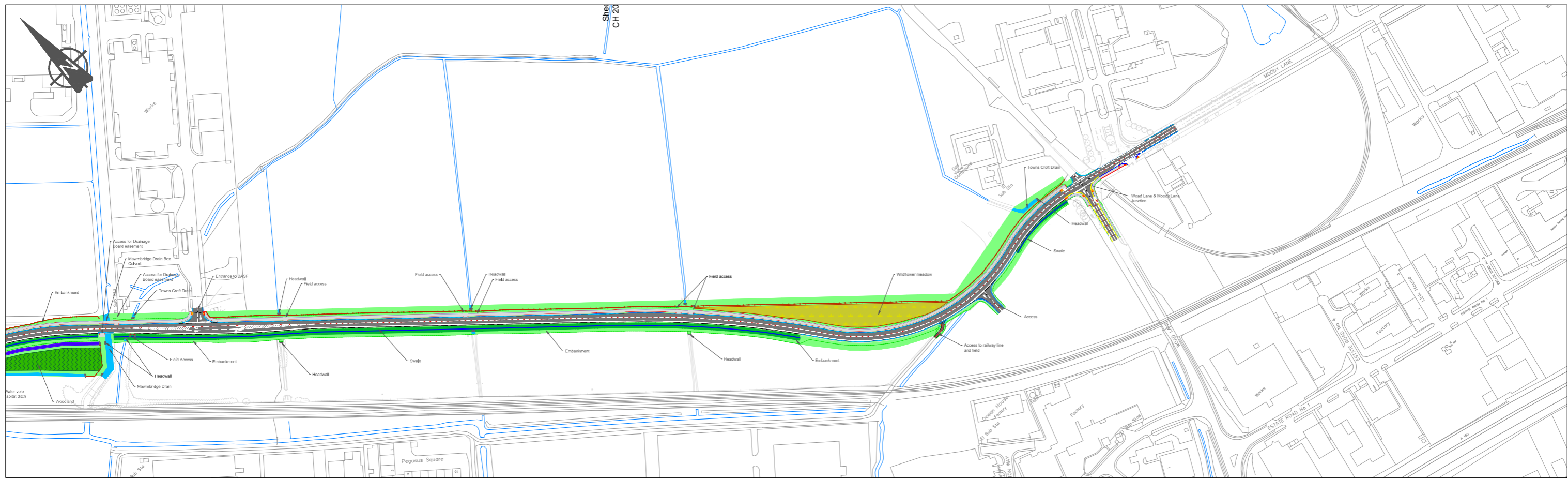
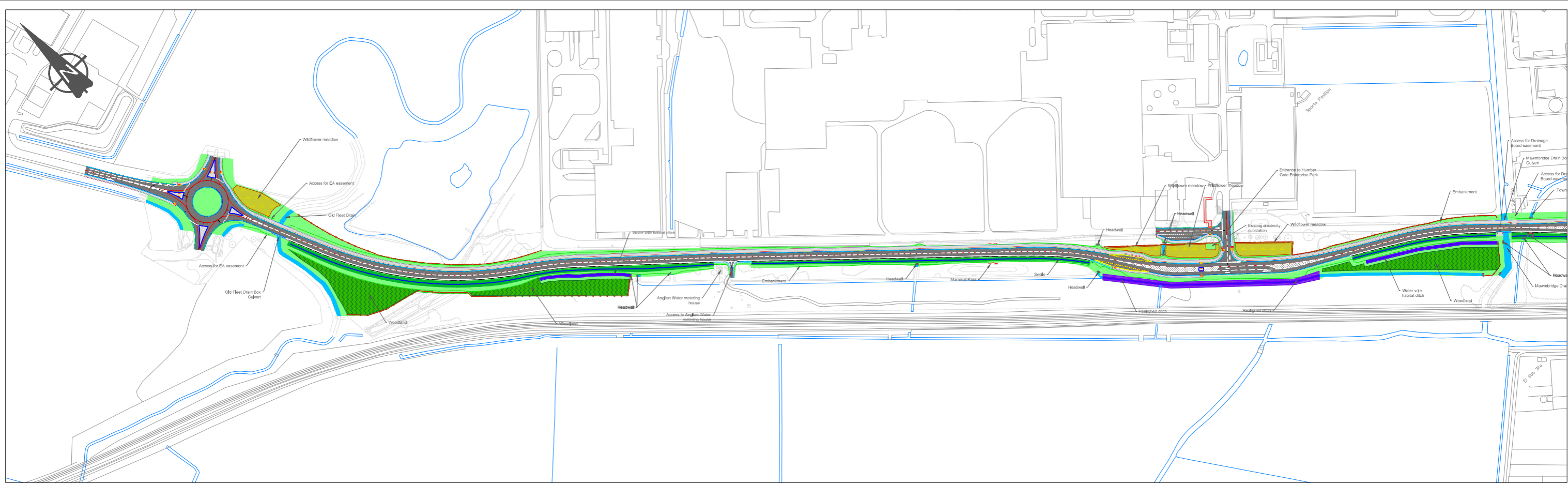
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SITE LOCATION PLAN

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Original Size	Date	Date	Date	Date
A3	16/06/16	16/06/16	16/06/16	16/06/16
Drawing Number	Revision			
5150174-ATK-DR-C-0100	P02			

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A.2. Scheme Drawing

HD01-15_001-06 Site Plan



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 Lincolnshire, DN37 9TZ
 Tel: 01472 313131

PROJECT		SHIP HUMBER BANK LINK ROAD	
TITLE		SITE PLAN	
DRAWN	T Morley	DATE	Nov 2017
CHECKED		SCALE	1:2000
ORIGINAL SIZE	A1 (840 x 594)	PROJECT ID	HD001 - 15
		DRAWING No.	001 - 06

Letter	Amendment	Drawn	Date

CLIENT
NORTH EAST LINCOLNSHIRE COUNCIL

Appendix B. Extended Phase 1 Habitat Survey Plans and Target Notes

B.1. Phase 1 Habitat and Survey Plans

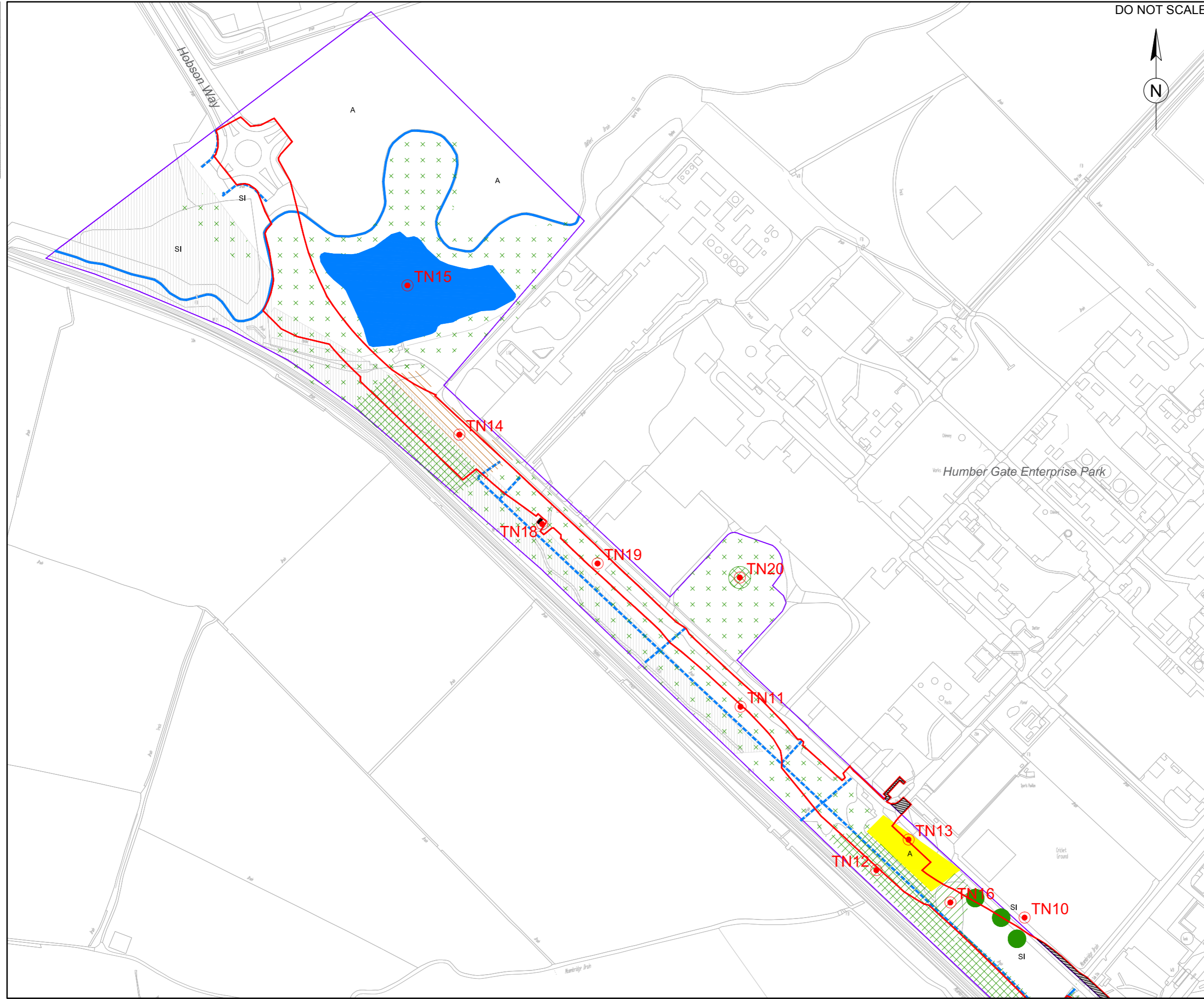
DRAWING 5150174-ATK-LR-DR-ECO-0111

DRAWING 5150174-ATK-LR-DR-ECO-0112

DO NOT SCALE



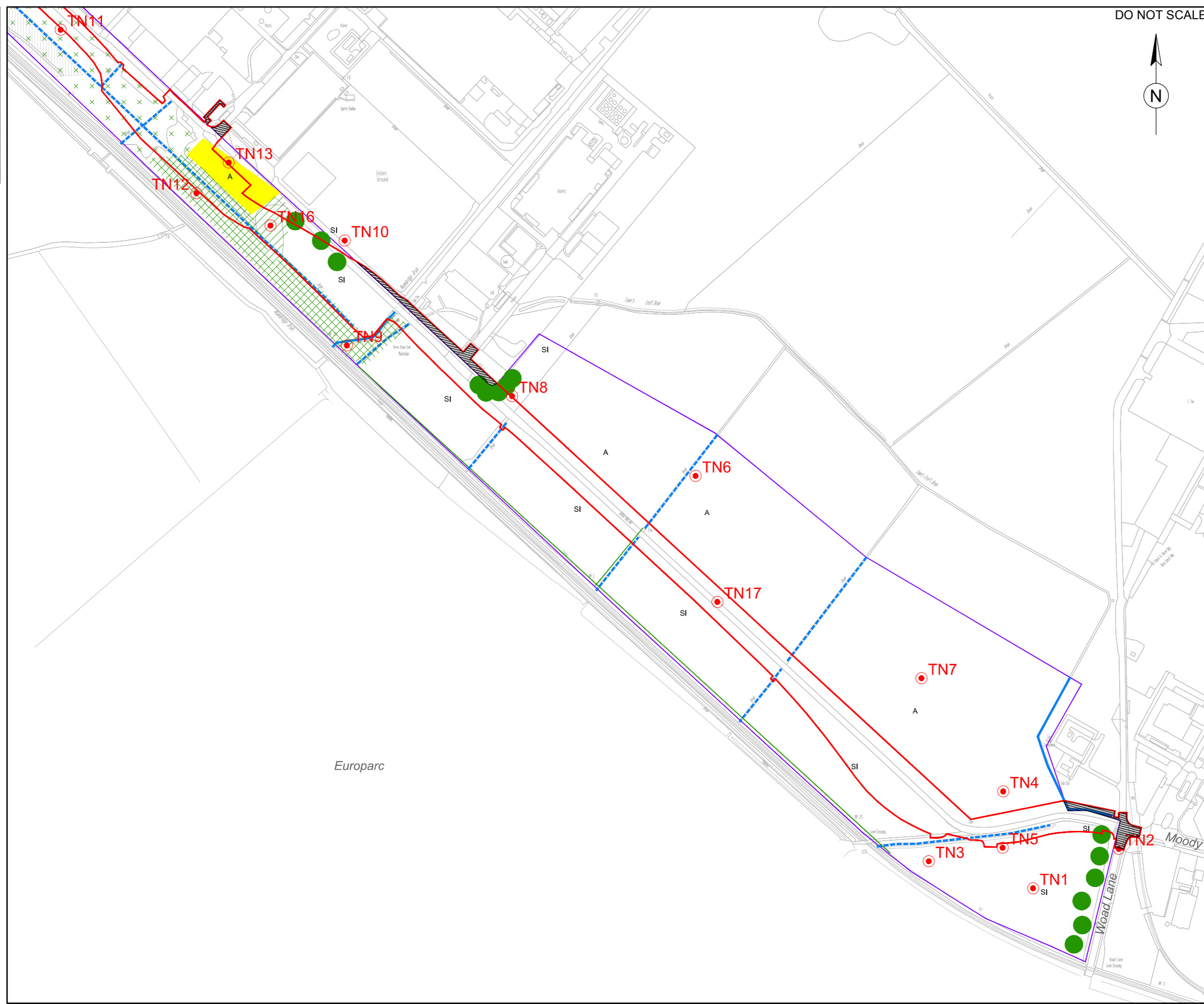
- NOTES:
- Site Boundary
 - Survey Boundary
 - Broad-leaved Plantation Woodland
 - Dense/continuous Scrub
 - Scattered Scrub
 - Parkland/Scattered Broad-leaved Trees
 - Standing Water
 - SI Poor Semi-improved Grassland (optional)
 - Other Tall Herb and Fern: Tall Ruderal
 - A Amenity Grassland
 - A Arable Land
 - Buildings
 - Species-poor Intact Hedge
 - Dry Ditch
 - TN1 Target Note
 - Area inaccessible for survey
 - Area not surveyed
- TN19 AND 20 SURVEYED ON 7TH MARCH 2017



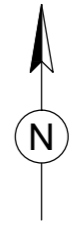
Rev.	Date	Description	By	Chkd	App'd

Drawing Status					S2
FOR INFORMATION					
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Client					
Project Title					
SOUTH HUMBER BANK LINK ROAD					
Drawing Title					
Humber Link Road Phase 1 Habitat Plan Sheet 1 of 2					
Scale	Designed	Drawn	Checked	Authorised	
2000	AES	TRJ	EE	JG	
Original Size	Date	Date	Date	Date	
A1	04/01/17	04/01/17	04/01/17	04/01/17	
Drawing Number					Revision
5150174-ATK-LR-DR-ECO-0111					P03

100
0 10
Millimetres



DO NOT SCALE



- NOTES:
- Site Boundary
 - Survey Boundary
 - Broad-leaved Plantation Woodland
 - Dense/continuous Scrub
 - Scattered Scrub
 - Parkland/Scattered Broad-leaved Trees
 - Standing Water
 - SI Poor Semi-improved Grassland (optional)
 - Other Tall Herb and Fern: Tall Ruderal
 - A Amenity Grassland
 - Arable Land
 - Buildings
 - Species-poor Intact Hedge
 - Dry Ditch
 - TN1 Target Note
 - Area inaccessible for survey

TN19 AND 20 SURVEYED ON 7TH MARCH 2017

Rev.	Date	Description	By	Chkd	App'd

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Project Title
SOUTH HUMBER BANK LINK ROAD

Drawing Title
Humber Link Road Phase 1 Habitat Plan Sheet 2 of 2

Scale	Designed	Drawn	Checked	Authorised
2000	AES	TRJ	EE	JG




Original Size	Date	Date	Date	Date
A1	04/01/17	04/01/17	04/01/17	04/01/17




Drawing Number
5150174-ATK-LR-DR-ECO-0112



Revision
P03




B.2. Target Notes and Photographs

Table B-1 Phase 1 Target Notes




Target Note	Description	Photograph
TN 1	Species poor semi improved grassland, species present included perennial rye grass, Yorkshire fog, rough meadow grass, creeping buttercup and common mouse ear.	
TN 2	Individual <i>Prunus</i> sp. trees were planted within the grassland. None of the trees provided bat roosting potential however there was scope for nesting bird habitat.	
TN 3	Fringing tall ruderal habitat predominantly comprising of rosebay willowherb, common hogweed, nettle and bramble. This habitat provided potential foraging and refugia habitat for reptiles.	



Target Note	Description	Photograph
TN 4	Intact, species poor hawthorn hedgerow, approximately 2 m high and with a width of 1.5 m.	
TN 5	Brash pile providing potential refugia for reptile species.	
TN 6	Network of ditches present within the Application Site. Some of the ditches provided potential water vole habitat.	

Target Note	Description	Photograph
TN 7	Arable fields containing wheat, with a species poor grassland buffer and fringing tall ruderal habitat.	
TN 8	Area of mixed scattered trees containing ash, alder, willow and scot's pine.	
TN 9	Ditch with water vole potential.	

Target Note	Description	Photograph
TN 10	Badger dropping present on mammal path within grass verge.	
TN 11	Scattered scrub comprising bramble, dog rose and nettle was present within areas of the Application Site.	
TN 12	Dense scrub comprised of hawthorn, bramble and tree saplings. Access to some areas of the Application Site was restricted by the density of the scrub.	

Target Note	Description	Photograph
TN 13	Areas of mown amenity grassland associated with adjacent commercial buildings. Species included perennial rye with dandelion, daisy and greater plantain.	
TN 14	Bare ground and ballast within the north western portion of the Application Site, being encroached by tall ruderal species.	
TN 15	Waterbody. Large fishing lake in the north of the Application Site.	

Target Note	Description	Photograph
TN16	Area of broad leaved woodland containing hazel, horse chestnut and sycamore species.	
TN17	A small access road, Moody Lane, ran through the centre of the Application Site.	
TN18	Small utilities building.	

Target Note	Description	Photograph
TN19 (surveyed 07/03/17)	Occasionally used outlier badger sett. 4 holes (two rabbit holes and two holes used by badger).	
TN20 (surveyed 07/03/17)	Potential outlier badger sett within bramble scrub. Well defined pathways into the scrub. Scrub too dense to assess fully.	

Appendix C. Methodology of Assessment

C.1. Ecological Zone of Influence

C.1.1. Data Gathering (initial EZol)

The first stage (initial EZol) is to determine the geographical area for obtaining ecological data through desk and field based studies based on the potential impacts and effects of the Scheme on ecological features. The initial EZol was based on the Scheme design, construction and operation information available at the time and an initial review of the Application Site conditions and the surrounding landscape using publicly accessible aerial imagery.

The constituent distances that inform the initial EZol are detailed below in Sections B.2 (desk study), B.3 (extended Phase 1 habitat survey) and B.4 (Phase 2 surveys).

C.1.2. Impact Assessment (final EZol)

The EZol was reviewed and amended once all field surveys were completed, records were received from the desk study, responses received from relevant consultees, and liaison with specialists involved in assessing the effects in interrelated disciplines.

The final EZol determines the geographical area for assessing the impacts and subsequent effects (both positive and negative) of the Scheme on important ecological features based on all the available information.

C.2. Desk Study

In November 2016, the Lincolnshire Environmental Record Centre (LERC) was contacted to obtain the following ecological data:

- Records of non-statutory designated sites (Local Wildlife Sites (LWS) and Sites of Nature Conservation Interest (SNCI)) within 1km of the Application Site boundary; and,
- Records of legally protected and notable species (fauna and flora) within 1 km of the Application Site boundary, including Species of Principal Importance for the Conservation of Biodiversity listed under Section 41 of the *Natural Environment & Rural Communities Act 2006* in the England Biodiversity List²⁷.

The Multi-Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk) was reviewed for the following information:

- Designated sites of nature conservation importance (statutory sites only) within 1 km of the Application Site. This was extended to 2 km for internationally designated sites; these being Special Protection Areas (SPAs), Wetlands of International Importance (Ramsar sites) and Special Areas of Conservation (SACs);
- Notable habitats within 1 km of the Application Site, these being areas of ancient woodland and '*Habitats of Principal Importance for the Conservation of Biodiversity*' included in the England Biodiversity List²⁸.

Ordnance Survey maps and the *Where's the Path* website (<http://wtp2.appspot.com/wheresthepath.htm>) were used to initially identify the presence of water bodies within 250 m of the Application Site boundary, in order to establish if the land within and immediately surrounding the Application Site could be used as terrestrial habitat for great crested newts. This species typically uses suitable terrestrial habitat up to 500 m from a breeding

²⁷ Section 40 of the Natural Environment & Rural Communities Act 2006 requires that every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. The Secretary of State, has drawn up, in accordance with Section 41 of the Act and in consultation with Natural England, a list of habitats and species of principal importance for the purpose of conserving biodiversity in England that is known as the *England Biodiversity List*

²⁸ Section 40 of the Natural Environment & Rural Communities (NERC) Act 2006 requires that every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. The Secretary of State has drawn up, in accordance with Section 41 of the Act and in consultation with Natural England, a list of habitats and species of principal importance for the conservation of biodiversity in England that is known as the *England Biodiversity List*

pond²⁹. However, there is a notable decrease in great crested newt abundance beyond a distance of 250 m from a breeding pond³⁰. Due to the small scale, temporary nature of the works 250 m was deemed an appropriate water body search area.

A review of local planning policy relevant to the Scheme was also undertaken as part of the desk study.

C.3. Extended Phase 1 Habitat Survey

The extended Phase 1 habitat survey was undertaken by Amy Skuce (Assistant Ecologist) and Lauri Leivers (Graduate Ecologist) on 17th June 2016, broadly following the Phase 1 habitat survey methodology as set out in Joint Nature Conservation Committee guidance (JNCC, 2010)⁴. All land within and adjacent to the Application Site including land up to 50 m from the Application Site boundary (the Survey Area) was surveyed where accessible according to CIEEM guidance⁵. Plant names recorded in this survey follow Stace (2010)³¹.

This survey method recorded in particular:

- Potential roosting sites for bats within trees and structures (identification of suitable cracks and crevices) - survey undertaken from ground only. The assessment of potential value of the trees and structures for roosting sites for bats were categorised based on good practice guidance³²;
- Searching for signs of badger activity including setts, tracks, snuffle holes and latrines;
- Assessing the suitability of habitats for nesting birds (including any old nests);
- Assessing the suitability of habitats for common species of reptile (adder, grass snake, slow worm and common lizard);
- Assessing the suitability of watercourses for water vole, otter and white-clawed crayfish;
- Assessing the suitability of aquatic and terrestrial habitat for great crested newt;
- Assessing the suitability of habitats for notable invertebrates; and,
- Evidence of the presence of certain invasive plants listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) and subject to strict legal control (Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, Himalayan balsam, rhododendron and cotoneaster species).

C.4. Phase 2 Surveys

C.4.1. Bats

All bat surveys detailed below have been undertaken in accordance with good practice guidance³³ for undertaking bat surveys³⁴.

C.4.1.1. Roost Potential Assessment

A bat roost potential assessment of trees and structures was undertaken on 17th June 2016 during the extended Phase 1 survey. The survey was undertaken by Amy Skuce (Assistant Ecologist) and Lauri Leivers (Graduate Ecologist).

²⁹ Great Crested Newt Mitigation Guidelines (English Nature, 2001)

³⁰ Natural England (2004). *An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt (ENRR576)*. <http://publications.naturalengland.org.uk/publication/134002>.

³¹ Stace, C. E. (2010). *New Flora of the British Isles, 3rd edition*. Cambridge University Press.

³² Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edition). The Bat Conservation Trust, London.

³³ Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edition). The Bat Conservation Trust, London.

³⁴ CIEEM (April, 2013) *Competencies for Species Survey: Bats*.

The extent of the assessment was based on the predicted EZoI for this species group and included all trees and structures within the Application Site and a 50 m buffer extending out in all directions from the Application Site boundary where access allowed (the Bats Survey Area).

Visual examinations of trees and structures were undertaken from the ground, during daylight hours and were aided with the use of binoculars and a bright torch. For trees, the searches looked for features such as woodpecker holes and rot holes, cracked limbs, dense ivy and flaking bark. For structures, the inspections involved looking for potential entry / exit points for bats or other potential roost locations (e.g. holes in brickwork, cracks and gaps in masonry etc.).

The assignment of bat roost potential was carried out according to good practice guidance³⁵, which assigns each feature either Negligible, Low, Moderate or High suitability for roosting bats.

C.4.1.2. Activity Surveys

Bat activity transect surveys were carried out across the Bats Survey Area to identify levels of activity, key foraging and commuting areas and species present.

The transect route(s) are shown on Drawing 5150174-ATK-LR-DR-ECO-0113-0114 and 5150174-ATK-LR-DR-ECO-0119-0122 in **Appendix E**. Due to the extent of the Application Site, the area was divided into two transect routes – Northern Route and Southern Route.

Surveys commenced at sunset, with each transect taking between one and half hours to three hours to complete.

The weather conditions during each survey period are summarised in Table B-1 below.

Table C-1 Bat Activity Surveys Summary

Date	Transect	Sunset/ Sunrise	Start/End Time	Start/End Temperature	Start/End Wind	Start/End Precipitation	Start/End Cloud Cover
29/09/2016	Northern	18.44	18.26/21.04	15.0/14.0 ⁰ C	2/2	None	3/3
29/09/2016	Southern	18.44	18.26/21.04	15.0/14.0 ⁰ C	2/2	None	3/3
31/05/2017	Northern	21.18	21.15/23.20	14.0/13.0 ⁰ C	3/2	None	1/1
31/05/2017	Southern	21.18	21.15/23.20	14.0/13.0 ⁰ C	3/2	None	1/1
24/07/2017	Northern	21.11	21.11/23.11	14.0/12.0 ⁰ C	3/3	None	8/8
24/07/2017	Southern	21.11	21.11/23.11	14.0/12.0 ⁰ C	3/3	None	8/8

To support the activity transects, automated detectors were deployed for a period of five consecutive nights in two locations per transect.

C.4.2. Great Crested Newt

All great crested newt surveys detailed below have been undertaken in accordance with good practice guidance³⁶ and CIEEM competencies for undertaking great crested newt surveys³⁷.

C.4.2.1. Environmental DNA (eDNA)

The eDNA survey involved the collection of water samples from suitable water bodies within the Great Crested Newt Survey Area to be tested for the presence of great crested newt DNA, which would indicate whether the species is present in a particular water body.

³⁵ Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edition). The Bat Conservation Trust, London.

³⁶ Great Crested Newt Mitigation Guidelines (English Nature, 2001)

³⁷ CIEEM (April, 2013) *Competencies for Species Survey: Great Crested Newt*.

eDNA water sampling was undertaken on a single visit to all suitable water bodies on 18th April 2017 by suitably trained and experienced great crested newt surveyors from Atkins.

The sampling methodology followed an approved methodology³⁸, recognised by Natural England that minimises cross contamination. Field sampling equipment was supplied as sterile kits by the laboratory that was to carry out the DNA analysis (ADAS). In total, 20 water samples were collected from each water body sampled. Areas that may be used by great crested newts for displaying or egg-laying were selected for sampling and the sampling was carried out in daylight hours, and in dry weather. The surveyors held great crested newt survey licences from Natural England. Following completion of the sampling the collected water samples were stored under suitable conditions before being sent to the laboratory for testing.

C.4.3. Badger

A badger survey was carried out on 7th March 2017 in accordance with good practice guidance³⁹ and CIEEM competencies for undertaking badger surveys⁴⁰.

The extent of the badger survey was based on the predicted EZoI for this species and included all land within the Application Site and a 50 m buffer extending out in all directions from the Application Site boundary where access allowed (the Badger Survey Area).

The Badger Survey Area was inspected for evidence of badger activity including setts, latrines, paw prints, snuffle holes (created when foraging), track-ways, hairs (caught on fencing) and scratching posts.

Where setts were located, they were classified following the criteria⁴¹ given in B-2 below. The assessment of the likely status of the badger sett(s) was made based on the available evidence and the surveyor's experience.

Table C-2 Conventions Used in Classifying Badger Setts

Likely Status	Typical Features
Main	Several holes with large spoil heaps and obvious paths emanating from and between sett entrances.
Annex	Normally less than 150 m from main sett, comprising several holes. May not be in use all the time, even if the main sett is very active.
Subsidiary	Usually at least 50 m from main sett with no obvious paths connecting to other setts. May only be used intermittently.
Outlier	Little spoil outside holes. No obvious paths connecting to other setts and only used sporadically. May be used by foxes and rabbits.

The sett activity level was determined using the following criteria:

- Active setts – the sett shows obvious signs of current use⁴² such as fresh spoil, footprints, bedding and hairs. No obstructions in entrance; and,
- Disused setts (not active) – entrances may have fallen leaves, cobwebs or may even be blocked with sticks, stones or earth. Vegetation, including mosses may be growing in the entrance or on old spoil just outside. No signs of current use by badgers.

³⁸ Biggs, *et al* (2014) Technical Advice Note for Field and Laboratory Sampling of Great Crested Newt eDNA in *Analytical and methodological development for improved surveillance of the Great Crested Newt*. Defra Project WC1067. Appendix 5. Freshwater Habitats Trust, Oxford

³⁹ Harris, C., *et al* (1989) Surveying Badgers, *Mammal Society*.

⁴⁰ CIEEM (April, 2013) *Competencies for Species Survey: Badger*.

⁴¹ Harris, C., *et al* (1989) Surveying Badgers, *Mammal Society*.

⁴² Natural England (June, 2009) *Protection of Badgers Act 1992 (as amended) Guidance on 'Current Use' in the definition of a Badger Sett*.

Further badger surveys were then carried out by ScarboroughNixon Associates Ltd on 30th June 2017, 17th August 2017 and 29th September 2017 to monitor activity at sett locations. Where setts were found within 30m of the Application Site the setts were then monitored using motion sensor cameras between 17th August to 23rd August 2017 to record any activity at the setts.

C.4.4. Otter

Otter presence / likely absence surveys were carried out on 2nd and 3rd November 2016 and 13th April 2017.

The extent of the survey was based on the predicted EZol for this species and included suitable watercourses and water bodies within the Application Site and within 50m from the Application site boundary (the Otter Survey Area).

The surveys were undertaken following Atkins developed methodologies based on guidance set out in the *Design Manual for Roads and Bridges (DMRB)*⁴³, and CIEEM competencies for undertaking otter surveys⁴⁴.

The following evidence of otter activity was looked for during these surveys:

- Holts: a cavity or hole in a river bank, in the ground, under tree roots, within rocks or caves where the back cannot be readily seen. If active this will usually contain field evidence such as spraints;
- Hovers: a bolt hole or ledge that will afford an otter temporary cover or a place to feed on captured prey. The back of the hover can usually be seen. If active there may be footprints, feeding evidence or spraints);
- Couches: above ground where an otter can lie up or groom; these may take the form of a simple swirl or depression in tall grasses where the otter has laid, or may be covered in a vegetated grass or reed 'roof');
- Spraints (droppings);
- Feeding remains;
- Paths and slides (defined otter paths on watercourse banks and mud slides evident of where the animal regularly enters the watercourse);
- Footprints; and,
- Grooming hollows.

C.4.5. Water Vole

Water vole presence / likely absence surveys were carried out on 2nd and 3rd November 2016 and 13th April 2017.

The extent of the survey was based on the predicted EZol for this species and included suitable watercourses and water bodies within the Application Site and up to 50m from the Application Site boundary (the Water Vole Survey Area).

The surveys were undertaken according to good practice guidance⁴⁵ and CIEEM competencies for undertaking water vole surveys⁴⁶.

The following evidence of water vole activity was looked for during these surveys:

- Burrows;

⁴³ *The Design Manual for Roads and Bridges DMRB Volume 10, Section 1 Part 9 HA 81/99 Chapter 7, Grogan*

⁴⁴ CIEEM (April, 2013) *Competencies for Species Survey: Eurasian Otter*.

⁴⁵ *Strachan, R. and Moorhouse, T. (2011). Water Vole Conservation Handbook (3rd edition). Wildlife Conservation Research Unit, University of Oxford.*

⁴⁶ CIEEM (April, 2013) *Competencies for Species Survey: Water Vole*.

- Faeces;
- Latrines;
- Feeding stations and 'lawns' (area around burrow entrances where there is grazed vegetation, surrounded by taller vegetation);
- Runways and Footprints;
- Nests;
- Sightings; and,
- Sounds (characteristic 'plop' sound when water voles enter the water to warn other water voles in the area of possible danger).

Further water vole monitoring surveys were undertaken by ScarboroughNixon Associates Ltd on 30th June 2017, 17th August 2017 and 29th September 2017 to monitor activity within the footprint of the Scheme.

C.5. Nature Conservation Evaluation

A number of criteria have become accepted as a means of assessing the nature conservation value of a defined area of land which are set out in *A Nature Conservation Review* (Ratcliffe, 1977) and include diversity, rarity and naturalness.

The nature conservation value or potential value of an ecological feature is determined within the following geographic context:

- **International** (such as Special Areas of Conservation, Special Protection Areas, Ramsar sites);
- **National** (such as Sites of Special Scientific Interest);
- **Regional** for example, Environment Agency regional biodiversity indicators, important features in Natural England Natural Areas;
- **Metropolitan, County, Vice-County or Other Local Authority-wide Area** (such as Local Nature Reserves, Sites of Importance for Nature Conservation, ancient woodlands);
- **Local (parish)** (undesignated ecological features such as old hedges, woodlands, ponds);
- The **Application Site and its immediate environs** e.g. ditches, semi-improved grassland, arable land, broadleaf woodland and hedgerow;
- **Negligible** e.g. areas of hardstanding and amenity grassland.

C.6. Impact Assessment

The assessment of the potential effects of the Scheme takes into account both on-site effects and those that may occur to adjacent and more distant ecological features. Impacts can be permanent or temporary and can include:

- Direct loss of wildlife habitats;
- Fragmentation and isolation of habitats;
- Disturbance to species from noise, light or other visual stimuli;
- Changes to key habitat features;

- Changes to the local hydrology, water quality and / or air quality.

Effects are unlikely to be significant where features of low value or sensitivity are subject to small or short-term impacts. However, where there are a number of small scale effects that are not significant alone, the assessor may determine that, cumulatively, these may result in an overall significant effect. Significant effects have been determined as being either negative or positive.

For designated sites, effects are considered significant when a project and associated activities is likely to either undermine or support the conservation objectives or condition of the site(s) and its features of interest.

For ecosystems, effects are considered significant when a project and associated activities is likely to result in a change in ecosystem structure and function.

Consideration is given to whether:

- Any processes or key characteristics will be removed or changed;
- There will be an effect on the nature, extent, structure and function of component habitats;
- There is an effect on the average population size and viability of component species.

Functions and processes acting outside the formal boundary of a designated site has also been considered, particularly where a site falls within a wider ecosystem e.g. wetland sites.

Some ecosystems can tolerate a degree of minor changes, such as localised or temporary disturbance or changes in physical conditions, without such changes harming their function or value. For this EclA, ecological effects have been considered in the light of any information available about the capacity of ecosystems to accommodate change.

The conservation status of undesignated habitats and species within a defined geographical area has been used in this assessment to determine whether the effects of the proposals are likely to be significant:

- For habitats, conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.
- For species, conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.
- When assessing potential effects on conservation status, the known or likely background trends and variations in status have been taken into account. The level of ecological resilience or likely level of ecological conditions, that would allow the population of a species or area of habitat to continue to exist at a given level, or continue to increase along an existing trend or reduce a decreasing trend, has been estimated where appropriate to do so.
- The mitigation measures described within the EclA have been incorporated into the design and operational phasing programme and taken into account in the assessment of the significance of effects. These mitigation measures include those required to achieve the minimum standard of established good practice together with additional measures to further reduce any negative impacts of the Scheme. The mitigation measures include those required to reduce or avoid the risk of committing legal offences.

C.7. Cumulative Impact Assessment

The assessment of the significance of cumulative effects of the Scheme has taken into account the combined effects that result from incremental changes caused by other past, present and reasonably foreseeable human induced changes (known as identifiable developments) on the existing environment within a specific geographical area and over a certain period of time.

Cumulative effects can be both direct and indirect (sometimes also known as primary and secondary effects) and can result from individually insignificant but collectively significant actions. They are particularly important as many ecological features are already exposed to background levels of threat or pressure and may be close to critical thresholds where further impact could cause irreversible decline. Effects can also make habitats and species more vulnerable or sensitive to change.

The Department of Communities and Local Government (DCLG) published an Environmental Impact Assessment consultation draft⁴⁷ in June 2006 which identified two types of cumulative effects that require consideration within EIA. Although this document wasn't translated into Government guidance, it has been used alongside other guidance documents^{48,49} to define cumulative effects for this EclA:

- Inter-project Effects (additive): combined effects of committed developments within the area on an ecological feature, e.g. impacts on the local bat populations from one development may not be significant when considered alone, but may be significant in combination with other proposed developments.
- Intra-project Effects (synergistic): combined effects of different environmental factors from a single development on a particular ecological feature, e.g. an ancient woodland may experience degradation in local air quality, hydrology, increases in recreational use and direct habitat loss as a result of one development. The effects singly may be considered acceptable, however together may create an effect that is unacceptable on this ecological feature.

The type of identifiable developments included in the cumulative impact assessment of the EclA have been agreed with North East Lincolnshire Council, along with the distance from the Application Site these developments are situated

The following types of developments have been considered within 1 km of the Application Site when assessing the cumulative effects of the Scheme:

- Developments under construction at the time of the assessment;
- Proposals for which consent has been applied for which are awaiting determination in any regulatory process (not necessarily limited to the town and country planning process);
- Projects which have been granted consent (not limited to planning permissions) but which have not yet been started or which have been started but are not yet completed (i.e. under construction);
- Proposals which have been refused permission but which are subject to appeal and the appeal is undetermined to the extent that their details are in the public domain;
- Proposed projects that will be implemented by a public body but for which no consent is needed from a competent authority.

⁴⁷ Department for Communities and Local Government (June 2006), Environmental Impact Assessment: A guide to good practice and procedures.

⁴⁸ RenewableUK (June 2013), *Cumulative Impact Assessment Guidelines – Guiding Principles for Cumulative Impacts Assessment in Offshore Wind Farms*.

⁴⁹ Institute of Environmental Management and Assessment (IEMA) (June, 2011), *Special Report – The State of Environmental Impact Assessment Practice in the UK*.

Appendix D. Planning Policy

D.1. National Planning Policy Framework, 2012

The National Planning Policy Framework (NPPF) ²⁶ sets out the Government's planning policies for England and how these are expected to be applied by Local Authorities within their Local Development Frameworks (LDF). Chapter 11 of the NPPF '*Conserving and enhancing the natural environment*' sets out the requirements to consider biodiversity in planning decisions.

The paragraphs within Chapter 11 relevant to the Scheme are summarised below:

109 *The planning system should contribute to and enhance the natural and local environment by:*

- *Protecting and enhancing valued landscapes, geological conservation interests and soils;*
- *Recognising the wider benefits of ecosystem services; and,*
- *Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.*

114 *Local planning authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged. Distinctions should be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks.*

117 *Local planning authorities should set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure.*

To minimise impacts on biodiversity and geodiversity, planning policies should:

- *Plan for biodiversity at a landscape-scale across local authority boundaries; identify and map components of the local ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them and areas identified by local partnerships for habitat restoration or creation;*
- *Promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan; and,*
- *Aim to prevent harm to geological conservation interests; and where Nature Improvement Areas are identified in Local Plans, consider specifying the types of development that may be appropriate in these Areas.*

118 *When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:*

- *If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.*

Proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest;

- *Development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*
- *Opportunities to incorporate biodiversity in and around developments should be encouraged; and,*
- *Planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss.*

D.2. Local Planning Policy

The Local Planning Policy⁵⁰ sets out a strategic approach which positively plans for the creation, protection enhancement and management of sites of biodiversity and geodiversity. Policy 40 '*Biodiversity and Geodiversity*' sets out the requirements to consider biodiversity in planning decisions.

In summary Policy 40 states that The Council will have regard to biodiversity and geodiversity when considering development proposals, seeking specifically to:

- Establish and secure appropriate management of, long term mitigation areas within the Estuary Employment Zone, managed specifically to protect the integrity of the internationally important biodiversity sites (See Policy 6 'Habitat Mitigation - South Humber Bank');
- Designate Local Wildlife Sites (LWSs) and Local Geological Sites (LGSs) in recognition of particular wildlife and geological value;
- Protect manage and enhance international, national and local sites of biological and geological conservation importance, having regard to the hierarchy of designated sites, and the need for appropriate buffer zones;
- Minimise the loss of biodiversity features, or where loss is unavoidable and justified ensure appropriate mitigation and compensation measures are provided;
- Create opportunities to retain, protect, restore and enhance features of biodiversity value, including priority habitats and species;
- Take opportunities to retain, protect and restore the connectivity between components of the Borough's ecological network.

Any development which would, either individually or cumulatively, result in significant harm to biodiversity which cannot be avoided, adequately mitigated or as a last resort compensated for, will be refused.

Policy 6 'Habitat Mitigation - South Humber Bank' states that: "*The Council will implement a strategic approach to preserve the integrity of Humber Estuary Natura 2000 sites, to allow future economic development to take place. This comprises the identification of sites and proposed mitigation works, their implementation and future management of circa 120ha of land within the South Humber Bank as identified on the policies map. This identified mitigation land will be safeguarded and managed in accordance with an agreed long term mitigation strategy. Development proposals within the Mitigation Zone identified on the policies map will be required to make contributions towards the provision and management of the sites identified in the agreed Strategic Mitigation Strategy*".

For this Scheme, North East Lincolnshire Council are 'the developer' and, therefore, are not required to make a further contribution. However, the calculation for contributions that has been agreed with Natural England and the RSPB will still be observed and the land required for mitigation will be utilised from the overall mitigation strategy.

⁵⁰ North East Lincolnshire Pre-Submission Draft Local Plan (2016)

D.3. Local Biodiversity Action Plans

The Lincolnshire Biodiversity Action Plan⁵¹ was produced to set the agenda for action and establish priorities for increasing biodiversity in the county and the adjoining sea over the next ten years and beyond, and to help guide the policies and actions of all those who influence the wildlife of the area. The plan aims to:

- To ensure that biodiversity is considered to be an essential part of all elements of life in the historic county of Lincolnshire;
- To conserve and to enhance the biodiversity resource throughout the county, recreating habitats on a large scale and encouraging networks of interlinked natural areas – a ‘living landscape’ in which wildlife is an integral part, not confined to specially protected sites;
- To ensure that every person in the county has the opportunity to appreciate and understand biodiversity and its importance in the modern world;
- To provide biodiversity information and an advisory service to individuals and organisations.

The Action plan sets out a list of Priority Habitats associated with Habitats in Lincolnshire, including coastal and marine habitats, Farmland and grassland, heathland and peatland, rivers and wetlands, trees and woodland, and urban habitats. Within the plan for each habitat Priority Species are detailed.

⁵¹ Lincolnshire Biodiversity Action Plan, *Action for Wildlife in Lincolnshire 2nd Edition* (2016)

Appendix E. Phase 2 Survey Results and Survey Plans

E.1. Bats

E.1.1.1. Activity Surveys

Common pipistrelle foraging and commuting activity was recorded in the northern part of the Application Site on all three surveys, mainly around the broadleaf woodland and the scattered scrub on the south side of the lake. On the first survey soprano pipistrelle foraging and commuting activity was also recorded in the northern part of the Application Site and on the second survey low numbers of Natterer's, Daubenton's and Noctule bats were also recorded foraging around the lake. Low numbers (<10) of bats were recorded during each of the activity surveys.

The direction the majority of foraging bats entered the Application Site is unknown as this was not clear during the surveys. The first foraging bats were recorded approximately 45-60 minutes after sunset on all three surveys, which indicates that they are not likely to be roosting in close proximity to the Application Site as by this time they will likely have travelled some distance from their roosting sites following emergence.

No other species of bats were recorded during the activity surveys.

The activity survey results are shown on Drawing(s) 5150174-ATK-LR-DR-ECO-0113-1114 and 5150174-ATK-LR-DR-ECO-0119-22.

E.2. Great Crested Newt

The great crested newt survey results are summarised in table E1 below and survey locations are shown on Drawing(s) 5150174-ATK-LR-DR-ECO-0109 and 5150174-ATK-LR-DR-ECO-0110.

Table E-1 eDNA survey Results

Sample	Water body ID	Date arrived	GCN status	eDNA Score	Inhibition	Degradation
GCN17-0036	D3	20-Apr-2017	Negative	0	No	No
GCN17-0041	D4	20-Apr-2017	Inconclusive	0	Yes	Yes
GCN17-0037	D10	20-Apr-2017	Negative	0	No	No
GCN17-0040	D12	20-Apr-2017	Negative	0	No	No
GCN17-0038	D17	20-Apr-2017	Negative	0	No	No

Negative: No GCN DNA has been detected in these samples, and the internal and external controls worked as expected. This indicates that if there had been GCN DNA in the sample, it would have been detected.

Inconclusive: No GCN DNA was detected in the sample, but the internal controls failed to amplify as expected. This means that any GCN DNA in the sample might also have failed to amplify properly. Inconclusive results can be caused by *degradation* of the DNA (when the DNA marker contained in the ethanol in the kits fails to amplify) or by inhibition of the reaction (when the marker added in the lab fails to amplify) caused by certain chemicals or organic compounds that may be present in the water sample.

E.3. Badger

The badger survey results from the survey on 7th March 2017 are summarised in Table E2 below and are marked on the phase 1 drawings 5150174-ATK-LR-DR-ECO-0111 and 5150174-ATK-LR-DR-ECO-0112.

Table E-2 Badger Survey Results

Sett Reference	Location	Number of Sett Entrances	Evidence of Activity	Sett Classification
TN19	Old rabbit warren within the Application Site.	4 (two likely rabbit warren entrances, two appear used by badger).	Pathways and recently used latrines.	outlier
TN20	100m east of the Application Site. Inaccessible in dense scrub.	unknown	Fresh bedding, hairs and latrines around patch of scrub with well used pathways into the scrub.	outlier

The badger survey results from the June 2017 – September 2017 surveys can be found in Appendix E.10.

E.4. Eurasian Otter

The Eurasian otter survey found no evidence of otter within 50m of the Application Site.

E.5. Water Vole

The water vole survey results are summarised in Table E3 and E4 and Drawing 5150174-ATK-LR-DR-ECO-0115-0116 and 5150174-ATK-LR-DR-ECO-0117-0118 below.

Table E-3 Water Vole Survey Results November 2016

Watercourse or Waterbody Reference	Evidence of Water Vole Activity
Ditch 1	None
Ditch 2	None
Ditch 3	2 burrows, 3 latrines and 1 area of feeding remains
Ditch 4	None
Ditch 5	None
Ditch 6	None
Ditch 7	None
Ditch 8	None
Ditch 9	1 latrine
Ditch 10	1 burrow and 1 latrine
Ditch 11	None
Ditch 12	None
Ditch 13	None
Ditch 14	None (three potential burrows were found by contractors on site during vegetation clearance. These potential burrows are marked on the November 2016 drawing (5150174-ATK-LR-DR-ECO-0116))
Ditch 15	None
Ditch 16	None (two potential burrows were found by contractors on site during vegetation clearance. These potential burrows are marked on the November 2016 drawing (5150174-ATK-LR-DR-ECO-0116))
Ditch 17	None
Ditch 18	None

Ditch 19	6 individual burrows were found at three locations. 2 feeding remains were found at one location
Ditch 20	None
Lake	One burrow on central island observed with binoculars but no access for detailed inspection

Table E-4 Water Vole Survey Results April 2017

Watercourse or Waterbody Reference	Evidence of Water Vole Activity
Ditch 1	None
Ditch 2	None
Ditch 3	12 burrows, 11 latrines and 1 area of feeding remains
Ditch 4	None
Ditch 5	None
Ditch 6	None
Ditch 7	None
Ditch 8	None
Ditch 9	1 potential burrow (after vegetation clearance this was found not to be a water vole burrow but a smaller mammal hole)
Ditch 10	None
Ditch 11	None
Ditch 12	None
Ditch 13	None
Ditch 14	None
Ditch 15	None
Ditch 16	None
Ditch 17	None
Ditch 18	None
Ditch 19	2 burrows
Ditch 20	None
Lake	1 burrow

The water vole monitoring survey results from the June 2017 – September 2017 surveys can be found in Appendix E.9.

E.6. Bat Activity Survey Plans

DRAWING 5150174-ATK-LR-DR-ECO-0113

DRAWING 5150174-ATK-LR-DR-ECO-0114

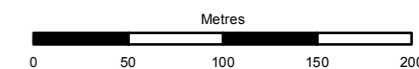
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DRAWING 5150174-ATK-LR-DR-ECO-0120DRAWING 5150174-ATK-LR-DR-ECO-0121

DRAWING 5150174-ATK-LR-DR-ECO-0122



- Transect Route
- Transect Route
- Start/Finish Point
- Stopping Point
- Bat Static Locations
- Common Pipistrelle
- Soprano Pipistrelle
- Badger Seen



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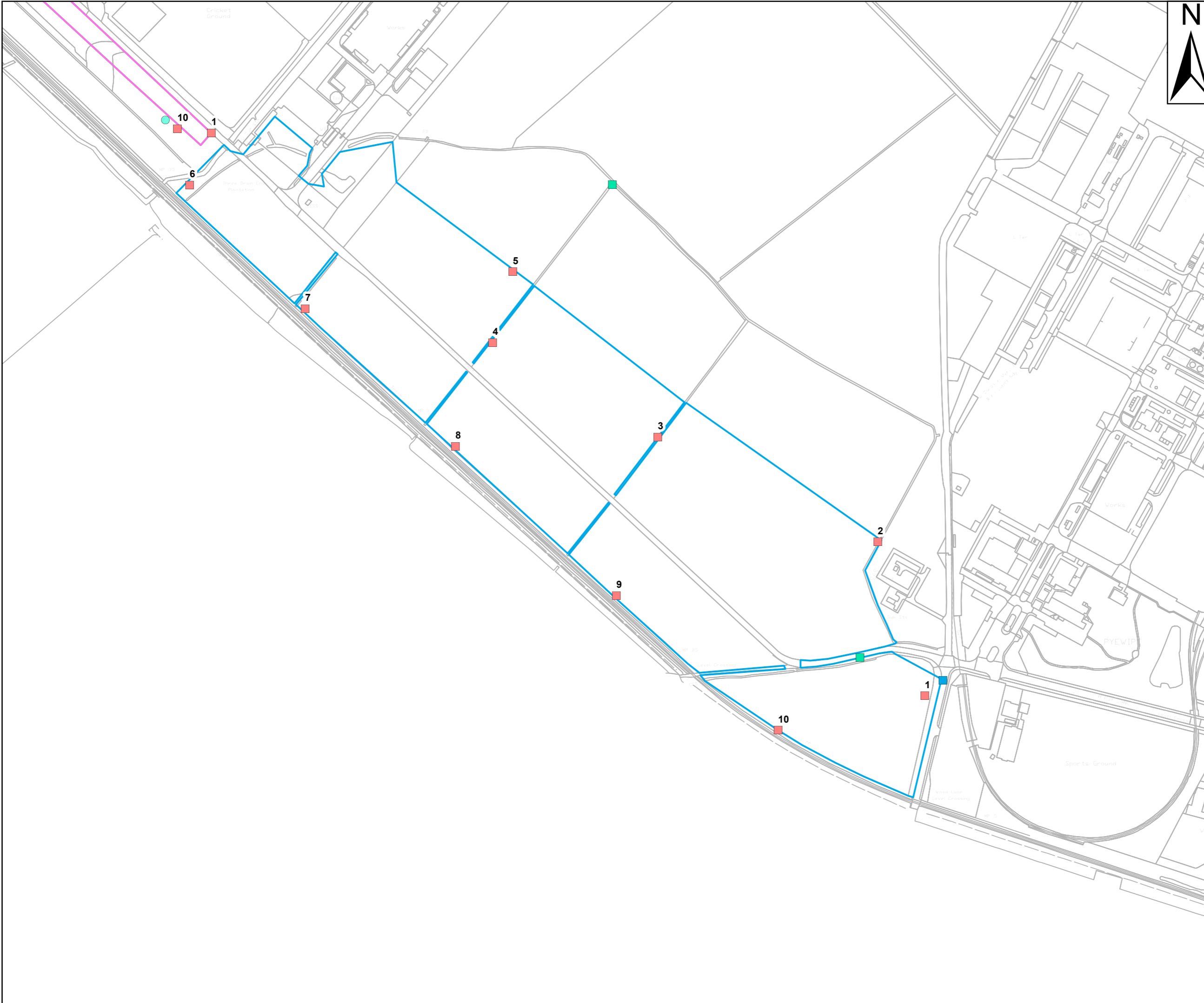
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SOUTH HUMBER BANK LINK ROAD

Title
BAT ACTIVITY SURVEY
 29th SEPTEMBER 2016
 SHEET 1 of 2

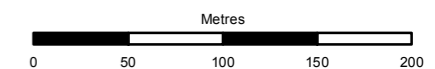
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		Date 09/10/17	Date 09/10/17	Date 09/10/17

Drawing Number
 5150174-ATK-LR-DR-ECO-0113

Rev
P2



- Transect Route
- Transect Route
- Start/Finish Point
- Stopping Point
- Bat Static Locations
- Common Pipistrelle
- Soprano Pipistrelle
- Badger Seen



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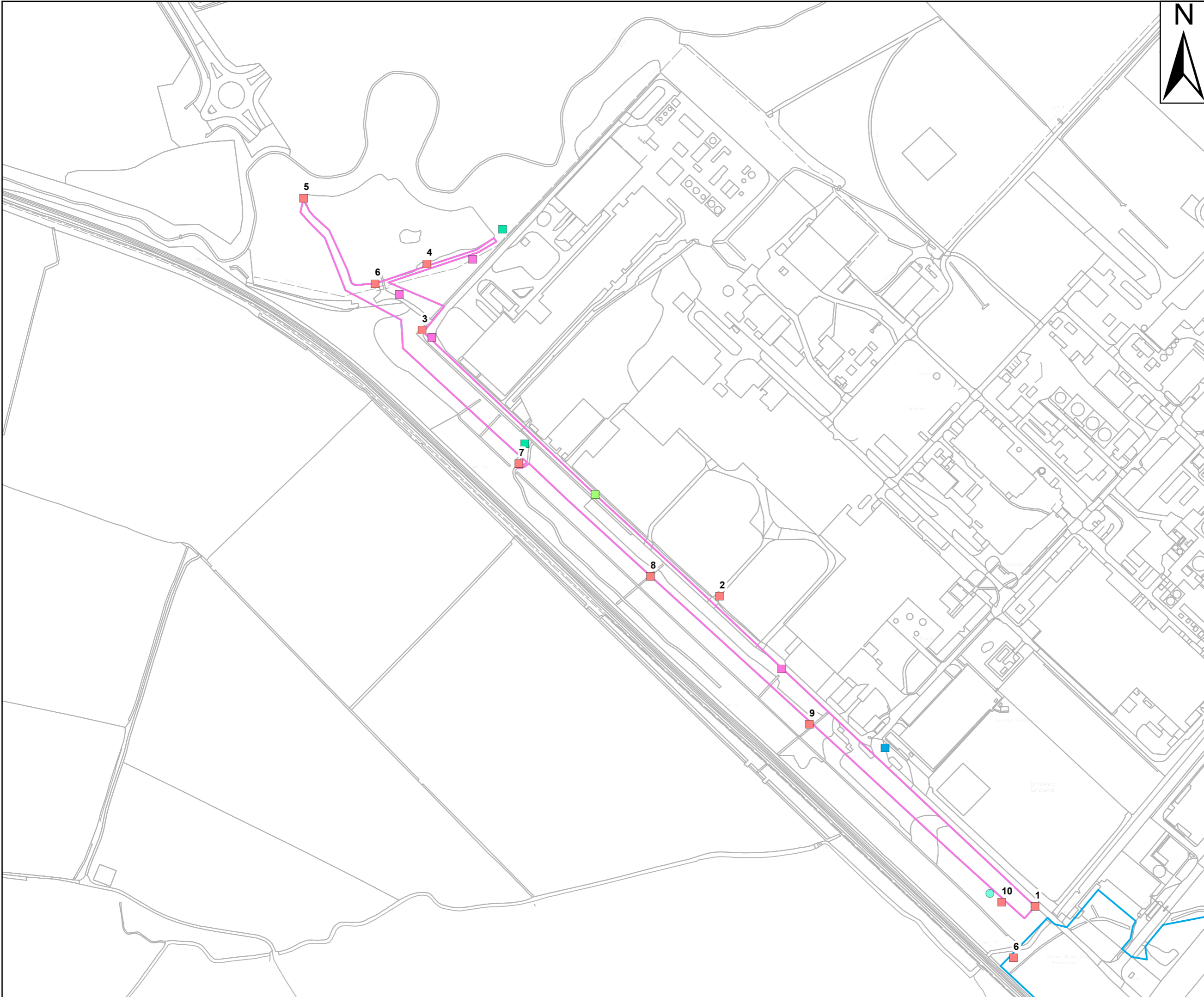
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Project
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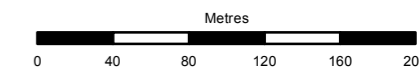
Title
BAT ACTIVITY SURVEY
 29th SEPTEMBER 2016
 SHEET 2 of 2

Sheet Size A3	Original Scale 1:4,000	Designed / Drawn FLD	Checked JG	Authorised AW
		Date 09/10/17	Date 09/10/17	Date 09/10/17
Drawing Number 5150174-ATK-LR-DR-ECO-0114				Rev P2





- Transect Route
- Transect Route
- Start/Finish Point
- Common Pipistrelle
- Natterer



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 www.atkinsglobal.com



Client

Project

SOUTH HUMBER BANK LINK ROAD

Title

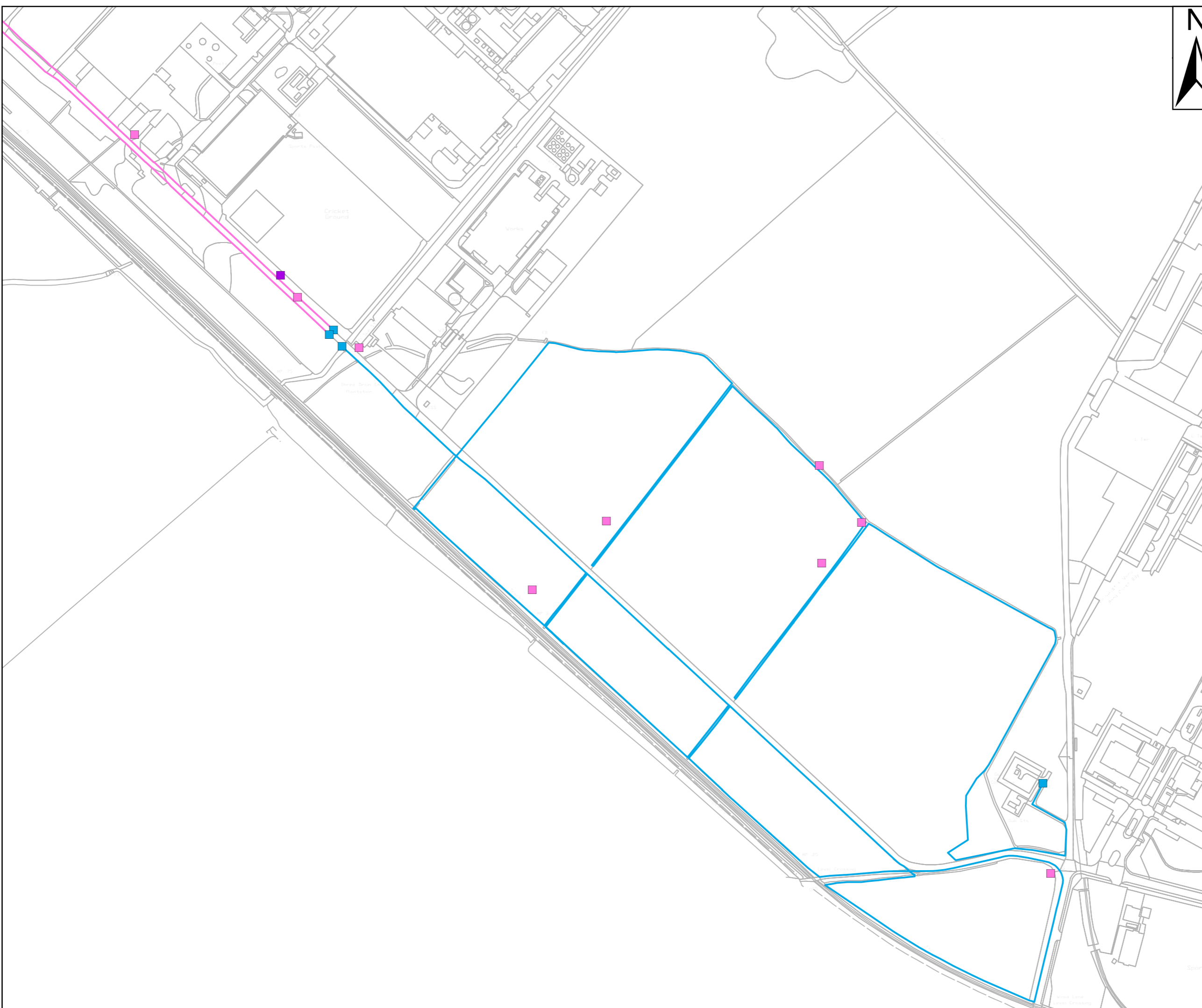
BAT ACTIVITY SURVEY
 31st MAY 2017
 SHEET 1 of 2

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Drawing Number

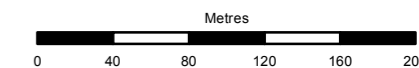
5150174-ATK-LR-DR-ECO-0119

Rev
P2





- Transect Route
- Transect Route
- Start/Finish Point
- Common Pipistrelle
- Daubenton
- Natterer
- Noctule



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Client

Project

SOUTH HUMBER BANK LINK ROAD

Title

BAT ACTIVITY SURVEY
 31st MAY 2017
 SHEET 2 of 2

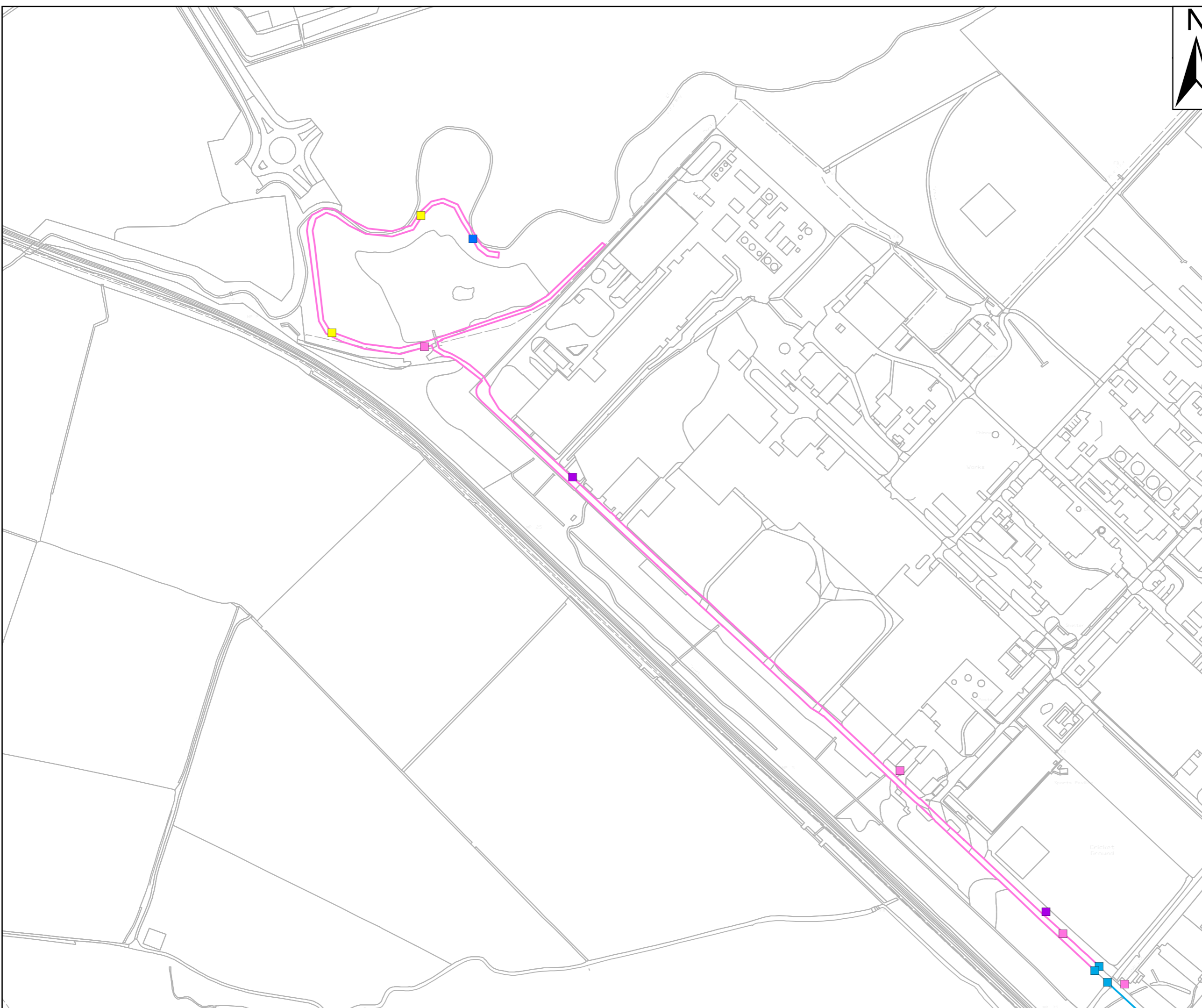
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Drawing Number

5150174-ATK-LR-DR-ECO-0120

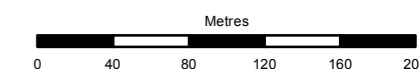
Rev

P2





- Transect Route
- Transect Route
- Stopping Point
- Common Pipistrelle
- No Access



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Client
 NORTH EAST LINCOLNSHIRE COUNCIL

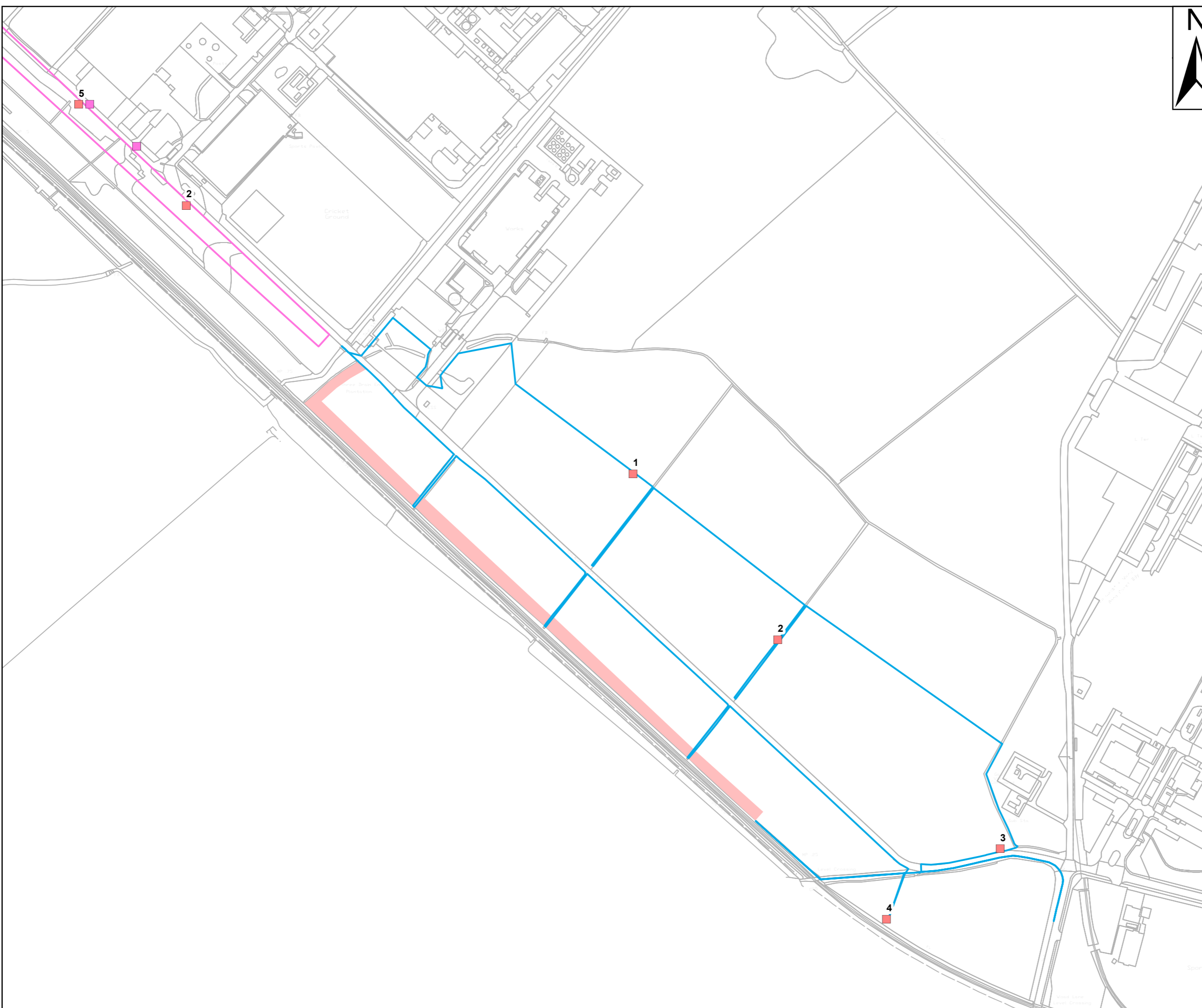
Project
 SOUTH HUMBER BANK LINK ROAD

Title
 BAT ACTIVITY SURVEY
 24th JULY 2017
 SHEET 1 of 2

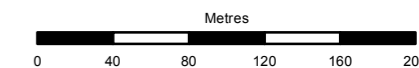
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		Date 17/10/17	Date 17/10/17	Date 17/10/17

Drawing Number
 5150174-ATK-LR-DR-ECO-0121

Rev
P2



- Transect Route
- Transect Route
- Stopping Point
- Common Pipistrelle
- No Access



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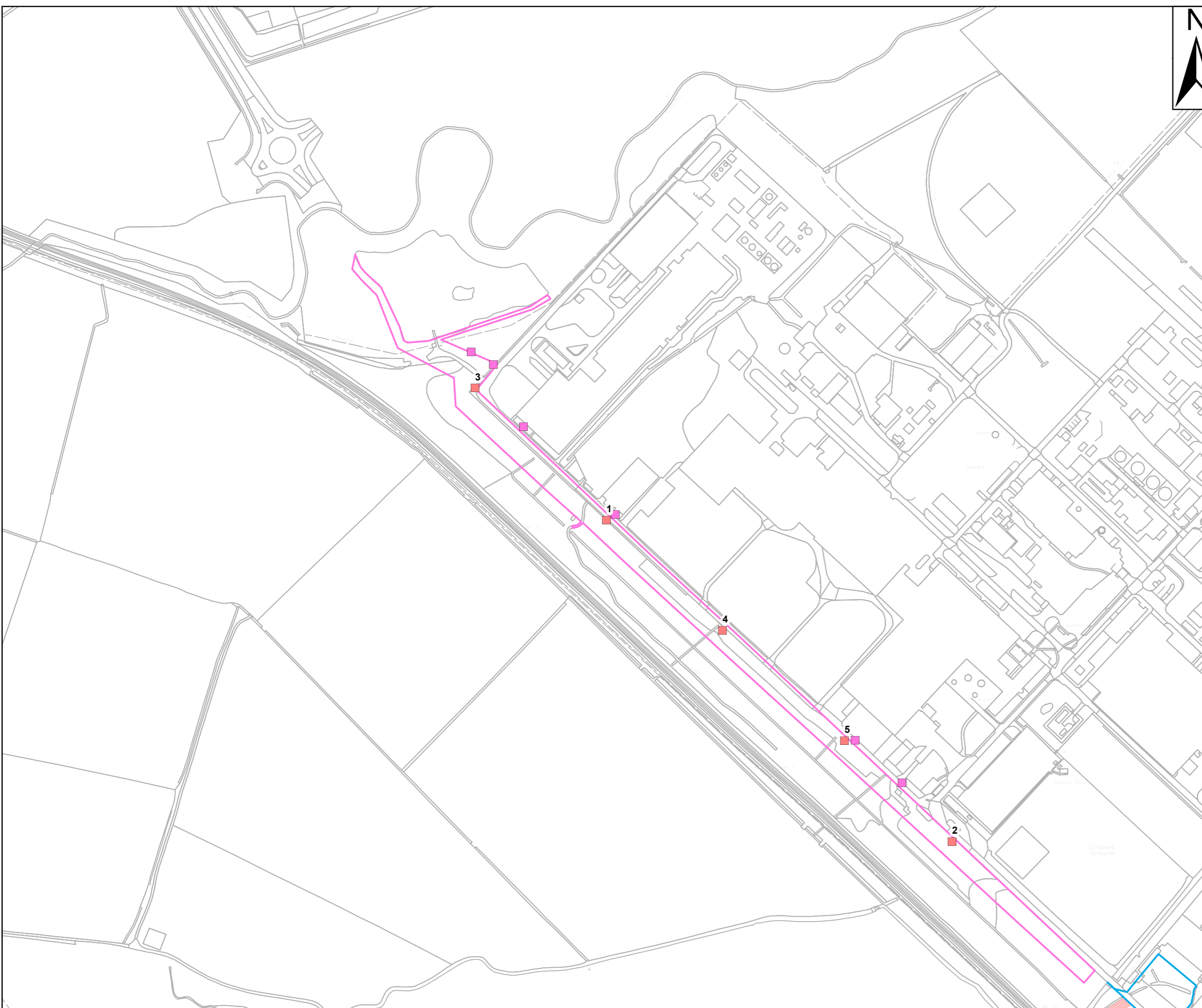
Project
SOUTH HUMBER BANK LINK ROAD

Title
BAT ACTIVITY SURVEY
 24th JULY 2017
 SHEET 2 of 2

Sheet Size A3	Original Scale 1:4,000	Designed / Drawn FLD Date 17/10/17	Checked JG Date 17/10/17	Authorised AW Date 17/10/17
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Drawing Number
 5150174-ATK-LR-DR-ECO-0122

Rev
P2



E.7. eDNA Survey Location Plans and Laboratory Report

DRAWING 5150174-ATK-LR-DR-ECO-0109

DRAWING 5150174-ATK-LR-DR-ECO-0110

eDNA survey results report April 2017

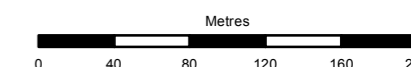


eDNA Result

- Inconclusive
- Negative

Note.

D12, D14 and D16 were all surveyed together as D12.



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Project

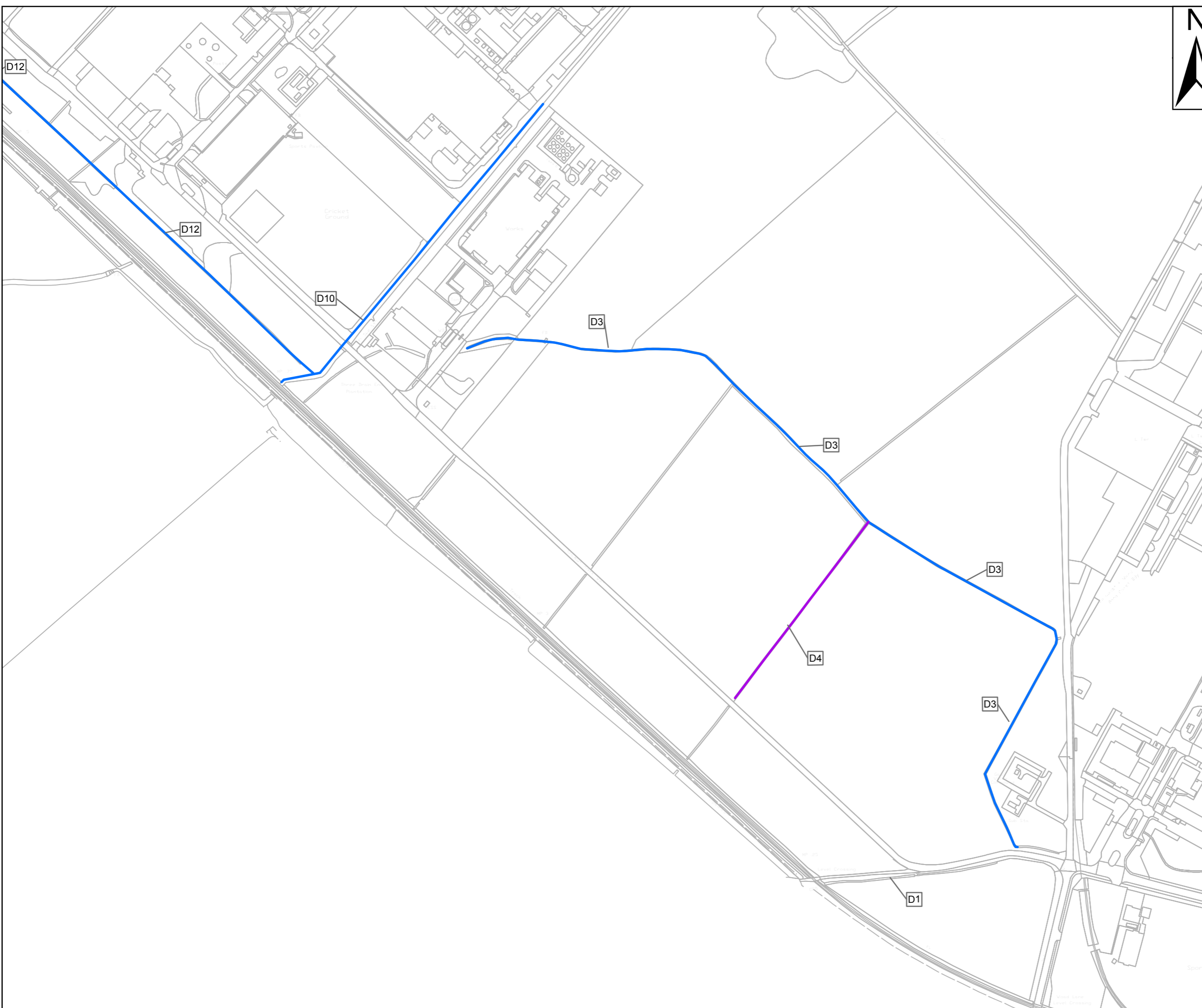
SOUTH HUMBER BANK LINK ROAD

Title

GREAT CRESTED NEWT EDNA SURVEY
 18TH APRIL 2016
 SHEET 1 of 2

Sheet Size	Original Scale	Designed / Drawn	Checked	Authorised
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		09/10/17	09/10/17	09/10/17

Drawing Number	Rev
5150174-ATK-LR-DR-ECO-0109	P2



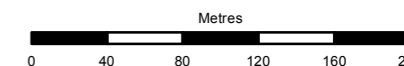


eDNA Result

- Inconclusive
- Negative

Note.

D12, D14 and D16 were all surveyed together as D12.



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Client



Project

SOUTH HUMBER BANK LINK ROAD

Title

GREAT CRESTED NEWT EDNA SURVEY
 18TH APRIL 2016
 SHEET 2 of 2

Sheet Size	Original Scale	Designed / Drawn	Checked	Authorised
A3	1:4,000	FLD	JG	AW
		Date	Date	Date
		09/10/17	09/10/17	09/10/17

Drawing Number	Rev
5150174-ATK-LR-DR-ECO-0110	P2

Great Crested Newt eDNA Results

Company: Atkins
Address: The Axis, 10 Holliday Street, Birmingham, B1 1TF
Contact: Luke Taylor
Project No: Humber Link Road
Date of Report: 28th April 2017
Number of samples: 5

Thank you for sending your samples for analysis by NatureMetrics. Your samples have been processed in accordance with the protocol set out in Appendix 5 of Biggs *et al.* (2014).

DNA was precipitated via centrifugation at 14,000g and then extracted using Qiagen Blood and Tissue extraction kits.

qPCR amplification was carried out in 12 replicates per sample using the primers and probe described by Biggs *et al.* (2014) in the presence of both positive and negative controls.

Results indicate GCN absence in four samples (D3, D10, D17, D12), with an inconclusive result returned for the fifth (D4). All samples initially exhibited some PCR inhibition, indicated by failure of internal positive controls. This was overcome for four of the samples by a single dilution, but the 5th continued to fail despite three additional dilutions.

Results are based on the samples as supplied by the client to the laboratory. Incorrect sampling methodology may affect the results. Note that a negative result does not preclude the presence of Great Crested Newts at a level below the limits of detection.

Sample	Pond ID	Date arrived	GCN status	eDNA Score	Inhibition	Degradation
GCN17-0036	D3	20-Apr-2017	Negative	0	No	No
GCN17-0041	D4	20-Apr-2017	Inconclusive	0	Yes	Yes
GCN17-0037	D10	20-Apr-2017	Negative	0	No	No
GCN17-0040	D12	20-Apr-2017	Negative	0	No	No
GCN17-0038	D17	20-Apr-2017	Negative	0	No	No

Understand your results:

- Positive:** GCN DNA has been detected in this sample, meaning that at least one of the 12 replicates has amplified. Remember that this is not a quantitative test, so you should not interpret a high eDNA score (e.g. 12/12) as necessarily indicating a larger population of GCN than a low eDNA score (e.g. 1/12).
- Negative:** No GCN DNA has been detected in this sample, and the internal and external controls worked as expected. This tells us that ***if there had*** been GCN DNA in the sample, we would have detected it, so we can be confident in its absence from the sample provided.
- Inconclusive:** No GCN DNA was detected in the sample, but the internal controls failed to amplify as expected. This means that any GCN DNA in the sample might also have failed to amplify properly, so we cannot have confidence in this negative result. Inconclusive results can be caused by *degradation* of the DNA (when the DNA marker contained in the ethanol in the kits fails to amplify) or by *inhibition* of the reaction (when the marker added in the lab fails to amplify) caused by certain chemicals or organic compounds that may be present in the water sample.

Report issued by: Dr Cuong Tang
Date: 28th April 2017
Email: ct@naturemetrics.co.uk
Phone number: 0203 876 7350

E.8. Water Vole Survey Plans

DRAWING 5150174-ATK-LR-DR-ECO-0115

DRAWING 5150174-ATK-LR-DR-ECO-0116

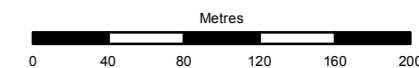
DRAWING 5150174-ATK-LR-DR-ECO-0117

DRAWING 5150174-ATK-LR-DR-ECO-0118



Water vole signs:

- Burrow
- ▲ Feeding remains
- ✪ Footprints
- Latrine
- No evidence found
- ✕ Water vole evidence recorded
- Ditch
- - - Dry Ditch



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Project

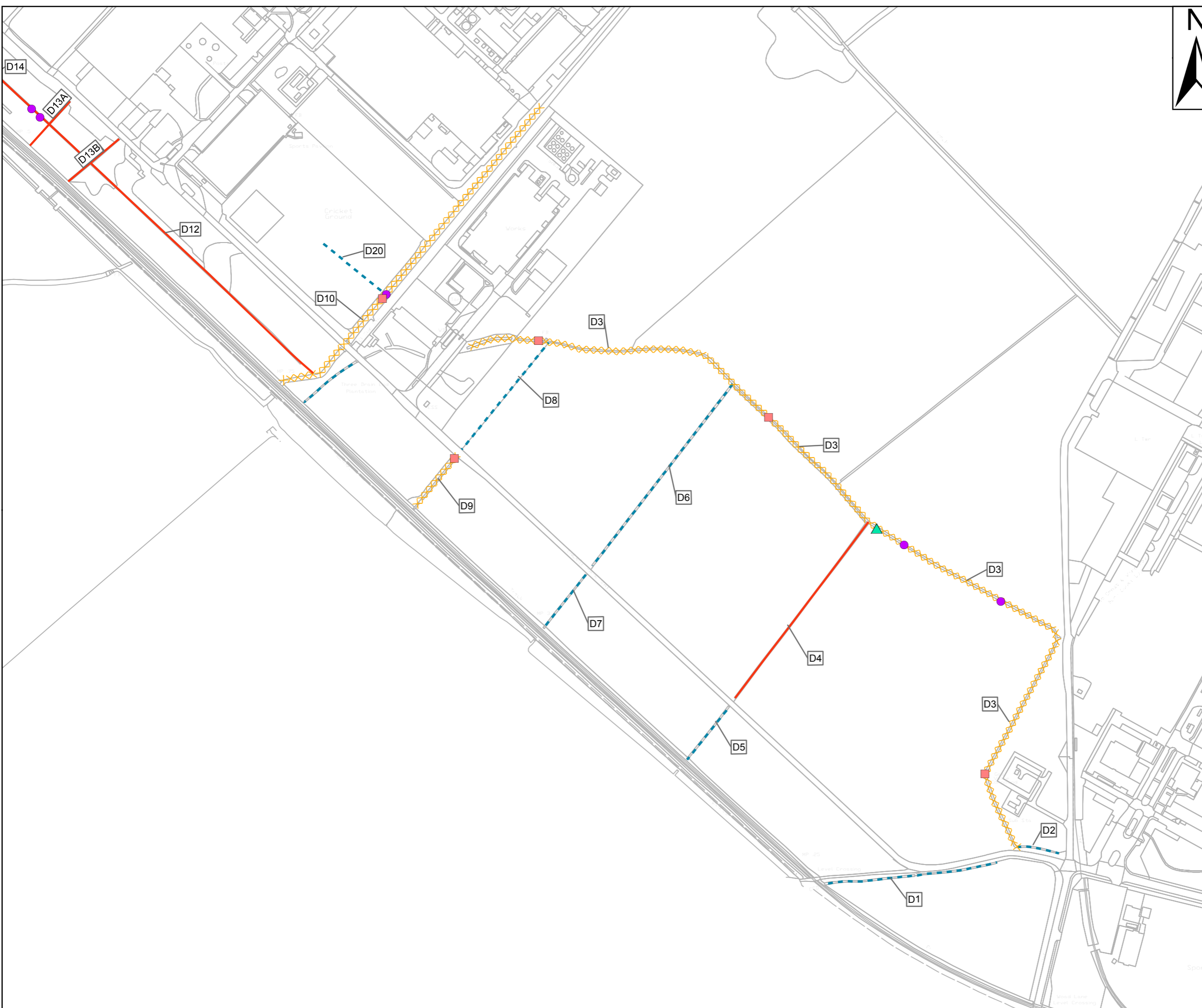
SOUTH HUMBER BANK LINK ROAD

Title

WATER VOLE PRESENCE/ABSENCE SURVEY
 2-3rd NOV 2016
 SHEET 1 of 2

Sheet Size A3	Original Scale 1:4,000	Designed / Drawn FLD	Checked JG	Authorised AW
		Date 09/10/17	Date 09/10/17	Date 09/10/17

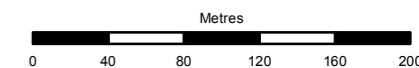
Drawing Number 5150174-ATK-LR-DR-ECO-0115	Rev P2
----------------------------------------------	------------------





Water vole signs:

- Burrow
- ▲ Feeding remains
- ✪ Footprints
- Latrine
- No evidence found
- ✕✕ Water vole evidence recorded
- Ditch
- - - Dry Ditch



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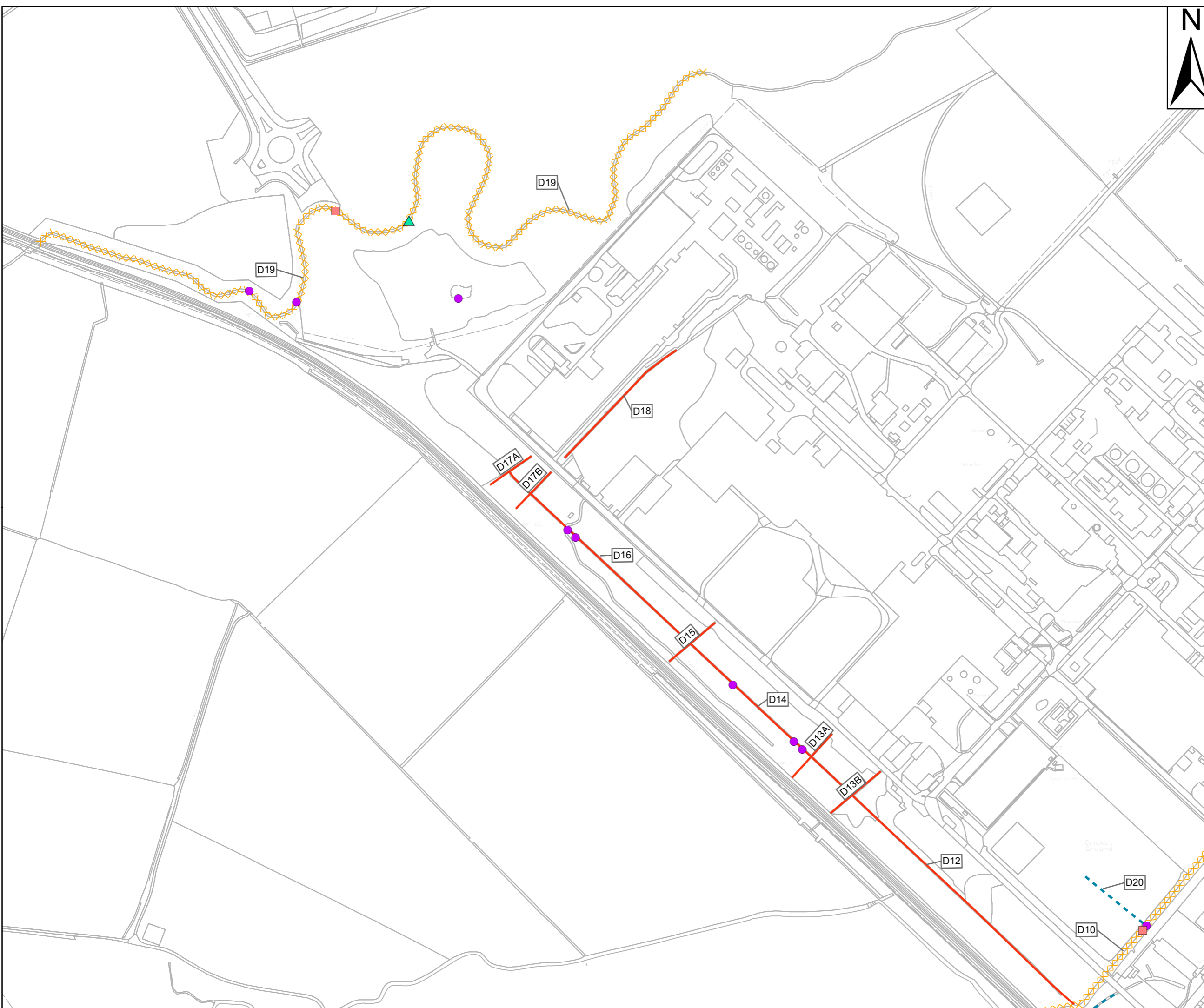
Project
SOUTH HUMBER BANK LINK ROAD

Title
WATER VOLE PRESENCE/ABSENCE SURVEY
 2-3rd NOV 2016
 SHEET 2 of 2

Sheet Size	Original Scale	Designed / Drawn	Checked	Authorised
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Drawing Number
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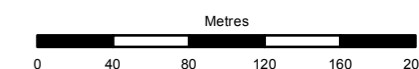
Rev
P2





Water vole signs:

- Burrow
- ▲ Feeding remains
- ✱ Footprints
- Latrine
- - - Dry Ditch
- Wet Ditch - No Evidence Found
- ⊗ Water Vole Evidence Recorded
- Vegetation Clearance
- Vegetation Maintenance



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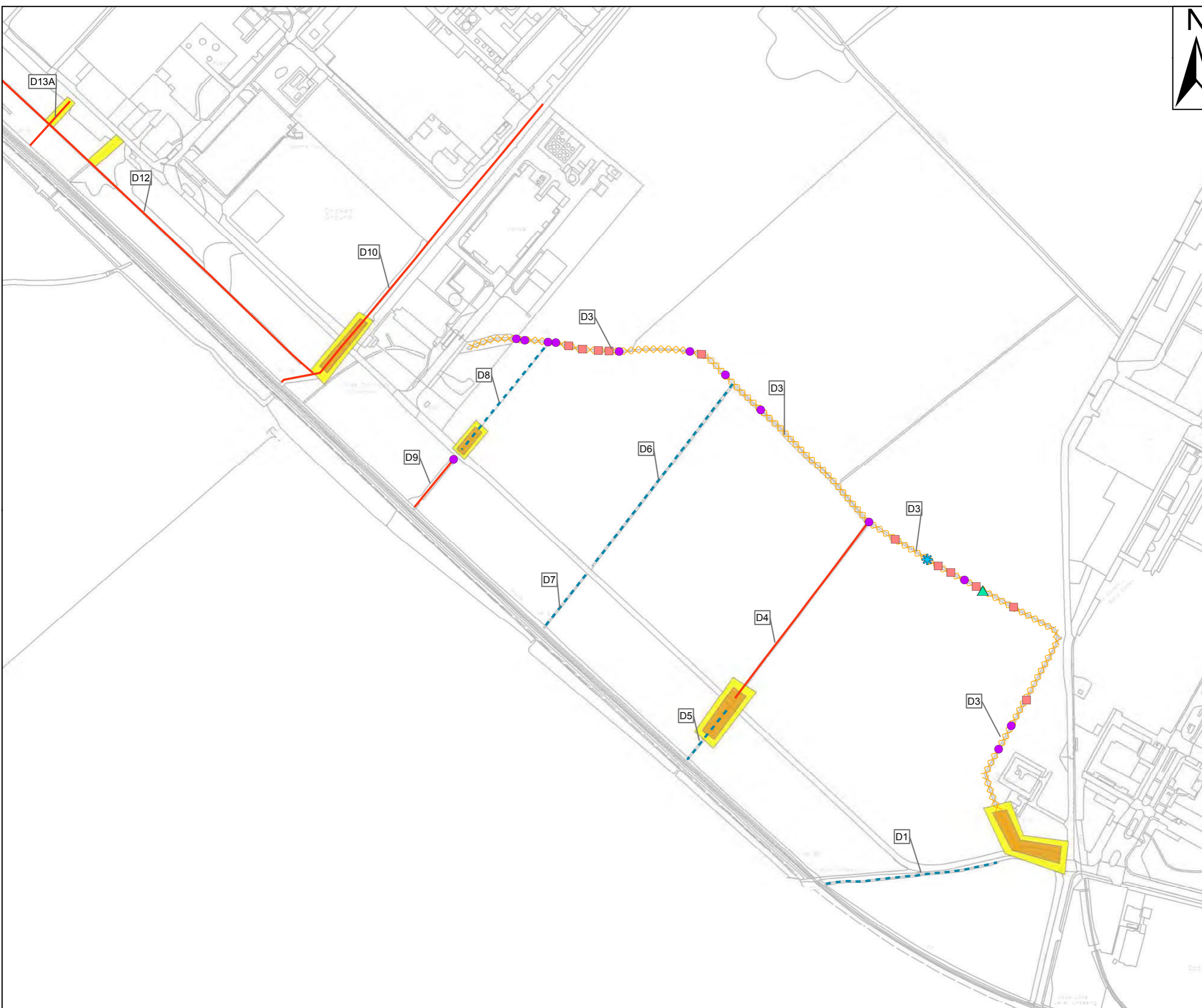


Client
NORTH EAST LINCOLNSHIRE COUNCIL

Project
SOUTH HUMBER BANK LINK ROAD

Title
WATER VOLE PRESENCE/ABSENCE SURVEY
 13th APRIL 2017
 SHEET 1 of 2

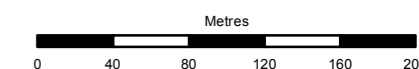
Sheet Size A3	Original Scale 1:4,000	Designed / Drawn FLD	Checked JG	Authorised AW
		Date 20/10/17	Date 20/10/17	Date 20/10/17
Drawing Number 5150174-ATK-LR-DR-ECO-0117				Rev P2





Water vole signs:

- Burrow
- ▲ Feeding remains
- ✱ Footprints
- Latrine
- - - Dry Ditch
- Wet Ditch - No Evidence Found
- ✂ Water Vole Evidence Recorded
- Vegetation Clearance
- Vegetation Maintenance



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Client

Project
SOUTH HUMBER BANK LINK ROAD

Title
WATER VOLE PRESENCE/ABSENCE SURVEY
 13th APRIL 2017
 SHEET 2 of 2

Sheet Size A3	Original Scale 1:4,000	Designed / Drawn FLD	Checked JG	Authorised AW
		Date 20/10/17	Date 20/10/17	Date 20/10/17

Drawing Number
 5150174-ATK-LR-DR-ECO-0118

Rev
P2



E.9. Water vole monitoring Survey Report

Mr Chris Yorston
Engie
Origin 2
Origin Way
Europarc
Grimsby
North Lincolnshire
DN37 9TZ

23rd October 2017

Dear Chris,

Results of water vole monitoring work, Humber Link Road, Grimsby, North Lincolnshire

Following our recent surveys of the above site, I write to provide the results of the surveys for water vole *Arvicola amphibius* activity along a number of drains on the route of the Humber Link Road. The surveys were undertaken between 30th June and 29th September 2017 by Helen Scarborough, Celia Commowick and Rachel McNally.

The site comprises an area of rough ground which has been cleared of vegetation in the main, with some trees and scrub still present. Various drainage ditches traverse the site and some of these have been cleared of vegetation (under the appropriate licence by others) in order to deter water voles from using them. The aim of the surveys were to ensure that this was effective and check for signs of recent water vole activity.

Survey methods

The drains were searched for signs of use by water voles including feeding stations, burrows, latrine sites, runs through the vegetation and cropped grass around burrow entrances. The survey covered the ten drains where vegetation management had been implemented ahead of the works.

Survey results

No recent signs of use by water vole were recorded in any of the drains within the route of the Humber Link Road. The results for each drain (numbered as per Atkins figures) are provided in tabular form as an appendix.

Legal protection

The water vole is fully protected under Section 9 of the Wildlife and Countryside Act 1981 (as amended).

Legal protection makes it an offence to:

- Intentionally kill, injure or take (capture) a water vole
- Possess or control a live or dead water vole, or any part of a water vole
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection or disturb water voles while they are using such a place
- Sell, offer for sale or advertise for live or dead water voles

Recommendations

There are no constraints associated with water voles at the current time. The vegetation management regime must continue into next year if the work has not commenced in early spring.

I hope this provides all the required information. If you have any queries or we can be of any further assistance please do not hesitate to get in touch.

Yours faithfully

Helen Scarborough

APPENDIX 1 – Survey results

Drain number	Results			Notes
	30/06/2017	17/08/2017	29/09/2017	
D19	No signs	No signs	No signs	Good water levels on all surveys. Signs of use by brown rat <i>Rattus norvegicus</i>
D17a	No signs	No signs	No signs	1 disused burrow (very old) noted on surveys. No recent activity. Good water levels
D17b	No signs	No signs	No signs	Good water levels
D15	No signs	No signs	No signs	Low water levels
D13a	No signs	No signs	No signs	Low water levels
D13b	No signs	No signs	No signs	Low water levels. Very shaded
D10	No signs	No signs	No signs	Good water levels
D9	No signs	No signs	No signs	Low water levels
D5	No signs	No signs	No signs	Low water levels
D2	No signs	No signs	No signs	Virtually dry

E.10. Badger Survey Report

Mr Chris Yorston
Engie
Origin 2
Origin Way
Europarc
Grimsby
North Lincolnshire
DN37 9TZ

23rd October 2017

Dear Chris,

Results of badger monitoring work, Humber Link Road, Grimsby, North Lincolnshire

Following our recent surveys of the above site, I write to provide the results of the surveys for badger *Meles meles* activity over the area covered by the route of the Humber Link Road. The surveys were undertaken between 30th June and 29th September 2017 by Helen Scarborough, Celia Commowick and Rachel McNally.

The site comprises an area of rough ground which has been cleared of vegetation in the main, with some trees and scrub still present. Various drainage ditches traverse the site. The aim of the surveys was to monitor the site for badger activity, in particular a potential badger sett identified by Atkins during previous surveys of the site.

Survey methods

The site was searched for signs of use by badger *Meles meles* including setts, latrines, dung pits, pathways, hairs, footprints, snuffle holes and scratch marks on trees. Survey visits were undertaken on the 30th June, 17th August and 29th September 2017.

In addition, a Reconyx HC600 Hyperfire trail camera was left on site, facing a suspected active badger hole within the sett from 17th August 2017 to 23rd August 2017.

Survey results

In June 2017, the sett was considered to be disused. Rabbit *Oryctolagus cuniculus* droppings were associated with the holes.

By the August visit, the sett was active with 3 active holes and 2 latrines associated with it. This was also the case during the September visit. During the September visit, two further latrines were also noted to the south of the sett.

The camera survey confirmed that the sett is active. Up to three badgers were filmed in the vicinity of the sett holes and activity was noted on every night of filming. Photographs of the film footage can be seen as an appendix.

The sett is in the location previously identified by Atkins during the initial ecology surveys.

Legal protection

In England, badgers and their setts are protected under schedule 6 of the Wildlife and Countryside Act 1981 (as amended) and the Protection of Badgers Act 1992.

This legislation makes it illegal to

- Intentionally capture, kill or injure a badger
- Damage, destroy or block access to their setts
- Disturb badgers in setts
- Treat a badger cruelly
- Deliberately send or intentionally allow a dog into a sett
- Bait or dig for badgers
- Have or sell a badger
- Have or possess a dead badger or parts of a badger
- Mark or attach a marking device to a badger.

A badger sett is defined in the Act as any structure or place which displays signs indicating use by a badger. Although a sett may be empty at a certain time it may be used as part of a regular cycle throughout the year, and may therefore be considered to be in use. A sett, which can be shown to have been disused for at least a full year, is considered to fall outwith the Act.

Recommendations

In order to ensure legal compliance, it will be necessary to apply to Natural England to secure a licence to exclude badgers from the working area as soon as planning permission is granted. This will allow Badgers to be excluded via the use of one-way gates which can be fitted between the months of July

and November inclusive. The badger sett will continue to be monitored from now until the construction period commences. If the status of the sett alters, then further advice will be provided.

I hope that this provides all the required information. If you have any queries or we can be of any further assistance please do not hesitate to get in touch.

Yours faithfully

Helen Scarborough

APPENDIX 1 – Photographs (dates in top left corner)





Appendix F. Record Centre Data and Designated Sites Citations

F.1. Record Centre Data Search




Lincolnshire Environmental Records Centre data search report

Near Immingham, Lincolnshire
13 January 2017

Achieving more for nature

Report details

Produced for	Luke Taylor, Atkins Global
Produced by	LH
Produced on	13/01/2017 (expires 13/01/2018)
LERC reference	1617-242
Aspects included in this report	Non-statutory sites <input checked="" type="checkbox"/> Statutory sites <input checked="" type="checkbox"/> Habitats <input checked="" type="checkbox"/> Species <input checked="" type="checkbox"/>
Search area (all aspects combined)	 <p>Centre of search area: E: 523635 N: 412096</p> <p><small>© Crown Copyright and Database Rights (2015) Ordnance Survey (100025370)</small></p>

Terms and conditions

1. Copyright of all records remains with the recorder, and of the collated data with LERC.
2. No copies of data are to be made for use by third parties, without written permission from the original copyright owners of the data.
3. Permission must be obtained in writing from LERC if the data supplied is to be used for any other purpose than that requested.
4. LERC shall be acknowledged in any report relating to data supplied, and one copy of any such report will be supplied free of charge.
5. Permission to use data expires 12 months after its supply. Applications to extend beyond this period should be made before the expiry date.
6. Data provided is as held by LERC. Past records of presence of a species or habitat do not guarantee continued occurrence.

Any reuse of the GIS layers must include the relevant attribution statement.

About the Lincolnshire Environmental Records Centre

The Lincolnshire Environmental Records Centre (LERC) collates wildlife and geological information for Greater Lincolnshire from various sources and makes it available for various uses. This data is crucial to aid conservation management of sites, to help organisations prioritise action, and to understand the distribution of species and trends over time. For more information on LERC or to request a data search, visit the website at <http://glnp.org.uk/partnership/lerc/>



*Lincolnshire Environmental Records Centre is an ALERC accredited LRC, meeting the standard level criteria
For more information on accreditation, see the ALERC website at <http://www.alerc.org.uk/accreditation.html>*

Non-statutory sites

Site citation sheets are available for Local Wildlife Sites, Local Geological Sites, Sites of Nature Conservation Interest and Regionally Important Geological and Geomorphological Sites. GIS boundaries are available for Local Wildlife Sites, Local Geological Sites, Sites of Nature Conservation Interest, Regionally Important Geological and Geomorphological Sites, Lincolnshire Wildlife Trust nature reserves and Roadside Nature Reserves. Distance is given as the shortest distance in kilometres from the centre of the search to the site.

Local Wildlife Sites (LWSs)

LWSs, along with biological Sites of Special Scientific Interest (SSSIs), are the most important places for wildlife at a local level. The GLNP seeks to identify every site that satisfies the selection criteria presented in the LWS guidelines, thus recognising a comprehensive suite of sites. Sites are selected by the Nature Partnership, based on recommendations made by its expert working group known as the LWS Panel and then submitted for inclusion within local authority planning policy. Identifying these sites helps local authorities meet their obligations under legislation and government guidance, including reporting on the number of sites in positive management for Single Data List Indicator 160-00.

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CODE	NAME	STATUS	EASTING	NORTHING	DISTANCE
766	Sweedale Croft Drain	Selected LWS	523420	411555	0.28
803	Tioxide West Field	Selected LWS	525178	411532	1.57
3230	Healing Cress Beds	Selected LWS	522035	412126	1.46

3 site(s) found in the search area

Local Geological Sites (LGSs)

LGSs, along with geological Sites of Special Scientific Interest (SSSIs) are the most important places for geodiversity and heritage in the county. They have substantive geoconservation value and their function is to protect and manage such interest and, where possible, provide educational opportunities. The GLNP seeks to identify every site that satisfies the selection criteria presented in the LGS guidelines. Sites are selected by the Nature Partnership, based on recommendations made by its expert working group known as the LGS Panel and then submitted for inclusion within local authority planning policy. Identifying these sites helps local authorities meet their obligations under legislation and government guidance, including reporting on the number of sites in positive management for Single Data List Indicator 160-00.

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CODE	NAME	STATUS	EASTING	NORTHING	DISTANCE

no sites found in the search area

Sites of Nature Conservation Interest (SNCIs)

The LWSs status supersedes that of Sites of Nature Conservation Importance (SNCIs), which were identified on the basis of local knowledge and were selected without consideration of any formal criteria. In Greater Lincolnshire, the GLNP aims to assess all existing SNCIs using the criteria outlined in LWS guidelines. To avoid confusion, until sites have been assessed against the LWS criteria they retain their SNCI status.

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CODE	NAME	STATUS	EASTING	NORTHING	DISTANCE
1520	Field to west of Power Station, Stallingborough	Notified SNCI (p)	522685	412900	0.94
4019	Town's Croft Drain	Notified SNCI	523978	410722	1.27

2 site(s) found in the search area

Regionally Important Geological and Geomorphological Sites (RIGSs)

The LGS status supersedes that of RIGS, which were identified on the basis of local knowledge and were selected without consideration of any formal criteria. In Greater Lincolnshire, the GLNP aims to assess all existing RIGSs using the criteria outlined in LGS guidelines. To avoid confusion, until sites have been assessed against the LGS criteria they retain their RIGS status.

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CODE	NAME	STATUS	EASTING	NORTHING	DISTANCE

no sites found in the search area

Lincolnshire Wildlife Trust Reserves (LWT)

The Lincolnshire Trust for Nature Conservation, formed in 1948, (and now known as the Lincolnshire Wildlife Trust) is a charity dedicated to safeguarding the countryside and wildlife of the historic county. It is one of a network of Wildlife Trusts that together form the largest voluntary organisation in the UK devoted to all aspects of wildlife protection.

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CODE	NAME	STATUS	EASTING	NORTHING	DISTANCE

no sites found in the search area

Roadside Nature Reserves (RNRs)

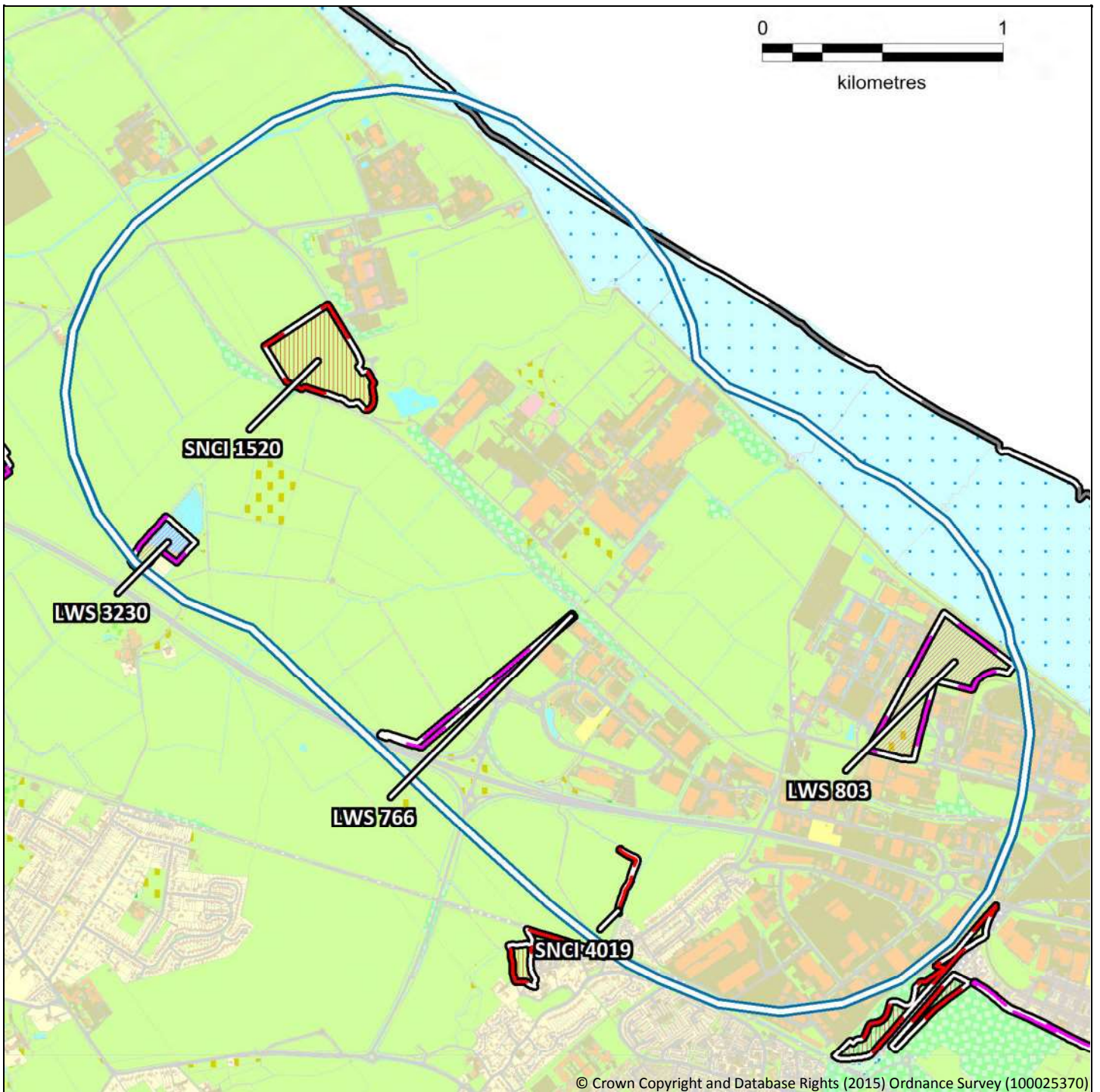
A scheme for the protection and management of roadside verges was set up in 1960 by the Lincolnshire Wildlife Trust and sites were originally termed "Protected Roadside Verges" (PRVs). Run in cooperation with Lincolnshire County Council, the Highways Division provides financial and advisory support with management is carried out by the Lincolnshire Wildlife Trust. There are 65 Roadside Nature Reserves, which total a distance of over 80 kilometres (50 miles). For each verge, the Trust appoints a voluntary 'Wayside Warden' to help look after the biological interest in liaison with the Divisional Surveyors and landowners.

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CODE	NAME	STATUS	EASTING	NORTHING	DISTANCE

no sites found in the search area

Non-statutory sites within the search area



Space restrictions on the map may result in some sites not being labelled. Please refer to the GIS layers or site citations for details.

- | | | | |
|--|-------------------------------------------------------|--|-------------------------------------|
| | Local Wildlife Site | | Lincolnshire Wildlife Trust Reserve |
| | Local Geological Site (mine entrance) | | Roadside Nature Reserve |
| | Local Geological Site | | Search area |
| | Site of Nature Conservation Interest | | LERC boundary |
| | Regionally Important Geological/Geomorphological Site | | |

Statutory sites

Distance is given as the shortest distance in kilometres from the centre of the search to the site.

Sites of Special Scientific Interest (SSSIs)

SSSIs are part of the national suite of sites providing statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features. These sites are also used to underpin other national and international nature conservation designations, and are currently designated under the Wildlife and Countryside Act 1981 (as amended in the Countryside Rights of Way Act 2000).

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CODE	NAME	STATUS	EASTING	NORTHING	DISTANCE
1009830	Humber Estuary	Notified	532370	414573	0.98

1 site(s) found in the search area

National Nature Reserves (NNRs)

NNRs represent many of the finest wildlife and geological sites in the country. They are selected from the Sites of Special Scientific Interest (SSSIs) and so each NNR has at least two designations.

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CODE	NAME	STATUS	EASTING	NORTHING	DISTANCE

no sites found in the search area

Local Nature Reserves (LNRs)

LNRs are areas designated by the local authority, and protected through the Local Plan as of special wildlife interest that enhance public enjoyment of wildlife. The local authority either has ownership or a legal interest in the land.

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CODE	NAME	STATUS	EASTING	NORTHING	DISTANCE

no sites found in the search area

Special Protection Areas (SPAs)

SPAs are areas of the most important habitat for rare (listed on Annex I of the Birds Directive) and migratory birds within the European Union. SPAs, together with SACs, form the Natura 2000 network. SPA designation is underpinned by SSSI designation in the UK.

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CODE	NAME	STATUS	EASTING	NORTHING	DISTANCE
UK9006111	Humber Estuary	Classified	533159	412048	0.98

1 site(s) found in the search area

Special Areas of Conservation (SACs)

SACs are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II of the Habitats Directive. SACs, together with SPAs, form the Natura 2000 network. SAC designation is underpinned by SSSI designation in the UK.

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CODE	NAME	STATUS	EASTING	NORTHING	DISTANCE
UK0030170	Humber Estuary	Designated	532370	414573	0.98

1 site(s) found in the search area

Ramsar Sites (Ramsars)

Ramsar Sites are wetlands of international importance designated under the Ramsar Convention. Most Ramsar Sites are also classified as SPAs, with all terrestrial Ramsar Sites also notified as SSSIs.

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CODE	NAME	STATUS	EASTING	NORTHING	DISTANCE
UK11031	Humber Estuary	Listed	533159	412048	0.98

1 site(s) found in the search area

Areas of Outstanding Natural Beauty (AONBs)

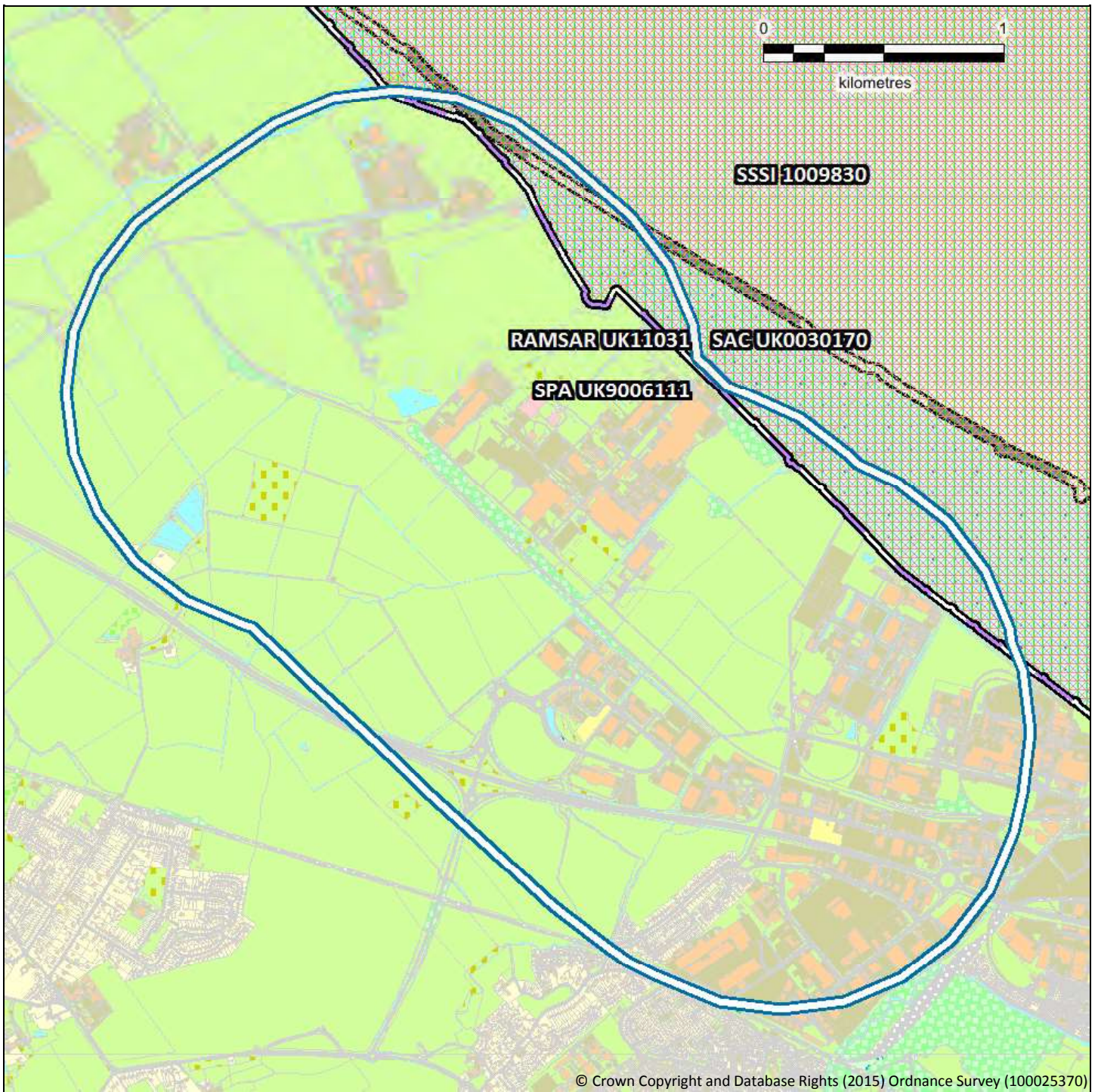
AONBs were created by legislation within the National Parks and Access to the Countryside Act of 1949. In Greater Lincolnshire there is one AONB, which is the Lincolnshire Wolds.

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CODE	NAME	STATUS	EASTING	NORTHING	DISTANCE

no sites found in the search area

Statutory sites within the search area



Space restrictions on the map may result in some sites not being labelled. Please refer to the GIS layers or site citations for details.

- | | | | |
|-------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------|------------------------------------|
|  | Site of Special Scientific Interest |  | Ramsar |
|  | National Nature Reserve |  | Area of Outstanding Natural Beauty |
|  | Local Nature Reserve |  | Search area |
|  | Special Protection Area |  | LERC boundary |
|  | Special Area of Conservation | | |

Ancient Woodland Sites

The Ancient Woodland Inventory (AWI), maintained by Natural England, is a provisional list of woodland sites over 2ha in size that have had continuous woodland cover since at least 1600AD. This includes ancient semi-natural woodland (ASNW) and ancient replanted woodland (ARW - also known as plantation on ancient woodland sites or PAWS).

Attribution statement: Ancient Woodland © Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2016.

HABITAT	Area (ha)

no polygons found in the search area

Priority Habitats

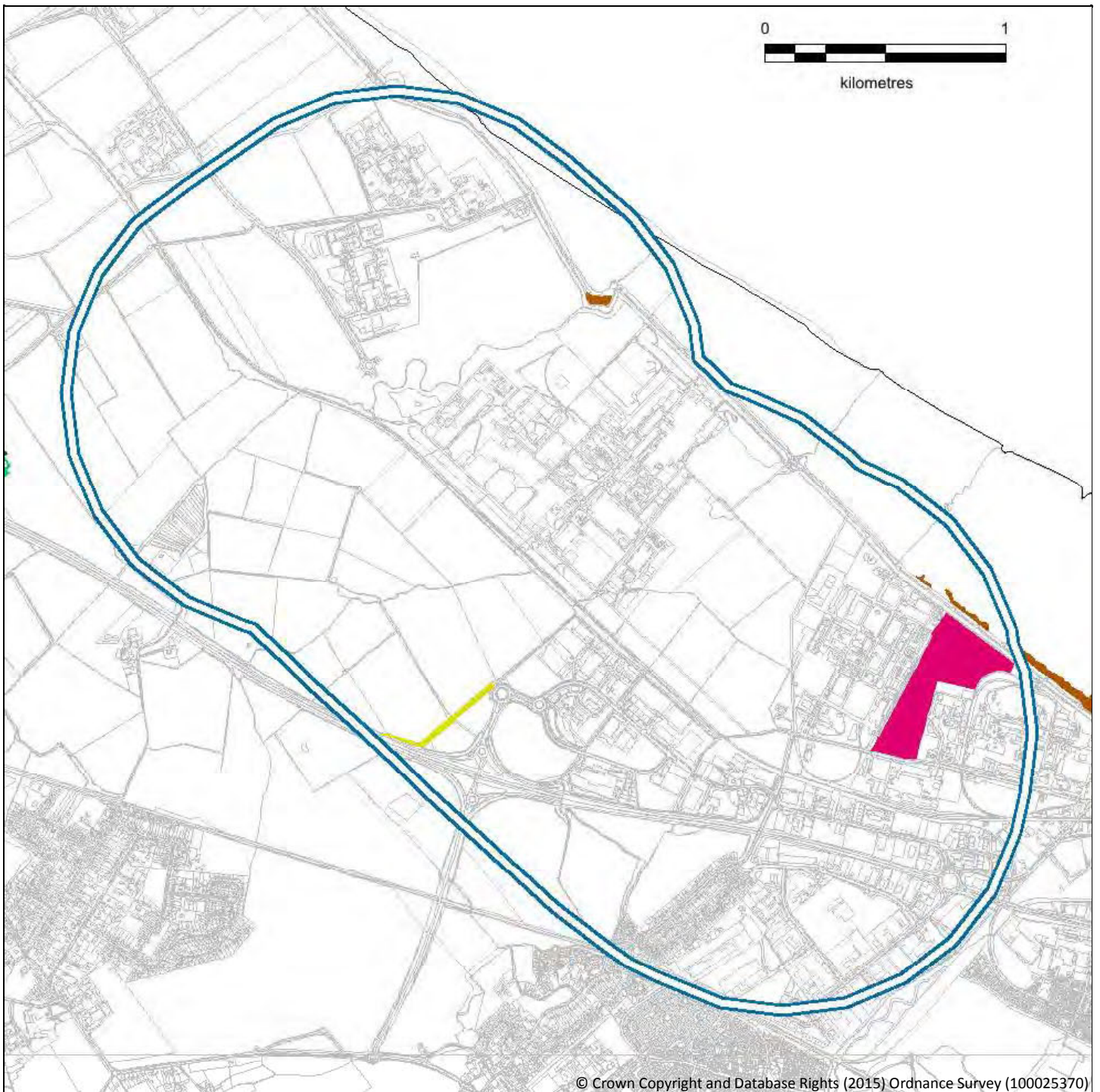
Priority habitats are those identified as being the most threatened and requiring conservation action in the UK. The data presented is the most up-to-date of the data collated by the GLNP; further historic data and non-Priority habitat data may also be available.

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HABITAT	Area (ha)
Coastal saltmarsh	1.18
Lowland meadows	1.08
Open mosaic habitats on previously developed land	12.1

14.36 hectare(s) found in the search area

Habitats within the search area



Species

Lincolnshire Environmental Records Centre holds records on the following species within or overlapping the search area. Data shown is as held by LERC; past records of presence of a species does not guarantee continued occurrence and absence of records does not imply absence of a species, merely that no records are held. Depending on the parameters of the data search, additional records may be available. Confidential data, data at poorly defined geographic resolutions and data pending validation and/or verification may also be excluded from this report.

Grid references are limited to 100m accuracy, although higher resolutions may be available. Location data for the following record types are further limited to avoid environmental harm: badger setts, bat roosts. Release of enhanced data is dealt with on a case-by-case basis and confidential records are provided separately.

The following organisations have contributed data to this report:

- Biological Records Centre
- Environment Agency
- Greater Lincolnshire Nature Partnership
- Lincolnshire Bat Group
- Lincolnshire Bird Club
- Lincolnshire Naturalists' Union
- Lincolnshire Wildlife Trust
- People's Trust for Endangered Species
- Royal Society for the Protection of Birds
- University of Hull

Data is converted for use in the LERC database and may not exactly match the source data.

The results of the species search have been broken down into 3 separate data output(s), which are summarised on the following pages. Zero abundance records are excluded from these summaries, but are included in the spread sheets (these can be identified by having abundance values of '0 Present (Count: Exact)').

Search #1

Search parameters

Designations:

BAP-2007
WACA-Sch1_part1
WACA-Sch1_part2

Taxonomic groups:

all taxonomic groups

Geographic area:



Summary

Amphibian (1 taxa)	Number of records	Date range recorded	Designations
Common Toad, <i>Bufo bufo</i>	14	2005 - 2010	Bern3, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.5a

Bird (51 taxa)	Number of records	Date range recorded	Designations
Avocet, <i>Recurvirostra avosetta</i>	3	1981 - 2012	BD1, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, LBCSchedule1, WCA1i
Barn Owl, <i>Tyto alba</i>	14	1998 - 2012	Bern2, CITESA, FEP7/2, LBAP:3, LBCSchedule1, ScotBL, WCA1i, WCA9, WO1i
Bewick's Swan, <i>Cygnus columbianus subsp. bewickii</i>	3	2010 - 2010	BAmb, BD1, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, ScotBL, Sect.41, Sect.42, UKBAP, WCA1i, WO1i
Black Redstart, <i>Phoenicurus ochruros</i>	9	1999 - 2015	Bern2, BoCC4-Red, BRed, LBCSchedule1, WCA1i
Black-tailed Godwit, <i>Limosa limosa</i>	107	1981 - 2015	BD2.2, BoCC4-Red, CMS_A2, CMS_AEWA-A2, FEP7/2, LBCSchedule1, RLGLB.NT, ScotBL, WCA1i, WO1i
Brambling, <i>Fringilla montifringilla</i>	8	2000 - 2012	ScotBL, WCA1i
Cetti's Warbler, <i>Cettia cetti</i>	2	2015 - 2015	LBCSchedule1, WCA1i
Common Crossbill, <i>Loxia curvirostra</i>	1	2005 - 2005	Bern2, WCA1i, WO1i
Common Scoter, <i>Melanitta nigra</i>	1	1982 - 1982	BD2.2, BoCC4-Red, BRed, CMS_A2, CMS_AEWA-A2, ScotBL, Sect.41, Sect.42, UKBAP, WCA1i, WO1i
Cuckoo, <i>Cuculus canorus</i>	2	2004 - 2005	BoCC4-Red, BRed, ScotBL, Sect.41, Sect.42, UKBAP
Curlew, <i>Numenius arquata</i>	221	1979 - 2015	BD2.2, BoCC4-Red, CMS_A2, CMS_AEWA-A2, FEP7/2, LBAP:3, RLGLB.NT, ScotBL, Sect.41, Sect.42, UKBAP
Dark-bellied Brent Goose, <i>Branta bernicla subsp. bernicla</i>	4	2009 - 2015	BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, GBNSIP, Sect.41, Sect.42, UKBAP
Fieldfare, <i>Turdus pilaris</i>	29	1979 - 2013	BD2.2, BoCC4-Red, BRed, WCA1i, WO1i
Firecrest, <i>Regulus ignicapilla</i>	2	2008 - 2009	Bern2, LBCSchedule1, WCA1i, WO1i
Goldeneye, <i>Bucephala clangula</i>	2	1982 - 2008	BAmb, BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, Non-native, WCA1ii, WO1ii

Grasshopper Warbler, <i>Locustella naevia</i>	5	2000 - 2014	BoCC4-Red, BRed, ScotBL, Sect.41, Sect.42, UKBAP
Green Sandpiper, <i>Tringa ochropus</i>	2	1998 - 1999	BAmb, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, ScotBL, WCA1i
Greenshank, <i>Tringa nebularia</i>	8	1981 - 2015	BAmb, BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, WCA1i, WO1i
Grey Partridge, <i>Perdix perdix</i>	10	1989 - 2015	BD2.1, BoCC4-Red, FEP7/2, GBNSIP, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP
Greylag Goose, <i>Anser anser</i>	2	2014 - 2015	BAmb, BD2.1, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, Non-native, WCA1ii
Hobby, <i>Falco subbuteo</i>	8	1998 - 2014	Bern2, CITESA, CMS_A2, LBCSchedule1, ScotBL, WCA1i
House Sparrow, <i>Passer domesticus</i>	22	1991 - 2015	BoCC4-Red, BRed, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP
Kingfisher, <i>Alcedo atthis</i>	29	1998 - 2015	BD1, Bern2, BoCC4-Amber, FEP7/2, LBCSchedule1, ScotBL, WCA1i, WO1i
Lapland Bunting, <i>Calcarius lapponicus</i>	2	2000 - 2006	BAmb, Bern2, BoCC4-Amber, WCA1i
Lapwing, <i>Vanellus vanellus</i>	99	1981 - 2015	BD2.2, BoCC4-Red, CMS_A2, CMS_AEWA-A2, FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP
Lesser Redpoll, <i>Acanthis cabaret</i>	9	2001 - 2014	BoCC4-Red, ScotBL, Sect.41, Sect.42, UKBAP
Little Gull, <i>Hydrocoloeus minutus</i>	5	1998 - 2013	BD1, Bern2, CMS_AEWA-A2, WCA1i
Little Tern, <i>Sternula albifrons</i>	1	1982 - 1982	BAmb, BD1, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, LBCSchedule1, ScotBL, WCA1i, WO1i
Marsh Harrier, <i>Circus aeruginosus</i>	2	2005 - 2014	BD1, BoCC4-Amber, CITESA, CMS_A2, FEP7/2, LBCSchedule1, ScotBL, WCA1i, WO1i
Mediterranean Gull, <i>Larus melanocephalus</i>	14	1999 - 2014	BAmb, BD1, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, LBCSchedule1, WCA1i
Merlin, <i>Falco columbarius</i>	16	1998 - 2008	BD1, Bern2, BoCC4-Red, CITESA, CMS_A2, FEP7/2, ScotBL, WCA1i, WO1i
Osprey, <i>Pandion haliaetus</i>	2	2002 - 2011	BAmb, BD1, BoCC4-Amber, CITESA, CMS_A2, LBCSchedule1, ScotBL, WCA1i, WO1i
Peregrine, <i>Falco peregrinus</i>	33	1999 - 2015	BD1, Bern2, CITESA, CMS_A2, LBCSchedule1, ScotBL, WCA1i, WO1i
Purple Sandpiper, <i>Calidris maritima</i>	6	1982 - 2013	BAmb, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, ScotBL, WCA1i
Red Kite, <i>Milvus milvus</i>	1	2011 - 2011	BD1, CITESA, CMS_A2, FEP7/2, LBCSchedule1, Non-native, RLGLB.NT, ScotBL, WCA1i, WCA9
Red-throated Diver, <i>Gavia stellata</i>	1	2007 - 2007	BD1, Bern2, CMS_A2, CMS_AEWA-A2, ScotBL, WCA1i, WO1i
Redwing, <i>Turdus iliacus</i>	23	1998 - 2013	BD2.2, BoCC4-Red, BRed, ScotBL, WCA1i
Reed Bunting, <i>Emberiza schoeniclus</i>	31	2002 - 2014	Bern2, BoCC4-Amber, FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP
Ring Ouzel, <i>Turdus torquatus</i>	13	2005 - 2015	Bern2, BoCC4-Red, FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP, WO1i
Ruff, <i>Calidris pugnax</i>	12	1981 - 2001	BD1, BD2.2, BoCC4-Red, CMS_A2, CMS_AEWA-A2, FEP7/2, LBCSchedule1, ScotBL, WCA1i, WO1i
Savi's Warbler, <i>Locustella luscinioides</i>	1	1897 - 1897	BoCC4-Red, BRed, Sect.41, UKBAP, WCA1i
Scaup, <i>Aythya marila</i>	6	1982 - 2010	BD2.2, BoCC4-Red, BRed, CMS_A2, CMS_AEWA-A2, ScotBL, Sect.41, UKBAP, WCA1i, WO1ii
Snow Bunting, <i>Plectrophenax nivalis</i>	10	1998 - 2013	BAmb, Bern2, BoCC4-Amber, ScotBL, WCA1i
Spotted Flycatcher, <i>Muscicapa striata</i>	2	2000 - 2001	Bern2, BoCC4-Red, CMS_A2, FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP
Turtle Dove, <i>Streptopelia turtur</i>	1	2003 - 2003	BD2.2, BoCC4-Red, CITESA, FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP, WO1i
Velvet Scoter, <i>Melanitta fusca</i>	2	1982 - 2002	BD2.2, BoCC4-Red, BRed, CMS_A2, CMS_AEWA-A2, RLGLB.EN, WCA1i
Whimbrel, <i>Numenius phaeopus</i>	20	1981 - 2013	BD2.2, BoCC4-Red, BRed, CMS_A2, CMS_AEWA-A2, WCA1i, WO1i
Whooper Swan, <i>Cygnus cygnus</i>	3	1998 - 2007	BD1, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, GBNSIP, Non-native, ScotBL, WCA1i, WO1i
Wood Sandpiper, <i>Tringa glareola</i>	1	2002 - 2002	BAmb, BD1, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, ScotBL, WCA1i
Woodlark, <i>Lullula arborea</i>	1	1999 - 1999	BD1, FEP7/2, LBCSchedule1, Sect.41, Sect.42, UKBAP, WCA1i

Bony Fish (actinopterygii) (2 taxa)	Number of records	Date range recorded	Designations
Brown/Sea Trout, <i>Salmo trutta</i>	1	1989 - 1989	ScotBL, Sect.41, Sect.42, UKBAP
European Eel, <i>Anguilla anguilla</i>	1	2003 - 2003	LBAP:3, OSPAR, RLGLB.CR, ScotBL, Sect.41, Sect.42, UKBAP

Conifer (1 taxa)	Number of records	Date range recorded	Designations
Juniper, <i>Juniperus communis</i>	2	2008 - 2008	FEP1, FEP7/2, RLGB.Lr(NT), ScotBL, Sect.41, Sect.42, UKBAP

Flowering Plant (3 taxa)	Number of records	Date range recorded	Designations
Chamomile, <i>Chamaemelum nobile</i>	2	1993 - 1993	RLGB.VU, Sect.41, Sect.42, UKBAP
Cornflower, <i>Centaurea cyanus</i>	2	1997 - 1997	FEP7/2, GBNNSIP, ScotBL, Sect.41, Sect.42, UKBAP
Shepherd's-needle, <i>Scandix pecten-veneris</i>	1	1956 - 1956	FEP7/2, GBNNSIP, RLGB.CR, RLGB.EN, Sect.41, Sect.42, UKBAP

Insect - Beetle (coleoptera) (1 taxa)	Number of records	Date range recorded	Designations
Zircon Reed Beetle, <i>Donacia aquatica</i>	1	1908 - 1908	FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP

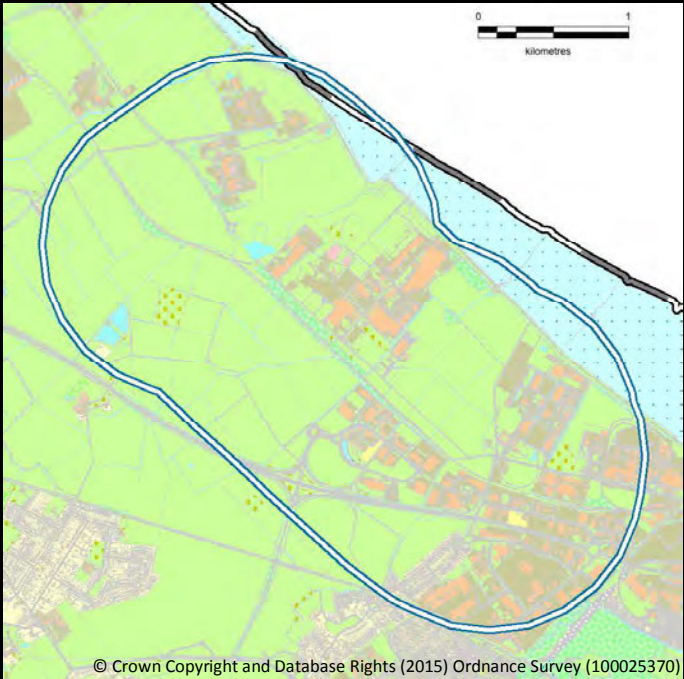
Insect - Butterfly (2 taxa)	Number of records	Date range recorded	Designations
Small Heath, <i>Coenonympha pamphilus</i>	3	1998 - 2014	RLGB.Lr(NT), ScotBL, Sect.41, Sect.42, UKBAP
Wall, <i>Lasiommata megera</i>	15	1993 - 2011	RLGB.Lr(NT), ScotBL, Sect.41, Sect.42, UKBAP

Insect - Moth (1 taxa)	Number of records	Date range recorded	Designations
Cinnabar, <i>Tyria jacobaeae</i>	3	2008 - 2009	ScotBL, Sect.41, Sect.42, UKBAP

Terrestrial Mammal (6 taxa)	Number of records	Date range recorded	Designations
Bats, Chiroptera	2	2003 - 2010	Bern2, Bern3, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD2p, HSD4, LBAP:3, RLGLB.NT, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Brown Hare, <i>Lepus europaeus</i>	4	1977 - 1977	FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP
European Otter, <i>Lutra lutra</i>	3	2009 - 2013	Bern2, CITESA, FEP7/2, HabRegs2, HSD2p, HSD4, RLGLB.NT, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
European Water Vole, <i>Arvicola amphibius</i>	26	2002 - 2015	FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4.a, WCA5/9.4b, WCA5/9.4c
Noctule Bat, <i>Nyctalus noctula</i>	1	2012 - 2012	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
West European Hedgehog, <i>Erinaceus europaeus</i>	9	1977 - 2015	Bern3, ScotBL, Sect.41, Sect.42, UKBAP

Search #2

Search parameters

Designations:	Taxonomic groups:	Geographic area:
WACA-Sch9_part1 WACA-Sch9_part2	<i>all taxonomic groups</i>	

Summary

Acarine (acari) (1 taxa)	Number of records	Date range recorded	Designations
Halacaridae	3	1993 - 2011	

Alga (1 taxa)	Number of records	Date range recorded	Designations
Enteromorpha	4	2006 - 2011	

Amphibian (4 taxa)	Number of records	Date range recorded	Designations
Amphibians, Amphibia	2	2015 - 2015	
Common Frog, <i>Rana temporaria</i>	3	2008 - 2015	Bern3, HSD5, WCA5/9.5a
Common Toad, <i>Bufo bufo</i>	14	2005 - 2010	Bern3, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.5a
Smooth Newt, <i>Lissotriton vulgaris</i>	14	2007 - 2015	Bern3, LBAP:3, WCA5/9.5a, WO5

Annelid (33 taxa)	Number of records	Date range recorded	Designations
Ampharete	1	2001 - 2001	
<i>Ampharete grubei</i>	2	1998 - 2005	
Aphelochaeta	8	2000 - 2009	
<i>Aphelochaeta marioni</i>	3	2003 - 2011	
<i>Baltidrilus costatus</i>	1	2001 - 2001	
Capitella	1	1997 - 1997	
Cirratulidae	1	2003 - 2003	
<i>Clitellio arenarius</i>	1	2007 - 2007	
Erpobdella	2	2015 - 2015	
Estuary Ragworm, <i>Hediste diversicolor</i>	6	1997 - 2014	
<i>Eteone longa</i>	17	1990 - 2011	
Glossiphonia	2	2015 - 2015	
<i>Glossiphonia complanata</i>	3	2007 - 2007	
<i>Manayunkia aestuarina</i>	1	1999 - 1999	
<i>Mediomastus fragilis</i>	1	2004 - 2004	

Nephtys	14	1990 - 2006
<i>Nephtys hombergii</i>	20	1990 - 2010
Oligochaeta	28	1994 - 2014
<i>Paranais litoralis</i>	8	1990 - 2011
<i>Phyllodoce mucosa</i>	1	1996 - 1996
Polydora	1	2009 - 2009
<i>Pygospio elegans</i>	21	1990 - 2011
<i>Scoloplos (Scoloplos) armiger</i>	5	2003 - 2009
<i>Sphaerodoropsis minuta</i>	8	1993 - 2010
Spionida	1	1998 - 1998
<i>Spiophanes bombyx</i>	3	1996 - 1998
<i>Streblospio shrubsolii</i>	19	1992 - 2011
Tentacled Lagoon-Worm, <i>Alkmaria romijni</i>	1	1999 - 1999 NSMar, Sect.42, WCA5/9.4.a
Tharyx	9	1991 - 1999
<i>Tharyx "species A"</i>	2	2010 - 2011
<i>Tubificoides benedii</i>	21	1990 - 2011
<i>Tubificoides swirencoides</i>	21	1990 - 2011
Whiteworm, Enchytraeidae	2	1993 - 2010

Bird (189 taxa)	Number of records	Date range recorded	Designations
Acanthis	1	2011 - 2011	
American Robin, <i>Turdus migratorius</i>	12	2004 - 2004	GBNNSIP
Arctic Tern, <i>Sterna paradisaea</i>	3	1982 - 2012	BAmb, BD1, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, ScotBL, WO1i
Avocet, <i>Recurvirostra avosetta</i>	3	1981 - 2012	BD1, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, LBCSchedule1, WCA1i
Barn Owl, <i>Tyto alba</i>	14	1998 - 2012	Bern2, CITESA, FEP7/2, LBAP:3, LBCSchedule1, ScotBL, WCA1i, WCA9, WO1i
Bar-tailed Godwit, <i>Limosa lapponica</i>	88	1981 - 2015	BAmb, BD1, BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, ScotBL, Sect.42
Bewick's Swan, <i>Cygnus columbianus subsp. bewickii</i>	3	2010 - 2010	BAmb, BD1, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, ScotBL, Sect.41, Sect.42, UKBAP, WCA1i, WO1i
Black Redstart, <i>Phoenicurus ochruros</i>	9	1999 - 2015	Bern2, BoCC4-Red, BRed, LBCSchedule1, WCA1i
Blackbird, <i>Turdus merula</i>	122	1991 - 2015	BD2.2
Blackcap, <i>Sylvia atricapilla</i>	19	1991 - 2015	
Black-headed Gull, <i>Chroicocephalus ridibundus</i>	86	1979 - 2015	BAmb, BD2.2, BoCC4-Amber, CMS_AEWA-A2, ScotBL, Sect.42
Black-tailed Godwit, <i>Limosa limosa</i>	107	1981 - 2015	BD2.2, BoCC4-Red, CMS_A2, CMS_AEWA-A2, FEP7/2, LBCSchedule1, RLGLB.NT, ScotBL, WCA1i, WO1i
Blue Tit, <i>Cyanistes caeruleus</i>	57	1991 - 2015	Bern2
Brambling, <i>Fringilla montifringilla</i>	8	2000 - 2012	ScotBL, WCA1i
Brent Goose, <i>Branta bernicla</i>	1	1998 - 1998	BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, GBNNSIP
Bullfinch, <i>Pyrrhula pyrrhula</i>	12	1991 - 2015	BoCC4-Amber, FEP7/2, LBAP:3, ScotBL
Buzzard, <i>Buteo buteo</i>	18	2001 - 2014	CITESA, CMS_A2, WO1i
Canada Goose, <i>Branta canadensis</i>	4	2007 - 2008	BD2.1, CMS_A2, GBNNSIP, Non-native, WCA9
Carrion Crow, <i>Corvus corone</i>	99	1991 - 2015	BD2.2
Carrion Crow, <i>Corvus corone agg.</i>	1	2006 - 2006	
Cetti's Warbler, <i>Cettia cetti</i>	2	2015 - 2015	LBCSchedule1, WCA1i
Chaffinch, <i>Fringilla coelebs</i>	50	1991 - 2015	
Chiffchaff, <i>Phylloscopus collybita</i>	19	2000 - 2014	
Coal Tit, <i>Periparus ater</i>	1	2005 - 2005	Bern2
Collared Dove, <i>Streptopelia decaocto</i>	26	1991 - 2015	BD2.2, GBNNSIP
<i>Columba livia 'feral'</i>	15	2007 - 2015	BD2.1, CITESA, GBNNSIP, Non-native
Common Crossbill, <i>Loxia curvirostra</i>	1	2005 - 2005	Bern2, WCA1i, WO1i
Common Gull, <i>Larus canus</i>	59	1982 - 2015	BAmb, BD2.2, BoCC4-Amber, CMS_AEWA-A2
Common Sandpiper, <i>Actitis hypoleucos</i>	25	1981 - 2014	BoCC4-Amber, CMS_A2, CMS_AEWA-A2
Common Scoter, <i>Melanitta nigra</i>	1	1982 - 1982	BD2.2, BoCC4-Red, BRed, CMS_A2, CMS_AEWA-A2, ScotBL, Sect.41, Sect.42, UKBAP, WCA1i, WO1i
Common Tern, <i>Sterna hirundo</i>	5	1982 - 2003	BAmb, BD1, Bern2, BoCC4-Amber, CMS_AEWA-A2, ScotBL, WO1i
Coot, <i>Fulica atra</i>	16	1982 - 2015	BD2.1, CMS_AEWA-A2

Cormorant, <i>Phalacrocorax carbo</i>	54	1982 - 2015	CMS_AEWA-A2
Crane, <i>Grus grus</i>	1	2015 - 2015	BAmb, BD1, Bern2, BoCC4-Amber, CITESA, CMS_A2, CMS_AEWA-A2, WCA9
Cuckoo, <i>Cuculus canorus</i>	2	2004 - 2005	BoCC4-Red, BRed, ScotBL, Sect.41, Sect.42, UKBAP
Curlew, <i>Numenius arquata</i>	221	1979 - 2015	BD2.2, BoCC4-Red, CMS_A2, CMS_AEWA-A2, FEP7/2, LBAP:3, RLGLB.NT, ScotBL, Sect.41, Sect.42, UKBAP
Curlew Sandpiper, <i>Calidris ferruginea</i>	14	1981 - 2014	BAmb, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2
Dark-bellied Brent Goose, <i>Branta bernicla subsp. bernicla</i>	4	2009 - 2015	BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, GBNSIP, Sect.41, Sect.42, UKBAP
Dunlin, <i>Calidris alpina</i>	115	1979 - 2015	Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, ScotBL, WO1i
Dunnock, <i>Prunella modularis</i>	64	1991 - 2015	BAmb, Bern2, BoCC4-Amber
Eider, <i>Somateria mollissima</i>	11	1981 - 2014	BAmb, BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2
Fieldfare, <i>Turdus pilaris</i>	29	1979 - 2013	BD2.2, BoCC4-Red, BRed, WCA1i, WO1i
Firecrest, <i>Regulus ignicapilla</i>	2	2008 - 2009	Bern2, LBCSchedule1, WCA1i, WO1i
Fulmar, <i>Fulmarus glacialis</i>	1	1998 - 1998	BAmb, BoCC4-Amber
Garden Warbler, <i>Sylvia borin</i>	3	1991 - 2002	WO1i
Glaucous Gull, <i>Larus hyperboreus</i>	3	1982 - 2012	BAmb, BoCC4-Amber, CMS_AEWA-A2
Goldcrest, <i>Regulus regulus</i>	6	1898 - 2015	Bern2
Golden Plover, <i>Pluvialis apricaria</i>	92	1981 - 2015	BD1, BD2.2, CMS_A2, CMS_AEWA-A2, FEP7/2, ScotBL, Sect.42, WO1ii
Goldeneye, <i>Bucephala clangula</i>	2	1982 - 2008	BAmb, BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, Non-native, WCA1ii, WO1ii
Goldfinch, <i>Carduelis carduelis</i>	88	1991 - 2015	Bern2
Goosander, <i>Mergus merganser</i>	4	1982 - 2015	BD2.2, CMS_A2, CMS_AEWA-A2, WO1i
Grasshopper Warbler, <i>Locustella naevia</i>	5	2000 - 2014	BoCC4-Red, BRed, ScotBL, Sect.41, Sect.42, UKBAP
Great Black-backed Gull, <i>Larus marinus</i>	52	1979 - 2015	BAmb, BD2.2, BoCC4-Amber, CMS_AEWA-A2
Great Crested Grebe, <i>Podiceps cristatus</i>	2	1982 - 2000	CMS_AEWA-A2
Great Grey Shrike, <i>Lanius excubitor</i>	3	2000 - 2010	Bern2
Great Spotted Woodpecker, <i>Dendrocopos major</i>	4	2003 - 2015	Bern2
Great Tit, <i>Parus major</i>	42	1991 - 2015	Bern2
Green Sandpiper, <i>Tringa ochropus</i>	2	1998 - 1999	BAmb, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, ScotBL, WCA1i
Green Woodpecker, <i>Picus viridis</i>	4	2001 - 2014	Bern2
Greenfinch, <i>Chloris chloris</i>	46	1979 - 2015	Bern2
Greenish Warbler, <i>Phylloscopus trochiloides</i>	2	2002 - 2002	
Greenshank, <i>Tringa nebularia</i>	8	1981 - 2015	BAmb, BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, WCA1i, WO1i
Grey Heron, <i>Ardea cinerea</i>	21	1982 - 2015	CMS_AEWA-A2, WO1i
Grey Partridge, <i>Perdix perdix</i>	10	1989 - 2015	BD2.1, BoCC4-Red, FEP7/2, GBNSIP, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP
Grey Plover, <i>Pluvialis squatarola</i>	89	1981 - 2015	BAmb, BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2
Grey Wagtail, <i>Motacilla cinerea</i>	51	1897 - 2014	Bern2, BoCC4-Red, BRed
Greylag Goose, <i>Anser anser</i>	2	2014 - 2015	BAmb, BD2.1, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, Non-native, WCA1ii
Guillemot, <i>Uria aalge</i>	1	2010 - 2010	BAmb, BoCC4-Amber, CMS_AEWA-A2
Herring Gull, <i>Larus argentatus</i>	72	1979 - 2015	BD2.2, BoCC4-Red, BRed, CMS_AEWA-A2, ScotBL
Hobby, <i>Falco subbuteo</i>	8	1998 - 2014	Bern2, CITESA, CMS_A2, LBCSchedule1, ScotBL, WCA1i
House Martin, <i>Delichon urbicum</i>	10	1991 - 2014	BAmb, Bern2, BoCC4-Amber
House Sparrow, <i>Passer domesticus</i>	22	1991 - 2015	BoCC4-Red, BRed, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP
Iceland Gull, <i>Larus glaucooides</i>	29	2000 - 2015	BAmb, BoCC4-Amber, CMS_AEWA-A2
Jack Snipe, <i>Lymnocyptes minimus</i>	19	1999 - 2015	BD2.1, CMS_A2, CMS_AEWA-A2
Jackdaw, <i>Corvus monedula</i>	4	1998 - 2014	BD2.2
Jay, <i>Garrulus glandarius</i>	3	2002 - 2014	BD2.2
Kestrel, <i>Falco tinnunculus</i>	24	1991 - 2015	Bern2, BoCC4-Amber, CITESA, CMS_A2, FEP7/2, ScotBL, Sect.42, WO1i
Kingfisher, <i>Alcedo atthis</i>	29	1998 - 2015	BD1, Bern2, BoCC4-Amber, FEP7/2, LBCSchedule1, ScotBL, WCA1i, WO1i
Kittiwake, <i>Rissa tridactyla</i>	1	1995 - 1995	BoCC4-Red, BRed, CMS_AEWA-A2, OSPAR

Knot, <i>Calidris canutus</i>	60	1981 - 2015	BAmb, BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2
Kumlien's Gull, <i>Larus glaucooides subsp. kumlieni</i>	1	2012 - 2012	BAmb, BoCC4-Amber, CMS_AEWA-A2
Lapland Bunting, <i>Calcarius lapponicus</i>	2	2000 - 2006	BAmb, Bern2, BoCC4-Amber, WCA1i
Lapwing, <i>Vanellus vanellus</i>	99	1981 - 2015	BD2.2, BoCC4-Red, CMS_A2, CMS_AEWA-A2, FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP
Lesser Black-backed Gull, <i>Larus fuscus</i>	16	1982 - 2014	BAmb, BD2.2, BoCC4-Amber, CMS_AEWA-A2
Lesser Redpoll, <i>Acanthis cabaret</i>	9	2001 - 2014	BoCC4-Red, ScotBL, Sect.41, Sect.42, UKBAP
Lesser Spotted Woodpecker, <i>Dendrocopos minor</i>	2	1998 - 2003	Bern2, BoCC4-Red, BRed, FEP7/2
Lesser Whitethroat, <i>Sylvia curruca</i>	4	2000 - 2011	
Linnet, <i>Linaria cannabina</i>	38	1991 - 2015	Bern2, BoCC4-Red, FEP7/2, LBAP:3, ScotBL
Little Auk, <i>Alle alle</i>	1	1999 - 1999	CMS_AEWA-A2
Little Egret, <i>Egretta garzetta</i>	9	2008 - 2015	BD1, Bern2, CITESA, CMS_AEWA-A2, LBCSchedule1
Little Grebe, <i>Tachybaptus ruficollis</i>	6	1982 - 2015	CMS_AEWA-A2
Little Gull, <i>Hydrocoloeus minutus</i>	5	1998 - 2013	BD1, Bern2, CMS_AEWA-A2, WCA1i
Little Stint, <i>Calidris minuta</i>	5	1981 - 2001	Bern2, CMS_A2, CMS_AEWA-A2
Little Tern, <i>Sternula albifrons</i>	1	1982 - 1982	BAmb, BD1, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, LBCSchedule1, ScotBL, WCA1i, WO1i
Long-tailed Tit, <i>Aegithalos caudatus</i>	17	1999 - 2015	
Magpie, <i>Pica pica</i>	95	1998 - 2015	BD2.2
Mallard, <i>Anas platyrhynchos</i>	121	1981 - 2015	BAmb, BD2.1, BoCC4-Amber, CMS_A2, CMS_AEWA-A2
Manx Shearwater, <i>Puffinus puffinus</i>	1	2013 - 2013	BAmb, Bern2, BoCC4-Amber, ScotBL
Marsh Harrier, <i>Circus aeruginosus</i>	2	2005 - 2014	BD1, BoCC4-Amber, CITESA, CMS_A2, FEP7/2, LBCSchedule1, ScotBL, WCA1i, WO1i
Meadow Pipit, <i>Anthus pratensis</i>	28	1989 - 2014	BAmb, Bern2, BoCC4-Amber
Mediterranean Gull, <i>Larus melanocephalus</i>	14	1999 - 2014	BAmb, BD1, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, LBCSchedule1, WCA1i
Merlin, <i>Falco columbarius</i>	16	1998 - 2008	BD1, Bern2, BoCC4-Red, CITESA, CMS_A2, FEP7/2, ScotBL, WCA1i, WO1i
Mistle Thrush, <i>Turdus viscivorus</i>	39	2003 - 2015	BD2.2, BoCC4-Red, BRed
Moorhen, <i>Gallinula chloropus</i>	32	1982 - 2015	BD2.2, CMS_A2, CMS_AEWA-A2
<i>Motacilla alba alba/yarrellii</i>	28	2013 - 2013	Bern2
Mute Swan, <i>Cygnus olor</i>	23	1982 - 2015	BAmb, BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, GBNSIP
Nuthatch, <i>Sitta europaea</i>	2	2012 - 2015	Bern2
Osprey, <i>Pandion haliaetus</i>	2	2002 - 2011	BAmb, BD1, BoCC4-Amber, CITESA, CMS_A2, LBCSchedule1, ScotBL, WCA1i, WO1i
Oystercatcher, <i>Haematopus ostralegus</i>	77	1979 - 2015	BAmb, BD2.2, BoCC4-Amber, CMS_AEWA-A2
Peregrine, <i>Falco peregrinus</i>	33	1999 - 2015	BD1, Bern2, CITESA, CMS_A2, LBCSchedule1, ScotBL, WCA1i, WO1i
Pheasant, <i>Phasianus colchicus</i>	11	2006 - 2013	BD2.1, GBNSIP
Pied Flycatcher, <i>Ficedula hypoleuca</i>	3	2002 - 2002	BoCC4-Red, BRed, CMS_A2, Sect.42, WO1i
Pied Wagtail, <i>Motacilla alba subsp. yarrellii</i>	56	1999 - 2014	Bern2
Pink-footed Goose, <i>Anser brachyrhynchus</i>	42	1982 - 2015	BAmb, BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, GBNSIP, Non-native
Pochard, <i>Aythya ferina</i>	2	1982 - 2005	BD2.1, BoCC4-Red, BRed, CMS_A2, CMS_AEWA-A2, GBNSIP, ScotBL, WO1ii
Pomarine Skua, <i>Stercorarius pomarinus</i>	2	2009 - 2010	
Purple Sandpiper, <i>Calidris maritima</i>	6	1982 - 2013	BAmb, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, ScotBL, WCA1i
Red Kite, <i>Milvus milvus</i>	1	2011 - 2011	BD1, CITESA, CMS_A2, FEP7/2, LBCSchedule1, Non-native, RLGLB.NT, ScotBL, WCA1i, WCA9
Red-breasted Merganser, <i>Mergus serrator</i>	1	1982 - 1982	BD2.2, CMS_A2, CMS_AEWA-A2
Red-legged Partridge, <i>Alectoris rufa</i>	2	2006 - 2007	BD2.1, GBNSIP, Non-native
Redshank, <i>Tringa totanus</i>	117	1979 - 2015	BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, LBAP:3
Redstart, <i>Phoenicurus phoenicurus</i>	3	2002 - 2015	BAmb, Bern2, BoCC4-Amber, WO1i
Red-tailed Hawk, <i>Buteo jamaicensis</i>	1	2012 - 2012	GBNSIP
Red-throated Diver, <i>Gavia stellata</i>	1	2007 - 2007	BD1, Bern2, CMS_A2, CMS_AEWA-A2, ScotBL, WCA1i, WO1i
Redwing, <i>Turdus iliacus</i>	23	1998 - 2013	BD2.2, BoCC4-Red, BRed, ScotBL, WCA1i
Reed Bunting, <i>Emberiza schoeniclus</i>	31	2002 - 2014	Bern2, BoCC4-Amber, FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP

Reed Warbler, <i>Acrocephalus scirpaceus</i>	8	2002 - 2014	ScotBL, WO1i
Ring Ouzel, <i>Turdus torquatus</i>	13	2005 - 2015	Bern2, BoCC4-Red, FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP, WO1i
Ringed Plover, <i>Charadrius hiaticula</i>	89	1979 - 2015	Bern2, BoCC4-Red, BRed, CMS_A2, CMS_AEWA-A2, Sect.42
Ring-necked Parakeet, <i>Psittacula krameri</i>	6	2006 - 2011	CITESC, GBNNISIP, Non-native, WCA9
Robin, <i>Erithacus rubecula</i>	51	2004 - 2015	Bern2
Rock Dove, <i>Columba livia</i>	1	2007 - 2007	BD2.1, CITESA, GBNNISIP, Non-native
Rock Pipit, <i>Anthus petrosus</i>	5	1998 - 2007	Bern2
Rook, <i>Corvus frugilegus</i>	3	1998 - 2015	BD2.2
Rose-coloured Starling, <i>Pastor roseus</i>	1	2005 - 2005	Bern2, GBNNISIP
Ruddy Duck, <i>Oxyura jamaicensis</i>	3	2002 - 2008	CMS_A2, GBNNISIP, NE_EA_INNS, Non-native, WCA9
Ruddy Shelduck, <i>Tadorna ferruginea</i>	1	1982 - 1982	BD1, Bern2, CMS_A2, CMS_AEWA-A2, FEP7/2, GBNNISIP, Non-native, WCA9
Ruff, <i>Calidris pugnax</i>	12	1981 - 2001	BD1, BD2.2, BoCC4-Red, CMS_A2, CMS_AEWA-A2, FEP7/2, LBCSchedule1, ScotBL, WCA1i, WO1i
Sand Martin, <i>Riparia riparia</i>	5	1999 - 2003	Bern2
Sanderling, <i>Calidris alba</i>	13	1981 - 2012	BAmb, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2
Sandwich Tern, <i>Sterna sandvicensis</i>	3	1982 - 2012	BD1, Bern2, BoCC4-Amber, CMS_AEWA-A2, FEP7/2, ScotBL, WO1i
Savi's Warbler, <i>Locustella luscinioides</i>	1	1897 - 1897	BoCC4-Red, BRed, Sect.41, UKBAP, WCA1i
Scaup, <i>Aythya marila</i>	6	1982 - 2010	BD2.2, BoCC4-Red, BRed, CMS_A2, CMS_AEWA-A2, ScotBL, Sect.41, UKBAP, WCA1i, WO1ii
Sedge Warbler, <i>Acrocephalus schoenobaenus</i>	22	1991 - 2014	
Shag, <i>Phalacrocorax aristotelis</i>	9	2004 - 2010	Bern2, BoCC4-Red, BRed
Shelduck, <i>Tadorna tadorna</i>	126	1979 - 2015	BAmb, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2
Short-eared Owl, <i>Asio flammeus</i>	26	1979 - 2015	BD1, Bern2, BoCC4-Amber, CITESA, FEP7/2, ScotBL, WO1i
Shoveler, <i>Anas clypeata</i>	4	1982 - 2015	BAmb, BD2.1, BoCC4-Amber, CITESC, CMS_A2, CMS_AEWA-A2, WO1ii
Siskin, <i>Spinus spinus</i>	16	1998 - 2015	Bern2, ScotBL
Skylark, <i>Alauda arvensis</i>	22	1989 - 2014	BD2.2, BoCC4-Red, FEP7/2, LBAP:3, ScotBL, Sect.41
Snipe, <i>Gallinago gallinago</i>	51	1981 - 2015	BD2.1, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, LBAP:3
Snow Bunting, <i>Plectrophenax nivalis</i>	10	1998 - 2013	BAmb, Bern2, BoCC4-Amber, ScotBL, WCA1i
Song Thrush, <i>Turdus philomelos</i>	24	1991 - 2015	BD2.2, BoCC4-Red, FEP7/2, LBAP:3, ScotBL
Sparrowhawk, <i>Accipiter nisus</i>	33	2002 - 2015	CITESA, CMS_A2, WO1i
Spotted Flycatcher, <i>Muscicapa striata</i>	2	2000 - 2001	Bern2, BoCC4-Red, CMS_A2, FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP
Spotted Redshank, <i>Tringa erythropus</i>	4	1998 - 2010	BAmb, BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2
Starling, <i>Sturnus vulgaris</i>	122	1991 - 2015	BD2.2, BoCC4-Red, FEP7/2, LBAP:3
Stock Dove, <i>Columba oenas</i>	6	2005 - 2015	BAmb, BD2.2, BoCC4-Amber
Stonechat, <i>Saxicola rubicola</i>	47	1998 - 2015	Bern2
Swallow, <i>Hirundo rustica</i>	41	1991 - 2014	Bern2
Swift, <i>Apus apus</i>	15	1991 - 2014	BAmb, BoCC4-Amber, LBAP:3, ScotBL
Tawny Owl, <i>Strix aluco</i>	24	2001 - 2013	BAmb, Bern2, BoCC4-Amber, CITESA
Teal, <i>Anas crecca</i>	25	1982 - 2015	BAmb, BD2.1, BoCC4-Amber, CITESC, CMS_A2, CMS_AEWA-A2
Tufted Duck, <i>Aythya fuligula</i>	14	1982 - 2014	BD2.1, CMS_A2, CMS_AEWA-A2
Turnstone, <i>Arenaria interpres</i>	65	1979 - 2015	BAmb, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2
Turtle Dove, <i>Streptopelia turtur</i>	1	2003 - 2003	BD2.2, BoCC4-Red, CITESA, FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP, WO1i
Twite, <i>Linaria flavirostris</i>	2	2013 - 2013	Bern2, BoCC4-Red, FEP7/2, WO1i
Velvet Scoter, <i>Melanitta fusca</i>	2	1982 - 2002	BD2.2, BoCC4-Red, BRed, CMS_A2, CMS_AEWA-A2, RLGLB.EN, WCA1i
Water Pipit, <i>Anthus spinoletta</i>	1	2010 - 2010	BAmb, Bern2, BoCC4-Amber
Water Rail, <i>Rallus aquaticus</i>	6	1982 - 2014	BD2.2, CMS_AEWA-A2
Waxwing, <i>Bombycilla garrulus</i>	83	1999 - 2014	Bern2
Wheatear, <i>Oenanthe oenanthe</i>	48	1898 - 2014	Bern2

Whimbrel, <i>Numenius phaeopus</i>	20	1981 - 2013	BD2.2, BoCC4-Red, BRed, CMS_A2, CMS_AEWA-A2, WCA1i, WO1i
Whinchat, <i>Saxicola rubetra</i>	7	1998 - 2002	Bern2, BoCC4-Red, BRed
White Wagtail, <i>Motacilla alba subsp. alba</i>	2	1999 - 2004	Bern2
Whitethroat, <i>Sylvia communis</i>	34	1999 - 2014	
Whooper Swan, <i>Cygnus cygnus</i>	3	1998 - 2007	BD1, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, GBNNSIP, Non-native, ScotBL, WCA1i, WO1i
Wigeon, <i>Anas penelope</i>	6	1982 - 2007	BAmb, BD2.1, BoCC4-Amber, CITESC, CMS_A2, CMS_AEWA-A2, GBNNSIP, WO1ii
Willow Tit, <i>Poecile montana</i>	7	2000 - 2003	Bern2, BoCC4-Red, BRed, FEP7/2, ScotBL
Willow Warbler, <i>Phylloscopus trochilus</i>	10	1991 - 2013	BAmb, BoCC4-Amber
Wood Sandpiper, <i>Tringa glareola</i>	1	2002 - 2002	BAmb, BD1, Bern2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, ScotBL, WCA1i
Woodcock, <i>Scolopax rusticola</i>	7	1982 - 2013	BD2.1, BoCC4-Red, BRed, CMS_A2, CMS_AEWA-A2, ScotBL
Woodlark, <i>Lullula arborea</i>	1	1999 - 1999	BD1, FEP7/2, LBCSchedule1, Sect.41, Sect.42, UKBAP, WCA1i
Woodpigeon, <i>Columba palumbus</i>	100	1989 - 2015	BD2.1
Wren, <i>Troglodytes troglodytes</i>	61	1991 - 2015	Bern2
Yellow Wagtail, <i>Motacilla flava</i>	10	2002 - 2013	Bern2, BoCC4-Red, FEP7/2, LBAP:3, ScotBL, WO1i
Yellow-browed Warbler, <i>Phylloscopus inornatus</i>	3	2015 - 2015	
Yellowhammer, <i>Emberiza citrinella</i>	11	1998 - 2014	Bern2, BoCC4-Red, FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP
Yellow-legged Gull, <i>Larus michahellis</i>	3	2001 - 2014	BAmb, BoCC4-Amber

Bony Fish (actinopterygii) (8 taxa)	Number of records	Date range recorded	Designations
Brown/Sea Trout, <i>Salmo trutta</i>	1	1989 - 1989	ScotBL, Sect.41, Sect.42, UKBAP
Common Carp, <i>Cyprinus carpio</i>	1	1989 - 1989	Non-native
European Eel, <i>Anguilla anguilla</i>	1	2003 - 2003	LBAP:3, OSPAR, RLGLB.CR, ScotBL, Sect.41, Sect.42, UKBAP
Nine-spined Stickleback, <i>Pungitius pungitius</i>	3	2007 - 2007	
Perch, <i>Perca fluviatilis</i>	1	1989 - 1989	
Rudd, <i>Scardinius erythrophthalmus</i>	1	1989 - 1989	
Tench, <i>Tinca tinca</i>	1	1989 - 1989	
Three-spined Stickleback, <i>Gasterosteus aculeatus</i>	22	2006 - 2014	

Bryozoan (1 taxa)	Number of records	Date range recorded	Designations
Encrusting bryozoans, Bryozoa	2	2010 - 2011	

Coelenterate (=cnidarian) (1 taxa)	Number of records	Date range recorded	Designations
Hydroid, Hydrozoa	2	2010 - 2011	

Conifer (9 taxa)	Number of records	Date range recorded	Designations
Corsican Pine, <i>Pinus nigra</i>	2	1997 - 2015	GBNNSIP, Non-native
European Larch, <i>Larix decidua</i>	2	1997 - 2015	GBNNSIP, Non-native
Juniper, <i>Juniperus communis</i>	2	2008 - 2008	FEP1, FEP7/2, RLGB.Lr(NT), ScotBL, Sect.41, Sect.42, UKBAP
Lawson's Cypress, <i>Chamaecyparis lawsoniana</i>	2	1997 - 1997	GBNNSIP, Non-native
Leyland Cypress, <i>Cupressus macrocarpa x Xanthocyparis nootkatensis = X Cuprocypris</i>	3	2010 - 2015	GBNNSIP, Non-native
Norway Spruce, <i>Picea abies</i>	2	2010 - 2015	GBNNSIP, Non-native
Scots Pine, <i>Pinus sylvestris</i>	2	1997 - 2015	NS-excludes
Wellingtonia, <i>Sequoiadendron giganteum</i>	1	1997 - 1997	GBNNSIP, Non-native
Yew, <i>Taxus baccata</i>	1	1997 - 1997	FEP1

Crustacean (14 taxa)	Number of records	Date range recorded	Designations
Bathyporeia	1	1991 - 1991	
Brown Shrimp, <i>Crangon crangon</i>	2	2003 - 2014	
Corophium volutator	17	1995 - 2014	
Crangonyx pseudogracilis	13	1994 - 2016	GBNNSIP, NE_EA_INNS, Non-native

Cumacea	2	1999 - 2000
<i>Cumopsis goodsir</i>	1	2008 - 2008
<i>Cyathura carinata</i>	2	2009 - 2011
Gammaridae	3	2007 - 2007
<i>Gammarus pulex/fossarum agg.</i>	2	2015 - 2015
<i>Gammarus zaddachi</i>	5	2008 - 2014
Harpacticoida	3	2000 - 2011
Hoglouse, Asellidae	6	2006 - 2007
<i>Palaemon varians</i>	1	2008 - 2008
Water hog lice/slaters, <i>Asellus (Asellus) aquaticus</i>	18	1994 - 2015

Diatom (54 taxa)	Number of records	Date range recorded	Designations
<i>Achnanthes conspicua</i>	4	2007 - 2007	
<i>Achnantheidium minutissimum</i>	4	2007 - 2007	
<i>Achnantheidium subatomus</i>	4	2007 - 2007	
<i>Amphora libyca</i>	4	2007 - 2007	
<i>Amphora pediculus</i>	4	2007 - 2007	
<i>Cocconeis pediculus</i>	4	2007 - 2007	
<i>Cocconeis placentula var. euglypta</i>	8	2007 - 2007	
<i>Cocconeis placentula var. lineata</i>	4	2007 - 2007	
Cyclotella	4	2007 - 2007	
<i>Cymbella microcephala</i>	4	2007 - 2007	
<i>Diatoma vulgare var. grande</i>	4	2007 - 2007	
<i>Fallacia pygmaea</i>	4	2007 - 2007	
<i>Gomphonema minutum</i>	4	2007 - 2007	
<i>Gomphonema olivaceum</i>	4	2007 - 2007	
<i>Gomphonema parvulum</i>	8	2007 - 2007	
<i>Gomphonema truncatum</i>	4	2007 - 2007	
<i>Gyrosigma acuminatum</i>	4	2007 - 2007	
<i>Hippodonta hungarica</i>	4	2007 - 2007	
<i>Karayevia clevei</i>	4	2007 - 2007	
<i>Melosira varians</i>	4	2007 - 2007	
<i>Navicula capitatoradiata</i>	4	2007 - 2007	
<i>Navicula cryptotenella</i>	4	2007 - 2007	
<i>Navicula gregaria</i>	8	2007 - 2007	
<i>Navicula lanceolata</i>	4	2007 - 2007	
<i>Navicula menisculus</i>	4	2007 - 2007	
<i>Navicula minima</i>	8	2007 - 2007	
<i>Navicula reichardtiana</i>	4	2007 - 2007	
<i>Navicula reinhardtii</i>	4	2007 - 2007	
<i>Navicula slesvicensis</i>	4	2007 - 2007	
<i>Navicula subrotundata</i>	4	2007 - 2007	
<i>Navicula tripunctata</i>	4	2007 - 2007	
<i>Navicula veneta</i>	8	2007 - 2007	
<i>Nitzschia amphibia</i>	4	2007 - 2007	
<i>Nitzschia capitellata</i>	4	2007 - 2007	
<i>Nitzschia dissipata</i>	4	2007 - 2007	
<i>Nitzschia frustulum</i>	4	2007 - 2007	
<i>Nitzschia inconspicua</i>	4	2007 - 2007	
<i>Nitzschia palea</i>	8	2007 - 2007	
<i>Nitzschia paleacea</i>	4	2007 - 2007	
<i>Nitzschia recta</i>	4	2007 - 2007	
<i>Nitzschia sociabilis</i>	4	2007 - 2007	
<i>Pinnularia appendiculata</i>	4	2007 - 2007	
<i>Planothidium frequentissimum</i>	8	2007 - 2007	
<i>Psammothidium lauenburgianum</i>	4	2007 - 2007	
Pseudostaurosira	4	2007 - 2007	
<i>Pseudostaurosira brevistriata</i>	4	2007 - 2007	
<i>Reimeria sinuata</i>	4	2007 - 2007	
<i>Rhoicosphenia abbreviata</i>	4	2007 - 2007	
<i>Sellaphora pupula</i>	4	2007 - 2007	
<i>Staurosira elliptica</i>	4	2007 - 2007	
<i>Staurosirella leptostauron</i>	4	2007 - 2007	
<i>Staurosirella pinnata</i>	4	2007 - 2007	
<i>Surirella brebissonii</i>	4	2007 - 2007	

Fern (4 taxa)	Number of records	Date range recorded	Designations
Bracken, <i>Pteridium aquilinum</i>	7	1997 - 2015	
Broad Buckler-fern, <i>Dryopteris dilatata</i>	6	1997 - 2015	
Male-fern, <i>Dryopteris filix-mas</i>	6	1997 - 2015	
Scaly Male-fern, <i>Dryopteris affinis</i>	1	2015 - 2015	

Flatworm (turbellaria) (1 taxa)	Number of records	Date range recorded	Designations
Platyhelminthes	1	1990 - 1990	

Flowering Plant (479 taxa)	Number of records	Date range recorded	Designations
Alder, <i>Alnus glutinosa</i>	11	1993 - 2015	FEP1
Alexanders, <i>Smyrniolum olusatrum</i>	1	2008 - 2008	GBNNSIP
Alsike Clover, <i>Trifolium hybridum</i>	2	2011 - 2015	GBNNSIP
American Willowherb, <i>Epilobium ciliatum</i>	5	1997 - 2015	GBNNSIP, Non-native
Amphibious Bistort, <i>Persicaria amphibia</i>	10	1993 - 2015	
Annual Meadow-grass, <i>Poa annua</i>	24	1977 - 2015	
Annual Pearlwort, <i>Sagina apetala subsp. apetala</i>	5	1997 - 2015	
Annual Sea-blite, <i>Suaeda maritima</i>	1	2015 - 2015	
Annual Wall-rocket, <i>Diplotaxis muralis</i>	4	1997 - 2011	GBNNSIP
Apple, <i>Malus pumila</i>	6	1993 - 2015	GBNNSIP, Non-native
Apple, <i>Malus sylvestris sens.lat.</i>	4	1987 - 2006	
<i>Arenaria serpyllifolia</i> agg.	3	1997 - 1997	
Ash, <i>Fraxinus excelsior</i>	21	1993 - 2015	FEP1
<i>Aster tripolium</i> var. <i>tripolium</i>	1	2011 - 2011	
Autumn Hawkbit, <i>Scorzoneroides autumnalis</i>	5	1997 - 2015	
Babington's Orache, <i>Atriplex glabriuscula</i>	2	2011 - 2015	
Balm, <i>Melissa officinalis</i>	1	2011 - 2011	GBNNSIP
Barren Brome, <i>Bromus sterilis</i>	29	1991 - 2015	GBNNSIP
Beaked Hawk's-beard, <i>Crepis vesicaria</i>	17	1977 - 2015	GBNNSIP
Beech, <i>Fagus sylvatica</i>	1	1997 - 1997	FEP1
Bindweed, <i>Calystegia</i>	1	2015 - 2015	
Biting Stonecrop, <i>Sedum acre</i>	2	1993 - 1997	
Bittersweet, <i>Solanum dulcamara</i>	20	1993 - 2011	
Black Bryony, <i>Dioscorea communis</i>	3	1997 - 2015	
Black Horehound, <i>Ballota nigra</i>	1	1997 - 1997	GBNNSIP
Black Medick, <i>Medicago lupulina</i>	21	1987 - 2015	
Black Mustard, <i>Brassica nigra</i>	4	1993 - 2015	
Black-bindweed, <i>Fallopia convolvulus</i>	7	1993 - 2015	GBNNSIP, Non-native, ScotBL
Black-grass, <i>Alopecurus myosuroides</i>	14	1991 - 2015	GBNNSIP, Non-native, ScotBL
Blackthorn, <i>Prunus spinosa</i>	14	1977 - 2015	FEP1
Bladder Campion, <i>Silene vulgaris</i>	1	1991 - 1991	
Blue Fleabane, <i>Erigeron acris</i>	3	1997 - 2015	WO8i
Blue Water-Speedwell, <i>Veronica anagallis-aquatica</i>	6	1993 - 2015	
Bogbean, <i>Menyanthes trifoliata</i>	1	2015 - 2015	CITESD
Brackish Water-crowfoot, <i>Ranunculus baudotii</i>	2	1993 - 1993	
Bramble, <i>Rubus fruticosus</i> agg.	40	1977 - 2015	
Branched Bur-reed, <i>Sparganium erectum</i>	23	1993 - 2015	
Bread Wheat, <i>Triticum aestivum</i>	2	1991 - 2010	GBNNSIP
Bristly Oxtongue, <i>Picris echioides</i>	36	1991 - 2015	GBNNSIP
Broad-leaved Dock, <i>Rumex obtusifolius</i>	28	1987 - 2015	
Broad-leaved Pondweed, <i>Potamogeton natans</i>	2	2015 - 2015	
Brooklime, <i>Veronica beccabunga</i>	5	1997 - 2015	
Brown Sedge, <i>Carex disticha</i>	1	1987 - 1987	
Buck's-horn Plantain, <i>Plantago coronopus</i>	1	2015 - 2015	
Bulbous Buttercup, <i>Ranunculus bulbosus</i>	5	1977 - 2010	
Bulrush, <i>Typha latifolia</i>	16	1993 - 2015	
Bush Vetch, <i>Vicia sepium</i>	1	1987 - 1987	
Butterbur, <i>Petasites hybridus</i>	5	1987 - 2012	
Butterfly-bush, <i>Buddleja davidii</i>	2	1997 - 2015	GBNNSIP, NE_EA_INNS, Non-native
Buttonweed, <i>Cotula coronopifolia</i>	1	2015 - 2015	GBNNSIP

<i>Callitriche aggregate</i>	20	1993 - 2015	
Canadian Fleabane, <i>Conyza canadensis</i>	5	1991 - 1997	GBNNSIP, Non-native
Canadian Goldenrod, <i>Solidago canadensis</i>	1	2013 - 2013	GBNNSIP
Canary-grass, <i>Phalaris canariensis</i>	1	1997 - 1997	GBNNSIP
Carrot, <i>Daucus carota</i>	7	1986 - 2011	
Cat's-ear, <i>Hypochaeris radicata</i>	15	1991 - 2015	
Celery-leaved Buttercup, <i>Ranunculus sceleratus</i>	14	1993 - 2015	
Chamomile, <i>Chamaemelum nobile</i>	2	1993 - 1993	RLGB.VU, Sect.41, Sect.42, UKBAP
Charlock, <i>Sinapis arvensis</i>	25	1977 - 2015	GBNNSIP, ScotBL
<i>Chenopodium album</i> agg.	1	1987 - 1987	
Cherry Laurel, <i>Prunus laurocerasus</i>	1	2015 - 2015	GBNNSIP
Chicory, <i>Cichorium intybus</i>	2	2010 - 2011	GBNNSIP, RLGB.VU, ScotBL
Cleavers, <i>Galium aparine</i>	33	1977 - 2015	
Clustered Dock, <i>Rumex conglomeratus</i>	26	1977 - 2015	
Cock's-foot, <i>Dactylis glomerata</i>	36	1977 - 2015	
Colt's-foot, <i>Tussilago farfara</i>	33	1977 - 2015	
Common Bent, <i>Agrostis capillaris</i>	10	1991 - 2008	
Common Bird's-foot-trefoil, <i>Lotus corniculatus</i>	10	1991 - 2015	
Common Centaury, <i>Centaureum erythraea</i>	8	2006 - 2015	
Common Chickweed, <i>Stellaria media</i>	27	1977 - 2015	
Common Club-rush, <i>Schoenoplectus lacustris</i>	1	2008 - 2008	
Common Cord-grass, <i>Spartina anglica</i>	1	2015 - 2015	NE_EA_INNS, Non-native
Common Couch, <i>Elytrigia repens</i>	4	2008 - 2015	
Common Cudweed, <i>Filago vulgaris</i>	4	1991 - 2015	RLGB.Lr(NT), ScotBL
Common Dog-violet, <i>Viola riviniana</i>	1	1997 - 1997	
Common Duckweed, <i>Lemna minor</i>	28	1993 - 2015	
Common Field-speedwell, <i>Veronica persica</i>	19	1977 - 2015	GBNNSIP, Non-native
Common Figwort, <i>Scrophularia nodosa</i>	1	1997 - 1997	Peterken-CL
Common Fleabane, <i>Pulicaria dysenterica</i>	5	1968 - 2015	
Common Fumitory, <i>Fumaria officinalis</i>	1	1997 - 1997	GBNNSIP
Common Knapweed, <i>Centaurea nigra</i>	20	1977 - 2015	
Common Mallow, <i>Malva sylvestris</i>	17	1993 - 2015	GBNNSIP
Common Meadow-rue, <i>Thalictrum flavum</i>	1	2011 - 2011	
Common Mouse-ear, <i>Cerastium fontanum</i>	21	1977 - 2015	
Common Mouse-Ear, <i>Cerastium fontanum</i> subsp. <i>vulgare</i>	1	2015 - 2015	
Common Nettle, <i>Urtica dioica</i>	39	1977 - 2015	
Common Orache, <i>Atriplex patula</i>	12	1991 - 2015	
Common Poppy, <i>Papaver rhoeas</i>	9	1991 - 2011	GBNNSIP
Common Ragwort, <i>Senecio jacobaea</i>	22	1993 - 2015	
Common Reed, <i>Phragmites australis</i>	40	1987 - 2015	
Common Sallow, <i>Salix cinerea</i>	6	1987 - 2015	FEP1
Common Saltmarsh-grass, <i>Puccinellia maritima</i>	2	2011 - 2015	
Common Sea-lavender, <i>Limonium vulgare</i>	4	1993 - 2015	RLGB.Lr(NT)
Common Soft-brome, <i>Bromus hordeaceus</i> subsp. <i>hordeaceus</i>	11	1991 - 2011	
Common Sorrel, <i>Rumex acetosa</i>	7	1977 - 2015	
Common Spike-rush, <i>Eleocharis palustris</i>	3	2009 - 2015	
Common Stork's-Bill, <i>Erodium cicutarium</i> agg.	2	1997 - 2015	
Common Toadflax, <i>Linaria vulgaris</i>	10	1987 - 2015	
Common Vetch, <i>Vicia sativa</i>	7	1987 - 2015	
Common Vetch, <i>Vicia sativa</i> subsp. <i>segetalis</i>	2	2011 - 2015	GBNNSIP, Non-native
Common Whitlowgrass, <i>Erophila verna</i>	1	1999 - 1999	
Compact Rush, <i>Juncus conglomeratus</i>	2	2006 - 2006	
Corn Marigold, <i>Glebionis segetum</i>	1	1997 - 1997	FEP7/3, GBNNSIP, RLGB.VU
Corn Parsley, <i>Petroselinum segetum</i>	2	1997 - 1997	FEP7/3
Cornflower, <i>Centaurea cyanus</i>	2	1997 - 1997	FEP7/2, GBNNSIP, ScotBL, Sect.41, Sect.42, UKBAP
<i>Cornus sanguinea</i> subsp. <i>australis</i>	1	2011 - 2011	FEP1, Peterken-CL
<i>Cornus sanguinea</i> subsp. <i>sanguinea</i>	2	2011 - 2015	
Cow Parsley, <i>Anthriscus sylvestris</i>	29	1977 - 2015	
Cowslip, <i>Primula veris</i>	4	1997 - 2010	WO8i
Crab Apple, <i>Malus sylvestris</i>	1	1993 - 1993	FEP1
<i>Crataegus monogyna</i> x <i>laevigata</i> = <i>C. x media</i>	1	1997 - 1997	
Creeping Bent, <i>Agrostis stolonifera</i>	37	1991 - 2015	
Creeping Buttercup, <i>Ranunculus repens</i>	33	1977 - 2015	
Creeping Cinquefoil, <i>Potentilla reptans</i>	20	1977 - 2015	
Creeping Thistle, <i>Cirsium arvense</i>	38	1977 - 2015	

Crested Dog's-tail, <i>Cynosurus cristatus</i>	2	1993 - 2015	
Crosswort, <i>Cruciata laevipes</i>	2	1997 - 2015	RLGB.Lr(NT)
Cuckooflower, <i>Cardamine pratensis</i>	1	1997 - 1997	
Curled Dock, <i>Rumex crispus</i>	36	1987 - 2015	
Curled Dock, <i>Rumex crispus</i> subsp. <i>littoreus</i>	1	2015 - 2015	
Curled Pondweed, <i>Potamogeton crispus</i>	11	1993 - 2015	
Cut-leaved Crane's-bill, <i>Geranium dissectum</i>	28	1977 - 2015	GBNNSIP
Cut-leaved Dead-nettle, <i>Lamium hybridum</i>	2	1997 - 2010	GBNNSIP, Non-native
Daisy, <i>Bellis perennis</i>	20	1977 - 2015	
Dandelion, <i>Taraxacum officinale</i> agg.	4	2006 - 2015	
Danish Scurvygrass, <i>Cochlearia danica</i>	7	1997 - 2014	
Dewberry, <i>Rubus caesius</i>	2	1977 - 1991	ScotBL
Dog Rose, <i>Rosa canina</i> agg.	34	1977 - 2015	FEP1
Dogwood, <i>Cornus sanguinea</i>	5	1993 - 2015	FEP1, Peterken-CL
Dove's-foot Crane's-bill, <i>Geranium molle</i>	7	1993 - 2015	
Downy Birch, <i>Betula pubescens</i>	2	2015 - 2015	FEP1
Eastern Rocket, <i>Sisymbrium orientale</i>	3	1997 - 1997	GBNNSIP
Elder, <i>Sambucus nigra</i>	34	1977 - 2015	FEP1
<i>Elytrigia repens</i> agg.	30	1977 - 2011	
<i>Elytrigia repens</i> f. <i>aristata</i>	1	2015 - 2015	
<i>Elytrigia repens</i> f. <i>repens</i>	2	2015 - 2015	
Enchanter's-nightshade, <i>Circaea lutetiana</i>	1	1997 - 1997	
English Scurvygrass, <i>Cochlearia anglica</i>	3	2010 - 2015	
Equal-leaved Knotgrass, <i>Polygonum arenastrum</i>	2	2011 - 2015	GBNNSIP, Non-native
<i>Erigeron acris</i>	4	1991 - 2015	
<i>Erophila verna</i> sens. lat.	2	1998 - 1999	
False Fox-sedge, <i>Carex otrubae</i>	14	1993 - 2015	
False Oat-grass, <i>Arrhenatherum elatius</i>	38	1977 - 2015	
False-brome, <i>Brachypodium sylvaticum</i>	5	1993 - 2010	
Fat Duckweed, <i>Lemna gibba</i>	3	2011 - 2015	
Fat-hen, <i>Chenopodium album</i>	12	1991 - 2015	
Fennel, <i>Foeniculum vulgare</i>	1	1980 - 1980	GBNNSIP, Non-native
Fennel Pondweed, <i>Potamogeton pectinatus</i>	19	1993 - 2009	
Fern-grass, <i>Catapodium rigidum</i>	4	1991 - 2015	
Feverfew, <i>Tanacetum parthenium</i>	1	2015 - 2015	GBNNSIP, Non-native
Field Bindweed, <i>Convolvulus arvensis</i>	24	1956 - 2015	
Field Forget-me-not, <i>Myosotis arvensis</i>	8	1977 - 2008	GBNNSIP
Field Maple, <i>Acer campestre</i>	6	1997 - 2015	FEP1
Field Pansy, <i>Viola arvensis</i>	6	1991 - 1997	GBNNSIP, Non-native
Field Penny-cress, <i>Thlaspi arvense</i>	4	1987 - 1997	GBNNSIP
Field Scabious, <i>Knautia arvensis</i>	1	1997 - 1997	RLGB.Lr(NT)
Fig-leaved Goosefoot, <i>Chenopodium ficifolium</i>	1	2011 - 2011	GBNNSIP, Non-native
Flattened Meadow-grass, <i>Poa compressa</i>	1	2011 - 2011	
Flax, <i>Linum usitatissimum</i>	1	1991 - 1991	GBNNSIP
Flixweed, <i>Descurainia sophia</i>	2	1991 - 1991	FEP7/3, GBNNSIP
Floating Sweet-grass, <i>Glyceria fluitans</i>	6	1993 - 1997	
Floating/Plicate Sweet-Grass, <i>Glyceria fluitans/notata</i>	1	2015 - 2015	
Flowering-rush, <i>Butomus umbellatus</i>	1	2015 - 2015	
Fool's Parsley, <i>Aethusa cynapium</i>	2	1997 - 1997	
Fool's-water-cress, <i>Apium nodiflorum</i>	18	1993 - 2015	
Foxglove, <i>Digitalis purpurea</i>	1	2015 - 2015	
Frosted Orache, <i>Atriplex laciniata</i>	1	1979 - 1979	
Galingale, <i>Cyperus longus</i>	1	2008 - 2008	NS-excludes, RLGB.Lr(NT)
Garden Privet, <i>Ligustrum ovalifolium</i>	3	2006 - 2015	GBNNSIP, Non-native
Garlic Mustard, <i>Alliaria petiolata</i>	22	1987 - 2015	
Germander Speedwell, <i>Veronica chamaedrys</i>	2	1997 - 2015	
Giant Fescue, <i>Festuca gigantea</i>	3	1993 - 1997	
Giant-rhubarb, <i>Gunnera tinctoria</i>	1	2015 - 2015	GBNNSIP, NE_EA_INNS, Non-native, WCA9
Glaucous Sedge, <i>Carex flacca</i>	6	1993 - 2015	
Goat Willow, <i>Salix caprea</i>	11	1997 - 2015	FEP1
Goat's-beard, <i>Tragopogon pratensis</i>	3	1991 - 2009	
Goat's-Beard, <i>Tragopogon pratensis</i> subsp. <i>minor</i>	16	1977 - 2015	
Gooseberry, <i>Ribes uva-crispa</i>	1	1997 - 1997	FEP1, GBNNSIP
Gorse, <i>Ulex europaeus</i>	1	2014 - 2014	FEP1
Grass-leaved Orache, <i>Atriplex littoralis</i>	5	1979 - 2015	

Great Lettuce, <i>Lactuca virosa</i>	6	1991 - 2015	
Great Willowherb, <i>Epilobium hirsutum</i>	34	1977 - 2015	
Greater Bird's-foot-trefoil, <i>Lotus pedunculatus</i>	1	2015 - 2015	
Greater Burdock, <i>Arctium lappa</i>	1	2011 - 2011	GBNNSIP
Greater Knapweed, <i>Centaurea scabiosa</i>	1	1998 - 1998	ScotBL
Greater Periwinkle, <i>Vinca major</i>	1	1997 - 1997	GBNNSIP
Greater Plantain, <i>Plantago major</i>	27	1987 - 2015	
Greater Pond-sedge, <i>Carex riparia</i>	1	1993 - 1993	
Greater Sea-spurrey, <i>Spergularia media</i>	3	1997 - 2015	
Green Field-speedwell, <i>Veronica agrestis</i>	3	1997 - 1997	GBNNSIP
Grey Poplar, <i>Populus alba x tremula = P. x canescens</i>	2	1993 - 1997	FEP1, Non-native
Grey Willow, <i>Salix cinerea subsp. cinerea</i>	4	1997 - 2015	FEP1
Grey/Common Club-Rush, <i>Schoenoplectus lacustris/tabernaemontani</i>	1	2015 - 2015	
Ground-elder, <i>Aegopodium podagraria</i>	1	1997 - 1997	GBNNSIP
Ground-ivy, <i>Glechoma hederacea</i>	15	1987 - 2015	
Groundsel, <i>Senecio vulgaris</i>	26	1977 - 2015	
Guelder-rose, <i>Viburnum opulus</i>	2	1997 - 2015	FEP1, Peterken-CL
Gypsywort, <i>Lycopus europaeus</i>	1	1997 - 1997	
Hairy Bitter-cress, <i>Cardamine hirsuta</i>	5	1977 - 2015	
Hairy Buttercup, <i>Ranunculus sardous</i>	3	1992 - 2011	ScotBL
Hairy Sedge, <i>Carex hirta</i>	5	1997 - 2015	
Hairy Tare, <i>Vicia hirsuta</i>	3	2006 - 2015	
Hairy-brome, <i>Bromopsis ramosa</i>	3	1993 - 2015	
Hard Rush, <i>Juncus inflexus</i>	25	1987 - 2015	
Hard-grass, <i>Parapholis strigosa</i>	2	1967 - 2011	
Hare's-foot Clover, <i>Trifolium arvense</i>	2	1991 - 2011	
Hawkweed, <i>Hieracium</i>	1	2008 - 2008	
Hawthorn, <i>Crataegus monogyna</i>	37	1977 - 2015	FEP1
Hazel, <i>Corylus avellana</i>	1	1997 - 1997	FEP1, Peterken-CL
Heath False-brome, <i>Brachypodium pinnatum</i>	2	1997 - 1997	
<i>Hedera helix</i> agg.	4	1993 - 1997	
Hedge Bindweed, <i>Calystegia sepium</i>	13	1993 - 2015	
Hedge Mustard, <i>Sisymbrium officinale</i>	22	1991 - 2015	GBNNSIP
Hedge Woundwort, <i>Stachys sylvatica</i>	7	1987 - 2010	
Hedgerow Crane's-bill, <i>Geranium pyrenaicum</i>	2	1997 - 2015	GBNNSIP, Non-native
Hemlock, <i>Conium maculatum</i>	35	1987 - 2015	GBNNSIP
Henbane, <i>Hyoscyamus niger</i>	1	1997 - 1997	GBNNSIP, RLGB.VU, ScotBL
Henbit Dead-nettle, <i>Lamium amplexicaule</i>	2	1997 - 1997	GBNNSIP
Herb-Robert, <i>Geranium robertianum</i>	8	1993 - 2015	
<i>Hieracium</i> agg.	8	1991 - 2015	
Hoary Cress, <i>Lepidium draba</i>	15	1960 - 2015	GBNNSIP
Hoary Cress, <i>Lepidium draba subsp. draba</i>	3	2010 - 2011	GBNNSIP, Non-native
Hoary Plantain, <i>Plantago media</i>	2	1987 - 2011	RLGB.Lr(NT), ScotBL
Hoary Ragwort, <i>Senecio erucifolius</i>	25	1991 - 2015	
Hoary Willowherb, <i>Epilobium parviflorum</i>	8	2008 - 2015	
Hogweed, <i>Heracleum sphondylium</i>	34	1977 - 2015	
Holly, <i>Ilex aquifolium</i>	4	1997 - 2015	FEP1
Honesty, <i>Lunaria annua</i>	1	1997 - 1997	GBNNSIP
Honeysuckle, <i>Lonicera periclymenum</i>	2	1991 - 2015	
Hop Trefoil, <i>Trifolium campestre</i>	7	1991 - 2015	
Hornbeam, <i>Carpinus betulus</i>	1	2015 - 2015	FEP1
Horned Pondweed, <i>Zannichellia palustris</i>	5	1993 - 2015	
Horse-chestnut, <i>Aesculus hippocastanum</i>	2	1997 - 1997	GBNNSIP
Horse-radish, <i>Armoracia rusticana</i>	9	1977 - 2010	GBNNSIP, Non-native
Hybrid Black-poplar, <i>Populus nigra x deltoides = P. x canadensis</i>	9	1997 - 2015	GBNNSIP, Non-native
Hybrid Crack-willow, <i>Salix euxina x alba = S. x fragilis</i>	1	2008 - 2008	FEP1, GBNNSIP, Non-native
Italian Alder, <i>Alnus cordata</i>	1	2015 - 2015	GBNNSIP, NE_EA_INNS, Non-native
Italian Rye-grass, <i>Lolium multiflorum</i>	3	1993 - 2015	GBNNSIP, Non-native
Ivy, <i>Hedera helix</i>	1	2015 - 2015	
Ivy-leaved Speedwell, <i>Veronica hederifolia</i>	1	1993 - 1993	GBNNSIP
Japanese Knotweed, <i>Fallopia japonica</i>	1	1997 - 1997	GBNNSIP, NE_EA_INNS, Non-native, WCA9
Japanese Rose, <i>Rosa rugosa</i>	4	1993 - 2015	FEP1, GBNNSIP, Non-native, WCA9
Jointed Rush, <i>Juncus articulatus</i>	11	1997 - 2015	
Knotgrass, <i>Polygonum aviculare</i>	2	2011 - 2015	
Knotgrass agg., <i>Polygonum aviculare</i> agg. <i>sensu lato</i>	18	1991 - 2008	

Lady's Bedstraw, <i>Galium verum</i>	13	1993 - 2011	
Large Bindweed, <i>Calystegia silvatica</i>	8	2008 - 2015	GBNNSIP, Non-native
Large-leaved Lime, <i>Tilia platyphyllos</i>	1	2015 - 2015	FEP1, NS-excludes
Least Duckweed, <i>Lemna minuta</i>	1	2015 - 2015	GBNNSIP, NE_EA_INNS, Non-native
<i>Lepidium coronopus</i>	1	2011 - 2011	
Lesser Bulrush, <i>Typha angustifolia</i>	2	2006 - 2006	
Lesser Burdock, <i>Arctium minus</i>	11	1987 - 2015	
Lesser Celandine, <i>Ranunculus ficaria</i>	1	1997 - 1997	
Lesser Pond-sedge, <i>Carex acutiformis</i>	3	1997 - 1997	Peterken-CL
Lesser Sea-spurrey, <i>Spergularia marina</i>	3	2011 - 2015	
Lesser Soft-Brome, <i>Bromus hordeaceus</i>	3	1997 - 2015	
Lesser Stitchwort, <i>Stellaria graminea</i>	1	1997 - 1997	
Lesser Trefoil, <i>Trifolium dubium</i>	31	1977 - 2015	
Lesser Water-parsnip, <i>Berula erecta</i>	6	1997 - 2009	
Lime, <i>Tilia platyphyllos x cordata = T. x europaea</i>	2	1997 - 2015	
Long-headed Poppy, <i>Papaver dubium</i>	4	1991 - 2011	GBNNSIP
Lords-and-Ladies, <i>Arum maculatum</i>	1	1997 - 1997	
Lucerne, <i>Medicago sativa subsp. sativa</i>	1	1991 - 1991	GBNNSIP, Non-native
Mare's-tail, <i>Hippuris vulgaris</i>	3	1997 - 2015	
Marsh Arrowgrass, <i>Triglochin palustre</i>	1	1960 - 1960	RLGB.Lr(NT)
Marsh Foxtail, <i>Alopecurus geniculatus</i>	5	1993 - 2015	
Marsh Yellow-cress, <i>Rorippa palustris</i>	1	2011 - 2011	
Marsh-bedstraw, <i>Galium palustre</i>	1	1987 - 1987	
Marsh-marigold, <i>Caltha palustris</i>	1	2015 - 2015	
Meadow Brome, <i>Bromus commutatus</i>	1	2011 - 2011	
Meadow Buttercup, <i>Ranunculus acris</i>	9	1977 - 2015	
Meadow Fescue, <i>Festuca pratensis</i>	1	1977 - 1977	
Meadow Foxtail, <i>Alopecurus pratensis</i>	10	1977 - 2015	
Meadow Vetchling, <i>Lathyrus pratensis</i>	18	1977 - 2015	
Meadowsweet, <i>Filipendula ulmaria</i>	21	1977 - 2015	
Melilotus	1	2009 - 2009	
Midland Hawthorn, <i>Crataegus laevigata</i>	2	1997 - 2015	FEP1
Moth Mullein, <i>Verbascum blattaria</i>	2	2010 - 2015	GBNNSIP
Mouse-ear-hawkweed, <i>Pilosella officinarum</i>	6	1991 - 2015	
Mugwort, <i>Artemisia vulgaris</i>	20	1991 - 2015	GBNNSIP
Musk-mallow, <i>Malva moschata</i>	1	2015 - 2015	
Narrow-leaved Meadow-grass, <i>Poa angustifolia</i>	1	1977 - 1977	
Narrow-leaved Ragwort, <i>Senecio inaequidens</i>	1	2015 - 2015	GBNNSIP, Non-native
Narrow-leaved Vetch, <i>Vicia sativa subsp. nigra</i>	5	1977 - 2015	
Nipplewort, <i>Lapsana communis</i>	15	1993 - 2015	
Nuttall's Waterweed, <i>Elodea nuttallii</i>	12	1993 - 2015	GBNNSIP, NE_EA_INNS, Non-native, WCA9
Oil-seed Rape, <i>Brassica napus subsp. oleifera</i>	8	1997 - 2015	GBNNSIP, Non-native
Opium Poppy, <i>Papaver somniferum</i>	4	1993 - 2011	GBNNSIP
Opposite-leaved Pondweed, <i>Groenlandia densa</i>	7	1993 - 2015	RLGB.VU
Osier, <i>Salix viminalis</i>	5	1997 - 2008	FEP1, GBNNSIP
Oxeye Daisy, <i>Leucanthemum vulgare</i>	12	1977 - 2015	
Oxford Ragwort, <i>Senecio squalidus</i>	18	1977 - 2015	GBNNSIP
Pale Persicaria, <i>Persicaria lapathifolia</i>	4	1997 - 2015	
Pale Toadflax, <i>Linaria repens</i>	1	1997 - 1997	GBNNSIP, Non-native
Pale Willowherb, <i>Epilobium roseum</i>	3	1997 - 1997	
Pampas-grass, <i>Cortaderia selloana</i>	2	2006 - 2006	GBNNSIP, Non-native
<i>Papaver dubium</i> agg.	3	1993 - 1997	
Pear, <i>Pyrus communis</i>	1	1993 - 1993	GBNNSIP, Non-native
Pear, <i>Pyrus communis sens.lat.</i>	2	1997 - 1997	GBNNSIP, Non-native
Pedunculate Oak, <i>Quercus robur</i>	6	1993 - 2015	FEP1
Pellitory-of-the-wall, <i>Parietaria judaica</i>	1	1997 - 1997	
Perennial Rye-grass, <i>Lolium perenne</i>	29	1993 - 2015	
Perennial Sow-thistle, <i>Sonchus arvensis</i>	19	1977 - 2015	
Perennial Wall-rocket, <i>Diplotaxis tenuifolia</i>	1	1991 - 1991	GBNNSIP
Perfoliate Pondweed, <i>Potamogeton perfoliatus</i>	1	1993 - 1993	
Perforate St John's-wort, <i>Hypericum perforatum</i>	9	1991 - 2015	
Petty Spurge, <i>Euphorbia peplus</i>	3	1997 - 2015	CITESB, GBNNSIP
<i>Phleum pratense sens. lat.</i>	3	1997 - 1997	
Pineappleweed, <i>Matricaria discoidea</i>	12	1991 - 2015	GBNNSIP, Non-native
Pink Water-Speedwell, <i>Veronica catenata</i>	6	1993 - 2015	

Planted Cherry, <i>Prunus</i>	1	2006 - 2006	
Pondweed, <i>Potamogeton</i>	1	2009 - 2009	
<i>Populus nigra 'Italica'</i>	5	1997 - 2015	GBNNSIP, ScotBL
Prickly Lettuce, <i>Lactuca serriola</i>	13	1997 - 2015	GBNNSIP
Prickly Sow-thistle, <i>Sonchus asper</i>	34	1977 - 2015	
Procumbent Pearlwort, <i>Sagina procumbens</i>	7	1991 - 2015	
Purple Toadflax, <i>Linaria purpurea</i>	7	1991 - 2015	GBNNSIP, Non-native
Purple-loosestrife, <i>Lythrum salicaria</i>	1	2015 - 2015	
Radish, <i>Raphanus raphanistrum</i>	1	1997 - 1997	
Rape, <i>Brassica napus</i>	3	1991 - 1993	GBNNSIP
Rat's-tail Fescue, <i>Vulpia myuros</i>	11	1991 - 2015	GBNNSIP, Non-native
Red Bartsia, <i>Odontites vernus</i>	4	1997 - 2015	
Red Campion, <i>Silene dioica</i>	4	1997 - 1997	
Red Clover, <i>Trifolium pratense</i>	18	1991 - 2015	
Red Currant, <i>Ribes rubrum</i>	1	1997 - 1997	
Red Dead-nettle, <i>Lamium purpureum</i>	5	1993 - 2010	GBNNSIP
Red Fescue, <i>Festuca rubra agg.</i>	32	1977 - 2015	
Red Goosefoot, <i>Chenopodium rubrum</i>	4	1997 - 2008	
Red-osier Dogwood, <i>Cornus sericea</i>	1	2015 - 2015	GBNNSIP
Redshank, <i>Persicaria maculosa</i>	12	1977 - 2008	
Reed Canary-grass, <i>Phalaris arundinacea</i>	25	1987 - 2015	
Reed Sweet-grass, <i>Glyceria maxima</i>	14	1968 - 2011	
Reflexed Saltmarsh-Grass, <i>Puccinellia distans</i>	9	1991 - 2015	
Ribbed Melilot, <i>Melilotus officinalis</i>	3	1991 - 2006	GBNNSIP, Non-native
Ribwort Plantain, <i>Plantago lanceolata</i>	36	1977 - 2015	
Rigid Hornwort, <i>Ceratophyllum demersum</i>	3	1987 - 1997	
Rose, <i>Rosa</i>	2	1997 - 1997	FEP1
Rosebay Willowherb, <i>Chamerion angustifolium</i>	22	1977 - 2015	
Rough Chervil, <i>Chaerophyllum temulum</i>	1	2015 - 2015	
Rough Hawkbit, <i>Leontodon hispidus</i>	2	1977 - 1997	
Rough Marsh-mallow, <i>Malva setigera</i>	1	2009 - 2009	GBNNSIP, WCA8
Rough Meadow-grass, <i>Poa trivialis</i>	37	1977 - 2015	
Rowan, <i>Sorbus aucuparia</i>	9	1997 - 2015	FEP1
Russian Comfrey, <i>Symphytum officinale x asperum = S. x uplandicum</i>	1	2015 - 2015	GBNNSIP, Non-native
Rye Brome, <i>Bromus secalinus</i>	1	2015 - 2015	FEP7/3, GBNNSIP, NS-excludes, RLGB.Lr(NT), RLGB.VU, ScotBL
<i>Sagina apetala</i> , <i>Sagina apetala s.l.</i>	1	1991 - 1991	
<i>Salicornia aggregate</i>	1	2015 - 2015	
<i>Salix x fragilis sens. lat.</i>	7	1987 - 2009	FEP1
Saltmarsh Rush, <i>Juncus gerardii</i>	2	2011 - 2015	
Scarlet Pimpernel, <i>Anagallis arvensis</i>	3	1993 - 1997	ScotBL
Scented Mayweed, <i>Matricaria chamomilla</i>	4	1991 - 2015	GBNNSIP
Scentless Mayweed, <i>Tripleurospermum inodorum</i>	13	1993 - 2015	GBNNSIP, Non-native
Scentless Mayweed agg., <i>Tripleurospermum maritimum sens.lat.</i>	1	1997 - 1997	
Sea Arrowgrass, <i>Triglochin maritimum</i>	2	2011 - 2015	
Sea Aster, <i>Aster tripolium</i>	2	2011 - 2015	
Sea Beet, <i>Beta vulgaris subsp. maritima</i>	8	1986 - 2015	
Sea Club-rush, <i>Bolboschoenus maritimus</i>	11	1993 - 2015	
Sea Couch, <i>Elytrigia atherica</i>	9	1997 - 2015	
Sea Mayweed, <i>Tripleurospermum maritimum</i>	7	1979 - 2015	
Sea Pearlwort, <i>Sagina maritima</i>	2	2011 - 2015	
Sea Plantain, <i>Plantago maritima</i>	6	1997 - 2015	
Sea Wormwood, <i>Seriphidium maritimum</i>	9	1986 - 2011	
Sea-buckthorn, <i>Hippophae rhamnoides</i>	6	2006 - 2015	FEP1, NS-excludes
Sea-milkwort, <i>Glaux maritima</i>	3	2010 - 2015	
Sea-purslane, <i>Atriplex portulacoides</i>	4	1997 - 2015	
Selfheal, <i>Prunella vulgaris</i>	14	1993 - 2015	
Sheep's Sorrel, <i>Rumex acetosella</i>	6	1993 - 1999	
Sheep's Sorrel, <i>Rumex acetosella subsp. acetosella</i>	1	1991 - 1991	
Shepherd's-needle, <i>Scandix pecten-veneris</i>	1	1956 - 1956	FEP7/2, GBNNSIP, RLGB.CR, RLGB.EN, Sect.41, Sect.42, UKBAP
Shepherd's-purse, <i>Capsella bursa-pastoris</i>	23	1991 - 2015	GBNNSIP, Non-native
Shining Crane's-bill, <i>Geranium lucidum</i>	2	2009 - 2015	
Short-fruited Willowherb, <i>Epilobium obscurum</i>	2	2008 - 2008	Peterken-CL
Silver Birch, <i>Betula pendula</i>	9	1997 - 2015	FEP1
Silver Hair-grass, <i>Aira caryophyllea</i>	7	1991 - 1997	

Silverweed, <i>Potentilla anserina</i>	2	1997 - 2015	
Six-rowed Barley, <i>Hordeum vulgare</i>	1	2010 - 2010	GBNNSIP
Slender Speedwell, <i>Veronica filiformis</i>	2	1997 - 2015	GBNNSIP, Non-native
Slender Thistle, <i>Carduus tenuiflorus</i>	1	1993 - 1993	
Small Nettle, <i>Urtica urens</i>	3	1993 - 1997	GBNNSIP
Small Sweet-grass, <i>Glyceria declinata</i>	1	1993 - 1993	
Small Toadflax, <i>Chaenorhinum minus</i>	6	1977 - 1997	GBNNSIP
Smaller Cat's-tail, <i>Phleum bertolonii</i>	1	2011 - 2011	
Small-flowered Crane's-bill, <i>Geranium pusillum</i>	3	1997 - 1997	
Small-leaved Lime, <i>Tilia cordata</i>	1	2015 - 2015	FEP1, Peterken-CL
Smooth Hawk's-beard, <i>Crepis capillaris</i>	14	1991 - 2015	
Smooth Meadow-grass, <i>Poa pratensis</i>	5	1977 - 2015	
Smooth Meadow-Grass, <i>Poa pratensis sens.lat.</i>	10	1993 - 2015	
Smooth Sow-thistle, <i>Sonchus oleraceus</i>	33	1977 - 2015	
Smooth Tare, <i>Vicia tetrasperma</i>	26	1993 - 2015	
Snowberry, <i>Symphoricarpos albus</i>	2	1993 - 1997	GBNNSIP, Non-native
Soft-rush, <i>Juncus effusus</i>	13	1993 - 2015	
Southern Marsh-orchid, <i>Dactylorhiza praetermissa</i>	8	1991 - 2015	CITESB
Spear Mint, <i>Mentha spicata</i>	1	1991 - 1991	GBNNSIP
Spear Thistle, <i>Cirsium vulgare</i>	36	1977 - 2015	
Spear-leaved Orache, <i>Atriplex prostrata</i>	16	1993 - 2015	
Spiked Water-milfoil, <i>Myriophyllum spicatum</i>	1	2015 - 2015	
Spindle, <i>Euonymus europaeus</i>	1	2009 - 2009	FEP1, Peterken-CL
Spring Vetch, <i>Vicia lathyroides</i>	2	1968 - 1968	
Square-stalked St John's-wort, <i>Hypericum tetrapterum</i>	5	1991 - 1997	Peterken-CL
Square-stalked Willowherb, <i>Epilobium tetragonum</i>	3	2008 - 2015	
Squirreltail Fescue, <i>Vulpia bromoides</i>	5	1991 - 2015	
Stag's-horn Sumach, <i>Rhus typhina</i>	1	1997 - 1997	GBNNSIP
Sticky Groundsel, <i>Senecio viscosus</i>	6	1997 - 2015	GBNNSIP
Sticky Mouse-ear, <i>Cerastium glomeratum</i>	8	1977 - 2010	
Summer-cypress, <i>Bassia scoparia</i>	1	1997 - 1997	GBNNSIP, Non-native
Sun Spurge, <i>Euphorbia helioscopia</i>	4	1993 - 2015	CITESB, GBNNSIP, ScotBL
Swedish Whitebeam, <i>Sorbus intermedia</i>	2	1997 - 2015	FEP1, GBNNSIP, Non-native
Sweet Vernal-grass, <i>Anthoxanthum odoratum</i>	1	1997 - 1997	
Sweet Violet, <i>Viola odorata</i>	2	1997 - 2015	
Swine-cress, <i>Lepidium coronopus</i>	2	1997 - 1997	GBNNSIP, Non-native, ScotBL
Sycamore, <i>Acer pseudoplatanus</i>	23	1993 - 2015	GBNNSIP
Tall Fescue, <i>Festuca arundinacea</i>	22	1993 - 2015	
Tall Melilot, <i>Melilotus altissimus</i>	4	2008 - 2015	GBNNSIP, Non-native
Tall Rocket, <i>Sisymbrium altissimum</i>	2	1993 - 1997	GBNNSIP
Tansy, <i>Tanacetum vulgare</i>	1	2010 - 2010	
<i>Taraxacum</i> agg.	27	1977 - 2015	
Thale Cress, <i>Arabidopsis thaliana</i>	4	1997 - 1999	
Thread-leaved Water-crowfoot, <i>Ranunculus trichophyllus</i>	13	1993 - 2006	
Three-nerved Sandwort, <i>Moehringia trinervia</i>	1	1997 - 1997	
Thyme-Leaved Sandwort, <i>Arenaria serpyllifolia</i>	1	1997 - 1997	
Thyme-leaved Speedwell, <i>Veronica serpyllifolia</i>	1	1997 - 1997	
Timothy, <i>Phleum pratense</i>	9	1997 - 2015	
Timothy, <i>Phleum pratense sens.lat.</i>	1	2009 - 2009	
Toad Rush, <i>Juncus bufonius</i>	3	1991 - 2006	
Toad Rush agg., <i>Juncus bufonius</i> agg. <i>sensu lato</i>	3	2008 - 2015	
Tufted Hair-Grass, <i>Deschampsia cespitosa</i>	24	1987 - 2015	
Tufted Vetch, <i>Vicia cracca</i>	5	1977 - 2015	
<i>Ulmus</i> aggregate	2	1997 - 2015	FEP1
Upright Hedge Bedstraw, <i>Galium mollugo</i> subsp. <i>erectum</i>	2	2011 - 2011	
Upright Hedge-parsley, <i>Torilis japonica</i>	10	1997 - 2015	
Vervain, <i>Verbena officinalis</i>	2	1992 - 1992	GBNNSIP
Viper's-bugloss, <i>Echium vulgare</i>	1	1991 - 1991	
Wall Barley, <i>Hordeum murinum</i>	15	1993 - 2015	GBNNSIP
Wall Speedwell, <i>Veronica arvensis</i>	8	1997 - 2015	
Water Cress, <i>Rorippa nasturtium-aquaticum</i> agg.	15	1993 - 2015	
Water Dock, <i>Rumex hydrolapathum</i>	1	1987 - 1987	
Water Figwort, <i>Scrophularia auriculata</i>	16	1987 - 2015	
Water Forget-me-not, <i>Myosotis scorpioides</i>	6	1993 - 2009	
Water Mint, <i>Mentha aquatica</i>	5	1968 - 2015	
Water-Crowfoot sp., <i>Ranunculus aquatic</i> sp.	2	2015 - 2015	

Water-plantain, <i>Alisma plantago-aquatica</i>	15	1956 - 2015	
Water-soldier, <i>Stratiotes aloides</i>	1	2015 - 2015	NR-excludes, RLGB.Lr(NT)
Water-Starwort, Callitriche	2	2009 - 2015	
Wavy Bitter-cress, <i>Cardamine flexuosa</i>	1	1997 - 1997	
Weld, <i>Reseda luteola</i>	17	1991 - 2015	GBNNSIP
Wetted Thistle, <i>Carduus crispus</i>	1	1997 - 1997	
White Bryony, <i>Bryonia dioica</i>	1	1997 - 1997	
White Champion, <i>Silene latifolia</i>	8	1991 - 2015	GBNNSIP, Non-native
White Clover, <i>Trifolium repens</i>	29	1987 - 2015	
White Dead-nettle, <i>Lamium album</i>	20	1987 - 2015	GBNNSIP
White Mustard, <i>Sinapis alba</i>	2	1997 - 1997	GBNNSIP, ScotBL
White Poplar, <i>Populus alba</i>	4	1997 - 2015	FEP1, GBNNSIP
White Stonecrop, <i>Sedum album</i>	1	2015 - 2015	GBNNSIP
White Willow, <i>Salix alba</i>	6	1997 - 2015	FEP1, GBNNSIP
Whitebeam, <i>Sorbus aria agg.</i>	2	1997 - 2015	FEP1
Whorl-grass, <i>Catabrosa aquatica</i>	1	2009 - 2009	RLGB.VU
Wild Angelica, <i>Angelica sylvestris</i>	1	1987 - 1987	
Wild Celery, <i>Apium graveolens</i>	3	1986 - 2015	ScotBL
Wild Cherry, <i>Prunus avium</i>	10	1987 - 2015	FEP1, Peterken-CL
Wild Mignonette, <i>Reseda lutea</i>	6	1987 - 2011	
Wild Plum, <i>Prunus domestica</i>	4	1997 - 2015	GBNNSIP
Wild Privet, <i>Ligustrum vulgare</i>	3	1997 - 2008	FEP1
Wild Strawberry, <i>Fragaria vesca</i>	1	2015 - 2015	Peterken-CL, RLGB.Lr(NT)
Wild Teasel, <i>Dipsacus fullonum</i>	23	1977 - 2015	
Wild Teasel, <i>Dipsacus fullonum sensu lato</i>	7	1987 - 2009	
Wild-oat, <i>Avena fatua</i>	16	1991 - 2015	GBNNSIP
Willow, <i>Salix</i>	12	1993 - 2015	FEP1
Wood Avens, <i>Geum urbanum</i>	3	1993 - 1997	
Wood Dock, <i>Rumex sanguineus</i>	8	1993 - 2015	
Wood Meadow-grass, <i>Poa nemoralis</i>	1	1997 - 1997	Peterken-CL
Wood Small-reed, <i>Calamagrostis epigejos</i>	4	2006 - 2008	
Wormwood, <i>Artemisia absinthium</i>	9	1992 - 2011	GBNNSIP
Yarrow, <i>Achillea millefolium</i>	16	1991 - 2015	
Yellow Iris, <i>Iris pseudacorus</i>	6	1993 - 2015	
Yellow Oat-grass, <i>Trisetum flavescens</i>	6	1977 - 2011	
Yellow Water-lily, <i>Nuphar lutea</i>	1	2015 - 2015	
Yellow-rattle, <i>Rhinanthus minor</i>	2	2015 - 2015	
Yellow-wort, <i>Blackstonia perfoliata</i>	9	2006 - 2015	
Yorkshire-fog, <i>Holcus lanatus</i>	35	1977 - 2015	

Foraminiferan (1 taxa)	Number of records	Date range recorded	Designations
Foraminiferida	1	2003 - 2003	

Fungus (20 taxa)	Number of records	Date range recorded	Designations
Brown Cone-Cap, <i>Conocybe tenera</i>	1	1896 - 1896	
Common Ink-Cap, <i>Coprinopsis atramentaria</i>	1	1896 - 1896	
Dung Roundhead, <i>Stropharia semiglobata</i>	1	1896 - 1896	
Fairy Ring Champignon, <i>Marasmius oreades</i>	1	1896 - 1896	
Fluted Bird's Nest, <i>Cyathus striatus</i>	1	1896 - 1896	
Frosty Funnel, <i>Clitocybe phyllophila</i>	1	1933 - 1933	
Honey Fungus, <i>Armillaria mellea</i>	1	1896 - 1896	
<i>Microbotryum violaceum</i>	1	1944 - 1944	
Mosaic Puffball, <i>Lycoperdon utriforme</i>	1	1898 - 1898	
Pale Brittlestem, <i>Psathyrella candolleana</i>	1	1896 - 1896	
<i>Panaeolus papilionaceus</i>	1	1906 - 1906	
Parrot Wax-Cap, <i>Gliophorus psittacinus</i>	1	1896 - 1896	
<i>Puccinia phragmitis</i>	1	2010 - 2010	
Scarlet Hood, <i>Hygrocybe coccinea</i>	1	1896 - 1896	
Shaggy Parasol, <i>Chlorophyllum rachodes</i>	1	1897 - 1897	
Sulphur Tuft, <i>Hypholoma fasciculare</i>	1	1908 - 1908	
Tar-Spot Fungus, <i>Rhytisma acerinum</i>	1	1954 - 1954	
Verdigris Agaric, <i>Stropharia aeruginosa</i>	2	1896 - 1897	
White Spindles, <i>Clavaria fragilis</i>	1	1896 - 1896	

Horsetail (3 taxa)	Number of records	Date range recorded	Designations
Field Horsetail, <i>Equisetum arvense</i>	18	1977 - 2015	
Marsh Horsetail, <i>Equisetum palustre</i>	3	1993 - 1998	
Water Horsetail, <i>Equisetum fluviatile</i>	1	2015 - 2015	

Insect - Alderfly (megalopectera) (1 taxa)	Number of records	Date range recorded	Designations
Alder Fly, <i>Sialis lutaria</i>	10	2004 - 2007	

Insect - Beetle (coleoptera) (132 taxa)	Number of records	Date range recorded	Designations
18-spot Ladybird, <i>Myrrha octodecimguttata</i>	1	1896 - 1896	
24-spot Ladybird, <i>Subcoccinella vigintiquatuorpuntata</i>	1	1896 - 1896	
7-spot Ladybird, <i>Coccinella septempunctata</i>	1	1896 - 1896	
<i>Acilius sulcatus</i>	1	1897 - 1897	
<i>Agabus (Acatodes) sturmii</i>	1	2004 - 2004	
<i>Agabus (Gaurodytes) bipustulatus</i>	9	2004 - 2015	
<i>Agabus (Gaurodytes) nebulosus</i>	2	2004 - 2010	
<i>Anacaena globulus</i>	4	1990 - 2010	
<i>Anacaena limbata</i>	8	1990 - 2015	ScotBL
<i>Anthobium unicolor</i>	1	1907 - 1907	
<i>Aphodius (Acrossus) rufipes</i>	1	1896 - 1896	
<i>Aphodius (Melinopterus) prodromus</i>	1	1898 - 1898	
<i>Aphodius (Nimbus) contaminatus</i>	1	1896 - 1896	
<i>Aspidapion (Koestlinia) aeneum</i>	1	1908 - 1908	
<i>Atomaria (Anchicera) basalis</i>	1	1896 - 1896	
<i>Bembidion (Philochthus) guttula</i>	1	1907 - 1907	
<i>Bembidion (Semicampa) gilvipes</i>	1	1896 - 1896	Nb
<i>Berosus (Berosus) affinis</i>	1	1906 - 1906	
<i>Berosus (Berosus) signaticollis</i>	3	2015 - 2015	
Blue Willow Beetle, <i>Phratora vulgatissima</i>	2	1896 - 1906	
Brown Willow Beetle, <i>Galerucella lineola</i>	2	1896 - 1911	
Cabbage Leaf Weevil, <i>Ceutorhynchus contractus</i>	1	1870 - 1870	
<i>Cantharis nigra</i>	2	1908 - 1908	
<i>Catops tristis</i>	1	1896 - 1896	
<i>Cercyon (Cercyon) convexiusculus</i>	1	2010 - 2010	ScotBL
<i>Cercyon (Paracercyon) analis</i>	1	1896 - 1896	
<i>Ceutorhynchus chalybaeus</i>	1	1908 - 1908	
<i>Ceutorhynchus erysimi</i>	1	1907 - 1907	
Chaetocnema concinna, <i>Chaetocnema concinna s.l.</i>	1	1898 - 1898	
<i>Choleva (Choleva) angustata</i>	1	1899 - 1899	
<i>Chrysolina brunsvicensis</i>	1	1896 - 1896	
<i>Chrysolina staphylaea</i>	1	1896 - 1896	
Clover Leaf Weevil, <i>Hypera (Hypera) postica</i>	1	1895 - 1895	
Clover Weevil, <i>Sitona hispidulus</i>	1	1896 - 1896	
Clover Weevil, <i>Sitona sulcifrons</i>	1	1896 - 1896	
<i>Colymbetes fuscus</i>	3	1988 - 2014	
<i>Curtonotus aulicus</i>	1	1896 - 1896	
<i>Cyphon padi</i>	1	1908 - 1908	
<i>Dicheirotichus gustavii</i>	1	1906 - 1906	
<i>Dryops (Dryops) luridus</i>	1	2004 - 2004	
Dytiscidae	21	1994 - 2015	
Dytiscus	1	2015 - 2015	
<i>Dytiscus semisulcatus</i>	1	1907 - 1907	
<i>Enochrus ochropterus</i>	1	1907 - 1907	
<i>Ephistemus globulus</i>	1	1896 - 1896	
<i>Graptodytes pictus</i>	5	1906 - 2015	
Great Diving Beetle, <i>Dytiscus marginalis</i>	3	2015 - 2015	
<i>Gyrinus substriatus</i>	5	1898 - 2015	
<i>Hadroplontus litura</i>	1	1896 - 1896	
Hairy Fungus Beetle, <i>Typhaea stercorea</i>	2	1908 - 1911	
Haliplidae	6	1994 - 1994	
<i>Halipilus (Halipilus) fluviatilis</i>	1	2014 - 2014	

<i>Halipilus (Halipilus) ruficollis</i>	3	2014 - 2015	
<i>Halipilus (Halipilus) sibiricus</i>	2	1988 - 2004	
<i>Halipilus (Halipilus) obliquus</i>	1	2004 - 2004	
<i>Halipilus (Liaphlus) flavicollis</i>	1	2004 - 2004	
<i>Halipilus (Liaphlus) fulvus</i>	1	1907 - 1907	
<i>Halipilus (Liaphlus) mucronatus</i>	1	2004 - 2004	Na, NS-excludes
<i>Halipilus (Neohalipilus) lineatocollis</i>	11	1988 - 2015	
<i>Halipilus ruficollis</i> agg.	2	2015 - 2015	
<i>Halipilus ruficollis</i> group	2	2014 - 2015	
<i>Helochaeres lividus</i>	3	2015 - 2015	
<i>Helophorus (Atracthelophorus) brevipalpis</i>	2	2015 - 2015	
<i>Helophorus (Helophorus) minutus</i>	3	2015 - 2015	
<i>Helophorus (Helophorus) obscurus</i>	2	2010 - 2010	
<i>Helophorus (Megahelophorus) aequalis</i>	2	2015 - 2015	
<i>Helophorus (Megahelophorus) grandis</i>	5	2010 - 2015	
<i>Hydrobius fuscipes</i>	5	2004 - 2015	
<i>Hydroglyphus geminus</i>	3	2015 - 2015	
<i>Hydroporus memnonius</i>	1	2010 - 2010	
<i>Hydroporus palustris</i>	4	2004 - 2015	
<i>Hydroporus planus</i>	5	2004 - 2015	
<i>Hydroporus pubescens</i>	1	2010 - 2010	
<i>Hydroporus tessellatus</i>	2	2015 - 2015	
<i>Hygrotus (Coelambus) confluens</i>	2	2015 - 2015	
<i>Hygrotus (Coelambus) impressopunctatus</i>	3	2004 - 2015	
<i>Hygrotus (Hygrotus) inaequalis</i>	3	2015 - 2015	
<i>Hypera (Hypera) nigrirostris</i>	1	1899 - 1899	
<i>Hyphydrus ovatus</i>	3	2015 - 2015	
<i>Ilybius ater</i>	3	1908 - 2015	
<i>Ilybius fuliginosus</i>	3	2004 - 2015	
<i>Ilybius quadriguttatus</i>	4	1908 - 2015	
Iris Flea Beetle, <i>Aphthona nonstriata</i>	1	1896 - 1896	
<i>Kateretes pedicularius</i>	1	1896 - 1896	
Knotgrass Leaf Beetle, <i>Chrysolina polita</i>	1	1896 - 1896	
<i>Laccobius bipunctatus</i>	5	1907 - 2015	
<i>Laccobius colon</i>	2	1907 - 2014	
<i>Laccobius minutus</i>	3	1906 - 2015	
<i>Laccobius sinuatus</i>	1	2004 - 2004	
<i>Laccophilus minutus</i>	7	2004 - 2015	
Larger Noterus, <i>Noterus clavicornis</i>	3	2015 - 2015	
<i>Limnebius nitidus</i>	1	2010 - 2010	
<i>Longitarsus melanocephalus</i>	1	1896 - 1896	
<i>Meligethes atratus</i>	1	1896 - 1896	
<i>Microplontus melanostigma</i>	1	1908 - 1908	
Mustard Beetle, <i>Phaedon cochleariae</i>	1	1911 - 1911	
<i>Mycetophagus quadripustulatus</i>	1	1896 - 1896	
Nettle Pollen Beetle, <i>Brachypterus urticae</i>	1	1896 - 1896	
<i>Notaris acridulus</i>	1	1896 - 1896	
<i>Notiophilus substriatus</i>	1	1911 - 1911	
<i>Ochthebius (Asiobates) bicolon</i>	1	2010 - 2010	
<i>Ochthebius (Asiobates) dilatatus</i>	1	2004 - 2004	
<i>Ochthebius (Homalochthebius) minimus</i>	2	2015 - 2015	
<i>Ochthebius (Hymenodes) nanus</i>	1	1907 - 1907	Nb, NS-excludes
<i>Ocyopus (Pseudocyopus) aeneocephalus</i>	1	1896 - 1896	
<i>Omalius excavatum</i>	1	1896 - 1896	
<i>Omonadus formicarius</i>	1	1907 - 1907	
<i>Ontholestes murinus</i>	1	1896 - 1896	
<i>Ontholestes tessellatus</i>	1	1896 - 1896	
<i>Oulema obscura</i>	1	1896 - 1896	
<i>Parethelcus pollinarius</i>	1	1896 - 1896	
Pea and Bean Weevil, <i>Sitona lineatus</i>	1	1896 - 1896	
<i>Poecilus versicolor</i>	1	1896 - 1896	
<i>Pogonus chalceus</i>	1	1906 - 1906	
<i>Psylliodes cuprea</i>	1	1896 - 1896	
<i>Pterostichus (Argutor) strenuus</i>	1	1896 - 1896	
<i>Quedius (Quedius) fuliginosus</i>	1	1907 - 1907	
<i>Quedius (Quedius) levicollis</i>	1	1896 - 1896	

Raspberry Flea Beetle, <i>Batophila rubi</i>	1	1896 - 1896	
<i>Rhantus (Rhantus) suturalis</i>	6	2004 - 2015	ScotBL
<i>Rhinoncus inconspicuous</i>	1	1896 - 1896	
<i>Rhinoncus pericarpus</i>	1	1896 - 1896	
<i>Rugilus orbiculatus</i>	1	1896 - 1896	
<i>Scymnus (Scymnus) frontalis</i>	1	1896 - 1896	
<i>Stenus (Hypostenus) latifrons</i>	1	1907 - 1907	
<i>Stenus (Tesnus) brunnipes</i>	1	1896 - 1896	
<i>Stictonectes lepidus</i>	1	1906 - 1906	RLGB.Lr(NT)
Strawberry-blossom Weevil, <i>Anthonomus (Anthonomus) rubi</i>	1	1896 - 1896	
Thistle Tortoise Beetle, <i>Cassida rubiginosa</i>	1	1896 - 1896	
<i>Thryogenes nereis</i>	1	1911 - 1911	ScotBL
Wheat Flea Beetle, <i>Neocrepidodera ferruginea</i>	1	1908 - 1908	
Zircon Reed Beetle, <i>Donacia aquatica</i>	1	1908 - 1908	FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP

Insect - Butterfly (24 taxa)	Number of records	Date range recorded	Designations
Brimstone, <i>Gonepteryx rhamni</i>	2	2014 - 2015	W05
Brown Argus, <i>Aricia agestis</i>	5	2003 - 2015	
Clouded Yellow, <i>Colias croceus</i>	1	1900 - 1900	
Comma, <i>Polygona c-album</i>	4	1988 - 2015	
Common Blue, <i>Polyommatus icarus</i>	26	1896 - 2015	
Green-veined White, <i>Pieris napi</i>	51	1991 - 2015	
Hedge Brown, <i>Pyronia tithonus</i>	11	1993 - 2015	
Hedge Brown, <i>Pyronia tithonus subsp. britanniae</i>	2	2008 - 2009	
Holly Blue, <i>Celastrina argiolus</i>	4	1991 - 2009	W05
Large Skipper, <i>Ochlodes sylvanus</i>	7	1998 - 2015	
Large White, <i>Pieris brassicae</i>	25	1991 - 2015	
Meadow Brown, <i>Maniola jurtina</i>	16	1993 - 2015	
Orange-tip, <i>Anthocharis cardamines</i>	22	1991 - 2015	
Painted Lady, <i>Vanessa cardui</i>	18	2003 - 2009	
Peacock, <i>Aglais io</i>	52	1993 - 2015	
Red Admiral, <i>Vanessa atalanta</i>	9	1993 - 2014	
Ringlet, <i>Aphantopus hyperantus</i>	8	2003 - 2015	
Small Copper, <i>Lycaena phlaeas</i>	16	1896 - 2014	
Small Heath, <i>Coenonympha pamphilus</i>	3	1998 - 2014	RLGB.Lr(NT), ScotBL, Sect.41, Sect.42, UKBAP
Small Skipper, <i>Thymelicus sylvestris</i>	13	1993 - 2015	
Small Tortoiseshell, <i>Aglais urticae</i>	61	1993 - 2015	
Small White, <i>Pieris rapae</i>	29	1991 - 2015	
Speckled Wood, <i>Pararge aegeria</i>	14	2004 - 2015	
Wall, <i>Lasiommata megera</i>	15	1993 - 2011	RLGB.Lr(NT), ScotBL, Sect.41, Sect.42, UKBAP

Insect - Caddis Fly (trichoptera) (1 taxa)	Number of records	Date range recorded	Designations
<i>Limnephilus lunatus</i>	4	2007 - 2014	

Insect - Dragonfly (odonata) (10 taxa)	Number of records	Date range recorded	Designations
Blue-tailed Damselfly, <i>Ischnura elegans</i>	4	2015 - 2015	
Broad-bodied Chaser, <i>Libellula depressa</i>	1	2015 - 2015	
Coenagrionidae	25	1994 - 2014	
Common Blue Damselfly, <i>Enallagma cyathigerum</i>	3	2015 - 2015	
Common Darter, <i>Sympetrum striolatum</i>	1	2004 - 2004	
damselflies, Zygoptera	1	2015 - 2015	
Emperor Dragonfly, <i>Anax imperator</i>	1	2009 - 2009	
Four-spotted Chaser, <i>Libellula quadrimaculata</i>	2	2005 - 2015	
Indet Dragon/Damselfly, Odonata	1	2008 - 2008	
Libellula	2	2015 - 2015	

Insect - Hymenopteran (19 taxa)	Number of records	Date range recorded	Designations
<i>Ancistrocerus scoticus</i>	1	2009 - 2009	
Bloomed Furrow Bee, <i>Lasioglossum (Evyllaes) albipes</i>	1	2009 - 2009	
Blunt Tailed Digger Wasp, <i>Crossocerus (Cuphopterus) dimidiatus</i>	1	1993 - 1993	
<i>Bombus lucorum, Bombus lucorum sensu lato</i>	2	2007 - 2007	

Buff-Tailed Bumble Bee, <i>Bombus (Bombus) terrestris</i>	2	2007 - 2008	
Common Carder Bee, <i>Bombus (Thoracobombus) pascuorum</i>	4	2007 - 2009	
Common Wasp, <i>Vespula (Paravespula) vulgaris</i>	1	2007 - 2007	
<i>Dolerus (Poodolerus) gonager</i>	1	1898 - 1898	C-S
Early Bumble Bee, <i>Bombus (Pyrobombus) pratorum</i>	1	2007 - 2007	
Gypsy (Bohemian) Cuckoo Bee, <i>Bombus (Psithyrus) bohemicus</i>	1	2007 - 2007	
Large Red Tailed Bumble Bee, <i>Bombus (Melanobombus) lapidarius</i>	1	2007 - 2007	
Mournful Wasp, <i>Pemphredon (Pemphredon) lugubris</i>	1	1993 - 1993	
Red Ant, <i>Myrmica rubra</i>	2	2009 - 2009	
Red-tailed (Hill) Cuckoo Bee, <i>Bombus (Psithyrus) rupestris</i>	1	2007 - 2007	Nb
Small Black Ant, <i>Lasius niger</i>	1	2009 - 2009	
Small Garden Bumble Bee, <i>Bombus (Megabombus) hortorum</i>	2	2007 - 2007	
Vestal (Southern) Cuckoo Bee, <i>Bombus (Psithyrus) vestalis</i>	1	2007 - 2007	
Wilke's Mining Bee, <i>Andrena (Taeniandrena) wilkella</i>	1	1898 - 1898	
Yellow-legged Furrow Bee, <i>Halictus (Halictus) rubicundus</i>	1	2007 - 2007	

Insect - Mayfly (ephemeroptera) (2 taxa)	Number of records	Date range recorded	Designations
<i>Cloeon dipterum</i>	8	2007 - 2015	
Olives (Baetidae), Baetidae	6	1994 - 2006	

Insect - Moth (3 taxa)	Number of records	Date range recorded	Designations
Cinnabar, <i>Tyria jacobaeae</i>	3	2008 - 2009	ScotBL, Sect.41, Sect.42, UKBAP
Common Slender, <i>Gracillaria syringella</i>	1	2015 - 2015	
Dusky Sallow, <i>Eremobia ochroleuca</i>	1	2008 - 2008	

Insect - Orthopteran (2 taxa)	Number of records	Date range recorded	Designations
Field Grasshopper, <i>Chorthippus brunneus</i>	1	1999 - 1999	
Lesser Marsh Grasshopper, <i>Chorthippus albomarginatus</i>	3	1999 - 1999	

Insect - True Bug (hemiptera) (17 taxa)	Number of records	Date range recorded	Designations
<i>Callicorixa praeusta</i>	3	1994 - 1994	
Common Backswimmer, <i>Notonecta (Notonecta) glauca</i>	2	2015 - 2015	
Common Pondskater, <i>Gerris (Gerris) lacustris</i>	4	2004 - 2015	
Common Shorebug, <i>Saldula saltatoria</i>	1	2015 - 2015	C-TB
Corixa	2	2015 - 2015	
<i>Hesperocorixa sahlbergi</i>	1	2014 - 2014	
Lesser Water-Boatman, Corixidae	1	2014 - 2014	
Notonectidae	2	2015 - 2015	
<i>Plea minutissima</i>	3	2015 - 2015	ScotBL
Pondskaters, Gerridae	1	2014 - 2014	
Punctate Corixa, <i>Corixa punctata</i>	2	2015 - 2015	
<i>Sigara (Pseudovermicorixa) nigrolineata</i>	5	1994 - 2014	
<i>Sigara (Sigara) dorsalis</i>	5	1994 - 2014	
<i>Sigara (Vermicorixa) lateralis</i>	3	2014 - 2015	
Toothed Pondskater, <i>Gerris (Gerris) odontogaster</i>	3	2015 - 2015	
Water Scorpion, <i>Nepa cinerea</i>	1	2004 - 2004	
Western Conifer Seed Bug, <i>Leptoglossus occidentalis</i>	1	2013 - 2013	GBNNSIP

Insect - True Fly (diptera) (31 taxa)	Number of records	Date range recorded	Designations
Banded General, <i>Stratiomys potamida</i>	2	2015 - 2015	N
Chironomini	6	2007 - 2014	
Chironomus	6	2007 - 2014	
<i>Chironomus riparius</i>	18	1994 - 2006	
<i>Coenia palustris</i>	1	1898 - 1898	
Diptera	4	2006 - 2011	
Empididae	3	2007 - 2007	
Eristalis	3	2007 - 2007	
<i>Eristalis arbustorum</i>	1	1897 - 1897	
<i>Eristalis pertinax</i>	1	1993 - 1993	
<i>Hydromya dorsalis</i>	1	1898 - 1898	

<i>Leucozona lucorum</i>	1	1993 - 1993
<i>Myathropa florea</i>	1	1993 - 1993
<i>Nephrotoma flavescens</i>	2	1898 - 1898
Non-biting midges, Chironomidae	25	1994 - 2007
Orthoclaadiinae	3	2007 - 2007
Owl midges & moth flies, Psychodidae	3	2007 - 2007
<i>Pherbellia schoenherri</i>	2	1898 - 1898
<i>Platycheirus albimanus</i>	1	1993 - 1993
<i>Platycheirus manicatus</i>	3	1993 - 1993
<i>Sarcophaga carnaria</i>	1	1897 - 1897
<i>Scathophaga stercoraria</i>	1	1898 - 1898
Sciomyzidae	1	2014 - 2014
Sheep Ked, <i>Melophagus ovinus</i>	1	1871 - 1871
Stratiomys	1	2015 - 2015
<i>Syrphus ribesii</i>	3	1897 - 1993
Tanypodinae	4	2007 - 2014
Tanytarsini	1	2014 - 2014
Three-lined Soldier, <i>Oxycera trilineata</i>	1	1897 - 1897
<i>Triphleba opaca</i>	2	1898 - 1898
<i>Tropidia scita</i>	1	1920 - 1920

Mollusc (31 taxa)	Number of records	Date range recorded	Designations
Baltic Tellin, <i>Macoma balthica</i>	21	1990 - 2011	
Bivalves, Pelecypoda	2	1997 - 1999	
Bladder snails, Physa	6	2007 - 2007	GBNNSIP, Non-native
Bladder snails, <i>Physa fontinalis</i>	1	2014 - 2014	GBNNSIP, Non-native
Cerastoderma	4	1993 - 1998	
Common mussel, <i>Mytilus edulis</i>	2	2003 - 2010	
Common Razor Shell, <i>Ensis ensis</i>	1	1990 - 1990	
Ear Pond Snail, <i>Radix auricularia</i>	1	2014 - 2014	
Ensis	2	1999 - 2000	
Great Pond Snail, <i>Lymnaea stagnalis</i>	5	2007 - 2014	
Horny Orb Mussel, <i>Sphaerium corneum</i>	3	2007 - 2007	
Indet. Pea Mussel, Pisidium	9	2007 - 2007	
Indet. Ramshorn, Planorbidae	9	1994 - 2007	
Jenkins' Spire Snail, <i>Potamopyrgus antipodarum</i>	21	2007 - 2014	GBNNSIP, Non-native
Lake Orb Mussel, <i>Musculium lacustre</i>	1	2014 - 2014	
Laver Spire Shell, <i>Peringia ulvae</i>	21	1990 - 2011	
Leach's Bithynia, <i>Bithynia leachii</i>	2	2015 - 2015	
Macoma	3	2004 - 2007	
Margined Ramshorn, <i>Planorbis planorbis</i>	6	2007 - 2014	
Mya	1	1993 - 1993	
Mytilidae	4	1996 - 1999	
Pea & orb mussels, Sphaeriidae	6	1994 - 2007	
<i>Physella acuta</i>	8	2014 - 2014	GBNNSIP
Physidae	7	2006 - 2014	
Pond snails, Lymnaeidae	3	2006 - 2006	
<i>Retusa obtusa</i>	2	2003 - 2004	
Snails, Gastropoda	1	1991 - 1991	
Twisted Ramshorn, <i>Bathyomphalus contortus</i>	10	2007 - 2014	
Wandering Snail, <i>Radix balthica</i>	4	2014 - 2014	
Wandering Snail, <i>Radix peregra</i>	9	1994 - 2007	
Whirlpool Ramshorn, <i>Anisus (Disculifer) vortex</i>	10	1994 - 2014	

Ribbon Worm (nemertinea) (1 taxa)	Number of records	Date range recorded	Designations
Nemertea	3	1997 - 2011	

Roundworm (nematoda) (1 taxa)	Number of records	Date range recorded	Designations
Nematoda	9	2000 - 2011	

Spider (araneae) (3 taxa)	Number of records	Date range recorded	Designations
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<i>Larinioides cornutus</i>	3	2004 - 2004
<i>Microlinyphia impigra</i>	1	1898 - 1898
<i>Pachygnatha clercki</i>	3	2004 - 2004

Springtail (collembola) (1 taxa)	Number of records	Date range recorded	Designations
Springtail, Collembola	1	2000 - 2000	

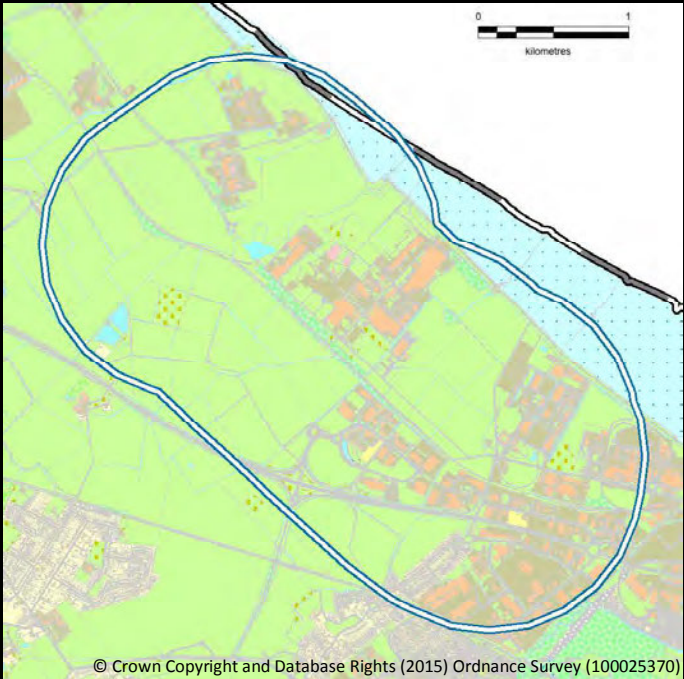
Stonewort (2 taxa)	Number of records	Date range recorded	Designations
Characeae	2	2008 - 2009	
Common Stonewort, <i>Chara vulgaris</i>	2	2015 - 2015	

Terrestrial Mammal (22 taxa)	Number of records	Date range recorded	Designations
American Mink, <i>Neovison vison</i>	1	2002 - 2002	GBNNSIP, NE_EA_INNS, Non-native, WCA9
Bats, Chiroptera	2	2003 - 2010	Bern2, Bern3, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD2p, HSD4, LBAP:3, RLGLB.NT, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Brown Hare, <i>Lepus europaeus</i>	4	1977 - 1977	FEP7/2, ScotBL, Sect.41, Sect.42, UKBAP
Common Pipistrelle, <i>Pipistrellus pipistrellus sensu stricto</i>	3	2005 - 2012	CMS_A2, CMS_EUROBATS-A1, HabRegs2, LBAP:3, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Eurasian Badger, <i>Meles meles</i>	3	2009 - 2014	Bern3, PBA, WO5
Eurasian Common Shrew, <i>Sorex araneus</i>	5	1977 - 1977	Bern3
Eurasian Pygmy Shrew, <i>Sorex minutus</i>	5	1977 - 1977	Bern3
European Mole, <i>Talpa europaea</i>	8	1977 - 2010	
European Otter, <i>Lutra lutra</i>	3	2009 - 2013	Bern2, CITESA, FEP7/2, HabRegs2, HSD2p, HSD4, RLGLB.NT, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
European Rabbit, <i>Oryctolagus cuniculus</i>	8	1977 - 2006	GBNNSIP, Non-native
European Water Vole, <i>Arvicola amphibius</i>	26	2002 - 2015	FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4.a, WCA5/9.4b, WCA5/9.4c
Fallow Deer, <i>Dama dama</i>	1	2007 - 2007	Bern3, GBNNSIP, Non-native
Field Vole, <i>Microtus agrestis</i>	8	1977 - 1982	
House Mouse, <i>Mus musculus</i>	1	1977 - 1977	GBNNSIP, Non-native
Noctule Bat, <i>Nyctalus noctula</i>	1	2012 - 2012	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Rat spp., <i>Rattus</i>	2	2003 - 2006	
Red Fox, <i>Vulpes vulpes</i>	16	1977 - 2014	
Roe Deer, <i>Capreolus capreolus</i>	1	2010 - 2010	Bern3
Stoat, <i>Mustela erminea</i>	7	1977 - 2010	Bern3
Weasel, <i>Mustela nivalis</i>	9	1977 - 1981	Bern3
West European Hedgehog, <i>Erinaceus europaeus</i>	9	1977 - 2015	Bern3, ScotBL, Sect.41, Sect.42, UKBAP
Wood Mouse, <i>Apodemus sylvaticus</i>	5	1977 - 1977	

Unassigned (2 taxa)	Number of records	Date range recorded	Designations
Animals, Animalia	1	2000 - 2000	
insects, Insecta	1	2000 - 2000	

Search #3

Search parameters

Designations:	Taxonomic groups:	Geographic area:
LBAP:3	<i>all taxonomic groups</i>	

Summary

Amphibian (1 taxa)	Number of records	Date range recorded	Designations
Smooth Newt, <i>Lissotriton vulgaris</i>	14	2007 - 2015	Bern3, LBAP:3, WCA5/9.5a, WO5

Bird (17 taxa)	Number of records	Date range recorded	Designations
Barn Owl, <i>Tyto alba</i>	14	1998 - 2012	Bern2, CITESA, FEP7/2, LBAP:3, LBSCchedule1, ScotBL, WCA1i, WCA9, WO1i
Bullfinch, <i>Pyrrhula pyrrhula</i>	12	1991 - 2015	BoCC4-Amber, FEP7/2, LBAP:3, ScotBL
Curlew, <i>Numenius arquata</i>	221	1979 - 2015	BD2.2, BoCC4-Red, CMS_A2, CMS_AEWA-A2, FEP7/2, LBAP:3, RLGLB.NT, ScotBL, Sect.41, Sect.42, UKBAP
Grey Partridge, <i>Perdix perdix</i>	10	1989 - 2015	BD2.1, BoCC4-Red, FEP7/2, GBNNSIP, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP
House Sparrow, <i>Passer domesticus</i>	22	1991 - 2015	BoCC4-Red, BRed, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP
Lapwing, <i>Vanellus vanellus</i>	99	1981 - 2015	BD2.2, BoCC4-Red, CMS_A2, CMS_AEWA-A2, FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP
Linnet, <i>Linaria cannabina</i>	38	1991 - 2015	Bern2, BoCC4-Red, FEP7/2, LBAP:3, ScotBL
Redshank, <i>Tringa totanus</i>	117	1979 - 2015	BD2.2, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, LBAP:3
Reed Bunting, <i>Emberiza schoeniclus</i>	31	2002 - 2014	Bern2, BoCC4-Amber, FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP
Skylark, <i>Alauda arvensis</i>	22	1989 - 2014	BD2.2, BoCC4-Red, FEP7/2, LBAP:3, ScotBL, Sect.41
Snipe, <i>Gallinago gallinago</i>	51	1981 - 2015	BD2.1, BoCC4-Amber, CMS_A2, CMS_AEWA-A2, FEP7/2, LBAP:3
Song Thrush, <i>Turdus philomelos</i>	24	1991 - 2015	BD2.2, BoCC4-Red, FEP7/2, LBAP:3, ScotBL
Starling, <i>Sturnus vulgaris</i>	122	1991 - 2015	BD2.2, BoCC4-Red, FEP7/2, LBAP:3
Swift, <i>Apus apus</i>	15	1991 - 2014	BAmb, BoCC4-Amber, LBAP:3, ScotBL
Turtle Dove, <i>Streptopelia turtur</i>	1	2003 - 2003	BD2.2, BoCC4-Red, CITESA, FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP, WO1i

Yellow Wagtail, <i>Motacilla flava</i>	10	2002 - 2013	Bern2, BoCC4-Red, FEP7/2, LBAP:3, ScotBL, WO1i
Yellowhammer, <i>Emberiza citrinella</i>	11	1998 - 2014	Bern2, BoCC4-Red, FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP

Bony Fish (actinopterygii) (1 taxa)

	Number of records	Date range recorded	Designations
European Eel, <i>Anguilla anguilla</i>	1	2003 - 2003	LBAP:3, OSPAR, RLGLB.CR, ScotBL, Sect.41, Sect.42, UKBAP

Terrestrial Mammal (4 taxa)

	Number of records	Date range recorded	Designations
Bats, Chiroptera	2	2003 - 2010	Bern2, Bern3, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD2p, HSD4, LBAP:3, RLGLB.NT, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
Common Pipistrelle, <i>Pipistrellus pipistrellus sensu stricto</i>	3	2005 - 2012	CMS_A2, CMS_EUROBATS-A1, HabRegs2, LBAP:3, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a
European Water Vole, <i>Arvicola amphibius</i>	26	2002 - 2015	FEP7/2, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4.a, WCA5/9.4b, WCA5/9.4c
Noctule Bat, <i>Nyctalus noctula</i>	1	2012 - 2012	Bern2, CMS_A2, CMS_EUROBATS-A1, FEP7/2, HabRegs2, HSD4, LBAP:3, ScotBL, Sect.41, Sect.42, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a

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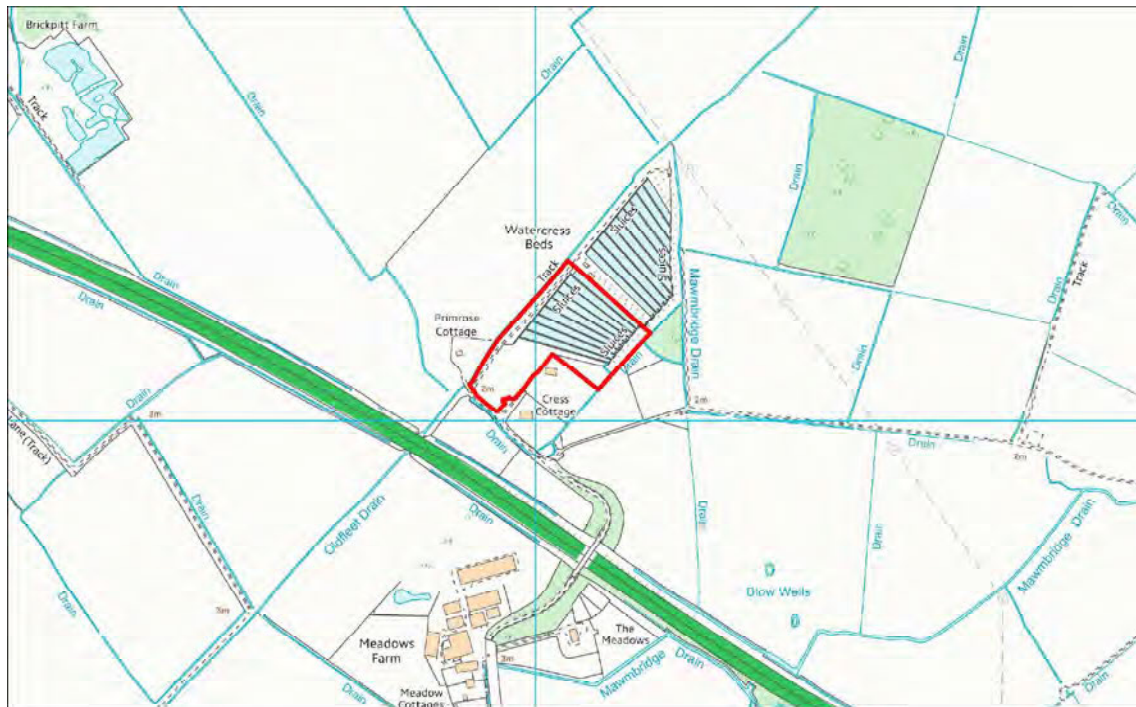
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Achieving more for nature



GLNP
GREATER LINCOLNSHIRE
NATURE PARTNERSHIP

Healing Cress Beds



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Grid ref: TA220121

Area: 2.8ha

Survey: 26 May 2015

Surveyor: Jeremy Fraser

Main habitat: Coarse or rank grassland, Pond

Additional habitat: Neutral grassland - semi-improved, Scrub - scattered / dense

This site comprises nine watercress beds, a newly created pond and a little surrounding habitat. The beds were created in 1945, after 10 artesian wells were sunk and a plentiful supply of high quality water at 11°C became available. Surplus water was piped to the nearby coast for industrial use until the land and an associated abstraction licence were purchased by Millennium Inorganic Chemicals (now Cristal) in 2010. Watercress production in a total of 19 narrow, straight-sided beds ceased in 1970 and the site then dried out, leading to establishment of a tall, rough, grassland sward separated by numerous concrete water channels and pathways.

The Local Wildlife Site encompasses only the south-western half of the beds, because it was here in late summer 2011 that coarse vegetation was cut and cleared, just before creation of shallow scrapes in three of the beds. Pumps were switched off in September 2011 to enable construction of a new pipeline to the coast, and as a result the site was continuously flooded until April 2013, when pumping resumed into the new pipeline. In July 2013, a sinuously-shaped pond with shallow edges was excavated in a small field immediately south of the scrapes, following clearance of coarse grassland.

Aquatic and waterside plants have been planted in the new pond, and proprietary seed mixes sown on the pond margin (wetland plants) and on nearby land disturbed by the works (meadow plants). In contrast, the scrape flora has developed without planting and seeding. Surroundings of all these wetland features are now being managed annually by cutting and removal to keep coarse grassland and ruderal vegetation under control. Invasive native and non-native water plants will be hand-pulled where necessary, which in the case of bulrush has already begun.

Aquatic plants that have colonised the scrapes are broad-leaved pondweed, water-crowfoot, common duckweed and common stonewort. Shallow water supports common or grey club-rush, bulrush, branched bur-reed, amphibious bistort, water-cress, fool's water-cress, water-plantain, blue water-speedwell, floating or plicate sweet-grass and common spike-rush. On damp grassland and muddy edges are hoary and great willowherb, celery-leaved buttercup, toad and jointed rush, soft-rush, marsh & meadow foxtail and creeping bent. Species currently found only in the pond are Nuttall's waterweed, spiked water-milfoil, curled pondweed, mare's-tail, water soldier, yellow water-lily, yellow iris, flowering-rush, purple-loosestrife, bog bean, marsh-marigold and water mint.

Other plants occur in drier parts of the former watercress beds, beside paths and close to boundaries, including two lines of trees, one of Leyland cypress and the other of poplar. Other woody plants are sycamore, willow, bramble and ivy, in addition to a range of ruderal and weedy species. Coarse grassland is characterized by creeping bent, rough meadow-grass, Yorkshire-fog, creeping cinquefoil, hard rush and hairy sedge. More interesting grassland occurs where the sward is less dense, and includes species such as yellow rattle, ox-eye daisy, wild strawberry, lesser trefoil, wall speedwell, black medick, smooth meadow-grass and red fescue.

Survey on 26 May 2015 also revealed 52 aquatic invertebrate taxa, indicating a Community Conservation Index score of 16.6 for the scrapes and pond, which demonstrates a fauna of High Conservation Value. Aquatic beetles are particularly well represented, including two that are Nationally Notable: *Berosus signaticollis* and *Rhantus suturalis*. A Nationally Notable soldier fly was also identified *Stratiomys potamida*, as well as several other species that are widespread but local in the UK (eg *Helochares lividus* and *Ilybius quadriguttatus*). Amongst the more easily identified species seen were four-spotted chaser, broad-bodied chaser, blue-tailed and common blue damselfly, as well as the three amphibians: common frog, common toad and smooth newt.

Criteria passed: FW2, We3, We4

Recommended as a Local Wildlife Site: 15 March 2016

Site name: Humber Estuary **County:** East Riding of Yorkshire, Kingston upon Hull, North Lincolnshire, North East Lincolnshire and Lincolnshire.

District: East Riding of Yorkshire, Kingston upon Hull, North Lincolnshire, North East Lincolnshire and East Lindsey

Status: Site of Special Scientific Interest (SSSI) notified under Section 28C of the Wildlife and Countryside Act 1981, as inserted by Schedule 9 to the Countryside & Rights of Way Act 2000.

Local Planning Authority: East Riding of Yorkshire Council, Kingston upon Hull Council, North Lincolnshire Council, North East Lincolnshire Council, Lincolnshire County Council and East Lindsey District Council

National grid reference: TA216184 **Area:** 37000.59 ha

Ordnance Survey sheet: **1:50,000:** 106, 107, 112, 113
1:10,000: SE72 NW, NE, SW, SE; SE81 NW, NE, SW, SE; SE82 NE, SW, SE; SE92 NW, NE, SW, SE; TA02 NW, NE, SW, SE; TA11 NE; TA12 NW, NE, SW, SE; TA20 NE; TA21 NW, NE, SW, SE; TA22 SW; TA30 NW, NE, SW, SE; TA31 NW, NE, SW, SE; TA40 NW, SW; TA41 NW, SW; TF49 NW, NE, SE.

Date of notification: 3 February 2004

Reasons for Notification:

The Humber Estuary is a nationally important site with a series of nationally important habitats. These are the estuary itself (with its component habitats of intertidal mudflats and sandflats and coastal saltmarsh) and the associated saline lagoons, sand dunes and standing waters. The site is also of national importance for the geological interest at South Ferriby Cliff (Late Pleistocene sediments) and for the coastal geomorphology of Spurn. The estuary supports nationally important numbers of 22 wintering waterfowl and nine passage waders, and a nationally important assemblage of breeding birds of lowland open waters and their margins. It is also nationally important for a breeding colony of grey seals *Halichoerus grypus*, river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus*, a vascular plant assemblage and an invertebrate assemblage.

General description:

Estuary

The Humber Estuary is a large macro-tidal coastal plain estuary with high suspended sediment loads, which feed a dynamic and rapidly changing system of accreting and eroding intertidal and subtidal mudflats, sandflats, saltmarsh and reedbeds. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion on the tidal rivers of the Ouse and Trent. The range of salinity, substrate and exposure to wave action influences the estuarine habitats and the range of species that utilise them. These include a breeding bird assemblage, winter and passage waterfowl, river and sea lamprey, grey seals, vascular plants and invertebrates.

The extensive mud and sand flats support a range of benthic communities, which in turn are an important feeding resource for birds and fish. Wave exposed sandy shores are found in the outer/open coast areas of the estuary. These change to the more moderately exposed sandy shores and then to sheltered muddy shores within the main body of the estuary and up into the tidal rivers.

The lower saltmarsh of the Humber is dominated by common cordgrass *Spartina anglica* and annual glasswort *Salicornia* communities. Low to mid marsh communities are mostly represented by sea aster *Aster tripolium*, common saltmarsh grass *Puccinellia maritima* and sea purslane *Atriplex portulacoides* communities. The upper portion of the saltmarsh community is atypical, dominated by sea couch *Elytrigia atherica* (*Elymus pycnanthus*) saltmarsh community. In the upper reaches of the estuary, the tidal marsh community is dominated by the common reed *Phragmites australis* fen and sea club rush *Bolboschoenus maritimus* swamp with the couch grass *Elytrigia repens* (*Elymus repens*) saltmarsh community. On the southern coastal fringe of the estuary on the north Lincolnshire coast, a wide range of saltmarsh communities are present. Good height zonation is found, with levee development along creeks creating extensive depressions holding waterlogged saltmarsh types. Upper saltmarsh is common here. These saltmarsh communities are an integral part of the functioning dynamic estuarine system. They provide nutrients for the mudflats and sandflats, and feeding and roosting areas for nationally important numbers of ducks, geese and waterfowl.

Saline lagoons

Within the Humber Estuary SSSI there are good examples of four of the five physiographic types of saline lagoon. These are the isolated lagoon at Humberston Fitties, the silled lagoon at Northcoates 'Point A', the percolation lagoon at Northcoates 'Point B', and the sluiced lagoons at Blacktoft Sands. These lagoons support a number of notable lagoon specialist species including the lagoon sand shrimp *Gammarus insensibilis*, the amphipod *Gammarus chevreuxi*, the chironomid midge *Glyptotendipes barbipes* and a breeding colony of avocets *Recurvirostra avosetta*.

Sand dunes

The sand dunes within the Humber Estuary are features of the outer estuary on both the north and south banks particularly on Spurn and along the Lincolnshire coast south of Cleethorpes. Examples of both strandline, foredune, mobile, semi-fixed dunes, fixed dunes and dune grassland occur on both banks of the estuary and along the coast. Native sea buckthorn *Hippophae rhamnoides* scrub also occurs on both sides of the estuary. The nationally scarce, bulbous meadow grass *Poa bulbosa* is found on the sand dunes at Cleethorpes, and the nationally scarce suffocated clover *Trifolium suffocatum* is found at Spurn.

Standing waters

The most extensive area of standing waters on the Humber occurs at Barton and Barrow. The complex of disused clay pits vary in size and salinity, and are a mosaic of open waters. Similar pits occur at other locations on the estuary, such as at Faxfleet and Haverfield Pits. The pits support important breeding birds such as marsh harriers *Circus aeruginosus* and bittern *Botaurus stellaris*, and provide roosting and feeding areas for waterfowl.

Geology and geomorphology

Approximately one kilometre of the cliff and foreshore at South Ferriby, on the southern shore of the Humber provides exposures of Pleistocene sediments resting upon chalk. The sediments consist of tills (boulder clay) interbedded with silts and gravels, and underlain by chalk rubble resting on solid chalk. Resting upon these sediments are poorly stratified sandy chalk gravels, interpreted as solifluction deposits formed during periglacial conditions. These deposits are of importance as they lie in a marginal area between north-east England and East Anglia, as well as within the Humber Gap, the evolution of which has controlled drainage development in this part of England. Although the glacial origin of some of the sediments has long been recognised, isolated patches of gravels with ripple-marked upper surfaces have been interpreted both as raised beach deposits and more recently as the possible remains of a lacustrine beach formed at the margin of the glacial Lake Humber. The most recent studies suggest that these gravels had a fluvio-glacial origin, and that all the sediments date from the Late Devensian glaciation. The interpretation of this succession of sediments is crucial for interpreting and understanding the Late Pleistocene history of this part of Yorkshire and Lincolnshire. As this succession shows rapid lateral variation, it may be expected that new features, that might lead to a revised interpretation will be exposed as the cliff recedes further.

Spurn is an outstanding example of a dynamic spit system, very unusual, if not unique in Europe, in that the massive supply of sediment resulting from the erosion of the Holderness coast to the north has enabled it to extend across the mouth of a macro-tidal estuary. There exists an exceptionally long historical map record and written accounts extending back to the 7th Century A.D. This record indicates that the spit continuously shifts its location in response to ongoing erosion of the Holderness coast. The area immediately to the north of Spurn is of interest as the 'foundation' to which the spit is attached and is representative of the eroding cliffs of Holderness that supply sediment to sustain the spit. The site is also of interest because of the relationship between the orientation of the coast to the prevailing wave climate and the orientation of the spit in relation to the eroding shoreline of Holderness.

Wintering and passage waterfowl species

The estuary regularly supports 22 species of wintering waterfowl in nationally important numbers. These are bittern, dark-bellied brent goose *Branta bernicla bernicla*, shelduck *Tadorna tadorna*, wigeon *Anas penelope*, teal *Anas crecca*, pochard *Aythya ferina*, scaup *Aythya marila*, goldeneye *Bucephala clangula*, oystercatcher *Haematopus ostralegus*, avocet, ringed plover *Charadrius hiaticula*, golden plover *Pluvialis apricaria*, grey plover *Pluvialis squatarola*, lapwing *Vanellus vanellus*, knot *Calidris canutus*, sanderling *Calidris alba*, dunlin *Calidris alpina*, black-tailed godwit *Limosa limosa*, bar-tailed godwit *Limosa lapponica*, curlew *Numenius arquata*, redshank *Tringa totanus* and turnstone *Arenaria interpres*.

In addition, nine species of passage waders regularly occur in nationally important numbers on the Humber Estuary. These are: ringed plover, grey plover, sanderling, dunlin, ruff *Philomachus pugnax*, black-tailed godwit, whimbrel *Numenius phaeopus*, redshank and greenshank *Tringa nebularia*.

Wintering waterfowl and passage waders are widely distributed throughout the site, the distribution of individual species reflecting habitat distribution and species ecology. For example, the sandier sediments of the outer estuary are characterised by an assemblage including knot and grey plover, while the largest concentrations of

wigeon are found in the saltmarshes of the upper estuary. At high tide, large mixed flocks are concentrated into key roost sites which are at a premium due to the combined effects of extensive historical land claim, coastal squeeze and the acute lack of grazing marsh and grassland on both banks of the estuary.

Breeding bird assemblage of lowland open waters and their margins

The Humber Estuary supports a breeding bird assemblage of lowland open waters and their margins, including nationally important numbers of bittern, marsh harrier *Circus aeruginosus*, avocet and bearded tit *Panurus biarmicus*. Breeding bitterns first returned to the estuary in 2000, following an absence of over 20 years, and breeding avocets were first recorded here in 1992. The numbers of avocets in particular have increased substantially in recent years. The following species also contribute to the assemblage: little grebe *Tachybaptus ruficollis*, great crested grebe *Podiceps cristatus*, mute swan *Cygnus olor*, shelduck, gadwall *Anas strepera*, shoveler *Anas clypeata*, pochard, tufted duck *Aythya fuligula*, water rail *Rallus aquaticus*, little ringed plover *Charadrius dubius*, snipe *Gallinago gallinago*, redshank, common tern *Sterna hirundo*, cuckoo *Cuculus canorus*, kingfisher *Alcedo atthis*, yellow wagtail *Motacilla flava*, grasshopper warbler *Locustella naevia*, sedge warbler *Acrocephalus schoenobaenus*, reed warbler *Acrocephalus scirpaceus*, and reed bunting *Emberiza schoeniclus*. The distribution of the breeding species that make up the assemblage is concentrated within (although not restricted to) the clay pits, lagoons and reedbeds at Far Ings – Barton, Read’s Island and Blacktoft Sands.

Grey seals

The Humber Estuary supports one of the largest grey seal breeding colonies in England with a high rate of pup production compared to other UK sites.

River lamprey and sea lamprey

The Humber Estuary acts as an important migration route for both river lamprey and sea lamprey between coastal waters and their spawning areas. Both species are present in the estuary to some degree all year round, although numbers increase during summer and autumn periods when migration takes place.

Vascular plant assemblage

The site supports an important vascular plant assemblage, including at least ten nationally scarce species. These are characteristic of coastal and wetland habitats. They are bulbous foxtail *Alopecurus bulbosus*, bulbous meadow-grass, divided sedge *Carex divisa*, sea buckthorn, slender hare’s-ear *Bupleurum tenuissimum*, spiral tasselweed *Ruppia cirrhosa*, rush-leaved fescue *Festuca arenaria*, curved hard-grass *Parapholis incurva*, suffocated clover and sea clover *Trifolium squamosum*. Common couch sub-species *Elytrigia repens* ssp. *arenosa* has also been included as a notable taxon. In addition, the Humber is of phytogeographical interest, with several scarce species of vascular plant occurring at or close to the northern or southern limits of their range on the east coast of Britain.

Invertebrate assemblage

Assemblages of terrestrial and aquatic invertebrates are well represented across the Humber Estuary and its hinterlands. These include many scarce and threatened species across a range of taxa, especially the Coleoptera and Lepidoptera. For example, the sand dunes at Spurn support the ground beetle *Amara lucida*, the white colon moth *Sideridis albicolon* and the shore wainscot moth *Mythimna litoralis*. Saltmarshes such as those at Welwick provide foraging grounds for the solitary bee

Colletes halophilus, which is closely associated with the flowers of sea aster *Aster tripolium*. Sea aster is also the larval food plant for the starwort moth *Cucullia asteris*. Further upstream, brackish and freshwater reedbeds support the reed-beetle *Donacia clavipes* and the silky wainscot moth *Chilodes maritimus*, both of which are associated with common reed. Areas of willow *Salix* spp. scrub within reedbeds are also important and are the larval food plant of the cream-bordered green-pea moth *Earias clorana*. Fully aquatic species include the water beetles *Agabus conspersus* and *Helophorus fulgidicollis*.

NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type 1.2 Site code

1.3 Compilation date 1.4 Update

1.5 Relationship with other Natura 2000 sites

1.6 Respondent(s)

1.7 Site name

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	
date confirmed as SCI	
date site classified as SPA	200708
date site designated as SAC	

2. Site location:

2.1 Site centre location

longitude	latitude
00 03 25 E	53 32 59 N

2.2 Site area (ha) 2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
0	Marine	50.67%
UKE11	Kingston upon Hull, City of	2.61%
UKE12	East Riding of Yorkshire	23.30%
UKE13	North and North East Lincolnshire	11.50%
UKF3	Lincolnshire	11.92%

2.6 Biogeographic region

Alpine

Atlantic

Boreal

Continental

Macaronesia

Mediterranean

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Joint Nature Conservation Committee

Monkstone House

City Road

Peterborough

Cambridgeshire PE1 1JY

UK

Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948

Email: RIS@JNCC.gov.uk

FOR OFFICE USE ONLY.

DD MM YY

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

Designated: 31 August 2007

3. Country:

UK (England)

4. Name of the Ramsar site:

Humber Estuary

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

The boundary has been extended

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* ☐;
- ii) **an electronic format** (e.g. a JPEG or ArcView image) *Yes*
- iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* ☐;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

053 32 59 N 000 00 03 E

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Kingston-upon-Hull

The Humber Estuary is located on the boundary between the East Midlands Region and the Yorkshire and the Humber Region, on the east coast of England bordering the North Sea.

Administrative region: City of Kingston upon Hull; East Riding of Yorkshire; Humberside; Lincolnshire; North East Lincolnshire; North Lincolnshire

10. Elevation (average and/or max. & min.) (metres): **11. Area** (hectares): 37987.8

Min. -13

Max. 10

Mean No information available

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Humber Estuary is the largest macro-tidal estuary on the British North Sea coast. It drains a catchment of some 24,240 square kilometres and is the site of the largest single input of freshwater from Britain into the North Sea. It has the second-highest tidal range in Britain (max 7.4 m) and approximately one-third of the estuary is exposed as mud or sand flats at low tide. The inner estuary supports extensive areas of reedbed with areas of mature and developing saltmarsh backed in places by limited areas of grazing marsh in the middle and outer estuary. On the north Lincolnshire coast the saltmarsh is backed by low sand dunes with marshy slacks and brackish pools. The Estuary regularly supports internationally important numbers of waterfowl in winter and nationally important breeding populations in summer.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1, 3, 5, 6, 8

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 1

The site is a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons.

It is a large macro-tidal coastal plain estuary with high suspended sediment loads, which feed a dynamic and rapidly changing system of accreting and eroding intertidal and subtidal mudflats, sandflats, saltmarsh and reedbeds. Examples of both strandline, foredune, mobile, semi-fixed dunes, fixed dunes and dune grassland occur on both banks of the estuary and along the coast. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion on the tidal rivers of the Ouse and Trent. Wave exposed sandy shores are found in the outer/open coast areas of the estuary. These change to the more moderately exposed sandy shores and then to sheltered muddy shores within the main body of the estuary and up into the tidal rivers. The lower saltmarsh of the Humber is dominated by common cordgrass *Spartina anglica* and annual glasswort *Salicornia* communities. Low to mid marsh communities are mostly represented by sea aster *Aster tripolium*, common saltmarsh grass *Puccinellia maritima* and sea purslane *Atriplex portulacoides* communities. The upper portion of the saltmarsh community is atypical, dominated by sea couch *Elytrigia atherica* (*Elymus pycnanthus*) saltmarsh community. In the upper reaches of the estuary, the tidal marsh community is dominated by the common reed *Phragmites australis* fen and sea club rush *Bolboschoenus maritimus* swamp with the couch grass *Elytrigia repens* (*Elymus repens*) saltmarsh community. Within the Humber Estuary Ramsar site there are good examples of four of the five physiographic types of saline lagoon.

Ramsar criterion 3

The Humber Estuary Ramsar site supports a breeding colony of grey seals *Halichoerus grypus* at Donna Nook. It is the second largest grey seal colony in England and the furthest south regular breeding site on the east coast. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad *Bufo calamita*.

Ramsar criterion 5

Assemblages of international importance:

153,934 waterfowl, non-breeding season
(5 year peak mean 1996/97-2000/2001)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Eurasian golden plover, *Pluvialis apricaria*

altifrons subspecies – NW Europe, W Continental Europe, NW Africa population

17,996 individuals, passage, representing an average of 2.2% of the population
(5 year peak mean 1996-2000)

Red knot, *Calidris canutus*

islandica subspecies

18,500 individuals, passage, representing an average of 4.1% of the population
(5 year peak mean 1996-2000)

Dunlin, *Calidris alpina*

alpina subspecies – Western Europe (non-breeding) population

20,269 individuals, passage, representing an average of 1.5% of the population
(5 year peak mean 1996-2000)

Black-tailed godwit, *Limosa limosa*

islandica subspecies

915 individuals, passage, representing an average of 2.6% of the population
(5 year peak mean 1996-2000)

Common redshank, *Tringa totanus*

britannica subspecies

7,462 individuals, passage, representing an average of 5.7% of the population
(5 year peak mean 1996-2000)

Common shelduck, *Tadorna tadorna*

Northwestern Europe (breeding) population

4,464 individuals, wintering, representing an average of 1.5% of the population
(5 year peak mean 1996/7-2000/1)

Eurasian golden plover, *Pluvialis apricaria*

altifrons subspecies – NW Europe, W Continental Europe, NW Africa population

30,709 individuals, wintering, representing an average of 3.8% of the population
(5 year peak mean 1996/7-2000/1)

Red knot, *Calidris canutus*

islandica subspecies

28,165 individuals, wintering, representing an average of 6.3% of the population
(5 year peak mean 1996/7-2000/1)

Dunlin, *Calidris alpina*

alpina subspecies – Western Europe (non-breeding) population

22,222 individuals, wintering, representing an average of 1.7% of the population
(5 year peak mean 1996/7-2000/1)

Black-tailed godwit, *Limosa limosa*

islandica subspecies

1,113 individuals, wintering, representing an average of 3.2% of the population
(5 year peak mean 1996/7-2000/1)

Bar-tailed godwit, *Limosa lapponica*

lapponica subspecies

2,752 individuals, wintering, representing an average of 2.3% of the population
(5 year peak mean 1996/7-2000/1)

Common redshank, *Tringa totanus*

britannica subspecies

4,632 individuals, wintering, representing an average of 3.6% of the population

(5 year peak mean 1996/7-2000/1)

Ramsar criterion 8

The Humber Estuary acts as an important migration route for both river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus* between coastal waters and their spawning areas.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:

153934 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

European golden plover , <i>Pluvialis apricaria apricaria</i> , P. a. altifrons Iceland & Faroes/E Atlantic	17996 individuals, representing an average of 2.2% of the population (1996-2000)
-------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------

Red knot , <i>Calidris canutus islandica</i> , W & Southern Africa (wintering)	18500 individuals, representing an average of 4.1% of the population (1996-2000)
-----------------------------------------------------------------------------------	----------------------------------------------------------------------------------

Dunlin , <i>Calidris alpina alpina</i> , W Siberia/W Europe	20269 individuals, representing an average of 1.5% of the population (1996-2000)
-------------------------------------------------------------	----------------------------------------------------------------------------------

Black-tailed godwit , <i>Limosa limosa islandica</i> , Iceland/W Europe	915 individuals, representing an average of 2.6% of the population (1996-2000)
-------------------------------------------------------------------------	--------------------------------------------------------------------------------

Common redshank , <i>Tringa totanus totanus</i> ,	7462 individuals, representing an average of 5.7% of the population (1996-2000)
---------------------------------------------------	---------------------------------------------------------------------------------

Species with peak counts in winter:

Common shelduck , <i>Tadorna tadorna</i> , NW Europe	4464 individuals, representing an average of 1.5% of the population (1996/7 to 2000/1)
------------------------------------------------------	----------------------------------------------------------------------------------------

European golden plover , <i>Pluvialis apricaria apricaria</i> , P. a. altifrons Iceland & Faroes/E Atlantic	30709 individuals, representing an average of 3.8% of the population (1996/7 to 2000/1)
-------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------

Red knot , <i>Calidris canutus islandica</i> , W & Southern Africa (wintering)	28165 individuals, representing an average of 6.3% of the population (1996/7 to 2000/1)
-----------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------

Dunlin , <i>Calidris alpina alpina</i> , W Siberia/W Europe	22222 individuals, representing an average of 1.7% of the population (1996/7 to 2000/1)
-------------------------------------------------------------	-----------------------------------------------------------------------------------------

Black-tailed godwit , *Limosa limosa islandica*, 1113 individuals, representing an average of 3.2% of the population (1996/7 to 2000/1)
Iceland/W Europe

Bar-tailed godwit , *Limosa lapponica lapponica*, 2752 individuals, representing an average of 2.3% of the population (1996/7 to 2000/1)
W Palearctic

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

See Sections 21/22 for details of noteworthy species

Details of bird species occurring at levels of National importance are given in Section 22

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	neutral, shingle, sand, mud, clay, alluvium, sedimentary, sandstone, sandstone/mudstone, limestone/chalk, gravel, nutrient-rich
Geomorphology and landscape	lowland, coastal, floodplain, shingle bar, intertidal sediments (including sandflat/mudflat), estuary, islands, cliffs
Nutrient status	eutrophic
pH	circumneutral
Salinity	brackish / mixosaline, fresh, saline / euhaline
Soil	mainly mineral
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Cleethorpes, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/cleethorpes.html) Max. daily temperature: 13.1° C Min. daily temperature: 6.4° C Days of air frost: 29.0 Rainfall: 565.4 mm Hrs. of sunshine: 1521.9

General description of the Physical Features:

The Humber estuary is approximately 70 km long from the limit of saline intrusion on the River Ouse at Boothferry to the estuary mouth at Spurn Head, where it enters the North Sea. The area of the estuary is approx. 365 km², and it has a width of 6.6 km at the mouth.

The Humber is a macro-tidal estuary with a tidal range of 7.4 m, the second-largest range in the UK and comparable to other macro-tidal estuaries worldwide. It is a shallow and well mixed estuary, with an average depth of 6.5m rising to 13.2 m at the mouth.

The Humber is the second-largest coastal plain estuary in the UK, and the largest coastal plain estuary on the east coast of Britain. Suspended sediment concentrations are high, and are derived from a variety of sources, including marine sediments and eroding boulder clay along the Holderness coast. This is the northernmost of the English east coast estuaries whose structure and function is intimately linked with soft eroding shorelines.

Upstream from the Humber Bridge, the navigation channel undergoes major shifts from north to south banks. This section of the estuary is noteworthy for extensive mud and sand bars, which in places form semi-permanent islands.

The estuary covers the full salinity range from fully marine at the mouth of the estuary (Spurn Head) to the limit of saline intrusion on the Rivers Ouse and Trent). A salinity gradient from north to south bank is observed in the outer estuary, due to the incoming tide flowing along the north bank, while the fresh water keeps to the south bank as it discharges to the sea. As salinity declines upstream, reedbeds and brackish saltmarsh communities fringe the estuary..

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Humber catchment covers an area of ca. 24,240 km², more than 20% of the land area of England. Average annual precipitation in the upland areas of the catchment is as much as 1000 mm. Average freshwater flow into the Humber estuary from the rivers is 250 m³s⁻¹, ranging from 60 m³s⁻¹ in drier periods to 450 m³s⁻¹ in wet periods. Peak flows of up to 1500 m³s⁻¹ have been recorded during floods. The rivers Trent and Ouse, which provide the main fresh water flow into the Humber, drain large industrial and urban areas to the south and west (River Trent), and less densely populated agricultural areas to the north and west (River Ouse). The Trent/Ouse confluence is known as Trent Falls.

On the north bank of the Humber estuary the principal river is the river Hull, which flows through the city of Kingston-upon-Hull, and has a tidal length of 32 km, up to the Hempholme Weir. The Hull provides only about 1% of the freshwater input to the estuary. On the south bank, the River Ancholme enters the Humber at South Ferriby, but the tide is excluded by a sluice and a tidal lock. Altogether, the total tidal length of rivers and estuary is 313 km.

There are several major urban centres within the river catchments. Nottingham, Leicester, and the West Midlands/Birmingham conurbation are drained by the Trent, the Leeds-Bradford area in West Yorkshire is drained by the Aire/Calder and the Sheffield/Rotherham/Doncaster area in South Yorkshire is drained by the Don. There are also large rural regions, whose populations are currently experiencing high population growth, while the urban areas are showing a small decline. The 1992 population for the Ouse catchment was 4.1 million, and for the Trent catchment was 7.1 million. The population of Humberside, which comprises North and North-east Lincolnshire, the East Riding of Yorkshire, and Kingston-upon-Hull (Hull), was just under 0.9 million. Land use around the estuary itself is 50-98% agricultural, within only two areas of high population/ industry – the major conurbation around Kingston-upon-Hull (Hull) on the north bank, and several large industrial areas around Grimsby/ Immingham/ Cleesthorpes on the south bank.

The area around the Humber estuary is low-lying, and much land-claim of wetlands and supratidal zones, as well as parts of the intertidal zone, was carried out in the past two centuries. The mid to

outer estuary (Humber Bridge to Spurn Point) changed from a region of low water erosion in the 19th century to one of accretion in the 20th century, nonetheless a net loss of intertidal zone of some 3000 ha has taken place since the mid-19th century. Around the estuary some 894 km² of land are below the 5 m contour, protected by extensive coastal defences. Most of the sediment entering the estuary comes from the North Sea, and a large part of it is believed to come from the continuing erosion of the Holderness Cliffs, which form the coastline to the north of the estuary mouth at Spurn Head. The estuary currently has approximately 1,775 ha of saltmarsh

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Sediment trapping

19. Wetland types:

Marine/coastal wetland

Code	Name	% Area
F	Estuarine waters	66.8
G	Tidal flats	26.4
H	Salt marshes	4.7
E	Sand / shingle shores (including dune systems)	0.8
7	Gravel / brick / clay pits	0.5
Q	Saline / brackish lakes: permanent	0.3
J	Coastal brackish / saline lagoons	0.3
Other	Other	0.1
9	Canals and drainage channels	0.01
Y	Freshwater springs	0.01

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Description

Much of the intertidal area of the Humber Estuary consists of mudflats with fringing saltmarsh. There are smaller areas of intertidal sand flats, and sand dunes. The saltmarsh is both eroding and accreting; although coastal squeeze is resulting in net losses, and cord grass *Spartina anglica* is a major colonising species. In areas of reduced salinity such as the Upper Humber there are extensive areas of common reed *Phragmites australis* with some sea club-rush *Bolboschoenus maritimus*. Mid-level saltmarsh tends to be much more floristically diverse, and in the higher level marsh with its dendritic network of drainage channels, salt pans and borrow pits grasses dominate with thrift *Armeria maritima* where the marsh is grazed by cattle and sheep. Extensive areas of eel grass *Zostera marina* and *Z. nolti* have been known to occur at Spurn Bight, although in recent years records are limited. Behind the sandflats of the Cleethorpes coast the mature sand-dune vegetation contains some locally and nationally rare species including chestnut flat sedge *Blysmus rufus*, bulbous meadow grass *Poa bulbosa* and dense silky-bent *Apera interrupta*. The sand dunes, which cap the shingle spit that forms Spurn Peninsula are dominated by marram grass *Ammophila arenaria* and patches of dense sea buckthorn *Hippophae rhamnoides*.

Ecosystem services

Aesthetic

Education

Food

Recreation

Storm/wave protection

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

None reported

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species Information

Species Information

Birds

Species currently occurring at levels of national importance:

Great bittern, *Botaurus stellaris*

stellaris subspecies – W Europe, NW Africa (breeding) population

2 booming males, breeding, representing an average of 10.5% of the GB population

(3 year mean 2000-2002)

Eurasian marsh harrier, *Circus aeruginosus*

Europe population

10 females, breeding, representing an average of 6.3% of the GB population

(5 year mean 1998-2002)

Pied avocet, *Recurvirostra avosetta*

Western Europe (breeding) population

64 pairs, breeding, representing an average of 8.6% of the GB population

(5 year mean 1998-2002)

Little tern, *Sterna albifrons*

albifrons subspecies, Western Europe (breeding) population

51 pairs, breeding, representing an average of 2.1% of the GB population

(5 year mean 1998-2002)

Dark-bellied brent goose, *Branta bernicla*

bernicla subspecies

2,098 individuals, wintering, representing an average of 2.1% of the GB population

(5 year peak mean 1996/7-2000/1)

Eurasian wigeon, *Anas penelope*

Northwestern Europe (non-breeding) population

5,044 individuals, wintering, representing an average of 1.2% of the GB population

(5 year peak mean 1996/7-2000/1)

Common teal, *Anas crecca*

crecca subspecies, Northwestern Europe (non-breeding population)

2,322 individuals, wintering, representing an average of 1.2% of the GB population

(5 year peak mean 1996/7-2000/1)

Common pochard, *Aythya ferina*

Northeastern & Northwestern Europe (non-breeding) population

719 individuals, wintering, representing an average of 1.2% of the GB population

(5 year peak mean 1996/7-2000/1)

Greater scaup, *Aythya marila*

marila subspecies, Western Europe (non-breeding) population

127 individuals, wintering, representing an average of 1.7% of the GB population

(5 year peak mean 1996/7-2000/1)

Common goldeneye, *Bucephala clangula*

clangula subspecies, Northwestern & Central Europe (non-breeding) population

467 individuals, wintering, representing an average of 1.9% of the GB population

(5 year peak mean 1996/7-2000/1)

Great bittern, *Botaurus stellaris*

stellaris subspecies – W Europe, NW Africa (breeding) population

4 individuals, wintering, representing an average of 4.0% of the GB population

(5 year peak mean 1998/9-2002/3)

Hen harrier, *Circus cyaneus*

Europe population

8 individuals, wintering, representing an average of 1.1% of the GB population

(5 year peak mean 1997/8-2001/2)

Eurasian oystercatcher, *Haematopus ostralegus*

ostralegus subspecies

3,503 individuals, wintering, representing an average of 1.1% of the GB population

(5 year peak mean 1996/7-2000/1)

Pied avocet, *Recurvirostra avosetta*

Western Europe (breeding) population

59 individuals, wintering, representing an average of 1.7% of the GB population

(5 year peak mean 1996/7-2000/1)

Great ringed plover, *Charadrius hiaticula*

hiaticula subspecies

403 individuals, wintering, representing an average of 1.2% of the GB population

(5 year peak mean 1996/7-2000/1)

Grey plover, *Pluvialis squatarola*

squatarola subspecies, Eastern Atlantic (non-breeding) population

1,704 individuals, wintering, representing an average of 3.2% of the GB population

(5 year peak mean 1996/7-2000/1)

Northern lapwing, *Vanellus vanellus*

Europe (breeding) population

22,765 individuals, wintering, representing an average of 1.1% of the GB population

(5 year peak mean 1996/7-2000/1)

Sanderling, *Calidris alba*

Eastern Atlantic (non-breeding) population

486 individuals, wintering, representing an average of 2.3% of the GB population
(5 year peak mean 1996/7-2000/1)

Curlew, *Numenius arquata*
arquata subspecies

3,253 individuals, wintering, representing an average of 2.2% of the GB population
(5 year peak mean 1996/7-2000/1)

Ruddy turnstone, *Arenaria interpres*

interpres subspecies, Northeastern Canada & Greenland (breeding) population
629 individuals, wintering, representing an average of 1.3% of the GB population
(5 year peak mean 1996/7-2000/1)

Great ringed plover, *Charadrius hiaticula*
psammodroma subspecies

1,766 individuals, passage, representing an average of 5.9% of the GB population
(5 year peak mean 1996-2000)

Grey plover, *Pluvialis squatarola*

squatarola subspecies, Eastern Atlantic (non-breeding) population
1,590 individuals, passage, representing an average of 2.3% of the GB population
(5 year peak mean 1996-2000)

Sanderling, *Calidris alba*

Eastern Atlantic (non-breeding) population
818 individuals, passage, representing an average of 2.7% of the GB population
(5 year peak mean 1996-2000)

Ruff, *Philomachus pugnax*

Western Africa (non-breeding) population
128 individuals, passage, representing an average of 1.4% of the GB population
(5 year peak mean 1996-2000)

Whimbrel, *Numenius phaeopus*
islandicus subspecies

113 individuals, passage, representing an average of 2.3% of the GB population
(5 year peak mean 1996-2000)

Common greenshank, *Tringa nebularia*

Northwestern Europe (breeding) population
77 individuals, passage, representing an average of 5.5% of the GB population
(5 year peak mean 1996-2000)

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic

Aquatic vegetation (e.g. reeds, willows, seaweed)

Archaeological/historical site

Environmental education/ interpretation

Fisheries production

Livestock grazing

Non-consumptive recreation

Sport fishing
 Sport hunting
 Tourism
 Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
Local authority, municipality etc.	+	+
National/Crown Estate	+	+
Private	+	+
Public/communal	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	+
Tourism	+	+
Recreation	+	+
Current scientific research	+	
Cutting of vegetation (small-scale/subsistence)	+	
Fishing: commercial	+	+
Fishing: recreational/sport	+	+
Gathering of shellfish	+	+
Bait collection	+	+
Permanent arable agriculture		+
Permanent pastoral agriculture	+	+
Hunting: recreational/sport	+	+
Industrial water supply	+	+
Industry	+	+
Sewage treatment/disposal	+	+
Harbour/port	+	+

Flood control	+	+
Irrigation (incl. agricultural water supply)		+
Mineral exploration (excl. hydrocarbons)		+
Oil/gas exploration	+	+
Transport route	+	+
Domestic water supply		+
Urban development		+
Non-urbanised settlements		+
Military activities	+	+
Horticulture (incl. market gardening)		+

26. Factors (past, present or potential) adversely affecting the site’s ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.
2. Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
Disturbance to vegetation through cutting / clearing	1	Reedbeds being cut and cleared on margins of pits associated with angling. Management agreements and enforcement to address.	+		
Vegetation succession	1	Lack of reedbed management leading to scrub encroachment. Management agreement to address.	+		
Water diversion for irrigation/domestic/industrial use	1	Abstraction causes reduced freshwater input. Review of consents well advanced but not yet implemented.	+	+	
Overfishing	2	Substantial lamprey by-catch in eel nets in River Ouse.		+	
Pollution – domestic sewage	1	Reduced dissolved oxygen in River Ouse is a barrier to fish migration. Review of consents well advanced but not yet implemented.	+	+	+
Pollution – agricultural fertilisers	1	Reduced dissolved oxygen in River Ouse is a barrier to fish migration. To be addressed through Catchment Sensitive Farming Initiatives and implementation of Water Framework Directive.	+	+	+
Recreational/tourism disturbance (unspecified)	1	Particularly illegal access by motorised recreational vehicles and craft. Control through management scheme.	+		

Other factor	1	Coastal squeeze causing loss of intertidal habitats and saltmarsh due to sea level rise and fixed defences. The Humber Flood Risk Management Strategy has been developed and is being implemented.	+		+

For category 2 factors only.

What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors? Overfishing - Overfishing – to be considered through an ‘in-combination’ assessment of possible factors as part of the Review of Consents exercise.

Is the site subject to adverse ecological change? YES

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	+
National Nature Reserve (NNR)	+	
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	+
Management agreement	+	+
Site management statement/plan implemented	+	
Area of Outstanding National Beauty (AONB)		+
Special Area of Conservation (SAC)	+	
IUCN (1994) category IV	+	

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Fauna.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

Seal populations are monitored by the Sea Mammal Research Unit

Humber Wader Ringing Group

Spurn Bird Observatory

National Nature Reserve monitoring

Environment.

Institute of Estuarine & Coastal Studies, Hull: various
 Industrial Concerns: monitoring on behalf of companies such as Associated British Ports and BP
 Environment Agency monitoring: various
 Geomorphological studies associated with shoreline management planning
 National Nature Reserve monitoring

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.
 There are a four National Nature Reserves with associated facilities within the Ramsar site (Spurn, Far Ings, Donna Nook and Saltfleetby – Theddlethorpe Dunes) and a number of other visitor, information and/or education centres including the Spurn Bird Observatory, the Cleethorpes Discovery Centre, Water’s Edge and Far Ings. A wide range of Humber wide and area-specific information is available through a range of media (eg leaflets, displays, internet etc) including ‘Humber Estuary European Marine Site Codes of Conduct’ developed with a range of stakeholders to cover a range of recreational and educational activities and ‘Coastal Futures’ – a partnership project working with local communities affected by flood risk and associated issues including managed realignment includes proactive education work within schools.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities, Facilities provided and Seasonality.

Sailing: marinas at Brough, Winteringham, Hull, Grimsby and South Ferriby.
 Bathing etc: Cleethorpes (some 6m visitors/yr).
 Walking/Horse riding: throughout
 Beach fishing, match sea-fishing, non-commercial bait digging.
 Non-commercial samphire collection
 Wildfowling
 Tourist amusements: Cleethorpes.
 Bird watching: throughout but particularly at Blacktoft Sands RSPB reserve and the four National Nature Reserves.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.
 Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Site-relevant references

Site-relevant references

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NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type 1.2 Site code

1.3 Compilation date 1.4 Update

1.5 Relationship with other Natura 2000 sites

1.6 Respondent(s)

1.7 Site name

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	200708
date confirmed as SCI	200812
date site classified as SPA	
date site designated as SAC	200912

2. Site location:

2.1 Site centre location

longitude	latitude
00 44 05 W	53 35 21 N

2.2 Site area (ha) 2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UKE13	North and North East Lincolnshire	12.03%
UKE12	East Riding of Yorkshire	23.69%
UKE11	Kingston upon Hull, City of	2.67%
0	Marine	52.01%
UKF3	Lincolnshire	9.59%

2.6 Biogeographic region

Alpine

Atlantic

Boreal

Continental

Macaronesia

Mediterranean

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment
Sandbanks which are slightly covered by sea water all the time	4.52	C	A	C	C
Estuaries	100	B	B	B	B
Mudflats and sandflats not covered by seawater at low tide	25.6	B	B	B	B
Coastal lagoons	0.02	C	C	B	C
Annual vegetation of drift lines	0	D			
<i>Salicornia</i> and other annuals colonising mud and sand	0.13	C	C	B	C
<i>Spartina</i> swards (<i>Spartinion maritimae</i>)	0.37	D			
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	2.14	C	B	C	C
Embryonic shifting dunes	0.05	C	A	C	C
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")	0.04	C	B	C	C
Fixed dunes with herbaceous vegetation ("grey dunes")	0.04	C	C	C	C
Dunes with <i>Hippophae rhamnoides</i>	0.18	C	B	C	C

3.2 Annex II species

Species name	Population				Site assessment			
	Resident	Migratory			Population	Conservation	Isolation	Global
		Breed	Winter	Stage				
<i>Petromyzon marinus</i>	251-500	-	-	-	B	C	C	C
<i>Lampetra fluviatilis</i>	>10,000	-	-	-	A	B	C	C
<i>Alosa alosa</i>	Present	-	-	-	D			
<i>Alosa fallax</i>	Present	-	-	-	D			
<i>Halichoerus grypus</i>	1800	-	-	-	C	B	B	C
<i>Phoca vitulina</i>	Present	-	-	-	D			

4. Site description

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	94.9
Salt marshes. Salt pastures. Salt steppes	4.4
Coastal sand dunes. Sand beaches. Machair	0.4
Shingle. Sea cliffs. Islets	
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	0.4
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	

Habitat classes	% cover
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	100%

4.1 Other site characteristics

Soil & geology:

Alluvium, Clay, Gravel, Limestone/chalk, Mud, Neutral, Sand, Sandstone, Sandstone/mudstone, Sedimentary, Shingle

Geomorphology & landscape:

Cliffs, Coastal, Estuary, Floodplain, Intertidal sediments (including sandflat/mudflat), Islands, Lagoon, Lowland, Shingle bar, Subtidal sediments (including sandbank/mudbank)

4.2 Quality and importance

Sandbanks which are slightly covered by sea water all the time

- for which the area is considered to support a significant presence.

Estuaries

- for which this is considered to be one of the best areas in the United Kingdom.

Mudflats and sandflats not covered by seawater at low tide

- for which this is considered to be one of the best areas in the United Kingdom.

Coastal lagoons

- for which the area is considered to support a significant presence.

Salicornia and other annuals colonising mud and sand

- for which the area is considered to support a significant presence.

Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

- for which the area is considered to support a significant presence.

Embryonic shifting dunes

- which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares.

- for which the area is considered to support a significant presence.

Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")

- for which the area is considered to support a significant presence.

Fixed dunes with herbaceous vegetation ("grey dunes")

- for which the area is considered to support a significant presence.

Dunes with *Hippophae rhamnoides*

- which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares.

- for which the area is considered to support a significant presence.

Petromyzon marinus

- for which the area is considered to support a significant presence.

Lampetra fluviatilis

- for which the area is considered to support a significant presence.

Halichoerus grypus

- for which the area is considered to support a significant presence.

4.3 Vulnerability

The Humber Estuary is subject to the impacts of human activities (past and present) as well as ongoing processes such as sea level rise and climate change. Management intervention is therefore necessary to enable the estuary to recover and to secure the ecological resilience required to respond to both natural and anthropogenic change. Key issues include coastal squeeze, impacts on the sediment budget, and geomorphological structure and function of the estuary (due to sea level rise, flood defence works, dredging, and the construction, operation and maintenance of ports, pipelines and other infrastructure), changes in water quality and flows, pressure from additional built development, and damage and disturbance arising from access, recreation and other activities.

Coastal squeeze is being addressed through the development and implementation of the Humber Flood Risk Management Strategy. All proposals for flood defence, development, dredging, abstractions and discharges which require consent from any statutory body, and land use plans which may have impacts upon the site are subject to assessment under the Conservation (Natural Habitats, &c.) Regulations 1994 (the "Habitats Regulations"). Diffuse pollution will be addressed through a range of measures including implementation of the Waste Water Framework Directive and Catchment Sensitive Farming initiatives.

Other issues are addressed via a range of measures including regulation of on-site land management activities and implementation of the Humber Management Scheme, developed by all relevant statutory bodies to assist in the delivery of their duties under the Habitats Regulations.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK01 (NNR)	1.8
UK04 (SSSI/ASSI)	100.0

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment

3.2 Annex I birds and regularly occurring migratory birds not listed on Annex I

Code	Species name	Population			Site assessment			
		Resident	Migratory		Population	Conservation	Isolation	Global
			Breed	Winter				
A052	<i>Anas crecca</i>			2322 I		C		C
A050	<i>Anas penelope</i>			5044 I		C		C
A053	<i>Anas platyrhynchos</i>			2456 I		C		C
A169	<i>Arenaria interpres</i>			629 I		C		C
A059	<i>Aythya ferina</i>			719 I		C		C
A062	<i>Aythya marila</i>			127 I		C		C
A021	<i>Botaurus stellaris</i>			4 I		B		C
A021	<i>Botaurus stellaris</i>		2 M			B		B
A046a	<i>Branta bernicla bernicla</i>			2098 I		C		C
A067	<i>Bucephala clangula</i>			467 I		B		C
A144	<i>Calidris alba</i>			486 I		B		C
A144	<i>Calidris alba</i>				818 I	B		C
A149	<i>Calidris alpina alpina</i>				20269 I	B		C
A149	<i>Calidris alpina alpina</i>			22222 I		B		C
A143	<i>Calidris canutus</i>			28165 I		B		C
A143	<i>Calidris canutus</i>				18500 I	B		C
A137	<i>Charadrius hiaticula</i>			403 I		C		C
A137	<i>Charadrius hiaticula</i>				1766 I	B		C
A081	<i>Circus aeruginosus</i>		10 F			B		B
A082	<i>Circus cyaneus</i>			8 I		C		C
A130	<i>Haematopus ostralegus</i>			3503 I		C		C
A157	<i>Limosa lapponica</i>			2752 I		B		C
A156	<i>Limosa limosa islandica</i>			1113 I		B		C
A156	<i>Limosa limosa islandica</i>				915 I	B		C
A160	<i>Numenius arquata</i>			3253 I		C		C
A158	<i>Numenius phaeopus</i>				113 I	C		C
A151	<i>Philomachus pugnax</i>				128 I	C		C
A140	<i>Pluvialis apricaria</i>			30709 I		B		C
A141	<i>Pluvialis squatarola</i>			1704 I		B		C
A141	<i>Pluvialis squatarola</i>				1590 I	B		C
A132	<i>Recurvirostra avosetta</i>			59 I		C		B
A132	<i>Recurvirostra avosetta</i>		64 P			B		B
A195	<i>Sterna albifrons</i>		51 P			B		C
A048	<i>Tadorna tadorna</i>			4464 I		B		C
A164	<i>Tringa nebularia</i>				77 I	C		C
A162	<i>Tringa totanus</i>				7462 I	B		C
A162	<i>Tringa totanus</i>			4632 I		B		C
A142	<i>Vanellus vanellus</i>			22765 I		C		C

4. Site description:

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	

Habitat classes	% cover
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	93.6
Salt marshes. Salt pastures. Salt steppes	4.6
Coastal sand dunes. Sand beaches. Machair	0.8
Shingle. Sea cliffs. Islets	
Inland water bodies (standing water, running water)	0.6
Bogs. Marshes. Water fringed vegetation. Fens	0.3
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	100%

4.1 Other site characteristics

Soil & geology:

Alluvium, Clay, Gravel, Limestone/chalk, Mud, Neutral, Sand, Sandstone, Sandstone/mudstone, Sedimentary, Shingle

Geomorphology & landscape:

Cliffs, Coastal, Estuary, Floodplain, Intertidal sediments (including sandflat/mudflat), Islands, Lagoon, Lowland, Shingle bar, Subtidal sediments (including sandbank/mudbank)

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC)

During the breeding season the area regularly supports:

Botaurus stellaris 10.5% of the population in Great Britain
(Europe - breeding) 2000-2002

Circus aeruginosus 6.3% of the population in Great Britain
1998-2002

Recurvirostra avosetta 8.6% of the population in Great Britain
(Western Europe/Western Mediterranean - breeding) 1998-2002

Sterna albifrons 2.1% of the population in Great Britain
(Eastern Atlantic - breeding) 1998-2002

Over winter the area regularly supports:

Botaurus stellaris 4% of the population in Great Britain
(Europe - breeding) 1998/9 to 2002/3

Circus cyaneus 1.1% of the population in Great Britain
1997/8 to 2001/2

<i>Limosa lapponica</i> (Western Palearctic - wintering)	4.4% of the population in Great Britain 1996/7 to 2000/1
<i>Pluvialis apricaria</i> (North-western Europe - breeding)	12.3% of the population in Great Britain 1996/7 to 2000/1
<i>Recurvirostra avosetta</i> (Western Europe/Western Mediterranean - breeding)	1.7% of the population in Great Britain 1996/7 to 2000/1
On passage the area regularly supports:	
<i>Philomachus pugnax</i> (Western Africa - wintering)	1.4% of the population in Great Britain 1996-2000

ARTICLE 4.2 QUALIFICATION (79/409/EEC)	
Over winter the area regularly supports:	
<i>Calidris alpina alpina</i> (Northern Siberia/Europe/Western Africa)	1.7% of the population 1996/7 to 2000/1
<i>Calidris canutus</i> (North-eastern Canada/Greenland/Iceland/North-western Europe)	6.3% of the population 1996/7 to 2000/1
<i>Limosa limosa islandica</i> (Iceland - breeding)	3.2% of the population 1996/7 to 2000/1
<i>Tadorna tadorna</i> (North-western Europe)	1.5% of the population 1996/7 to 2000/1
<i>Tringa totanus</i> (Eastern Atlantic - wintering)	3.6% of the population 1996/7 to 2000/1
On passage the area regularly supports:	
<i>Calidris alpina alpina</i> (Northern Siberia/Europe/Western Africa)	1.5% of the population 1996-2000
<i>Calidris canutus</i> (North-eastern Canada/Greenland/Iceland/North-western Europe)	4.1% of the population 1996-2000
<i>Limosa limosa islandica</i> (Iceland - breeding)	2.6% of the population 1996-2000
<i>Tringa totanus</i> (Eastern Atlantic - wintering)	5.7% of the population 1996-2000
ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS	
In the non-breeding season the area regularly supports:	
153934 waterfowl (5 year peak mean 1996/7 to 2000/1)	

Including:

Anas crecca , *Anas penelope* , *Anas platyrhynchos* , *Arenaria interpres* , *Aythya ferina* , *Aythya marila* , *Botaurus stellaris* , *Branta bernicla bernicla* , *Bucephala clangula* , *Calidris alba* , *Calidris alpina alpina* , *Calidris canutus* , *Charadrius hiaticula* , *Haematopus ostralegus* , *Limosa lapponica* , *Limosa limosa islandica* , *Numenius arquata* , *Numenius phaeopus* , *Philomachus pugnax* , *Pluvialis apricaria* , *Pluvialis squatarola* , *Recurvirostra avosetta* , *Tadorna tadorna* , *Tringa nebularia* , *Tringa totanus* , *Vanellus vanellus*

4.3 Vulnerability

The Humber Estuary is subject to the impacts of human activities (past and present) as well as ongoing processes such as sea level rise and climate change. Management intervention is therefore necessary to enable the estuary to recover and to secure the ecological resilience required to respond to both natural and anthropogenic change. Key issues include coastal squeeze, impacts on the sediment budget, and geomorphological structure and function of the estuary (due to sea level rise, flood defence works, dredging, and the construction, operation and maintenance of ports, pipelines and other infrastructure), changes in water quality and flows, pressure from additional built development, and damage and disturbance arising from access, recreation and other activities.

Coastal squeeze is being addressed through the development and implementation of the Humber Flood Risk Management Strategy. All proposals for flood defence, development, dredging, abstractions and discharges which require consent from any statutory body, and land use plans which may have impacts upon the site are subject to assessment under the Conservation (Natural Habitats, &c.) Regulations 1994 (the “Habitats Regulations”). Diffuse pollution will be addressed through a range of measures including implementation of the Waste Water Framework Directive and Catchment Sensitive Farming initiatives.

Other issues are addressed via a range of measures including regulation of on-site land management activities and implementation of the Humber Management Scheme, developed by all relevant statutory bodies to assist in the delivery of their duties under the Habitats Regulations.

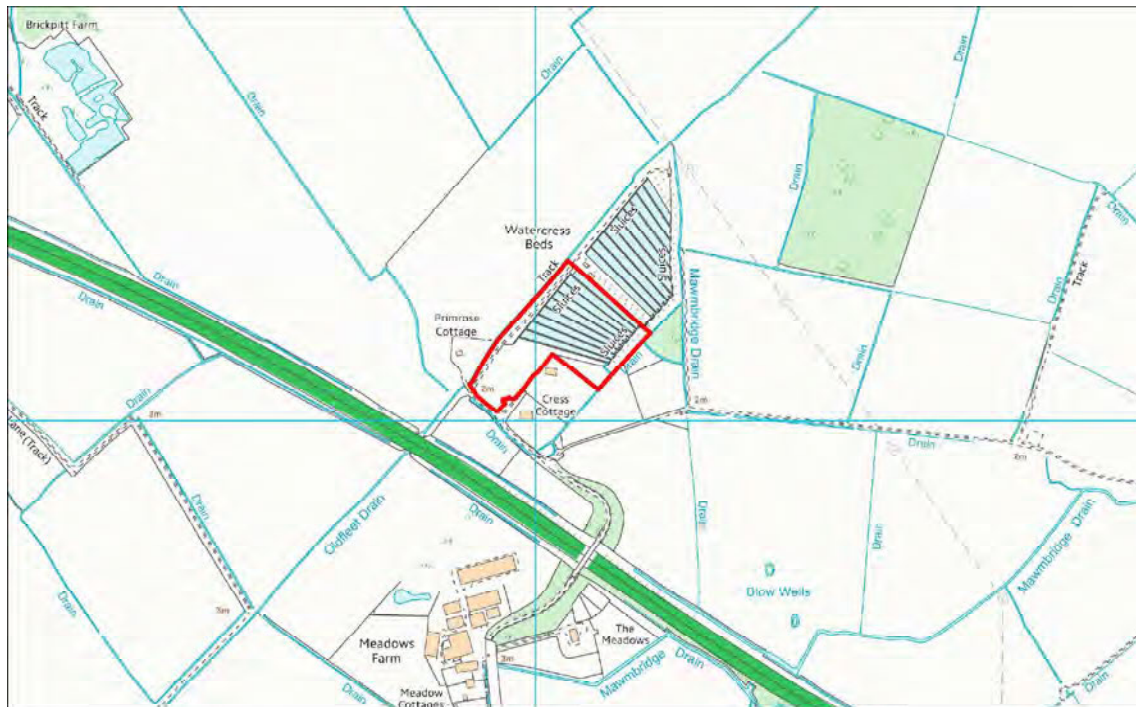
5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK01 (NNR)	3.5
UK04 (SSSI/ASSI)	100.0

F.2. Designated Site Citations

Healing Cress Beds



© Crown Copyright and Database Rights (2016) Ordnance Survey (100025370)

Grid ref: TA220121

Area: 2.8ha

Survey: 26 May 2015

Surveyor: Jeremy Fraser

Main habitat: Coarse or rank grassland, Pond

Additional habitat: Neutral grassland - semi-improved, Scrub - scattered / dense

This site comprises nine watercress beds, a newly created pond and a little surrounding habitat. The beds were created in 1945, after 10 artesian wells were sunk and a plentiful supply of high quality water at 11°C became available. Surplus water was piped to the nearby coast for industrial use until the land and an associated abstraction licence were purchased by Millennium Inorganic Chemicals (now Cristal) in 2010. Watercress production in a total of 19 narrow, straight-sided beds ceased in 1970 and the site then dried out, leading to establishment of a tall, rough, grassland sward separated by numerous concrete water channels and pathways.

The Local Wildlife Site encompasses only the south-western half of the beds, because it was here in late summer 2011 that coarse vegetation was cut and cleared, just before creation of shallow scrapes in three of the beds. Pumps were switched off in September 2011 to enable construction of a new pipeline to the coast, and as a result the site was continuously flooded until April 2013, when pumping resumed into the new pipeline. In July 2013, a sinuously-shaped pond with shallow edges was excavated in a small field immediately south of the scrapes, following clearance of coarse grassland.

Aquatic and waterside plants have been planted in the new pond, and proprietary seed mixes sown on the pond margin (wetland plants) and on nearby land disturbed by the works (meadow plants). In contrast, the scrape flora has developed without planting and seeding. Surroundings of all these wetland features are now being managed annually by cutting and removal to keep coarse grassland and ruderal vegetation under control. Invasive native and non-native water plants will be hand-pulled where necessary, which in the case of bulrush has already begun.

Aquatic plants that have colonised the scrapes are broad-leaved pondweed, water-crowfoot, common duckweed and common stonewort. Shallow water supports common or grey club-rush, bulrush, branched bur-reed, amphibious bistort, water-cress, fool's water-cress, water-plantain, blue water-speedwell, floating or plicate sweet-grass and common spike-rush. On damp grassland and muddy edges are hoary and great willowherb, celery-leaved buttercup, toad and jointed rush, soft-rush, marsh & meadow foxtail and creeping bent. Species currently found only in the pond are Nuttall's waterweed, spiked water-milfoil, curled pondweed, mare's-tail, water soldier, yellow water-lily, yellow iris, flowering-rush, purple-loosestrife, bog bean, marsh-marigold and water mint.

Other plants occur in drier parts of the former watercress beds, beside paths and close to boundaries, including two lines of trees, one of Leyland cypress and the other of poplar. Other woody plants are sycamore, willow, bramble and ivy, in addition to a range of ruderal and weedy species. Coarse grassland is characterized by creeping bent, rough meadow-grass, Yorkshire-fog, creeping cinquefoil, hard rush and hairy sedge. More interesting grassland occurs where the sward is less dense, and includes species such as yellow rattle, ox-eye daisy, wild strawberry, lesser trefoil, wall speedwell, black medick, smooth meadow-grass and red fescue.

Survey on 26 May 2015 also revealed 52 aquatic invertebrate taxa, indicating a Community Conservation Index score of 16.6 for the scrapes and pond, which demonstrates a fauna of High Conservation Value. Aquatic beetles are particularly well represented, including two that are Nationally Notable: *Berosus signaticollis* and *Rhantus suturalis*. A Nationally Notable soldier fly was also identified *Stratiomys potamida*, as well as several other species that are widespread but local in the UK (eg *Helochares lividus* and *Ilybius quadriguttatus*). Amongst the more easily identified species seen were four-spotted chaser, broad-bodied chaser, blue-tailed and common blue damselfly, as well as the three amphibians: common frog, common toad and smooth newt.

Criteria passed: FW2, We3, We4

Recommended as a Local Wildlife Site: 15 March 2016

Site name: Humber Estuary **County:** East Riding of Yorkshire, Kingston upon Hull, North Lincolnshire, North East Lincolnshire and Lincolnshire.

District: East Riding of Yorkshire, Kingston upon Hull, North Lincolnshire, North East Lincolnshire and East Lindsey

Status: Site of Special Scientific Interest (SSSI) notified under Section 28C of the Wildlife and Countryside Act 1981, as inserted by Schedule 9 to the Countryside & Rights of Way Act 2000.

Local Planning Authority: East Riding of Yorkshire Council, Kingston upon Hull Council, North Lincolnshire Council, North East Lincolnshire Council, Lincolnshire County Council and East Lindsey District Council

National grid reference: TA216184 **Area:** 37000.59 ha

Ordnance Survey sheet: **1:50,000:** 106, 107, 112, 113
1:10,000: SE72 NW, NE, SW, SE; SE81 NW, NE, SW, SE; SE82 NE, SW, SE; SE92 NW, NE, SW, SE; TA02 NW, NE, SW, SE; TA11 NE; TA12 NW, NE, SW, SE; TA20 NE; TA21 NW, NE, SW, SE; TA22 SW; TA30 NW, NE, SW, SE; TA31 NW, NE, SW, SE; TA40 NW, SW; TA41 NW, SW; TF49 NW, NE, SE.

Date of notification: 3 February 2004

Reasons for Notification:

The Humber Estuary is a nationally important site with a series of nationally important habitats. These are the estuary itself (with its component habitats of intertidal mudflats and sandflats and coastal saltmarsh) and the associated saline lagoons, sand dunes and standing waters. The site is also of national importance for the geological interest at South Ferriby Cliff (Late Pleistocene sediments) and for the coastal geomorphology of Spurn. The estuary supports nationally important numbers of 22 wintering waterfowl and nine passage waders, and a nationally important assemblage of breeding birds of lowland open waters and their margins. It is also nationally important for a breeding colony of grey seals *Halichoerus grypus*, river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus*, a vascular plant assemblage and an invertebrate assemblage.

General description:

Estuary

The Humber Estuary is a large macro-tidal coastal plain estuary with high suspended sediment loads, which feed a dynamic and rapidly changing system of accreting and eroding intertidal and subtidal mudflats, sandflats, saltmarsh and reedbeds. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion on the tidal rivers of the Ouse and Trent. The range of salinity, substrate and exposure to wave action influences the estuarine habitats and the range of species that utilise them. These include a breeding bird assemblage, winter and passage waterfowl, river and sea lamprey, grey seals, vascular plants and invertebrates.

The extensive mud and sand flats support a range of benthic communities, which in turn are an important feeding resource for birds and fish. Wave exposed sandy shores are found in the outer/open coast areas of the estuary. These change to the more moderately exposed sandy shores and then to sheltered muddy shores within the main body of the estuary and up into the tidal rivers.

The lower saltmarsh of the Humber is dominated by common cordgrass *Spartina anglica* and annual glasswort *Salicornia* communities. Low to mid marsh communities are mostly represented by sea aster *Aster tripolium*, common saltmarsh grass *Puccinellia maritima* and sea purslane *Atriplex portulacoides* communities. The upper portion of the saltmarsh community is atypical, dominated by sea couch *Elytrigia atherica* (*Elymus pycnanthus*) saltmarsh community. In the upper reaches of the estuary, the tidal marsh community is dominated by the common reed *Phragmites australis* fen and sea club rush *Bolboschoenus maritimus* swamp with the couch grass *Elytrigia repens* (*Elymus repens*) saltmarsh community. On the southern coastal fringe of the estuary on the north Lincolnshire coast, a wide range of saltmarsh communities are present. Good height zonation is found, with levee development along creeks creating extensive depressions holding waterlogged saltmarsh types. Upper saltmarsh is common here. These saltmarsh communities are an integral part of the functioning dynamic estuarine system. They provide nutrients for the mudflats and sandflats, and feeding and roosting areas for nationally important numbers of ducks, geese and waterfowl.

Saline lagoons

Within the Humber Estuary SSSI there are good examples of four of the five physiographic types of saline lagoon. These are the isolated lagoon at Humberston Fitties, the silled lagoon at Northcoates 'Point A', the percolation lagoon at Northcoates 'Point B', and the sluiced lagoons at Blacktoft Sands. These lagoons support a number of notable lagoon specialist species including the lagoon sand shrimp *Gammarus insensibilis*, the amphipod *Gammarus chevreuxi*, the chironomid midge *Glyptotendipes barbipes* and a breeding colony of avocets *Recurvirostra avosetta*.

Sand dunes

The sand dunes within the Humber Estuary are features of the outer estuary on both the north and south banks particularly on Spurn and along the Lincolnshire coast south of Cleethorpes. Examples of both strandline, foredune, mobile, semi-fixed dunes, fixed dunes and dune grassland occur on both banks of the estuary and along the coast. Native sea buckthorn *Hippophae rhamnoides* scrub also occurs on both sides of the estuary. The nationally scarce, bulbous meadow grass *Poa bulbosa* is found on the sand dunes at Cleethorpes, and the nationally scarce suffocated clover *Trifolium suffocatum* is found at Spurn.

Standing waters

The most extensive area of standing waters on the Humber occurs at Barton and Barrow. The complex of disused clay pits vary in size and salinity, and are a mosaic of open waters. Similar pits occur at other locations on the estuary, such as at Faxfleet and Haverfield Pits. The pits support important breeding birds such as marsh harriers *Circus aeruginosus* and bittern *Botaurus stellaris*, and provide roosting and feeding areas for waterfowl.

Geology and geomorphology

Approximately one kilometre of the cliff and foreshore at South Ferriby, on the southern shore of the Humber provides exposures of Pleistocene sediments resting upon chalk. The sediments consist of tills (boulder clay) interbedded with silts and gravels, and underlain by chalk rubble resting on solid chalk. Resting upon these sediments are poorly stratified sandy chalk gravels, interpreted as solifluction deposits formed during periglacial conditions. These deposits are of importance as they lie in a marginal area between north-east England and East Anglia, as well as within the Humber Gap, the evolution of which has controlled drainage development in this part of England. Although the glacial origin of some of the sediments has long been recognised, isolated patches of gravels with ripple-marked upper surfaces have been interpreted both as raised beach deposits and more recently as the possible remains of a lacustrine beach formed at the margin of the glacial Lake Humber. The most recent studies suggest that these gravels had a fluvio-glacial origin, and that all the sediments date from the Late Devensian glaciation. The interpretation of this succession of sediments is crucial for interpreting and understanding the Late Pleistocene history of this part of Yorkshire and Lincolnshire. As this succession shows rapid lateral variation, it may be expected that new features, that might lead to a revised interpretation will be exposed as the cliff recedes further.

Spurn is an outstanding example of a dynamic spit system, very unusual, if not unique in Europe, in that the massive supply of sediment resulting from the erosion of the Holderness coast to the north has enabled it to extend across the mouth of a macro-tidal estuary. There exists an exceptionally long historical map record and written accounts extending back to the 7th Century A.D. This record indicates that the spit continuously shifts its location in response to ongoing erosion of the Holderness coast. The area immediately to the north of Spurn is of interest as the 'foundation' to which the spit is attached and is representative of the eroding cliffs of Holderness that supply sediment to sustain the spit. The site is also of interest because of the relationship between the orientation of the coast to the prevailing wave climate and the orientation of the spit in relation to the eroding shoreline of Holderness.

Wintering and passage waterfowl species

The estuary regularly supports 22 species of wintering waterfowl in nationally important numbers. These are bittern, dark-bellied brent goose *Branta bernicla bernicla*, shelduck *Tadorna tadorna*, wigeon *Anas penelope*, teal *Anas crecca*, pochard *Aythya ferina*, scaup *Aythya marila*, goldeneye *Bucephala clangula*, oystercatcher *Haematopus ostralegus*, avocet, ringed plover *Charadrius hiaticula*, golden plover *Pluvialis apricaria*, grey plover *Pluvialis squatarola*, lapwing *Vanellus vanellus*, knot *Calidris canutus*, sanderling *Calidris alba*, dunlin *Calidris alpina*, black-tailed godwit *Limosa limosa*, bar-tailed godwit *Limosa lapponica*, curlew *Numenius arquata*, redshank *Tringa totanus* and turnstone *Arenaria interpres*.

In addition, nine species of passage waders regularly occur in nationally important numbers on the Humber Estuary. These are: ringed plover, grey plover, sanderling, dunlin, ruff *Philomachus pugnax*, black-tailed godwit, whimbrel *Numenius phaeopus*, redshank and greenshank *Tringa nebularia*.

Wintering waterfowl and passage waders are widely distributed throughout the site, the distribution of individual species reflecting habitat distribution and species ecology. For example, the sandier sediments of the outer estuary are characterised by an assemblage including knot and grey plover, while the largest concentrations of

wigeon are found in the saltmarshes of the upper estuary. At high tide, large mixed flocks are concentrated into key roost sites which are at a premium due to the combined effects of extensive historical land claim, coastal squeeze and the acute lack of grazing marsh and grassland on both banks of the estuary.

Breeding bird assemblage of lowland open waters and their margins

The Humber Estuary supports a breeding bird assemblage of lowland open waters and their margins, including nationally important numbers of bittern, marsh harrier *Circus aeruginosus*, avocet and bearded tit *Panurus biarmicus*. Breeding bitterns first returned to the estuary in 2000, following an absence of over 20 years, and breeding avocets were first recorded here in 1992. The numbers of avocets in particular have increased substantially in recent years. The following species also contribute to the assemblage: little grebe *Tachybaptus ruficollis*, great crested grebe *Podiceps cristatus*, mute swan *Cygnus olor*, shelduck, gadwall *Anas strepera*, shoveler *Anas clypeata*, pochard, tufted duck *Aythya fuligula*, water rail *Rallus aquaticus*, little ringed plover *Charadrius dubius*, snipe *Gallinago gallinago*, redshank, common tern *Sterna hirundo*, cuckoo *Cuculus canorus*, kingfisher *Alcedo atthis*, yellow wagtail *Motacilla flava*, grasshopper warbler *Locustella naevia*, sedge warbler *Acrocephalus schoenobaenus*, reed warbler *Acrocephalus scirpaceus*, and reed bunting *Emberiza schoeniclus*. The distribution of the breeding species that make up the assemblage is concentrated within (although not restricted to) the clay pits, lagoons and reedbeds at Far Ings – Barton, Read’s Island and Blacktoft Sands.

Grey seals

The Humber Estuary supports one of the largest grey seal breeding colonies in England with a high rate of pup production compared to other UK sites.

River lamprey and sea lamprey

The Humber Estuary acts as an important migration route for both river lamprey and sea lamprey between coastal waters and their spawning areas. Both species are present in the estuary to some degree all year round, although numbers increase during summer and autumn periods when migration takes place.

Vascular plant assemblage

The site supports an important vascular plant assemblage, including at least ten nationally scarce species. These are characteristic of coastal and wetland habitats. They are bulbous foxtail *Alopecurus bulbosus*, bulbous meadow-grass, divided sedge *Carex divisa*, sea buckthorn, slender hare’s-ear *Bupleurum tenuissimum*, spiral tasselweed *Ruppia cirrhosa*, rush-leaved fescue *Festuca arenaria*, curved hard-grass *Parapholis incurva*, suffocated clover and sea clover *Trifolium squamosum*. Common couch sub-species *Elytrigia repens* ssp. *arenosa* has also been included as a notable taxon. In addition, the Humber is of phytogeographical interest, with several scarce species of vascular plant occurring at or close to the northern or southern limits of their range on the east coast of Britain.

Invertebrate assemblage

Assemblages of terrestrial and aquatic invertebrates are well represented across the Humber Estuary and its hinterlands. These include many scarce and threatened species across a range of taxa, especially the Coleoptera and Lepidoptera. For example, the sand dunes at Spurn support the ground beetle *Amara lucida*, the white colon moth *Sideridis albicolon* and the shore wainscot moth *Mythimna litoralis*. Saltmarshes such as those at Welwick provide foraging grounds for the solitary bee

Colletes halophilus, which is closely associated with the flowers of sea aster *Aster tripolium*. Sea aster is also the larval food plant for the starwort moth *Cucullia asteris*. Further upstream, brackish and freshwater reedbeds support the reed-beetle *Donacia clavipes* and the silky wainscot moth *Chilodes maritimus*, both of which are associated with common reed. Areas of willow *Salix* spp. scrub within reedbeds are also important and are the larval food plant of the cream-bordered green-pea moth *Earias clorana*. Fully aquatic species include the water beetles *Agabus conspersus* and *Helophorus fulgidicollis*.

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Joint Nature Conservation Committee

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Email: RIS@JNCC.gov.uk

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DD MM YY

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

Designated: 31 August 2007

3. Country:

UK (England)

4. Name of the Ramsar site:

Humber Estuary

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

The boundary has been extended

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* ☐;
- ii) **an electronic format** (e.g. a JPEG or ArcView image) *Yes*
- iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* ☐;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

053 32 59 N 000 00 03 E

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Kingston-upon-Hull

The Humber Estuary is located on the boundary between the East Midlands Region and the Yorkshire and the Humber Region, on the east coast of England bordering the North Sea.

Administrative region: City of Kingston upon Hull; East Riding of Yorkshire; Humberside; Lincolnshire; North East Lincolnshire; North Lincolnshire

10. Elevation (average and/or max. & min.) (metres): **11. Area** (hectares): 37987.8

Min. -13

Max. 10

Mean No information available

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Humber Estuary is the largest macro-tidal estuary on the British North Sea coast. It drains a catchment of some 24,240 square kilometres and is the site of the largest single input of freshwater from Britain into the North Sea. It has the second-highest tidal range in Britain (max 7.4 m) and approximately one-third of the estuary is exposed as mud or sand flats at low tide. The inner estuary supports extensive areas of reedbed with areas of mature and developing saltmarsh backed in places by limited areas of grazing marsh in the middle and outer estuary. On the north Lincolnshire coast the saltmarsh is backed by low sand dunes with marshy slacks and brackish pools. The Estuary regularly supports internationally important numbers of waterfowl in winter and nationally important breeding populations in summer.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1, 3, 5, 6, 8

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 1

The site is a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons.

It is a large macro-tidal coastal plain estuary with high suspended sediment loads, which feed a dynamic and rapidly changing system of accreting and eroding intertidal and subtidal mudflats, sandflats, saltmarsh and reedbeds. Examples of both strandline, foredune, mobile, semi-fixed dunes, fixed dunes and dune grassland occur on both banks of the estuary and along the coast. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion on the tidal rivers of the Ouse and Trent. Wave exposed sandy shores are found in the outer/open coast areas of the estuary. These change to the more moderately exposed sandy shores and then to sheltered muddy shores within the main body of the estuary and up into the tidal rivers. The lower saltmarsh of the Humber is dominated by common cordgrass *Spartina anglica* and annual glasswort *Salicornia* communities. Low to mid marsh communities are mostly represented by sea aster *Aster tripolium*, common saltmarsh grass *Puccinellia maritima* and sea purslane *Atriplex portulacoides* communities. The upper portion of the saltmarsh community is atypical, dominated by sea couch *Elytrigia atherica* (*Elymus pycnanthus*) saltmarsh community. In the upper reaches of the estuary, the tidal marsh community is dominated by the common reed *Phragmites australis* fen and sea club rush *Bolboschoenus maritimus* swamp with the couch grass *Elytrigia repens* (*Elymus repens*) saltmarsh community. Within the Humber Estuary Ramsar site there are good examples of four of the five physiographic types of saline lagoon.

Ramsar criterion 3

The Humber Estuary Ramsar site supports a breeding colony of grey seals *Halichoerus grypus* at Donna Nook. It is the second largest grey seal colony in England and the furthest south regular breeding site on the east coast. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad *Bufo calamita*.

Ramsar criterion 5

Assemblages of international importance:

153,934 waterfowl, non-breeding season
(5 year peak mean 1996/97-2000/2001)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Eurasian golden plover, *Pluvialis apricaria*

altifrons subspecies – NW Europe, W Continental Europe, NW Africa population

17,996 individuals, passage, representing an average of 2.2% of the population
(5 year peak mean 1996-2000)

Red knot, *Calidris canutus*

islandica subspecies

18,500 individuals, passage, representing an average of 4.1% of the population
(5 year peak mean 1996-2000)

Dunlin, *Calidris alpina*

alpina subspecies – Western Europe (non-breeding) population

20,269 individuals, passage, representing an average of 1.5% of the population
(5 year peak mean 1996-2000)

Black-tailed godwit, *Limosa limosa*

islandica subspecies

915 individuals, passage, representing an average of 2.6% of the population
(5 year peak mean 1996-2000)

Common redshank, *Tringa totanus*

britannica subspecies

7,462 individuals, passage, representing an average of 5.7% of the population
(5 year peak mean 1996-2000)

Common shelduck, *Tadorna tadorna*

Northwestern Europe (breeding) population

4,464 individuals, wintering, representing an average of 1.5% of the population
(5 year peak mean 1996/7-2000/1)

Eurasian golden plover, *Pluvialis apricaria*

altifrons subspecies – NW Europe, W Continental Europe, NW Africa population

30,709 individuals, wintering, representing an average of 3.8% of the population
(5 year peak mean 1996/7-2000/1)

Red knot, *Calidris canutus*

islandica subspecies

28,165 individuals, wintering, representing an average of 6.3% of the population
(5 year peak mean 1996/7-2000/1)

Dunlin, *Calidris alpina*

alpina subspecies – Western Europe (non-breeding) population

22,222 individuals, wintering, representing an average of 1.7% of the population
(5 year peak mean 1996/7-2000/1)

Black-tailed godwit, *Limosa limosa*

islandica subspecies

1,113 individuals, wintering, representing an average of 3.2% of the population
(5 year peak mean 1996/7-2000/1)

Bar-tailed godwit, *Limosa lapponica*

lapponica subspecies

2,752 individuals, wintering, representing an average of 2.3% of the population
(5 year peak mean 1996/7-2000/1)

Common redshank, *Tringa totanus brittanica* subspecies

4,632 individuals, wintering, representing an average of 3.6% of the population
(5 year peak mean 1996/7-2000/1)

Ramsar criterion 8

The Humber Estuary acts as an important migration route for both river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus* between coastal waters and their spawning areas.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:

153934 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

European golden plover , <i>Pluvialis apricaria apricaria</i> , P. a. altifrons Iceland & Faroes/E Atlantic	17996 individuals, representing an average of 2.2% of the population (1996-2000)
-------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------

Red knot , <i>Calidris canutus islandica</i> , W & Southern Africa (wintering)	18500 individuals, representing an average of 4.1% of the population (1996-2000)
-----------------------------------------------------------------------------------	----------------------------------------------------------------------------------

Dunlin , <i>Calidris alpina alpina</i> , W Siberia/W Europe	20269 individuals, representing an average of 1.5% of the population (1996-2000)
-------------------------------------------------------------	----------------------------------------------------------------------------------

Black-tailed godwit , <i>Limosa limosa islandica</i> , Iceland/W Europe	915 individuals, representing an average of 2.6% of the population (1996-2000)
-------------------------------------------------------------------------	--------------------------------------------------------------------------------

Common redshank , <i>Tringa totanus totanus</i> ,	7462 individuals, representing an average of 5.7% of the population (1996-2000)
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Species with peak counts in winter:

Common shelduck , <i>Tadorna tadorna</i> , NW Europe	4464 individuals, representing an average of 1.5% of the population (1996/7 to 2000/1)
------------------------------------------------------	----------------------------------------------------------------------------------------

European golden plover , <i>Pluvialis apricaria apricaria</i> , P. a. altifrons Iceland & Faroes/E Atlantic	30709 individuals, representing an average of 3.8% of the population (1996/7 to 2000/1)
-------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------

Red knot , <i>Calidris canutus islandica</i> , W & Southern Africa (wintering)	28165 individuals, representing an average of 6.3% of the population (1996/7 to 2000/1)
-----------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------

Dunlin , <i>Calidris alpina alpina</i> , W Siberia/W Europe	22222 individuals, representing an average of 1.7% of the population (1996/7 to 2000/1)
-------------------------------------------------------------	-----------------------------------------------------------------------------------------

Black-tailed godwit , *Limosa limosa islandica*, 1113 individuals, representing an average of 3.2% of the population (1996/7 to 2000/1)
Iceland/W Europe

Bar-tailed godwit , *Limosa lapponica lapponica*, 2752 individuals, representing an average of 2.3% of the population (1996/7 to 2000/1)
W Palearctic

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

See Sections 21/22 for details of noteworthy species

Details of bird species occurring at levels of National importance are given in Section 22

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	neutral, shingle, sand, mud, clay, alluvium, sedimentary, sandstone, sandstone/mudstone, limestone/chalk, gravel, nutrient-rich
Geomorphology and landscape	lowland, coastal, floodplain, shingle bar, intertidal sediments (including sandflat/mudflat), estuary, islands, cliffs
Nutrient status	eutrophic
pH	circumneutral
Salinity	brackish / mixosaline, fresh, saline / euhaline
Soil	mainly mineral
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Cleethorpes, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/cleethorpes.html) Max. daily temperature: 13.1° C Min. daily temperature: 6.4° C Days of air frost: 29.0 Rainfall: 565.4 mm Hrs. of sunshine: 1521.9

General description of the Physical Features:

The Humber estuary is approximately 70 km long from the limit of saline intrusion on the River Ouse at Boothferry to the estuary mouth at Spurn Head, where it enters the North Sea. The area of the estuary is approx. 365 km², and it has a width of 6.6 km at the mouth.

The Humber is a macro-tidal estuary with a tidal range of 7.4 m, the second-largest range in the UK and comparable to other macro-tidal estuaries worldwide. It is a shallow and well mixed estuary, with an average depth of 6.5m rising to 13.2 m at the mouth.

The Humber is the second-largest coastal plain estuary in the UK, and the largest coastal plain estuary on the east coast of Britain. Suspended sediment concentrations are high, and are derived from a variety of sources, including marine sediments and eroding boulder clay along the Holderness coast. This is the northernmost of the English east coast estuaries whose structure and function is intimately linked with soft eroding shorelines.

Upstream from the Humber Bridge, the navigation channel undergoes major shifts from north to south banks. This section of the estuary is noteworthy for extensive mud and sand bars, which in places form semi-permanent islands.

The estuary covers the full salinity range from fully marine at the mouth of the estuary (Spurn Head) to the limit of saline intrusion on the Rivers Ouse and Trent). A salinity gradient from north to south bank is observed in the outer estuary, due to the incoming tide flowing along the north bank, while the fresh water keeps to the south bank as it discharges to the sea. As salinity declines upstream, reedbeds and brackish saltmarsh communities fringe the estuary..

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Humber catchment covers an area of ca. 24,240 km², more than 20% of the land area of England. Average annual precipitation in the upland areas of the catchment is as much as 1000 mm. Average freshwater flow into the Humber estuary from the rivers is 250 m³s⁻¹, ranging from 60 m³s⁻¹ in drier periods to 450 m³s⁻¹ in wet periods. Peak flows of up to 1500 m³s⁻¹ have been recorded during floods. The rivers Trent and Ouse, which provide the main fresh water flow into the Humber, drain large industrial and urban areas to the south and west (River Trent), and less densely populated agricultural areas to the north and west (River Ouse). The Trent/Ouse confluence is known as Trent Falls.

On the north bank of the Humber estuary the principal river is the river Hull, which flows through the city of Kingston-upon-Hull, and has a tidal length of 32 km, up to the Hempholme Weir. The Hull provides only about 1% of the freshwater input to the estuary. On the south bank, the River Ancholme enters the Humber at South Ferriby, but the tide is excluded by a sluice and a tidal lock. Altogether, the total tidal length of rivers and estuary is 313 km.

There are several major urban centres within the river catchments. Nottingham, Leicester, and the West Midlands/Birmingham conurbation are drained by the Trent, the Leeds-Bradford area in West Yorkshire is drained by the Aire/Calder and the Sheffield/Rotherham/Doncaster area in South Yorkshire is drained by the Don. There are also large rural regions, whose populations are currently experiencing high population growth, while the urban areas are showing a small decline. The 1992 population for the Ouse catchment was 4.1 million, and for the Trent catchment was 7.1 million. The population of Humberside, which comprises North and North-east Lincolnshire, the East Riding of Yorkshire, and Kingston-upon-Hull (Hull), was just under 0.9 million. Land use around the estuary itself is 50-98% agricultural, within only two areas of high population/ industry – the major conurbation around Kingston-upon-Hull (Hull) on the north bank, and several large industrial areas around Grimsby/ Immingham/ Cleethorpes on the south bank.

The area around the Humber estuary is low-lying, and much land-claim of wetlands and supratidal zones, as well as parts of the intertidal zone, was carried out in the past two centuries. The mid to

outer estuary (Humber Bridge to Spurn Point) changed from a region of low water erosion in the 19th century to one of accretion in the 20th century, nonetheless a net loss of intertidal zone of some 3000 ha has taken place since the mid-19th century. Around the estuary some 894 km² of land are below the 5 m contour, protected by extensive coastal defences. Most of the sediment entering the estuary comes from the North Sea, and a large part of it is believed to come from the continuing erosion of the Holderness Cliffs, which form the coastline to the north of the estuary mouth at Spurn Head. The estuary currently has approximately 1,775 ha of saltmarsh

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Sediment trapping

19. Wetland types:

Marine/coastal wetland

Code	Name	% Area
F	Estuarine waters	66.8
G	Tidal flats	26.4
H	Salt marshes	4.7
E	Sand / shingle shores (including dune systems)	0.8
7	Gravel / brick / clay pits	0.5
Q	Saline / brackish lakes: permanent	0.3
J	Coastal brackish / saline lagoons	0.3
Other	Other	0.1
9	Canals and drainage channels	0.01
Y	Freshwater springs	0.01

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Description

Much of the intertidal area of the Humber Estuary consists of mudflats with fringing saltmarsh. There are smaller areas of intertidal sand flats, and sand dunes. The saltmarsh is both eroding and accreting; although coastal squeeze is resulting in net losses, and cord grass *Spartina anglica* is a major colonising species. In areas of reduced salinity such as the Upper Humber there are extensive areas of common reed *Phragmites australis* with some sea club-rush *Bolboschoenus maritimus*. Mid-level saltmarsh tends to be much more floristically diverse, and in the higher level marsh with its dendritic network of drainage channels, salt pans and borrow pits grasses dominate with thrift *Armeria maritima* where the marsh is grazed by cattle and sheep. Extensive areas of eel grass *Zostera marina* and *Z. nolti* have been known to occur at Spurn Bight, although in recent years records are limited. Behind the sandflats of the Cleethorpes coast the mature sand-dune vegetation contains some locally and nationally rare species including chestnut flat sedge *Blysmus rufus*, bulbous meadow grass *Poa bulbosa* and dense silky-bent *Apera interrupta*. The sand dunes, which cap the shingle spit that forms Spurn Peninsula are dominated by marram grass *Ammophila arenaria* and patches of dense sea buckthorn *Hippophae rhamnoides*.

Ecosystem services

Aesthetic

Education

Food

Recreation

Storm/wave protection

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

None reported

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species Information

Species Information

Birds

Species currently occurring at levels of national importance:

Great bittern, *Botaurus stellaris*

stellaris subspecies – W Europe, NW Africa (breeding) population

2 booming males, breeding, representing an average of 10.5% of the GB population

(3 year mean 2000-2002)

Eurasian marsh harrier, *Circus aeruginosus*

Europe population

10 females, breeding, representing an average of 6.3% of the GB population

(5 year mean 1998-2002)

Pied avocet, *Recurvirostra avosetta*

Western Europe (breeding) population

64 pairs, breeding, representing an average of 8.6% of the GB population

(5 year mean 1998-2002)

Little tern, *Sterna albifrons*

albifrons subspecies, Western Europe (breeding) population

51 pairs, breeding, representing an average of 2.1% of the GB population

(5 year mean 1998-2002)

Dark-bellied brent goose, *Branta bernicla*

bernicla subspecies

2,098 individuals, wintering, representing an average of 2.1% of the GB population

(5 year peak mean 1996/7-2000/1)

Eurasian wigeon, *Anas penelope*

Northwestern Europe (non-breeding) population

5,044 individuals, wintering, representing an average of 1.2% of the GB population

(5 year peak mean 1996/7-2000/1)

Common teal, *Anas crecca*

crecca subspecies, Northwestern Europe (non-breeding population)

2,322 individuals, wintering, representing an average of 1.2% of the GB population

(5 year peak mean 1996/7-2000/1)

Common pochard, *Aythya ferina*

Northeastern & Northwestern Europe (non-breeding) population

719 individuals, wintering, representing an average of 1.2% of the GB population

(5 year peak mean 1996/7-2000/1)

Greater scaup, *Aythya marila*

marila subspecies, Western Europe (non-breeding) population

127 individuals, wintering, representing an average of 1.7% of the GB population

(5 year peak mean 1996/7-2000/1)

Common goldeneye, *Bucephala clangula*

clangula subspecies, Northwestern & Central Europe (non-breeding) population

467 individuals, wintering, representing an average of 1.9% of the GB population

(5 year peak mean 1996/7-2000/1)

Great bittern, *Botaurus stellaris*

stellaris subspecies – W Europe, NW Africa (breeding) population

4 individuals, wintering, representing an average of 4.0% of the GB population

(5 year peak mean 1998/9-2002/3)

Hen harrier, *Circus cyaneus*

Europe population

8 individuals, wintering, representing an average of 1.1% of the GB population

(5 year peak mean 1997/8-2001/2)

Eurasian oystercatcher, *Haematopus ostralegus*

ostralegus subspecies

3,503 individuals, wintering, representing an average of 1.1% of the GB population

(5 year peak mean 1996/7-2000/1)

Pied avocet, *Recurvirostra avosetta*

Western Europe (breeding) population

59 individuals, wintering, representing an average of 1.7% of the GB population

(5 year peak mean 1996/7-2000/1)

Great ringed plover, *Charadrius hiaticula*

hiaticula subspecies

403 individuals, wintering, representing an average of 1.2% of the GB population

(5 year peak mean 1996/7-2000/1)

Grey plover, *Pluvialis squatarola*

squatarola subspecies, Eastern Atlantic (non-breeding) population

1,704 individuals, wintering, representing an average of 3.2% of the GB population

(5 year peak mean 1996/7-2000/1)

Northern lapwing, *Vanellus vanellus*

Europe (breeding) population

22,765 individuals, wintering, representing an average of 1.1% of the GB population

(5 year peak mean 1996/7-2000/1)

Sanderling, *Calidris alba*

Eastern Atlantic (non-breeding) population

486 individuals, wintering, representing an average of 2.3% of the GB population
(5 year peak mean 1996/7-2000/1)

Curlew, *Numenius arquata*
arquata subspecies

3,253 individuals, wintering, representing an average of 2.2% of the GB population
(5 year peak mean 1996/7-2000/1)

Ruddy turnstone, *Arenaria interpres*

interpres subspecies, Northeastern Canada & Greenland (breeding) population
629 individuals, wintering, representing an average of 1.3% of the GB population
(5 year peak mean 1996/7-2000/1)

Great ringed plover, *Charadrius hiaticula*
psammodytes subspecies

1,766 individuals, passage, representing an average of 5.9% of the GB population
(5 year peak mean 1996-2000)

Grey plover, *Pluvialis squatarola*

squatarola subspecies, Eastern Atlantic (non-breeding) population
1,590 individuals, passage, representing an average of 2.3% of the GB population
(5 year peak mean 1996-2000)

Sanderling, *Calidris alba*

Eastern Atlantic (non-breeding) population
818 individuals, passage, representing an average of 2.7% of the GB population
(5 year peak mean 1996-2000)

Ruff, *Philomachus pugnax*

Western Africa (non-breeding) population
128 individuals, passage, representing an average of 1.4% of the GB population
(5 year peak mean 1996-2000)

Whimbrel, *Numenius phaeopus*
islandicus subspecies

113 individuals, passage, representing an average of 2.3% of the GB population
(5 year peak mean 1996-2000)

Common greenshank, *Tringa nebularia*

Northwestern Europe (breeding) population
77 individuals, passage, representing an average of 5.5% of the GB population
(5 year peak mean 1996-2000)

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic

Aquatic vegetation (e.g. reeds, willows, seaweed)

Archaeological/historical site

Environmental education/ interpretation

Fisheries production

Livestock grazing

Non-consumptive recreation

Sport fishing
 Sport hunting
 Tourism
 Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
Local authority, municipality etc.	+	+
National/Crown Estate	+	+
Private	+	+
Public/communal	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	+
Tourism	+	+
Recreation	+	+
Current scientific research	+	
Cutting of vegetation (small-scale/subsistence)	+	
Fishing: commercial	+	+
Fishing: recreational/sport	+	+
Gathering of shellfish	+	+
Bait collection	+	+
Permanent arable agriculture		+
Permanent pastoral agriculture	+	+
Hunting: recreational/sport	+	+
Industrial water supply	+	+
Industry	+	+
Sewage treatment/disposal	+	+
Harbour/port	+	+

Flood control	+	+
Irrigation (incl. agricultural water supply)		+
Mineral exploration (excl. hydrocarbons)		+
Oil/gas exploration	+	+
Transport route	+	+
Domestic water supply		+
Urban development		+
Non-urbanised settlements		+
Military activities	+	+
Horticulture (incl. market gardening)		+

26. Factors (past, present or potential) adversely affecting the site’s ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.
2. Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
Disturbance to vegetation through cutting / clearing	1	Reedbeds being cut and cleared on margins of pits associated with angling. Management agreements and enforcement to address.	+		
Vegetation succession	1	Lack of reedbed management leading to scrub encroachment. Management agreement to address.	+		
Water diversion for irrigation/domestic/industrial use	1	Abstraction causes reduced freshwater input. Review of consents well advanced but not yet implemented.	+	+	
Overfishing	2	Substantial lamprey by-catch in eel nets in River Ouse.		+	
Pollution – domestic sewage	1	Reduced dissolved oxygen in River Ouse is a barrier to fish migration. Review of consents well advanced but not yet implemented.	+	+	+
Pollution – agricultural fertilisers	1	Reduced dissolved oxygen in River Ouse is a barrier to fish migration. To be addressed through Catchment Sensitive Farming Initiatives and implementation of Water Framework Directive.	+	+	+
Recreational/tourism disturbance (unspecified)	1	Particularly illegal access by motorised recreational vehicles and craft. Control through management scheme.	+		

Other factor	1	Coastal squeeze causing loss of intertidal habitats and saltmarsh due to sea level rise and fixed defences. The Humber Flood Risk Management Strategy has been developed and is being implemented.	+		+

For category 2 factors only.

What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Overfishing - Overfishing – to be considered through an ‘in-combination’ assessment of possible factors as part of the Review of Consents exercise.

Is the site subject to adverse ecological change? YES

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	+
National Nature Reserve (NNR)	+	
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	+
Management agreement	+	+
Site management statement/plan implemented	+	
Area of Outstanding National Beauty (AONB)		+
Special Area of Conservation (SAC)	+	
IUCN (1994) category IV	+	

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Fauna.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

Seal populations are monitored by the Sea Mammal Research Unit

Humber Wader Ringing Group

Spurn Bird Observatory

National Nature Reserve monitoring

Environment.

Institute of Estuarine & Coastal Studies, Hull: various
 Industrial Concerns: monitoring on behalf of companies such as Associated British Ports and BP
 Environment Agency monitoring: various
 Geomorphological studies associated with shoreline management planning
 National Nature Reserve monitoring

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.
 There are a four National Nature Reserves with associated facilities within the Ramsar site (Spurn, Far Ings, Donna Nook and Saltfleetby – Theddlethorpe Dunes) and a number of other visitor, information and/or education centres including the Spurn Bird Observatory, the Cleethorpes Discovery Centre, Water’s Edge and Far Ings. A wide range of Humber wide and area-specific information is available through a range of media (eg leaflets, displays, internet etc) including ‘Humber Estuary European Marine Site Codes of Conduct’ developed with a range of stakeholders to cover a range of recreational and educational activities and ‘Coastal Futures’ – a partnership project working with local communities affected by flood risk and associated issues including managed realignment includes proactive education work within schools.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities, Facilities provided and Seasonality.

Sailing: marinas at Brough, Winteringham, Hull, Grimsby and South Ferriby.
 Bathing etc: Cleethorpes (some 6m visitors/yr).
 Walking/Horse riding: throughout
 Beach fishing, match sea-fishing, non-commercial bait digging.
 Non-commercial samphire collection
 Wildfowling
 Tourist amusements: Cleethorpes.
 Bird watching: throughout but particularly at Blacktoft Sands RSPB reserve and the four National Nature Reserves.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.
 Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Site-relevant references

Site-relevant references

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NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type

K

1.2 Site code

UK0030170

1.3 Compilation date

200708

1.4 Update

1.5 Relationship with other Natura 2000 sites

U K 9 0 0 6 1 1 1

1.6 Respondent(s)

International Designations, JNCC, Peterborough

1.7 Site name

Humber Estuary

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	200708
date confirmed as SCI	200812
date site classified as SPA	
date site designated as SAC	200912

2. Site location:

2.1 Site centre location

longitude

latitude

00 44 05 W

53 35 21 N

2.2 Site area (ha)

36657.15

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UKE13	North and North East Lincolnshire	12.03%
UKE12	East Riding of Yorkshire	23.69%
UKE11	Kingston upon Hull, City of	2.67%
0	Marine	52.01%
UKF3	Lincolnshire	9.59%

2.6 Biogeographic region

Alpine

Atlantic

Boreal

Continental

Macaronesia

Mediterranean

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment
Sandbanks which are slightly covered by sea water all the time	4.52	C	A	C	C
Estuaries	100	B	B	B	B
Mudflats and sandflats not covered by seawater at low tide	25.6	B	B	B	B
Coastal lagoons	0.02	C	C	B	C
Annual vegetation of drift lines	0	D			
<i>Salicornia</i> and other annuals colonising mud and sand	0.13	C	C	B	C
<i>Spartina</i> swards (<i>Spartinion maritimae</i>)	0.37	D			
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	2.14	C	B	C	C
Embryonic shifting dunes	0.05	C	A	C	C
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")	0.04	C	B	C	C
Fixed dunes with herbaceous vegetation ("grey dunes")	0.04	C	C	C	C
Dunes with <i>Hippophae rhamnoides</i>	0.18	C	B	C	C

3.2 Annex II species

Species name	Population				Site assessment			
	Resident	Migratory			Population	Conservation	Isolation	Global
		Breed	Winter	Stage				
<i>Petromyzon marinus</i>	251-500	-	-	-	B	C	C	C
<i>Lampetra fluviatilis</i>	>10,000	-	-	-	A	B	C	C
<i>Alosa alosa</i>	Present	-	-	-	D			
<i>Alosa fallax</i>	Present	-	-	-	D			
<i>Halichoerus grypus</i>	1800	-	-	-	C	B	B	C
<i>Phoca vitulina</i>	Present	-	-	-	D			

4. Site description

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	94.9
Salt marshes. Salt pastures. Salt steppes	4.4
Coastal sand dunes. Sand beaches. Machair	0.4
Shingle. Sea cliffs. Islets	
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	0.4
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	

Habitat classes	% cover
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	100%

4.1 Other site characteristics

Soil & geology:

Alluvium, Clay, Gravel, Limestone/chalk, Mud, Neutral, Sand, Sandstone, Sandstone/mudstone, Sedimentary, Shingle

Geomorphology & landscape:

Cliffs, Coastal, Estuary, Floodplain, Intertidal sediments (including sandflat/mudflat), Islands, Lagoon, Lowland, Shingle bar, Subtidal sediments (including sandbank/mudbank)

4.2 Quality and importance

Sandbanks which are slightly covered by sea water all the time

- for which the area is considered to support a significant presence.

Estuaries

- for which this is considered to be one of the best areas in the United Kingdom.

Mudflats and sandflats not covered by seawater at low tide

- for which this is considered to be one of the best areas in the United Kingdom.

Coastal lagoons

- for which the area is considered to support a significant presence.

Salicornia and other annuals colonising mud and sand

- for which the area is considered to support a significant presence.

Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

- for which the area is considered to support a significant presence.

Embryonic shifting dunes

- which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares.

- for which the area is considered to support a significant presence.

Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")

- for which the area is considered to support a significant presence.

Fixed dunes with herbaceous vegetation ("grey dunes")

- for which the area is considered to support a significant presence.

Dunes with *Hippophae rhamnoides*

- which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares.

- for which the area is considered to support a significant presence.

Petromyzon marinus

- for which the area is considered to support a significant presence.

Lampetra fluviatilis

- for which the area is considered to support a significant presence.

Halichoerus grypus

- for which the area is considered to support a significant presence.

4.3 Vulnerability

The Humber Estuary is subject to the impacts of human activities (past and present) as well as ongoing processes such as sea level rise and climate change. Management intervention is therefore necessary to enable the estuary to recover and to secure the ecological resilience required to respond to both natural and anthropogenic change. Key issues include coastal squeeze, impacts on the sediment budget, and geomorphological structure and function of the estuary (due to sea level rise, flood defence works, dredging, and the construction, operation and maintenance of ports, pipelines and other infrastructure), changes in water quality and flows, pressure from additional built development, and damage and disturbance arising from access, recreation and other activities.

Coastal squeeze is being addressed through the development and implementation of the Humber Flood Risk Management Strategy. All proposals for flood defence, development, dredging, abstractions and discharges which require consent from any statutory body, and land use plans which may have impacts upon the site are subject to assessment under the Conservation (Natural Habitats, &c.) Regulations 1994 (the "Habitats Regulations"). Diffuse pollution will be addressed through a range of measures including implementation of the Waste Water Framework Directive and Catchment Sensitive Farming initiatives.

Other issues are addressed via a range of measures including regulation of on-site land management activities and implementation of the Humber Management Scheme, developed by all relevant statutory bodies to assist in the delivery of their duties under the Habitats Regulations.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK01 (NNR)	1.8
UK04 (SSSI/ASSI)	100.0

NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type 1.2 Site code

1.3 Compilation date 1.4 Update

1.5 Relationship with other Natura 2000 sites

1.6 Respondent(s)

1.7 Site name

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	
date confirmed as SCI	
date site classified as SPA	200708
date site designated as SAC	

2. Site location:

2.1 Site centre location

longitude	latitude
00 03 25 E	53 32 59 N

2.2 Site area (ha) 2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
0	Marine	50.67%
UKE11	Kingston upon Hull, City of	2.61%
UKE12	East Riding of Yorkshire	23.30%
UKE13	North and North East Lincolnshire	11.50%
UKF3	Lincolnshire	11.92%

2.6 Biogeographic region

Alpine

Atlantic

Boreal

Continental

Macaronesia

Mediterranean

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment

3.2 Annex I birds and regularly occurring migratory birds not listed on Annex I

Code	Species name	Population			Site assessment				
		Resident	Migratory		Population	Conservation	Isolation	Global	
			Breed	Winter					Stage
A052	<i>Anas crecca</i>			2322 I		C		C	
A050	<i>Anas penelope</i>			5044 I		C		C	
A053	<i>Anas platyrhynchos</i>			2456 I		C		C	
A169	<i>Arenaria interpres</i>			629 I		C		C	
A059	<i>Aythya ferina</i>			719 I		C		C	
A062	<i>Aythya marila</i>			127 I		C		C	
A021	<i>Botaurus stellaris</i>			4 I		B		C	
A021	<i>Botaurus stellaris</i>		2 M			B		B	
A046a	<i>Branta bernicla bernicla</i>			2098 I		C		C	
A067	<i>Bucephala clangula</i>			467 I		B		C	
A144	<i>Calidris alba</i>			486 I		B		C	
A144	<i>Calidris alba</i>				818 I	B		C	
A149	<i>Calidris alpina alpina</i>				20269 I	B		C	
A149	<i>Calidris alpina alpina</i>			22222 I		B		C	
A143	<i>Calidris canutus</i>			28165 I		B		C	
A143	<i>Calidris canutus</i>				18500 I	B		C	
A137	<i>Charadrius hiaticula</i>			403 I		C		C	
A137	<i>Charadrius hiaticula</i>				1766 I	B		C	
A081	<i>Circus aeruginosus</i>		10 F			B		B	
A082	<i>Circus cyaneus</i>			8 I		C		C	
A130	<i>Haematopus ostralegus</i>			3503 I		C		C	
A157	<i>Limosa lapponica</i>			2752 I		B		C	
A156	<i>Limosa limosa islandica</i>			1113 I		B		C	
A156	<i>Limosa limosa islandica</i>				915 I	B		C	
A160	<i>Numenius arquata</i>			3253 I		C		C	
A158	<i>Numenius phaeopus</i>				113 I	C		C	
A151	<i>Philomachus pugnax</i>				128 I	C		C	
A140	<i>Pluvialis apricaria</i>			30709 I		B		C	
A141	<i>Pluvialis squatarola</i>			1704 I		B		C	
A141	<i>Pluvialis squatarola</i>				1590 I	B		C	
A132	<i>Recurvirostra avosetta</i>			59 I		C		B	
A132	<i>Recurvirostra avosetta</i>		64 P			B		B	
A195	<i>Sterna albifrons</i>		51 P			B		C	
A048	<i>Tadorna tadorna</i>			4464 I		B		C	
A164	<i>Tringa nebularia</i>				77 I	C		C	
A162	<i>Tringa totanus</i>				7462 I	B		C	
A162	<i>Tringa totanus</i>			4632 I		B		C	
A142	<i>Vanellus vanellus</i>			22765 I		C		C	

4. Site description:

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	

Habitat classes	% cover
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	93.6
Salt marshes. Salt pastures. Salt steppes	4.6
Coastal sand dunes. Sand beaches. Machair	0.8
Shingle. Sea cliffs. Islets	
Inland water bodies (standing water, running water)	0.6
Bogs. Marshes. Water fringed vegetation. Fens	0.3
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	100%

4.1 Other site characteristics

Soil & geology:

Alluvium, Clay, Gravel, Limestone/chalk, Mud, Neutral, Sand, Sandstone, Sandstone/mudstone, Sedimentary, Shingle

Geomorphology & landscape:

Cliffs, Coastal, Estuary, Floodplain, Intertidal sediments (including sandflat/mudflat), Islands, Lagoon, Lowland, Shingle bar, Subtidal sediments (including sandbank/mudbank)

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC)

During the breeding season the area regularly supports:

Botaurus stellaris 10.5% of the population in Great Britain
(Europe - breeding) 2000-2002

Circus aeruginosus 6.3% of the population in Great Britain
1998-2002

Recurvirostra avosetta 8.6% of the population in Great Britain
(Western Europe/Western Mediterranean - breeding) 1998-2002

Sterna albifrons 2.1% of the population in Great Britain
(Eastern Atlantic - breeding) 1998-2002

Over winter the area regularly supports:

Botaurus stellaris 4% of the population in Great Britain
(Europe - breeding) 1998/9 to 2002/3

Circus cyaneus 1.1% of the population in Great Britain
1997/8 to 2001/2

<i>Limosa lapponica</i> (Western Palearctic - wintering)	4.4% of the population in Great Britain 1996/7 to 2000/1
<i>Pluvialis apricaria</i> (North-western Europe - breeding)	12.3% of the population in Great Britain 1996/7 to 2000/1
<i>Recurvirostra avosetta</i> (Western Europe/Western Mediterranean - breeding)	1.7% of the population in Great Britain 1996/7 to 2000/1
On passage the area regularly supports:	
<i>Philomachus pugnax</i> (Western Africa - wintering)	1.4% of the population in Great Britain 1996-2000

ARTICLE 4.2 QUALIFICATION (79/409/EEC)	
Over winter the area regularly supports:	
<i>Calidris alpina alpina</i> (Northern Siberia/Europe/Western Africa)	1.7% of the population 1996/7 to 2000/1
<i>Calidris canutus</i> (North-eastern Canada/Greenland/Iceland/North-western Europe)	6.3% of the population 1996/7 to 2000/1
<i>Limosa limosa islandica</i> (Iceland - breeding)	3.2% of the population 1996/7 to 2000/1
<i>Tadorna tadorna</i> (North-western Europe)	1.5% of the population 1996/7 to 2000/1
<i>Tringa totanus</i> (Eastern Atlantic - wintering)	3.6% of the population 1996/7 to 2000/1
On passage the area regularly supports:	
<i>Calidris alpina alpina</i> (Northern Siberia/Europe/Western Africa)	1.5% of the population 1996-2000
<i>Calidris canutus</i> (North-eastern Canada/Greenland/Iceland/North-western Europe)	4.1% of the population 1996-2000
<i>Limosa limosa islandica</i> (Iceland - breeding)	2.6% of the population 1996-2000
<i>Tringa totanus</i> (Eastern Atlantic - wintering)	5.7% of the population 1996-2000
ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS	
In the non-breeding season the area regularly supports:	
153934 waterfowl (5 year peak mean 1996/7 to 2000/1)	

Including:

Anas crecca , *Anas penelope* , *Anas platyrhynchos* , *Arenaria interpres* , *Aythya ferina* , *Aythya marila* , *Botaurus stellaris* , *Branta bernicla bernicla* , *Bucephala clangula* , *Calidris alba* , *Calidris alpina alpina* , *Calidris canutus* , *Charadrius hiaticula* , *Haematopus ostralegus* , *Limosa lapponica* , *Limosa limosa islandica* , *Numenius arquata* , *Numenius phaeopus* , *Philomachus pugnax* , *Pluvialis apricaria* , *Pluvialis squatarola* , *Recurvirostra avosetta* , *Tadorna tadorna* , *Tringa nebularia* , *Tringa totanus* , *Vanellus vanellus*

4.3 Vulnerability

The Humber Estuary is subject to the impacts of human activities (past and present) as well as ongoing processes such as sea level rise and climate change. Management intervention is therefore necessary to enable the estuary to recover and to secure the ecological resilience required to respond to both natural and anthropogenic change. Key issues include coastal squeeze, impacts on the sediment budget, and geomorphological structure and function of the estuary (due to sea level rise, flood defence works, dredging, and the construction, operation and maintenance of ports, pipelines and other infrastructure), changes in water quality and flows, pressure from additional built development, and damage and disturbance arising from access, recreation and other activities.

Coastal squeeze is being addressed through the development and implementation of the Humber Flood Risk Management Strategy. All proposals for flood defence, development, dredging, abstractions and discharges which require consent from any statutory body, and land use plans which may have impacts upon the site are subject to assessment under the Conservation (Natural Habitats, &c.) Regulations 1994 (the “Habitats Regulations”). Diffuse pollution will be addressed through a range of measures including implementation of the Waste Water Framework Directive and Catchment Sensitive Farming initiatives.

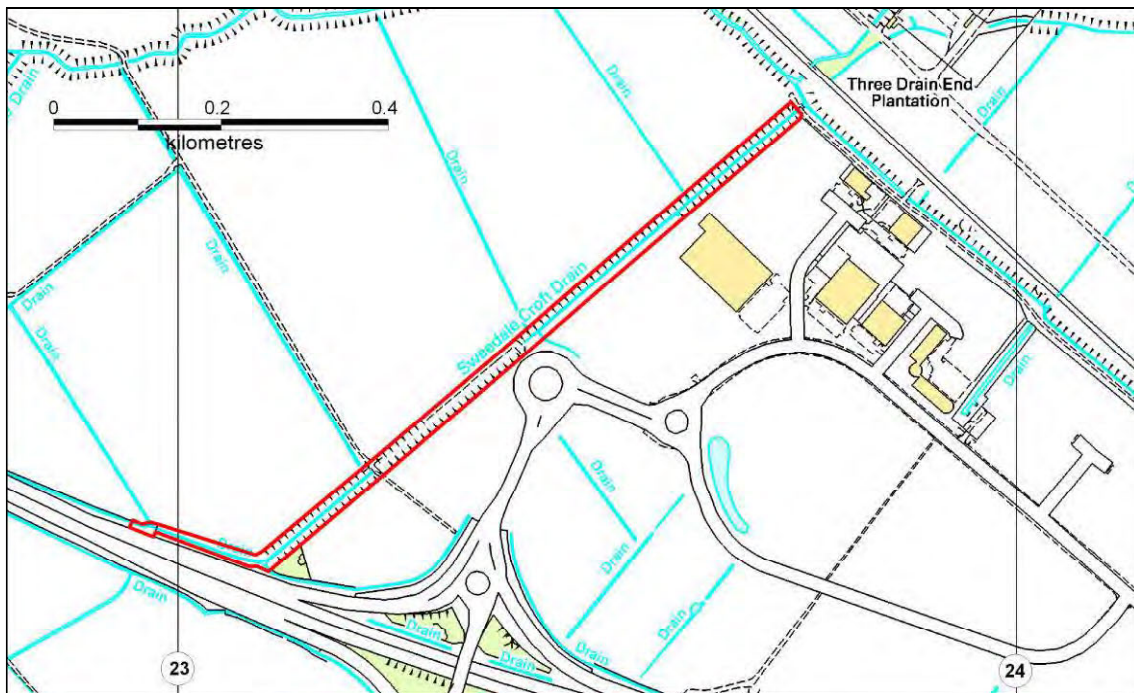
Other issues are addressed via a range of measures including regulation of on-site land management activities and implementation of the Humber Management Scheme, developed by all relevant statutory bodies to assist in the delivery of their duties under the Habitats Regulations.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK01 (NNR)	3.5
UK04 (SSSI/ASSI)	100.0

Sweedale Croft Drain



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Grid ref: TA234115
Length: 1 km

Survey: 23 July 2009
Surveyor: J.Fraser

Main habitat: Semi-improved neutral grassland, Running water
Additional habitat: Scattered scrub, Reedbed

This is a 1km long, 1 to 2m wide, spring-fed, canalised drain that emerges from a culvert under the M180. It then flows south-eastwards along the northern edge of the motorway embankment for 150m, before turning north-eastwards for 850m and terminating where it connects with another drain. A narrow strip of bank habitat is included on both sides. Adjacent are arable fields to the north-west, and partially developed former agricultural land to the south-east.

Central and southern parts of Sweedale Croft Drain may be the best habitat of its type in North East Lincolnshire, because it has a reliable source of clean water and is regularly managed. Of particular note is a very large population of opposite-leaved pondweed, a scarce plant that was recorded at only one other site in North East Lincolnshire during 2008-9. Other aquatic species are water-starwort, Nuttall's waterweed and three more pondweeds, while marginal plants include water-cress, water-plantain, lesser water-parsnip, common spike-rush, branched bur-reed, bulrush and reed canary-grass.

At the northern end of the drain there is a marked change from clear to cloudy water, associated with the disappearance of the aquatic plant flora and domination of the margins by common reed. This is presumably due to regular influxes of brackish water from Mawmbridge Drain to the north, plus perhaps some industrial pollution.

Drain banks in the southern half of the site support a fairly diverse neutral grassland flora that includes meadow vetchling, autumn hawkbit, common knapweed, hop trefoil, goat's-beard, upright hedge-parsley and hard rush.

Criterion passed: Flo3

Recommended as a Local Wildlife Site: 24 March 2010

Woody vegetation comprises ash, sycamore, pedunculate oak, wild cherry, downy & silver birch, goat & grey willow, rowan, hawthorn, elder, garden privet, sea-buckthorn, dog-rose and bramble. The flora of grassy places includes oxeye daisy, selfheal, cat's-ear, perforate St John's-wort, lesser trefoil and smooth meadow-grass, plus in damper areas southern marsh-orchid, soft-rush, hard rush, false fox-sedge, tufted hair-grass and young alder. Sparse vegetation amongst bare ground includes common bird's-foot-trefoil, mouse-ear-hawkweed, blue fleabane, wall speedwell, yellow-wort, common centaury, black medick, melilot, colt's-foot, glaucous sedge, fern-grass and red fescue. The drain supports bulrush and common reed.

A diverse fauna associated particularly with the marginal habitats includes willow warbler, reed warbler, reed bunting, chaffinch, four-spotted chaser, azure damselfly and common blue. Water voles occupy the marginal drain, while curlews are known to roost in the substantial area of grassland in the northern part of the site.

Criterion passed: BM1, Sup2

Recommended as a Local Wildlife Site: 10 September 2009

F.2. Designated Site Citations

Appendix G. Ecology Legislation Table

G.1. Summary of Relevant Ecological Legislation

Table G-1 Ecological Legislation for England

Species	Legislation	Offences	Licensing procedures and guidance
Bats <i>European protected species</i>	Conservation of Habitats and Species Regulations 2017 Reg 43	Deliberately ¹ capture, injure or kill a bat; deliberate disturbance ² of bats; or damage or destroy a breeding site or resting place used by a bat. [The protection of bat roosts is considered to apply regardless of whether bats are present.]	A Natural England (NE) licence in respect of development is required. Guidance documents: <i>NE Standing Advice for protected species 2013</i> <i>European Protected Species: Mitigation Licensing- How to get a licence</i> (NE 2013) <i>Bat Mitigation Guidelines</i> (English Nature 2004) <i>Bat Workers Manual</i> (JNCC 2004)
	Wildlife and Countryside Act 1981 (as amended) S.9	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb ³ a bat in such a place.	Licence from NE is required for surveys (scientific purposes) that would involve disturbance of bats or entering a known or suspected roost site.
Badger	Protection of Badgers Act 1992 (as amended)	Wilfully kill, injure or take a badger; or intentionally or recklessly damage, destroy or obstruct access to a badger sett or disturb a badger in its sett. [It is not illegal to carry out disturbance activities in the vicinity of setts that are not occupied.]	Where required, licences for development activities involving disturbance or sett interference or closure are issued by Natural England (NE). Licences for activities involving watercourse maintenance, drainage works or flood defences are issued under a separate process. Licences are normally not granted from December to June inclusive because cubs may be present within setts. Guidance documents: <i>NE Standing Advice for protected species 2013</i> <i>Badgers & Development</i> (NE 2007)
Otter	Conservation of Habitats and	Deliberately ¹ capture, injure or kill an otter; deliberate	Licences issued for development by Natural England.

Species	Legislation	Offences	Licensing procedures and guidance
European protected species	Species Regulations 2017 Reg 43	disturbance ² of otters; or damage or destroy a breeding site or resting place used by an otter.	Guidance documents: <i>NE Standing Advice for protected species 2013</i> <i>European Protected Species: Mitigation Licensing- How to get a licence (NE 2013)</i>
	Wildlife and Countryside Act 1981 (as amended) S.9	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb ³ an otter in such a place.	No licence is required for survey in England. However, a licence would be required if the survey methodology involved disturbance.
Water vole	Wildlife and Countryside Act 1981 (as amended) S.9	Intentionally kill, injure or take water voles; intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection or disturb a water vole in such a place.	No licence is required for survey in England, unless you are likely to commit an action that is otherwise illegal. There are currently no licensing purposes that explicitly cover development activities or activities associated with the improvement or maintenance of waterways. However when a proposed lawful activity has no opportunity to retain water voles within a development site and their translocation would result in a conservation benefit then a licence from Natural England may be obtained. Guidance documents: <i>NE Standing Advice for protected species 2013</i> <i>The Water Vole Conservation Handbook (R. Strachan & T. Moorhouse, Wildlife Conservation Research Unit, 3rd Edition 2006)</i> <i>Water Vole Mitigation Guidelines (M. Dean, R. Strachan, D. Gow & R. Andrews, The Mammal Society, London. 2016)</i> <i>Water voles and development licensing policy - NE Technical Information Note TIN042 2008</i>
Birds	Wildlife and Countryside Act 1981 (as amended) S.1	Intentionally kill, injure or take any wild bird; intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built; intentionally take or destroy the nest or eggs of any wild bird.	No licences are available to disturb any birds in regard to development. Licences are available in certain circumstances to damage or destroy nests, but these only apply to the list of licensable activities in the Act and do not cover development. General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety. Guidance documents:

Species	Legislation	Offences	Licensing procedures and guidance
		Intentionally or recklessly disturb a Schedule 1 species while it is building a nest or is in, on or near a nest containing eggs or young; intentionally or recklessly disturb dependent young of such a species [e.g. most birds of prey, kingfisher, barn owl, black redstart, little ringed plover].	<i>NE Standing Advice for protected species 2013</i>
Great crested newt <i>European protected species</i>	Conservation of Habitats and Species Regulations 2017 Reg 43	Deliberately ¹ capture, injure or kill a great crested newt; deliberate disturbance ² of a great crested newt; deliberately take or destroy its eggs; or damage or destroy a breeding site or resting place used by a great crested newt.	Licences issued for development by Natural England. Guidance documents: <i>NE Standing Advice for protected species 2013</i> <i>European Protected Species: Mitigation Licensing- How to get a licence (NE 2013)</i> <i>Great Crested Newt Mitigation Guidelines (English Nature 2001)</i>
	Wildlife and Countryside Act 1981 (as amended) S.9	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb ³ a great crested newt in such a place.	Licences issued for science (survey), education and conservation by Natural England.
Adder Common lizard Grass snake Slow worm	Wildlife and Countryside Act 1981 S.9(1) and S.9(5)	Intentionally kill or injure any common reptile species.	No licence is required. However an assessment for the potential of a site to support reptiles should be undertaken prior to any development works which have potential to affect these animals. Guidance documents: <i>NE Standing Advice for protected species 2013</i>
Rabbits, foxes and	Wild Mammals (Protection) Act 1996	Intentionally inflict unnecessary suffering to any wild mammal.	Natural England provides guidance in relation to rabbits, foxes (which are also protected under the Wildlife and Countryside Act 1981 from live baits and decoys) and other wild mammals, on their website.

Species	Legislation	Offences	Licensing procedures and guidance
other wild mammals			Lawful and humane pest control of these species is permitted.
Plants Invasive species e.g. Japanese knotweed, hybrid knotweed, giant knotweed, giant hogweed, rhododendron, Himalayan balsam	Wildlife and Countryside Act 1981 S.14	It is illegal to plant or otherwise cause these species to grow in the wild.	Any contaminated soil or plant material is classified as controlled waste and should be disposed of in a suitably licensed landfill site, accompanied by appropriate Waste Transfer documentation, and must comply with section 34 of the Environmental Protection Act 1990. Guidance documents: The Knotweed Code of Practice (Environment Agency, 2013 version 3) Managing Invasive Non-native Plants (Environment Agency 2010) Guidance on Section 14 of the Wildlife and Countryside Act, 1981 (Defra 2010)

Table G-2 Designated Site Legislation for England

Site Designation	Legislation	Protection	Guidance
Special Area of Conservation (SAC) Special Protection Area (SPA) Wetland of International Importance (Ramsar site)	Conservation of Habitats and Species Regulations 2010 (as amended) EC Directive on the conservation of natural habitats and of wild fauna and flora (92/42/EEC). EC Directive on the conservation of wild birds (79/409/EEC). Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 (the Ramsar Convention).	Assessment of the implications of plans and projects is effected through Part 6 of the Conservation of Habitats and Species Regulations 2010 (in particular Regs 59 – 67). The legislation for the Site of Special Scientific Interest which will underpin each designation also applies. These sites are given protection through policies in the Local Development Plan.	Formal Appropriate Assessment is required to be undertaken by the competent authority before undertaking, or giving consent, permission or other authorisation for a plan or project which is likely to have a significant effect on such a site. Guidance documents: The <i>National Planning Policy Framework</i> (Department for Communities and Local Government, March 2012), with particular reference to Policy 11. The Government Circular: <i>Biodiversity and Geological Conservation - Statutory Obligations and their Impact within the Planning System</i> (ODPM Circular 6/2005 & Defra Circular 01/2005) (the joint Circular).

Site Designation	Legislation	Protection	Guidance
Site of Special Scientific Interest (SSSI)	Wildlife and Countryside Act 1981 (as amended)	It is an offence to carry out or permit to be carried out any potentially damaging operation. SSSIs are given protection through policies in the Local Development Plan.	Owners, occupiers, public bodies and statutory undertakers must give notice and obtain the appropriate consent under S.28 before undertaking operations likely to damage a SSSI. S.28G places a duty on all public bodies to further the conservation and enhancement of SSSIs. Guidance documents: <i>The National Planning Policy Framework</i> (Department for Communities and Local Government, March 2012), with particular reference to Policy 11, and the joint Circular.
Local Sites (e.g. Local Wildlife Sites (LWS), Sites of Nature Conservation Importance (SNCI))	There is no statutory designation for local sites.	Local sites are given protection through policies in the Local Development Plan.	Development proposals that would potentially affect a local site would need to provide a detailed justification for the work, an assessment of likely impacts, together with proposals for mitigation and restoration of habitats lost or damaged. Guidance documents: <i>The National Planning Policy Framework</i> (Department for Communities and Local Government, March 2012), with particular reference to Policy 11, and the joint Circular.

Appendix H. Recommended Bat and Bird Box Designs

H.1. Bird Box Designs



1B Schwegler Bird Nest Box

Entrance hole size should be **32 mm entrance hole** which will attract great tits, blue tits, marsh tits, coal tits, redstart, nuthatch, collared and pied flycatcher, wryneck, tree sparrow and house sparrow.

Manufactured from a blend of wood, concrete and clay which will not rot, leak, crack or warp, making it suitable for long-term mitigation. Box can be installed in trees or on buildings, ideally on the edge of the retained belts of broad-leaved and/or plantation woodland facing adjacent semi-natural habitat.

H.2. Bat Box Designs



2F Schwegler Bat Box
(General Purpose)

This box has been designed as a summer roosting space for bats and has a simple entrance hole at the front.



1FF Schwegler Bat Box with
Built-in Wooden Rear Panel

This box is open at the bottom allowing droppings to fall out so it does not require cleaning. Suitable for hanging in more inaccessible places such as high in trees.

Manufactured from a blend of wood, concrete and clay which will not rot, leak, crack or warp, making it suitable for long-term mitigation. Box can be installed in trees or on buildings and is best positioned at a height of between 3 to 6 metres. Bat boxes should ideally be sited in open sunny positions and in groups of 3 to 5 boxes.

Note - Once installed, boxes must only be accessed by a licensed ecologist.

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APPENDIX 7: CIEEM GUIDELINES FOR PRELIMINARY ECOLOGICAL APPRAISAL

**GUIDELINES FOR
PRELIMINARY ECOLOGICAL
APPRAISAL**
Second Edition

December 2017

Guidelines for Preliminary Ecological Appraisal (December 2017)

PREFACE TO SECOND EDITION

The Guidelines for Preliminary Ecological Appraisal (2nd edition) have been produced by the Professional Standards Committee of the Chartered Institute of Ecology and Environmental Management (CIEEM). They were first published in 2012, authored by Ben Benatt CEnv MCIEEM (Halcrow Group Ltd, now part of CH2M) on behalf of the Institute.

The aims of the Guidelines are to:

- promote good practice in undertaking Preliminary Ecological Appraisal (PEA); and
- provide a common framework for PEA in order to promote better communication, understanding and cooperation between stakeholders.

Acknowledgements

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Mike was assisted by a Working Group consisting of:

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SECTION 1. INTRODUCTION

- 1.1 The purpose of this guidance is to set out the appropriate approach to undertaking Preliminary Ecological Appraisals (PEAs) and the appropriate application of such assessments within the planning process.
- 1.2 **Preliminary Ecological Appraisal (PEA)** is the term used to describe a rapid assessment of the ecological features present, or potentially present, within a site and its surrounding area (the zone(s) of influence¹ in relation to a specific project (usually a proposed development)). A PEA normally comprises a desk study and a walkover survey, the methods for which are further defined in Section 2 of these guidelines.
- 1.3 The key objectives of a PEA are to:
 - identify the likely ecological constraints associated with a project;
 - identify any mitigation measures likely to be required, following the '*Mitigation Hierarchy*'²;
 - identify any additional surveys that may be required to inform an Ecological Impact Assessment (EclA); and
 - identify the opportunities offered by a project to deliver ecological enhancement.
- 1.4 A flowchart is provided in Appendix 1, which sets out the appropriate approach to ecological assessment for proposed development projects, and highlights the role of a PEA within that process.
- 1.5 The results of a PEA can be presented in a **Preliminary Ecological Appraisal Report (PEAR)**. The primary audience for a PEAR is the client or developer and relevant members of the project team, such as the architect, planning consultant, and landscape architect. It is normally produced to inform a developer (or other client), and their design team, about the key ecological constraints and opportunities associated with a project, possible mitigation requirements and any detailed further surveys required to inform an Ecological Impact Assessment (EclA). Under normal circumstances it is not appropriate to submit a PEAR in support of a planning application because the scope of a PEAR is unlikely to fully meet planning authority requirements in respect of biodiversity policy and implications for protected species.
- 1.6 In the majority of cases, additional surveys beyond the PEA will be required. In some scenarios, additional surveys will not be needed to allow an EclA to be undertaken; this is particularly the case for sites where it is unlikely that protected or priority habitats or species (see Box 1 for definition) are present, or where they are unlikely to be affected by the project³.

Box 1. Protected and Priority Habitats and Species

Legal protection is afforded to particular habitats and species (as well as designated sites). The legislation, and the habitats and species listed, vary between the different jurisdictions⁴.

Certain habitats and species are also considered to have some level of nature conservation importance, due to factors such as their rarity, vulnerability or declining population/status. This document uses the term 'priority habitats' and 'priority species', as they are those which should be considered as priorities for conservation (it should not be confused with priority habitats and species as listed in the EU Habitats Directive).

Priority habitats and species are defined as those which are:

- 1) listed as a national priority for conservation (such as those listed as habitats and species of principal importance for the conservation of biodiversity⁵);
- 2) listed as a local priority for conservation, for example in the relevant local Biodiversity Action Plan (BAP);
- 3) Red Listed using International Union for the Conservation of Nature (IUCN) criteria⁶ (e.g. in an all-Ireland Red List⁷, in one of the UK Species Status Project⁸ reviews, in the Species of Conservation Concern Red List⁹, Birds of Conservation Concern in Wales,¹⁰ or BWI/RSPB Red List for Ireland and Northern Ireland (Birds of Conservation Concern in Ireland 2014 to 2019)¹¹ or, where a more recent assessment of the taxonomic group has not yet been undertaken, listed in a Red Data Book);
- 4) listed as Near Threatened or Amber Listed e.g. in an all-Ireland Red List, in one of the UK Species Status Project reviews, in Birds of Conservation Concern in Wales,¹² in the Species of Conservation Concern Amber List¹³ or BirdWatch Ireland (BWI)/RSPB Amber List for Ireland and Northern Ireland (Birds of Conservation Concern in Ireland 2014 to 2019)¹⁴;
- 5) listed as a Nationally Rare or Nationally Scarce species (e.g. in one of the Species Status Project reviews) or listed as a Nationally Notable species where a more recent assessment of the taxonomic group has not yet been undertaken; and/or
- 6) endemic to a country or geographic location (it is appropriate to recognise endemic sub-species, phenotypes, or cultural behaviours of a population that are unique to a particular place).

Most protected species are also considered to be priority species, although there are some exceptions. There are numerous priority habitats and species which do not receive any legal protection.

Note that the terms 'priority habitat' and 'priority species' used in this document differ from the following uses of the same terms:

- a) These terms were previously used to denote those habitats and species afforded the highest level of priority for conservation under the UK BAP; this has been superseded by the lists of habitats and species of principal importance for the conservation of biodiversity in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, Section 7 of the Environment (Wales) Act 2016, or their equivalents in Scotland (Nature Conservation (Scotland) Act 2004, Scotland's Biodiversity Strategy and the Scottish Biodiversity List¹⁵) and Ireland (*Actions for Biodiversity – Ireland's National Biodiversity Plan 2017 -2021*¹⁶; and *Valuing Nature – A Biodiversity Strategy for Northern Ireland to 2020*).
- b) The terms 'Priority Natural Habitat Type' and 'Priority Species' are used to denote specific lists of habitats and species under The Conservation of Habitats and Species Regulations 2017; these are defined in Articles 1(d) and 1(h) respectively of the Habitats Directive.

- 1.7 It is not always necessary to produce a PEAR following a PEA, as the data could be written up directly in an EclA Report instead (see Paragraph 1.8). It is usually helpful, however, to produce a PEAR, particularly where there are numerous further surveys required (to inform an EclA), or major ecological constraints to a project which need to be communicated to the client, or a significant delay between undertaking the PEA and producing the EclA.
- 1.8 A PEA is normally used to inform an **Ecological Impact Assessment (EclA)**. In the context of these guidelines, EclA is defined as the **process** of identifying, quantifying and evaluating the potential effects of development-related or other proposed actions on habitats, species and ecosystems. These guidelines should be read in conjunction with CIEEM's *Guidelines for Ecological Impact Assessment in the UK and Ireland*¹⁷.
- 1.9 A PEA can also be used to inform, for example:
- scoping for an Environmental Impact Assessment (EIA)¹⁸;
 - an assessment as to whether a particular site should be included as an allocated site in a development plan;
 - nature conservation management plans;
 - sustainability appraisals and ratings assessments (e.g. BREEAM); or
 - an assessment of likely compliance with statutory obligations for developments which do not require planning consent, or developments proceeding under Permitted Development Rights or other consented operations, such as Exempted Development in Ireland¹⁹.
- 1.10 These guidelines are primarily targeted at projects within the UK and Ireland. They are applicable to any geographic location, including the UK Overseas Territories, although it is acknowledged that they will need to be adapted to suit local circumstances, given the varied legislative and planning policy frameworks, availability of relevant habitat classification systems and availability of biological records. These guidelines may also be adapted to inform landscape-scale assessments, such as an assessment of a Local Plan or Local Area Plan, for example.
- 1.11 These guidelines should be read in conjunction with CIEEM's *Guidelines for Ecological Report Writing*²⁰, which set out the appropriate structure and content for PEARs, EclA Reports and Ecology/Biodiversity Chapters of Environmental Impact Assessment Reports (often referred to as Environmental Statements or Environmental Impact Statements).
- 1.12 Any form of ecological assessment, and the surveys which underpin them, should be undertaken by qualified and experienced professionals with an understanding of nature conservation legislation and planning. Those undertaking surveys should also be able to demonstrate that they meet the minimum knowledge, skills and practical experience requirements as set out in the CIEEM Technical Guidance Series publication *Competencies for Species Survey*²¹.

SECTION 2. STUDY METHODS

Process Overview

- 2.1 A PEA normally comprises both desk study and walkover survey; the methods for each are provided in the following paragraphs. It is advisable, in most cases, to undertake the desk study first, as this can inform the scope of the field survey.

Desk Study

- 2.2 Desk studies should be used to collect the following information:

Site Information – Basic initial information about the site and surrounding area, which gives an indication of the type of habitats and species likely to be present, and contextual information about the setting of the site within the landscape. This information can be gained from a review of aerial photos and Ordnance Survey maps (including historical maps), which are freely available from web-based sources (although licences may be required to download these or incorporate them into reports).

Designated Site Information – Identification of any designated nature conservation sites within the zone(s) of influence of the project. The desk study will need to collect information on the location of each designated site, its site boundary, distance from the project site, connectivity to the project site, and reason(s) for designation. This information will inform the assessment of whether a designated site is within the zone of influence of a specific project.

Species Records – Existing records indicating the presence of protected or priority species (see Box 1) within the zone(s) of influence. This information will be important in:

- Identifying the confirmed or possible presence of particular protected or priority species in the area, potentially triggering the need for more detailed surveys if suitable habitat for such species is present and if they could be affected.
- Providing contextual information about the presence/distribution of a species in the area surrounding a site, which can be useful in determining: the importance of the species population locally; the likely use/importance of the site for a species (such as data on the location of bat roosts around a site); and the impacts of the proposals, such as fragmentation effects.

Habitat Information – Existing information on the habitat types within the site and the surrounding area.

Distribution Information – Contextual information about the protected or priority habitats or species which are present (e.g. distribution maps), allows an assessment to be made of the geographical scale of importance.

- 2.3 The appropriate search area for desk study information will vary dependent on the nature of the proposals and the information being sought. The search area should be determined on a case-by-case basis following an assessment of the zone(s) of influence of the project (see Appendix 2 for more guidance).
- 2.4 There is a range of possible sources of desk study information for any given assessment. The appropriate sources will vary depending on the information being sought (see paragraph 2.2) and the location of the site. Further details on data sources for desk studies in the UK and Ireland are provided in Appendix 2.
- 2.5 Further details on biodiversity data searches for desk studies in UK are provided in *CIEEM's Guidelines for Accessing and Using Biodiversity Data in the UK*²². In certain limited circumstances a data search may not be required; examples of when such circumstances may apply are given in Appendix 2.

- 2.6 It should be noted that the availability of records of protected or priority species will vary in any particular location, as it may be dependent on the presence of local experts (particularly the case for invertebrates and lower plants). The data provided may include historical records, which need to be considered in the light of more up-to-date information. Available records may lack detail, in terms of location, date, and the activity of a species at the time of recording (and in some cases, the record may relate to a group of species rather than a single species). It is important that any limitations of desk study data are reported.
- 2.7 It is vitally important that the data gained from a desk study are interpreted adequately in the context of the project under consideration (e.g. through the identification of protected or priority species occurring locally), rather than simply providing a long list of un-interpreted species records in an appendix.

Field Survey

- 2.8 In most circumstances, it will be necessary to conduct a field survey to support a PEA. Exceptions include circumstances where there are access constraints, perhaps because of land ownership issues. Where the site has not been visited by an ecologist, this should be clearly stated in the PEAR, and any limitations resulting from this should be reported in full.
- 2.9 Field surveys should consider both habitats and species, focussing upon protected and priority habitats and/or species. An example scope for the field survey for a PEA in the UK and Ireland is provided in Box 2.

Box 2. Example Scope for a PEA Field Survey in the UK and Ireland

The field survey element of a PEA should typically include the following (where relevant):

- 1) Mapping of the habitat types present following a published and recognised habitat classification that is appropriate for the site's location (see Appendix 3).
- 2) An assessment of the **possible presence** of protected or priority species, and (where relevant) an assessment of the **likely importance** of habitat features present for such species, with reference to available desk study information. This should include:
 - Plants
 - Fungi
 - Terrestrial and aquatic invertebrates
 - Fish (where relevant, based on an assessment of any watercourses and water bodies present);
 - Amphibians (including both breeding and terrestrial habitat)
 - Reptiles
 - Breeding, wintering and migratory birds
 - Bats (including potential roost sites, and foraging and commuting habitats/features)
 - Other protected or priority mammal species, as relevant
- 3) Mapping of any stands of non-native invasive plant species.
- 4) Recording of any incidental sightings of priority or protected species, or field signs of such species.

- 2.10 The habitat survey should follow a published and recognised habitat classification that is appropriate for the site's location (see Appendix 3). Parcels of land within the survey area (including area, linear and point features) should be mapped as defined habitat types on an appropriately scaled, geo-referenced plan or annotated aerial image. In most circumstances, descriptions of plant species present and their abundance, habitat condition, land management and habitat origin will aid evaluation, impact characterisation or the expected trends in the absence of any impact, and may help to inform future management decisions. Descriptions that are geo-referenced²³ to specific habitat features and accompanied by annotated photographs can help to illustrate habitat structure to the reader, and provide valuable data to other users. Wherever possible, the habitat survey should aim to identify protected and priority habitats and plant species (see Box 1).
- 2.11 Habitat surveys should also identify and map stands of invasive plant species and indicate where uncommon or rare/protected plants may occur. Where there is potential for protected or priority habitats (see Box 1) or uncommon/protected flora to be present, it may be appropriate to recommend that additional surveys are undertaken.
- 2.12 The scope and methods used for any species surveys must be clearly reported. In most cases, species surveys undertaken at the PEA stage are characterised as preliminary risk assessments or assessments of habitat suitability for a particular species, rather than detailed field surveys.
- 2.13 The appropriate study area for the field survey will need to be determined on a case-by-case basis. In most cases this will include all of the land within the 'site' boundary, plus additional 'off-site' areas where relevant to the assessment. The distance from the site that data need to be collected will vary in relation to different habitats or species and for different types of development project (i.e. this will depend on the zone(s) of influence of the project – see *CIEEM's Guidelines for Ecological Impact Assessment in the UK and Ireland* for further details).

SECTION 3. REPORTING

- 3.1 The findings of a PEA may be reported in different ways, depending on the scope of works agreed with the client and the status of the project design. Where project designs are not fixed, reporting will normally be in the form of a PEAR. An Ecological Constraints and Opportunities Plans (ECOP) may also be used to illustrate key constraints and opportunities to the client and project design team and can accompany a PEAR (see Appendix 4).
- 3.2 In other circumstances the outcomes of the PEA, in terms of likely ecological constraints and opportunities, possible mitigation and further surveys needed, may be reported to the client in another format – for example, in an email supported by a suitable plan such as an ECOP (assuming this is acceptable to the client). The data collected as part of the PEA will need to be presented in any EclA Report, whether a PEAR is produced or not.
- 3.3 Given the objectives of a PEA (see Para 1.3), a PEAR needs to be written in the context of the relevant legislation and, in the case of development projects which require planning consent, the relevant local and national planning policies. The information to be included in a PEAR is set out in Box 3.

Box 3. Typical Contents of a PEAR

In the majority of cases it is expected that a PEAR would include:

- 1) Identification of any designated nature conservation sites (statutory and non-statutory) that could be affected by the project.
- 2) Mapping of the habitat types present to provide a visual representation of the land within and adjacent to the site boundaries.
- 3) Assessment of the likely importance of the habitats present, determining (as far as possible within the constraints of the site visit(s) undertaken) whether there are any protected or priority habitats present (see Box 1), which could be affected by the project. Limitations in relation to this must be clearly stated (see paragraphs 3.8 and 3.9).
- 4) Assessment of the likely presence of protected and priority species, which could be affected by the project (see Box 1); and confirmation of the presence of any such species, as far as possible within the constraints of the site visit(s) undertaken. Limitations in relation to this must be clearly stated (see paragraphs 3.8 and 3.9).
- 5) Based on information gathered in bullets 1-4, identification of any ecological **constraints** to the client and relevant members of the project team. This will allow likely significant effects to be avoided wherever possible through careful scheme design, and ensure that the likely requirements for possible mitigation²⁴ and licensing are understood (based upon the level of information known about the project at the time of the assessment).
- 6) Based on information gathered in bullets 1-5, a list of **further ecological surveys** likely to be required to inform an EclA, together with their appropriate scope, methodology and timing (see paragraphs 3.12 to 3.15).
- 7) Identification of **opportunities** for ecological enhancement.

- 3.4 It is often necessary to combine the results of desk study and field surveys and apply professional judgement and local knowledge, to make an assessment of the likelihood of a species occurring at a particular location, which will inform the need for more detailed surveys. In most cases, it will be appropriate to include geo-referenced descriptions of the features suitable for protected or priority species on survey maps. Reports should make a clear distinction between confirmatory evidence of a species and the presence of habitat with the potential to support a species. The separation of geo-referenced species and habitat data onto different map layers may assist the reader's interpretation, data management and sharing, and is therefore recommended. Reports must explain the process followed to assess the potential of a habitat to support a particular species, and describe any limitations encountered in reaching that conclusion.
- 3.5 As ecological information becomes available, relevant constraints and opportunities should be used to inform site design and layout. The status of each ecological feature identified should then be balanced against the other competing needs from the project, taking into account the international, national or local importance of the habitats and/or species potentially affected. In this context, a constraint²⁵ is defined as an ecological feature that may ultimately represent a constraint on the design and/or layout of a project (e.g. an area of a priority habitat type, or a feature used by a protected or priority species).
- 3.5 The process of identifying constraints and opportunities is likely to be an iterative one, especially on larger and more complex projects, with increasing levels of detail and certainty becoming available as ecological information is cross-referenced to the emerging details of the project.

3.6 The level of detail on constraints and opportunities should be proportionate to:

- the predicted degree of risk to biodiversity;
- the nature and scale of the project; and
- the complexity of the ecological feature concerned.

It is particularly important that reporting should make a clear distinction between different levels of constraint associated with each feature identified. For instance, the presence of a nationally designated site might represent an absolute constraint on the project's layout, where all adverse effects may need to be avoided completely. In contrast, an effect on features of local importance may represent less of a constraint, and impacts upon such features may be addressed through other measures within the Mitigation Hierarchy (e.g. mitigation or compensation).

3.7 It may be necessary to mark the report as confidential where locational details are provided of sensitive species (where the locations need to be kept confidential due to the risk of human interference) including the location of badger setts and nests of certain bird species (e.g. barn owl).

Limitations

3.8 It is important to report all assumptions made, any limitations of the methodologies and the implications of these. For example, Clause 6.7 of BS 42020:2013²⁶ states that:

To reduce uncertainty, and to achieve full scientific disclosure, those undertaking surveys and preparing ecological advice and reports should identify all relevant limitations relating to:

a) the methods used, including:

- 1) personal competency (i.e. qualifications, training, skills, understanding, experience)*
- 2) inadequate resources (equipment and/or personnel)*
- 3) inadequate time spent surveying*
- 4) inadequate data (e.g. arising from incomplete or inappropriate surveys) giving rise to lack of statistical robustness and higher uncertainties*
- 5) use of old and out of date data*
- 6) timing or seasonal constraints and suboptimal survey periods*
- 7) partial use of and/or departures from good practice guidelines*

b) site conditions and other factors, including:

- 1) adverse weather conditions*
- 2) restricted access to a site or part of a site*
- 3) unrealistic deadlines*
- 4) unproven or untested measures for mitigation and compensation*

Any limitations associated with work should be stated, with an explanation of their significance and any attempt made to overcome them. The consequence of any such limitations on the soundness of the main findings and recommendations in the report should be made clear.

3.9 Where the status of a feature is unknown this should be clearly reported (e.g. where the PEA has identified a pond as suitable for use by breeding amphibians but it is unknown whether or not protected amphibians are present). The PEAR should consequently identify the further work required to address such uncertainties (see paragraphs 3.10 to 3.13). It may also be useful to spell out the likely adverse implications of not undertaking the work and leaving the uncertainty unaddressed.

Recommendations for Further Ecological Surveys

- 3.10 It will often be necessary for 'further ecological surveys' (those in addition to the PEA) to be undertaken, in order to inform an EclA and/or the design of appropriate mitigation or compensation measures. It is important to specify the appropriate methods and timing of such surveys in any PEAR, as well as their key objectives. The level of ecological survey work undertaken to inform a planning application should be proportionate to the likely scale of impact; further ecological surveys should only be undertaken where they are necessary (see 3.13).
- 3.11 UK and UK Devolved Administration Government guidance states that under normal circumstances surveys should be completed and any necessary measures to protect biodiversity should be in place, through conditions and/or planning obligations, before permission is granted²⁷. Consequently, it is not normally appropriate to produce an EclA which contains recommendations for further survey, where such surveys are material to the assessment. In such cases, production (and submission) of an EclA should be delayed until all relevant surveys have been completed. The need for such surveys will be identified in a PEAR, where one is produced, or can be communicated to the client by alternative means where a PEAR is not produced. The need to carry out further surveys should only be secured through planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted (see Box 4). The few exceptional circumstances where a further survey may be recommended in an EclA in the UK are also set out in BS 42020:2013 Clause 9.2.4.

Box 4. Further Ecological Surveys Submitted After Determination of the Planning Application

Planning authorities have for many years been advised in government guidance that they should only condition further ecological surveys in exceptional circumstances. In other words, all necessary survey information should be submitted with the planning application so that it can be taken into account prior to the granting of planning permission.

There are a limited number of circumstances where further surveys may not be necessary to the determination of the planning application. Instead they may be conditioned and submitted after determination of the application. These limited circumstances are set out in BS 42020:2013 Clause 9.2.4 and include where:

- a) original survey work will need to be repeated because the survey data might be out of date before commencement of the development project;
- b) there is a need to inform the detailed ecological requirements for later phases of projects that might occur over a long period and/or multiple phases;
- b) adequate information is already available and further surveys would not make any material difference to the information provided to the decision-maker to determine the planning permission, but where further survey is required to satisfy other consent regimes e.g. a European Protected Species (EPS) licence;
- b) there is a need to confirm the continued absence of a protected or priority species or to establish the status of a mobile protected or priority species that might have moved, increased or decreased within the site; or
- b) there is a need to provide detailed baseline survey information to inform detailed post-project monitoring.

Note: Box 4 refers to the situation in the UK in relation to planning consents and conditioning for future surveys. The situation regarding further ecological surveys in Ireland is set out in paragraph 3.12.

- 3.12 In relation to further ecological surveys in Ireland, it is not acceptable to condition additional surveys by way of mitigation or in order to determine mitigation. Ecological surveys and monitoring to confirm predictions from an impact assessment are acceptable as long as they are specified as such. Ecologists in Ireland should make themselves aware of current regulations/requirements in Ireland, as they pertain at the time of any particular PEA. It may be necessary for the production (and submission) of an EclA to be delayed until all relevant surveys have been completed.
- 3.13 EclA can be undertaken without detailed survey information for a given ecological feature, where:
- 1) the outcomes of the survey can be reasonably predicted, or would make no material difference to the assessment of likely significant effects; and
 - 2) appropriate mitigation can be designed and secured on the basis of the information available.

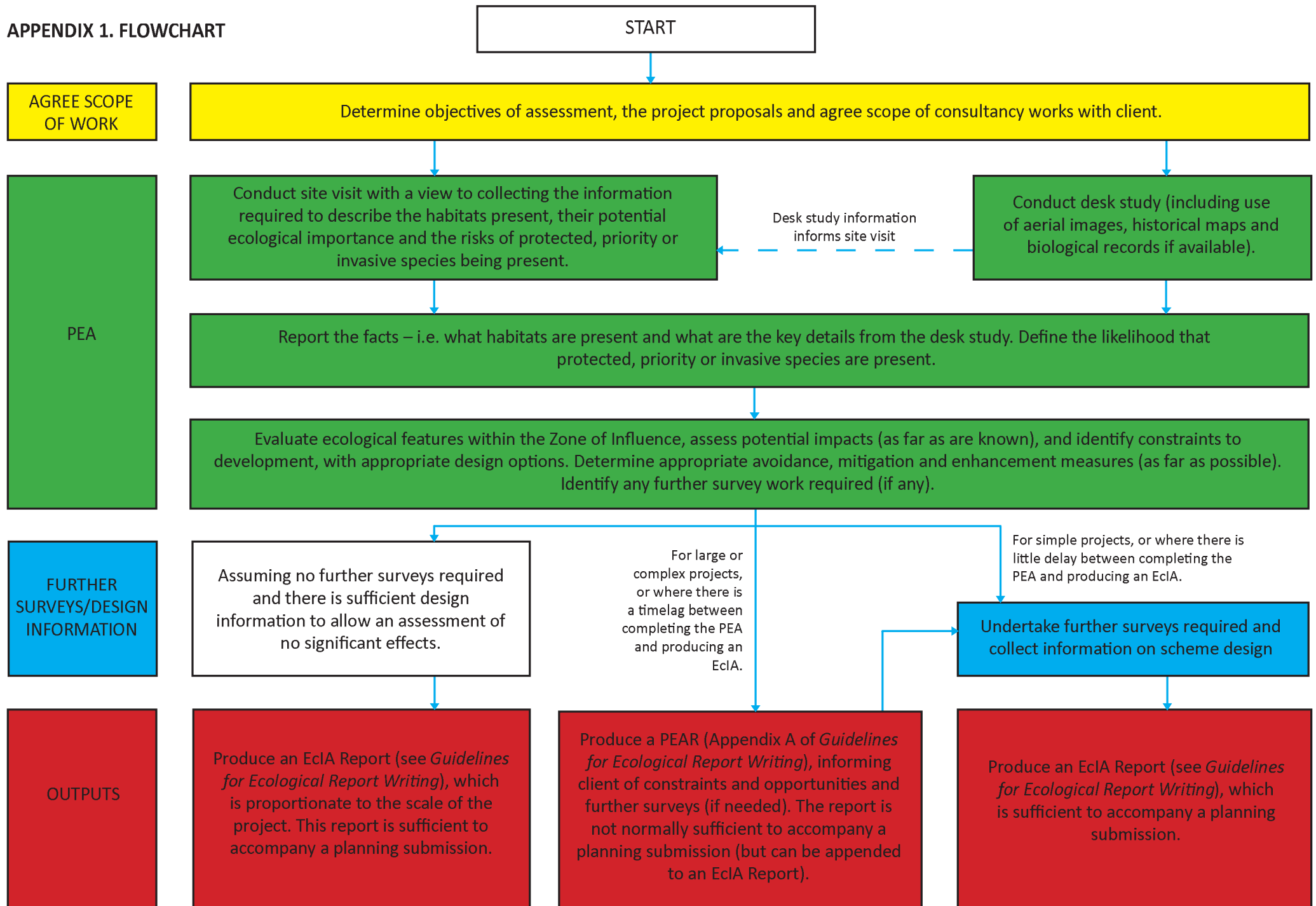
Examples of scenarios where further ecological surveys are likely to be necessary, or are not likely to be necessary to inform an EclA are provided in Appendix 5.

PEARs and Planning Applications

- 3.14 Where an ecological report is required to accompany a planning application, the appropriate report is an EclA Report (or an Ecology/Biodiversity Chapter of an Environmental Impact Assessment Report for an EIA project). Under normal circumstances it is not appropriate to submit a PEAR as part of a planning application, because the scope of a PEAR is unlikely to fully meet planning authority requirements in respect of biodiversity policy and implications for protected species. This is because a PEAR is normally written to advise a client of ecological constraints and opportunities to inform their design options, likely mitigation requirements, and the need for further surveys. It therefore lacks a detailed assessment of ecological effects, and commitment to mitigation; the planning authority is therefore unlikely to have adequate²⁸ information to enable the decision maker to determine the application lawfully. A PEAR may, however, be submitted as an appendix to an EclA Report.
- 3.15 In some cases it may be appropriate and acceptable to submit an EclA Report to accompany a planning application which is based solely on biodiversity data collected during the PEA process. This is the case where the following circumstances apply:
- 1) No further surveys beyond the desk study and field survey are necessary to allow an assessment of ecological effects and to design appropriate mitigation (see Box 4).
- AND
- 2) There is sufficient information available about the design of the project to allow a full assessment of ecological effects, or no significant ecological effects are predicted.
- AND
- 3) There is sufficient information available about the ecological mitigation (and enhancement) measures proposed, and these can be secured through a planning condition or obligation.

The appropriate report to be submitted with the application in such cases is an EclA report. The scope of an EclA report submitted in these circumstances should be proportionate to the scale of the likely ecological effects.

APPENDIX 1. FLOWCHART



Appendix 2. Desk Studies

Data Sources

In all cases it will be appropriate to consult web-based sources to gain basic initial information about the site and surrounding area, information on statutory designated sites (the UK government's MAGIC²⁹ website in England; Natural Resources Wales (NRW) website in Wales³⁰; Scottish Natural Heritage's (SNH) SiteLink website³¹, Scotland's Environment Web³² and the Atlas of Living Scotland³³, in Scotland; the Department of Culture, Heritage and the Gaeltacht, National Parks and Wildlife Service (DCHG, NPWS)³⁴ in Ireland; and the Department for Agriculture, Environment and Rural Affairs (DAERA)³⁵ in Northern Ireland; and existing records of protected or notable species (UK - the National Biodiversity Network (NBN) Atlas^{36, 37}; Ireland National Biodiversity Data Centre (NBDC)³⁸; Northern Ireland Centre for Environmental Data and Recording (NI CEDaR)³⁹).

In the majority of cases it will be appropriate to also obtain information in the UK from the Local Environmental Records Centre (LERC⁴⁰); in Ireland from the DCHG, NPWS and the NBDC; in Northern Ireland from the DAERA and the CEDaR; or equivalent on non-statutory designated sites⁴¹ and existing records of protected and priority species.

In the UK, background data searches will generally not be considered adequate by the Local Planning Authority or other regulatory authority if they rely entirely on open access data, as some of these datasets are not necessarily comprehensive or are not at a fine enough resolution to inform local decisions. Some sensitive records (such as rare species data) are not available for public view, and this could result in an erroneous assumption being made that a given species is absent from a particular area. It will only be appropriate not to obtain data from the above listed bodies in the very occasional cases where the information identified in paragraph 3.2 can be obtained by other means. In such cases full justification must be given in the report text and, where the statutory planning authority employs an ecologist/biodiversity officer, this approach should ideally be agreed with them beforehand.

In some parts of the UK and in Ireland there will be other sources of information on particular species/groups, which are not necessarily held by the above listed sources (LERC, NBDC, CEDaR etc.) and which will therefore also need to be sought if relevant to the assessment (e.g. local bat group data (or other specialist group); local Botanical Society of Britain and Ireland (BSBI) records; data on fish populations from the Environment Agency (EA), NRW, Scottish Environment Protection Agency (SEPA), Inland Fisheries (Ireland) or DAERA (Northern Ireland); local invertebrate recorder data; bird data such as the Wetland Bird Survey (WeBS) and Irish Wetland Bird Survey (IWeBS)).

In some cases there will be informed individuals who can also provide useful background information (e.g. the landowner(s), local authority ecologist/biodiversity officer(s), Conservation Ranger(s) (NPWS) and local mammal recorder(s)).

Where available, previous ecology reports for the site (or other sites in the general area) should be consulted and reviewed.

Search Areas

The search area for desk study information will need to be determined on a case-by-case basis. Existing ecological information for the site and adjacent areas should be obtained, normally extending to at least 1 km from the site boundaries (or 0.5 km for sites of approximately 1 ha or less). The search for desk study information will need to extend further beyond the site boundaries to ensure that all information of relevance to the assessment has been collected. This will need consideration to be given to the zone(s) of influence of the project (see CIEEM's *Guidelines for Ecological Impact Assessment in the UK and Ireland* for further details).

Examples of scenarios in which data may need to be collected over extended search areas include where:

- there are mobile species, such as bats⁴² and birds, which could be affected whilst passing through the project site;
- projects may cause fragmentation effects due to the size, location and nature of the project;
- there are designated sites that may be affected through hydrological impacts, or through increased recreational pressure associated with a residential development; and
- mitigation proposals require such information, for example when determining appropriate receptor sites for translocations.

PEAs Without LERC/NBDC/CEDaR Data

Very occasionally it might be possible to carry out a robust PEA without obtaining LERC/NBDC/CEDaR data; this will usually only apply to low impact or small-scale projects (e.g. by virtue of size, extent, duration of works, magnitude and locality), and should be determined on a case-by-case basis. In all cases, the decision not to obtain these data should be justified in the report.

The following is not intended to be an exhaustive list, but gives examples of the type of sites where such data might not be needed⁴³:

- a field in active arable cultivation where there is no impact on any hedges, trees or water bodies;
- small areas of cultivated garden/amenity grassland, as above; or
- small urban sites comprising mostly asphalt or compacted hardstanding.

Appendix 3. Habitat Classification Systems

There are a number of different habitat classification systems that may be appropriate for use in a PEA; these depend upon the geographic location and objectives of the particular study. CIEEM provides a useful list of suitable survey types and classifications in *Sources of Survey Methods*⁴⁴. NBN also lists classification types for which it holds data⁴⁵.

Some examples of classification systems in regular use include:

Phase 1 Habitat Survey – Appropriate for use across Great Britain, especially suited as a rapid survey tool in semi-natural habitat types in open countryside⁴⁶.

Wetland Typology – In Scotland, wetlands can be identified using the Functional Wetland Typology for Scotland⁴⁷.

Integrated Habitat System (IHS) (v2.0) – IHS integrates UK broad habitat types, priority habitat types, Annex 1 habitats and JNCC Phase 1 classified habitats, and provides a translation tool between these different classifications. IHS can be used across the UK and Ireland to collect and translate existing habitat data into a common format⁴⁸.

Habitats In Ireland – This is the standard habitat classification system for use in Ireland⁴⁹ and an associated survey methodology⁵⁰.

National Vegetation Classification (NVC) – GB-wide classification and description of plant communities, widely used to describe semi-natural habitats in the UK⁵¹.

Irish Vegetation Classification (IVC) (in prep.) – The IVC is an ongoing project which aims to classify, describe and map in detail all aspects of natural and semi-natural vegetation in Ireland within a single, unified, hierarchical framework. A web application (ERICA) for assigning vegetation samples to the IVC is being developed. The IVC builds on a number of classifications recently developed in a series of NPWS habitat surveys⁵².

European Nature Information System (EUNIS) Habitat Classification – The EUNIS includes an EU-wide hierarchical habitat classification which incorporates all Annex 1 habitat types from the Habitats Regulations 1994. EUNIS is widely used across EU states and in the UK, especially marine and coastal areas⁵³.

EUNIS (Scotland) – SNH is adopting the EUNIS habitat classification for terrestrial habitat data and mapping⁵⁴. It also correlates EUNIS habitats with habitat types listed in Annex I of the Habitats Directive. Correspondence tables support translation between EUNIS and the national habitat classifications and lists, including the NVC, UK BAP Priority Habitat types⁵⁵, Phase 1 categories and habitat features on Sites of Special Scientific Interest (SSSIs).

CORINE Biotopes Project Habitat Classification – An inventory⁵⁶ of habitats of major importance for nature conservation across the European Community, which forms the basis of the selection of habitats listed in Annex 1 of the Habitats Directive.

UK BAP Broad & Priority Habitats – This is a UK-habitat classification prepared by the UK Biodiversity Group that classifies all terrestrial and freshwater habitats in the UK into 37 broad habitat types. UK BAP Priority Habitats are a range of semi-natural habitat types that were identified as being the most threatened and requiring conservation action. The original Priority Habitat list was created between 1995 and 1999 and revised in 2007. The list of Priority Habitats has been used to help draw up statutory lists of habitats of principal importance for the conservation of biodiversity in England, Scotland, Wales and Northern Ireland (see Box 1 for further details). The suite of habitats of principal importance for the conservation of biodiversity (formerly Priority Habitats) nest into the defined Broad Habitat Types^{57,58}.

Identification and mapping of marine, intertidal and coastal habitats is a highly specialised task. A separate survey of these is recommended following published and recognised classification systems. Where the ecologist(s) possess adequate expertise, a preliminary attempt may be made to identify accessible areas of littoral/inter-tidal zone using this classification system.

UK Habitat Classification (in prep.) – The UK Habitat Classification, which is currently under

development, potentially presents a unified hierarchical habitat classification suitable for use across the UK territory which integrates with EU and other UK classification systems. The system initially covers terrestrial, freshwater and coastal areas. Field trials of the system are currently on-going.

Appendix 4. Ecological Constraints and Opportunities Plan (ECOP)

An ECOP is a useful method of illustrating the key points gathered from PEA baseline studies and, depending on the purpose of reporting, an ECOP may accompany or replace a PEAR. An ECOP may be quite simple in format and content (e.g. when illustrating relevant ecological features associated with an application for the construction of a single dwelling) or may be extensive in its coverage (e.g. when applied to a large-scale project across a wide area with many ecological features present).

It has three main roles (extract from BS 42020:2013 'Commentary on Clause 5.4' – page 17):

- *At the pre-application stage, an ECOP may be used as an iterative tool within the design team to inform the overall design process;*
- *At the decision-making stage, it may be used to provide summary information for the decision-maker showing graphically how the mitigation hierarchy has been applied in practice. As such, it is an opportunity to show what and where the key biodiversity constraints and opportunities are associated with the proposed development described in the planning application; and*
- *At the implementation (construction) stage, it may be used to provide an overview, showing how and where biodiversity is to be addressed during the actual development works or aftercare period (e.g. as a summary drawing(s) forming part of a construction environmental management plan).*

In illustrating constraints and opportunities, the ECOP should identify the following (where relevant), in accordance with BS 42020:2013 Clause 5.4:

- 1) areas and features (both on- and off-site) including appropriate buffer areas that, by virtue of their importance, should be retained and avoided by both construction activities and the overall footprint of the project⁵⁹;
- 2) areas and features where opportunities exist to undertake necessary mitigation and compensation;
- 3) areas and features with potential for biodiversity enhancement;
- 4) areas where ongoing biodiversity conservation management is required to prevent deterioration in condition during construction/implementation;
- 5) areas needing protection on site and/or in adjacent areas (e.g. from physical damage on site or pollution downstream) during the construction process; and
- 6) areas where biosecurity measures are necessary to manage the risk of spreading pathogens or non-native invasive species.

Appendix 5. Examples of Where Further Ecological Surveys Are, Or Are Not, Likely to be Necessary to Inform an EclA

Example 1

A proposed development project requires a new access to be constructed, which requires a gap to be created in a hedgerow, of approximately 15 m in width. This could affect use of the hedgerow by foraging and commuting bats.

Scenario 1a: The hedgerow could link an important roost site for a species of bat which is light-averse and tends to avoid gaps, with valuable foraging habitat for that species. In order to accurately assess the effects of the proposed development on this species population it will be necessary to undertake a survey to determine the level of use of the hedgerow and its relative importance.

Scenario 1b: By virtue of its location directly adjacent to an existing residential area, the hedgerow could only act as a link between roost sites and foraging habitat for bat species which are not light-averse and do not tend to avoid gaps. It may not be necessary in this case to undertake a bat survey, as the outcomes of the survey are unlikely to make any material difference to the assessment.

Note: there are likely to be other ecological impacts associated with creating gaps in hedgerows which may require further survey; this example has been restricted to considering the impacts on bats for the purpose of illustrating a principle.

Example 2

A proposed development project will result in the loss of habitat suitable for use by reptiles. There are desk study records of slow-worm from gardens immediately adjacent to the site; no other reptile species are considered likely to be present, and the site is not within the geographical range of smooth snake or sand lizard.

Scenario 2a: The proposed development will result in the loss of 50% of the available habitat, which is suitable for slow-worms, but not of particular value; the site is relatively homogenous in terms of its suitability for slow-worms. The suitable habitat within the site is contiguous with a much larger area of suitable habitat which effectively surrounds the site. The developer is willing to commit to undertaking a range of habitat improvement measures in the remaining 50% to improve it for slow-worm, and it is likely that such measures could improve the carrying capacity sufficiently to accommodate the slow-worms present in the habitat to be adversely affected. These measures, along with measures to protect slow-worms during site clearance, can be secured through a planning condition.

In these circumstances a targeted reptile survey may not be necessary, as it would be unlikely to change the assessment, or the mitigation proposed. This is due, in part, to information that would be gained from a survey, which in most circumstances would not provide an assessment of population size – the availability of sufficient habitat would be based on an assessment of the quality and size of the remaining habitat in comparison with that lost.

It could be argued that a survey may be beneficial to the developer, as it could remove the requirement for the mitigation. However, even with a negative survey result, it is likely that some mitigation would still be required on a precautionary basis to ensure legal compliance, given the presence of suitable habitat and records of slow-worm in adjacent gardens.

Scenario 2b: The proposed development will result in the loss of the majority of the suitable habitat within the site, which is patchily distributed across the site. The site is relatively isolated from other areas of suitable habitat for reptiles, with the exception of adjacent residential gardens. It is therefore possible that slow-worms, if present, would need to be translocated to an off-site receptor area (dependent on the amount of habitat affected). This could result in a significant effect on the slow-worm population in the local area, dependent on the location of the proposed receptor area and the size of the population affected.

In these circumstances it is likely that a targeted reptile survey would be required to confirm the presence or likely absence of slow-worm from the site, and to allow an assessment of the distribution of slow-worms within the various habitat patches, and therefore inform the assessment of likely effect on the species.

Example 3

A proposed residential development is to be located at the edge of a small rural midlands town in Ireland (RoI). Aerial photography suggests that mature hedgerows and scrub may need to be removed to facilitate access roads and the construction of dwellings. Records of road kill in the vicinity include pine marten and red squirrel.

Scenario 3a: The hedgerows provide linkages across the landscape for both protected species and when viewed from a broader scale they may link known woodland refuges for both species. No presence/absence data for either species exists for the area. Loss of either habitat could have impacts on these protected species if they use the linear habitats for moving through the area or for breeding (particularly for pine marten).

In this circumstance it is likely that a focused mammal survey would be required to confirm use of the hedgerows and scrub by either species and to inform the layout of the proposed development in order to avoid severance of these linkages.

Scenario 3b: The developer has indicated that the area of scrub and hedgerows will be preserved but managed as a landscape feature as it includes outcrops of rock which would be difficult to integrate into the design. Much of the smaller hedgerows will require removal, but the mature hedgerows can be preserved.

Surveys to indicate presence/absence may not be required as the retention of the mature hedgerows and scrub may be sufficient at a landscape scale to permit protection of important linkages across the area for both species. Further consideration of impacts of construction works causing temporary disturbance on potential nesting sites may be required, or may be addressed by timing of the works to avoid the breeding season.

ENDNOTES

- ¹The area(s) over which ecological features may be affected by the biophysical changes caused by a proposed project and associated activities.
- ²For more information on the 'Mitigation Hierarchy', see BS 42020:2013 Clause 5.2.
- ³For example, in England see Paragraph 99 of ODPM Circular 06/25: *Biodiversity and geological conservation – statutory obligations and their impact within the planning system*.
- ⁴For details of relevant legislation see <http://jncc.defra.gov.uk/page-1376>; Ireland - <http://www.npws.ie/legislation>; and Northern Ireland - www.daera-ni.gov.uk/topics/biodiversity.
- ⁵In England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006; in Wales under Section 7 of the Environment (Wales) Act 2016; in Scotland under Section 2(4) of the Nature Conservation (Scotland) Act 2004; in Northern Ireland under Section 3(1) of the Wildlife and Natural Environment Act (Northern Ireland) 2011; in the Republic of Ireland Wildlife Acts 1976 to 2012 (IUCN category based species Red Lists <https://www.npws.ie/publications/red-lists>).
- ⁶IUCN (2012) IUCN Red List Categories and Criteria. Version 3.1. Second edition. IUCN, Gland.
IUCN (2012) Guidelines for Application of IUCN Red List Criteria at Regional and National Levels. Version 4.0. IUCN, Gland.
IUCN (2016) Guidelines for Appropriate Uses of IUCN Red List Data. Version 3.0. Adopted by the IUCN Red List Committee.
IUCN (2017) Guidelines for Using the IUCN Red List Categories and Criteria. Version 13. Prepared by the Standards and Petitions Subcommittee.
- ⁷National Biodiversity Data Centre (2013) Ireland's Red Lists – *A National Standard. National Biodiversity Data Centre Series No 1*. Waterford, Ireland.
- ⁸The Species Status project is the successor to the JNCC's Species Status Assessment project, providing up-to-date assessments of the threat status of various taxa using the internationally accepted Red List guidelines (<http://jncc.defra.gov.uk/page-1773>).
- ⁹Eaton *et al.* (2015) Birds of conservation concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. *British Birds* 108: 708-746.
- ¹⁰Johnstone, I. and Bladwell, S. (2016) Birds of Conservation Concern in Wales 3: the population status of birds in Wales. *Birds in Wales* 13 (1).
- ¹¹Colhoun, K. and Cummins, S. (2013) Birds of Conservation Concern in Ireland 2014-2019. *Irish Birds* 9: 523-544.
- ¹²See 21.
- ¹³See 20.
- ¹⁴See 22, 34 and 38.
- ¹⁵<http://www.gov.scot/Topics/Environment/Wildlife-Habitats/biodiversity/BiodiversityStrategy>
- ¹⁶National Biodiversity Action Plan 2017-2021. Department of Culture, Heritage and the Gaeltacht. <https://www.npws.ie/sites/default/files/publications/pdf/National%20Biodiversity%20Action%20Plan%20English.pdf>
- ¹⁷CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*. 2nd edition. CIEEM, Winchester.
- ¹⁸Environmental Impact Assessment (EIA) is the process used to assess the effects of certain public and private projects on the environment in order to meet the requirements of Council Directive 85/337/EEC as amended by Council Directives 97/11/EC, 2003/35/EC and 2009/31/EC and redrafted in a codified version Directive 2011/92/EU. The amended Environmental Impact Assessment (EIA) Directive 2014/52/EU entered into force in 2014 to simplify the rules for assessing the potential effects of projects on the environment and Member States have to apply these rules from May 2017.

- ¹⁹ Ireland: Section 4 of the Planning and Development Act, 2000 (as amended); and the Planning and Development Regulations, 2001 (as amended).
- ²⁰ CIEEM (2015) *Guidelines for Ecological Report Writing*. CIEEM, Winchester.
- ²¹ See <https://www.cieem.net/competencies-for-species-survey-css->
- ²² CIEEM (2016) *Guidelines for Accessing and Using Biodiversity Data in the UK*. CIEEM, Winchester.
- ²³ Wherever possible, geo-referenced descriptions should be attached to the point, line or polygon they are describing, as this assists with data interpretation, data management and future monitoring.
- ²⁴ In accordance with the Mitigation Hierarchy.
- ²⁵ ‘Constraints’ should not be confused with ‘limitations’. The latter refers to limitations on the adequacy and robustness of the data collected, as may arise from the ecological methods used or conditions on site that in some way limit the soundness of the main findings or recommendations of the report (for more information on limitations see paragraph 3.8 and BS 42020:2013 Clause 6.7).
- ²⁶ *BS 42020:2013 Biodiversity. Code of practice for planning and development*. British Standards Institute, London.
- ²⁷ In England: Circular 06/2005; paragraph 98 and 99; in Wales: TAN 5 2009; paragraph 6.2.2; in Scotland: Scottish Planning Policy (SPP) paragraphs 125-164 and PAN 60 Planning for the Natural Heritage; in Northern Ireland: Planning Policy Statement 2; Ireland - Planning and Development Act 2000 to 2015 and its associated Regulations.
- ²⁸ BS 42020:2013 Clauses 6.2 to 6.13 and Clause 8.1 specify what constitutes ‘adequate’ information to support and determine a planning application.
- ²⁹ <http://www.magic.gov.uk/>
- ³⁰ <http://naturalresources.wales/conservation-biodiversity-and-wildlife/find-protected-areas-of-land-and-seas/designated-sites-search/>
- ³¹ <http://gateway.snh.gov.uk/sitelink/index.jsp>
- ³² <http://www.environment.scotland.gov.uk/>
- ³³ <https://scotland.nbnatlas.org/>
- ³⁴ <http://www.npws.ie/>
- ³⁵ <https://www.daera-ni.gov.uk/>
- ³⁶ <https://nbnatlas.org/>
- ³⁷ Data from the NBN Atlas may have restricted use for commercial purposes where sensitive species are involved. Users should check any licence restrictions before using data.
- ³⁸ <http://www.biodiversityireland.ie/>
- ³⁹ <http://nmni.com/cedar>
- ⁴⁰ LERCs and other data providers may have their own terms and conditions, which will vary. These terms and conditions must be adhered to in respect of the use and provision of the data supplied. LERCs may take up to 10-15 working days to provide the requested data search information and this should therefore be programmed into the project; this timescale is not normally an acceptable reason for not obtaining these data. Information on contacting LERCs can be found via www.alerc.org.uk or obtained from the Local Planning Authority.
- ⁴¹ In Scotland, Local Development Plans should contain boundary maps for non-statutory sites if these are not available through interactive mapping. It is recommended that the Local Authority Ecologist/Biodiversity Officer is contacted for further information.
- ⁴² For sites where a bat licence is likely to be required, Natural England generally require a data search for bat records to at least 2 km from the site boundary.

- ⁴³ In all cases, if buildings are present, LERC data might be needed due to potential impacts on bats in the UK (see CIEEM (2016) *Guidelines for Accessing and Using Biodiversity Data in the UK*. CIEEM; Winchester)
- ⁴⁴ <http://www.cieem.net/sources-of-survey-methods-sosm>
- ⁴⁵ <http://habitats.nbn.org.uk/habitatClassList.asp>
- ⁴⁶ JNCC (2003) *Handbook for Phase 1 Habitat Survey – a technique for environmental audit*. JNCC, Peterborough.
- ⁴⁷ SNIFFER (2009) *WFD95: A Functional Wetland Typology for Scotland; Project Report*. SNIFFER, Edinburgh.
- ⁴⁸ <http://ihs.somerc.co.uk/index.php>
- ⁴⁹ Fossitt (2000) *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny.
- ⁵⁰ Smith, G.F., O'Donoghue, P., O'Hora, K. and Delaney, E. (2011) *Best Practice Guidance for Habitat Survey and Mapping*. Heritage Council, Kilkenny.
- ⁵¹ Rodwell, J.S. (ed.) (1991) *British Plant Communities. Volume 1. Woodlands and scrub*. Cambridge University Press.
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 Details available from: <http://jncc.defra.gov.uk/page-4259>.
 Rodwell, J.S. (2006) *NVC Users Handbook*. ISBN 978 1 86107 574 1. Available as free download from: <http://jncc.defra.gov.uk/page-3724>
- ⁵² Details of the IVC and ERICA are available at: <http://www.biodiversityireland.ie/projects/national-vegetation-database/irish-vegetation-classification/>
- ⁵³ EEA (2012) *EUNIS Habitat Classification 2012 – a revision of the habitat classification descriptions*. EEA. Copenhagen.
- ⁵⁴ SNH (2017) *Commissioned Report 766: Manual of terrestrial EUNIS habitats in Scotland*. SNH, Edinburgh.
- ⁵⁵ BAP Priority Habitat Types are published by the Scottish Ministers as a list of habitats of principal importance for the conservation of biodiversity under the Nature Conservation (Scotland) Act 2004. The list was first published in 2005.
- ⁵⁶ Devillers, P., Devillers-Terschuren, J. and Ledant, J-P. (1991) *CORINE biotopes manual*. Vol. 2. Habitats of the European Community. Office for Official Publications of the European Communities, Luxembourg.
- ⁵⁷ Jackson, D.L. (2000) *Guidance on the interpretation of the Biodiversity Broad Habitat Classification (terrestrial and freshwater types): Definitions and the relationship with other classifications*. JNCC Report 307, 73 pages, ISSN 0963 8091.
- ⁵⁸ Maskell, L.C., Norton, L.R., Smart, S.M., Carey, P.D., Murphy, J., Chamberlain, P.M., Wood, C.M., Bunce, R.G.H. and Barr, C. J. (2008) *Countryside Survey. Field Mapping Handbook*. NERC/Centre for Ecology & Hydrology, 130pp. (CS Technical Report No.1/07, CEH Project Number: C03259).
- ⁵⁹ A useful list of construction activities with the potential to have an adverse effect on biodiversity is provided in BS 42020:2013 Annex G.

APPENDIX 8: SUMMARY OF QUALIFICATIONS AND EXPERTISE OF ECOLOGISTS ALONG WITH AREAS THEY CONTRIBUTED

Applicant's Response to Q6.0.4: Qualifications and Experience of Ecologists Contributing to SHBEC Ecological Impact Assessment

Name	AECOM Role	Qualifications/ Memberships	Years of Professional Experience	Summary of Experience and Expertise	Contribution to SHBEC Ecological Impact Assessment (ES Chapter 10 and Appendices)
S.Dixon	Principal Ecologist	BSc (Hons) Environmental Management UCert in Biological Recording and Species Identification FISC Level 4 PGCE Full member CIEEM	27	Ecological survey and assessment; specialist ornithologist and botanist and experienced across all fields of ecology (including habitats, reptiles, otter, water vole, amphibians, bats, badgers, aquatic macrophytes). Regularly completes preliminary ecological appraisals (PEA), ecological impact assessments (EclA) and Habitats Regulations Assessments (HRA) for a range of projects across private and public sector. Ecological Clerk of Works.	Phase 1 Habitat survey (as reported in Document Ref. 6.4.15). PEA report (Document Ref. 6.4.15). Reptile survey (as reported in Document Ref. 6.4.18). Aquatic macroinvertebrates and macrophyte survey (as reported in Document Ref. 6.4.16). Ecology Chapter (Document Ref. 6.2.10).

Name	AECOM Role	Qualifications/ Memberships	Years of Professional Experience	Summary of Experience and Expertise	Contribution to SHBEC Ecological Impact Assessment (ES Chapter 10 and Appendices)
E. Checkley*	Senior Ecologist	BSc (Hons) Wildlife Conservation Graduate member CIEEM	5	Ecological survey and assessment and experienced across all fields of ecology (including habitats, bats, amphibians, water vole, dormouse, reptiles, otter, badger, aquatic macrophytes). Regularly completes PEA, EclA and HRA for a range of projects across private and public sector.	PEA report (Document Ref. 6.4.15). Reptile survey report (Document Ref. 6.4.18). Aquatic macroinvertebrates and macrophyte survey report (Document Ref. 6.4.16). HRA Signposting Report (Document Ref. 5.8).
L. Deacon	Associate Ecologist	BSc (Hons) Biological Sciences PhD Microbial Ecology Chartered Environmental Scientist (CEnv) Full member CIEEM	20	Ecological survey and assessment and experienced across all fields of ecology (including habitats, reptiles, otter, water vole, amphibians, bats and badgers) Regularly completes PEA, EclA and HRA for a range of projects across private and public sector. Environmental management and academic experience post-degree, including lecturing, research and publication in peer reviewed journals. Biodiversity net gain specialist.	PEA report (Document Ref. 6.4.15). Ecology Chapter (Document Ref. 6.2.10). HRA Signposting Report (Document Ref. 5.8).

Name	AECOM Role	Qualifications/ Memberships	Years of Professional Experience	Summary of Experience and Expertise	Contribution to SHBEC Ecological Impact Assessment (ES Chapter 10 and Appendices)
K. Doyle	Consultant Aquatic Ecologist	BSc (Hons) Environmental Biology MSc Applied Environmental Science	4	Freshwater aquatic specialist; familiar with sampling techniques for a wide range of water habitats, including headwater streams, tidal watercourses, estuarine environments, lakes, ponds and temporary waterbodies. Competent macroinvertebrate taxonomist with substantial experience in species level identification for all key macroinvertebrate groups.	Aquatic macroinvertebrates and macrophyte survey and report (Document Ref. 6.4.16).
C. Wing	Consultant Ecologist	BSc (Hons) Conservation Biology MSc Biodiversity and Conservation FISC Level 3 Full member CIEEM	7	Experienced in both terrestrial and freshwater ecology surveys. Proficient in the identification of aquatic macroinvertebrates to mix-taxon level and the calculation and interpretation for a wide range of water quality indexes. Ecological Clerk of Works.	Aquatic macroinvertebrates and macrophyte survey and report (Document Ref. 6.4.16).
J. Atkinson	Associate Ecologist	BSc (Hons) Zoology Full member CIEEM	17	Experienced in Phase 1 Habitat surveys, scoping and surveying for a range of protected species (including breeding birds, wintering birds, reptiles, otter, water vole, amphibians, white-clawed crayfish, bats, badgers). Regularly completes PEA, EclA and HRA for a range of projects across private and public sector.	Otter and water vole report (Document Ref. 6.4.17). Ecology Chapter (Document Ref. 6.2.10). HRA Signposting (Document Ref.5.8).

Name	AECOM Role	Qualifications/ Memberships	Years of Professional Experience	Summary of Experience and Expertise	Contribution to SHBEC Ecological Impact Assessment (ES Chapter 10 and Appendices)
J. Willmore	Ecologist	BSc (Hons) Zoology MSc Animal Behaviour: Applications for Conservation Graduate member CIEEM	3	Extensive and varied experience in practical conservation work, Phase 1 habitat and protected species surveys, conducting animal research, PEA and EclA reporting, GIS software and data management. Ecological Clerk of Works.	Reptile survey (as reported in Document Ref. 6.4.18).
A. Rose	Graduate Ecologist	BSc (Hons) Biology MSc Conservation and Resource Management Graduate member CIEEM	2	Experience of Phase 1 Habitat survey and scoping and assisting with ecological surveys for a range of protected species including reptiles, bats, badgers, amphibians. Regularly assists with the preparation of ecological reports (PEA and EclA). Ecological Clerk of Works.	Reptile survey (as reported in Document Ref. 6.4.18).
C. Sandham	Sub-contractor on behalf of AECOM: Director, CS Ecology Ltd	BSc (Hons) MRes Chartered Environmental Scientist (CEnv) Full member CIEEM	16	Experienced in Phase 1 Habitat surveys, scoping and surveying for a range of protected species (reptiles, otter, water vole, dormouse, amphibians, white-clawed crayfish, bats, badgers). Regularly prepares of ecological reports (PEA and EclA) for a range of private and public sector clients. Ecological Clerk of Works	Reptile survey (as reported in Document Ref. 6.4.18). Otter and water vole survey (as reported in Document Ref. 6.4.17).

Name	AECOM Role	Qualifications/ Memberships	Years of Professional Experience	Summary of Experience and Expertise	Contribution to SHBEC Ecological Impact Assessment (ES Chapter 10 and Appendices)
P. Kerrison	Aquatic Lead*	BSc (Hons) Applied Biology MSc The Biology of Water Management PhD Effects of low concentrations of heavy metals on phytoplankton community dynamics in a small sub-alpine lake in northern Italy	45	Extensive lake and rivers survey and research experience. He has worked within the university, water utility and consultancy sectors. He has published papers in peer- reviewed technical journals. Specialist in limnological research and survey design, eutrophication studies, stream macroinvertebrate surveys and species identification, and water and sewage treatment processes	Aquatic macroinvertebrates and macrophyte survey report (Document Ref. 6.4.16).

Name	AECOM Role	Qualifications/ Memberships	Years of Professional Experience	Summary of Experience and Expertise	Contribution to SHBEC Ecological Impact Assessment (ES Chapter 10 and Appendices)
J. Riley	Habitats Regulation Assessment (HRA) Practice Area Lead	BSc (Hons) Biology MSc Crop Protection PhD Calcareous grassland restoration to hard rock quarries Chartered Environmentalist (CEnv)	22	<p>HRA specialist, lecturer and trainer (providing HRA training to local authorities and RTP). Co-ordinates technical standards on HRA within AECOM and completes technical reviews.</p> <p>Led HRA work on numerous high profile projects including the Thames Tideway Tunnel, the expansion of Seabank Power Station, the expansion of the Army Training Estate at Salisbury Plain SAC/SPA, the undergrounding of powerlines across the New Forest SPA /SAC and dozens of projects on behalf of both applicants and local authorities.</p> <p>Part of the authorship team for the Institute of Air Quality Management guidance on assessing impacts on nature conservation sites and is currently working with the Chartered Institute of Ecology & Environmental Management on air quality impact assessment advice for ecologists likely to be published later in 2020.</p>	HRA Signposting Report (Document Ref. 5.8)

*No longer at AECOM

APPENDIX 9: APPLICANT'S CLARIFICATIONS REGARDING NOISE SENT TO NATURAL ENGLAND

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Project name:
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Centre DCO

Your Ref:
318064

From:
AECOM on behalf of EP Waste
Management Ltd

Date:
15th October 2020

To:
Natural England
Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

CC: Hannah Gooch, Natural
England
Simon Bate, EP UKI Ltd.

Memo

Application by EP Waste Management Limited, Proposed Energy Centre Development at South Humber Bank Power Station – Response to Relevant Representation by Natural England (PINs Reference: EN010107)

1. Introduction

On behalf of EP Waste Management Limited in relation to the above Application, AECOM acknowledges Natural England comments provided within their Relevant Representation received by DWD on behalf of EP Waste Management Ltd dated 11 July 2020.

The purpose of this technical memo is to provide the clarification requested on the points raised by Natural England within the Relevant Representation. Information in respect of paragraphs 4.2 and 4.3 (noise and vibration), is provided within this memo; paragraph 4.1 (air quality) is addressed in a separate memo. We agree with Natural England's view (paragraph 1.6 of the Relevant Representation) that these matters can be resolved and agreement documented within the Statement of Common Ground between both parties.

2. Response to points raised

Natural England’s comments in paragraphs 3.3.4 to 3.3.9, and its request at paragraphs 4.2 and 4.3 for information in relation to noise disturbance to waterbirds feeding/ roosting/ loafing in the Humber Estuary SPA/ Ramsar are noted. AECOM’s response is given below, to assist Natural England in providing advice to the competent authority and to the latter in completing its Appropriate Assessment.

A summary table (Table 1) has been provided to set out Natural England’s comments, and signposting to the relevant sections in this memo where discussion/ justification has been provided to address the information requests in paragraphs 4.2 and 4.3 of the Relevant Representation.

Table 1: Natural England Responses and Signposting to Information

Natural England Relevant Representation Paragraph Reference	Topic	Natural England Response	Signposting to Information Provided by Applicant
3.3.5	Noise disturbance to SPA/ Ramsar birds using Humber Estuary foreshore during construction and operation	<p><i>“The noise assessment demonstrates that there will be a potential increase of up to 4 dB from the proposed drop hammer piling activity, compared with the ambient noise levels. However, the peak noise could potentially be even greater than the ambient noise levels. We note that the applicant has used a significance criteria for disturbance to birds based on bird behaviour and noise monitoring studies undertaken by Xodus Group during construction piling for the Grimsby River Terminal. This assessment classifies the peak noise levels of 75 dB LAmax as having a minor adverse impact and concludes no likely significant effect. However, Natural England is of the opinion that this increase in noise levels could be significantly different to disturb bird species using the Pyewipe mudflats. We require further information to demonstrate that a likely significant effect can be ruled out.”</i></p>	<p>Information to demonstrate that a likely significant effect can be ruled out is provided in Section 2.2.1 of this memo.</p>
		<p><i>“At 7.2.8 of the HRA Signposting Report it is stated that “the elevated noise levels would only reach the portion of Pyewipe mudflats closest to the main development area”. However, there is no evidence to illustrate how big an area this might be, therefore, we recommend that a noise contour map is provided.”</i></p>	<p>Noise contour maps have been provided for drop hammer and Continuous Flight Auger (CFA) piling, for LAeq and LAmax (see attached Figures A – L) (see Section 2.1 of this memo). Information regarding the proportion of the</p>

			<p>Pyewipe mudflats potentially affected by increased noise levels during construction piling is provided in Section 2.2.2 of this memo.</p>
		<p><i>“The paragraph goes on to state that “this may result in some localised disturbance, which would likely cause displacement of waterbirds within the mudflat area, rather than causing them to leave the mudflats altogether”. However, it is not clear how this assessment has been made.”</i></p>	<p>Information clarifying how this assessment was made is provided in Section 2.2.2 of this memo.</p>
<p>3.3.6</p>	<p>Noise and vibratory disturbance to SPA/ Ramsar birds using neighbouring functionally linked land (fields to south) during construction and operation</p>	<p><i>“Natural England concurs with the conclusion that likely significant effects from noise and vibratory disturbance cannot be ruled out. We consider that the proposed mitigation to use CFA piling rather than drop hammer piling could adequately mitigation for these impacts, however, it is not clear if the figures provided at 10.6.23 of the Environmental Statement Volume 1 Chapter 10 Ecology are for the location of noise receptor (LT3) or at a central location within the field. We recommend that a noise contour map is provided to illustrate this conclusion.”</i></p>	<p>See Section 2.1 of this memo. Noise contour maps have been provided for drop hammer and CFA piling, for LAeq and LAmax (see attached Figures A – L).</p>
		<p><i>“Seasonal piling restrictions could also adequately mitigate for these impacts, however, we advise that further evidence is provided to demonstrate that there would be adequate alternative undisturbed habitat available, as the noise assessment indicates that there could also be increased noise levels on the nearby mudflats too.”</i></p>	<p>Evidence to demonstrate that there is sufficient undisturbed habitat available on nearby mudflats is provided in Section 2.2.2 of this memo.</p>
<p>3.3.7</p>		<p><i>“During operation, it is predicted that there will be some increase in noise levels above the ambient level. Natural England notes that Figure 8.2 represents how the predicted noise levels will attenuate from the proposed development, from the 62 dB LAeq at the edge of the fields to the 50 dB LAeq in the centre of the fields. However Natural England considers that further information is still required to demonstrate that there will be an adequate area of the field that will remain undisturbed and justification that this can still provide functional supporting habitat for SPA/ Ramsar species.”</i></p>	<p>Discussion is provided in Section 2.2.3 of this memo to provide justification that this can still provide functional supporting habitat for SPA/ Ramsar species.</p>

<p>3.3.8</p>	<p>Noise and vibratory disturbance to SPA/ Ramsar birds using neighbouring functionally linked land (fields to north) during construction and operation</p>	<p><i>“The noise assessment concludes that there will be a slightly higher predicted noise level in the centre of the fields compared with ambient noise level. Using the same Xodus group significance criteria as above, it is concluded that the predicted peak noise levels of 72 dB LAmax will have a minor adverse impact and likely significant effects can be ruled out. However, Natural England is of the opinion that this increase in noise levels could be significantly different to disturb birds using these fields. Natural England requires that a noise contour map is provided to illustrate this conclusion.”</i></p>	<p>Noise contour maps have been provided for drop hammer and CFA piling, for LAeq and LAmax (see attached Figures A – D). Discussion is provided in Section 2.2.4 of this memo.</p>
<p>3.3.9</p>		<p><i>“During operation, it is predicted that there will be some increase in noise levels above the ambient level. Natural England notes that Figure 8.2 demonstrates how the predicted noise levels will attenuate from the proposed development from the 68 dB LAeq at the edge of the fields to the 46-48 dBA in the centre of the fields. However, Natural England considers that further information is still required to demonstrate that there will be an adequate area of the field that will remain undisturbed and justification that this can still provide functional supporting habitat for SPA/ Ramsar species.”</i></p>	<p>Justification is provided in Section 2.2.5 of this memo.</p>

2.1 Noise Contour Plots

Natural England states in paragraph 4.2 of the Relevant Representation, *“We request that noise contour maps are provided (showing dB LAeq and dB LAmax) to illustrate how the proposed piling noise levels (for both impact piling and CFA piling) and operational noise levels will attenuate across the Humber estuary foreshore and associated functionally linked land”*.

Noise contour maps have now been provided for the following modelled scenarios for the construction phase of the Proposed Development, which takes into account the existing baseline noise level at the operational power station:

- drop hammer piling at one location in the north-west of the main building footprint¹ (LAeq and LAmax) – Figures A and D;
- drop hammer piling at one location in the south-east of the main building footprint² (LAeq and LAmax) – Figures B and E;
- drop hammer piling at four locations on the main building footprint³ (LAeq and LAmax) – Figures C and F;
- CFA piling at one location in the north-west of the main building footprint (LAeq and LAmax) – Figures G and J;
- CFA piling at one location in the south-east of the main building footprint (LAeq and LAmax) – Figures H and K; and
- CFA piling at four locations on the main building footprint (LAeq and LAmax) – Figures I and L.

The use of CFA piling would result in a decrease of around 10 dB LAmax from that predicted using drop hammer piling, which would result in a significant decrease in the peak noise modelled across the fields to the north and south, and across the Pyewipe mudflats. Although the CFA piling would result in noise levels in excess of 65 dB LAmax across the fields to the north and south, and to the mudflats, it is important to make the distinction between this type of piling and drop hammer piling. With drop hammer piling, there are frequent noise peaks for the duration of the piling activity (the regular ‘bangs’ associated with the hammering of each pile to refusal). However, with CFA piling the noise profile is not subject to frequent noise peaks because there are not the regular bangs associated with the drop hammer piling. The CFA method is therefore much less likely to disturb birds, which are demonstrably more sensitive to loud peak noise events. The proposed mitigation is therefore to apply seasonal and timing constraints on drop hammer piling (two hours either side of high tide in the period September to March, when waterbirds are most likely to be present in the fields) and/ or to use CFA piling, as set out in the Environmental Statement (ES) Chapter 10: Ecology (Volume I, Document Ref. 6.2) and secured via DCO requirement.

¹ Piling location in north-western part of main building footprint represents closest piling location to northern fields (Fields 30 and 31)

² Piling location in south-eastern part of main building footprint represents closest piling location to southern field (Field 37)

³ In theory up to four piling rigs could be present on site at the same time during construction, and this additional piece of modelling has been undertaken as a sensitivity test to demonstrate that this scenario would not affect the assessment of the significance of the effect on birds as presented in the ES.

2.2 Undisturbed Habitat

In paragraph 4.3 of the Relevant Representation Natural England states that “*Evidence of undisturbed habitat availability should be provided to support the argument that there is plenty of alternative foraging/ roosting areas, if birds are displaced through noise and vibration impacts.*”

Discussion is provided in the paragraphs below to respond to specific points raised in Natural England’s Relevant Representation (see Table 1 above), which aim to address the request in paragraph 4.3 for information regarding evidence of undisturbed habitat availability.

2.2.1 Information to Support Conclusion of No Likely Significant Effects on Pyewipe Mudflats During Construction

In respect of construction piling, the ES Chapter 10: Ecology (Volume I, Document Ref. 6.2) concluded that there would be a minor adverse effect on waterbirds feeding/ loafing/ roosting on Pyewipe mudflats where peak noise levels were in excess of 75 dB LAmax. This assessment was based on the Xodus Group study on bird behaviour in response to piling activity, which states that noise levels of 65 – 75 dB LAmax will result in a minor adverse effect on waterbirds⁴.

Given the vast area of the Pyewipe mudflats (approximately 300 ha at mean low water (MLW)), of which less than 1% would be affected by construction noise levels in excess of 65 dB LAmax⁵, it is reasonable to assume that birds that favour this area (e.g. black-tailed godwit) would move further away to the south rather than abandon their favoured feeding/ roosting/ loafing grounds altogether. This assumption is based on the parameters identified in the Xodus study, as well as the fact that the Pyewipe mudflats are fronted by industrial areas and are subject to industrial noise and activity currently, to which it is reasonable to assume they are habituated given that they are present in large numbers at this location in the winter months.

2.2.2 Information on Proportion of Pyewipe Mudflats Potentially Impacted by Increased Noise Levels During Construction

Paragraph 7.2.9 of the Habitats Regulations Assessment (HRA) Signposting document submitted with the application (Document Ref. 5.8) states that “*It is also necessary to examine the context of any temporary displacement of birds against the availability of large areas of this mudflat, which is at its narrowest point (and thus least area of exposed mudflat across low tide) in the closest part to the Proposed Development, and which extends for over 6 km south-east, that would be unaffected by elevated noise resulting from piling. It is reasonable to assume that such a large area of mudflat would be able to accommodate any birds displaced from the area potentially affected by piling noise.*”

The noise contour plans have demonstrated that the zone of influence of the construction piling noise arising from the Proposed Development extends across part of the Pyewipe mudflats adjacent to the Site, which are c. 300 ha in extent at MLW. An estimate of the proportion of the total mudflat area at MLW within noise contours above 65 dB LAmax (the threshold at which ‘minor’ disturbance/ displacement may be expected) has been calculated as approximately 21 ha (0.9%) (Figure F)⁶. All other areas of these mudflats are outside the 65 dB LAmax noise contours.

As stated in the HRA Signposting, given the small proportion of the Pyewipe mudflats potentially experiencing higher noise levels during drop hammer piling, it is reasonable to conclude that there is sufficient undisturbed area on mudflats to the south-east (which are in any case significantly wider than the mudflat adjacent to the Proposed Development) to accommodate any birds displaced from areas within the zone of influence of the Proposed Development.

The Applicant has committed to the adoption of standard mitigation to avoid drop hammer piling activities for two hours either side of high tide, when birds are pushed off the mudflats and onto terrestrial habitats, or to use CFA piling. In the case of the mudflats adjacent to the Proposed

⁴ Xodus Group (2012) *Grimsby River Terminal Construction Pile Noise Monitoring and Bird Behaviour Observations*. Report L30062-S02-Rept-001 prepared on behalf of Associated British Ports by Xodus Group, Southampton

⁵ Based on the worst case scenario of drop hammer piling at 4 locations on the main building (Figure F)

⁶ Percentage of Pyewipe mudflats within 65 – 70 dB LAmax threshold; based on worst case scenario of drop hammer piling at 4 locations on the main building (Figure F)

Development, the mean high water (MHW) line is at the base of the flood defence, and therefore there is no exposed mudflat in this area during most high tides.

2.2.3 Construction Impacts on Field to the South (Field 37)

The total area of the field to the south of the Site is approximately 34 ha. Only a very small proportion of the field (approximately 0.6%) would be subject to predicted noise levels in excess of 65 dB LAeq (the threshold for ‘minor’ disturbance) in the modelled drop hammer piling scenario at the closest point (south-east building footprint) (see Figure B), and this is the area closest to the Proposed Development along the northern boundary of the field. It is reasonable to conclude that aggregations of waterbirds would not be present in close proximity to boundary features, as they prefer open vistas with sufficient scanning distance to observe ground predators. The noise contour plot clearly shows that the majority of the field is outside the 65 dB LAeq contour.

The modelled L_{max} values for the two different scenarios; piling at one location in the south-east of the main building (which represents the closest point to the field to the south, and which was assessed in the ES); and a comparison with piling at four locations on the main building, is presented in Table 2.

Table 2: Predicted L_{max} levels at Field to the South during Construction (Field 37)

Modelled Scenario	Approximate Proportion of Field 37 affected		
	Minor disturbance threshold: >65 – ≤75 dBA	Moderate disturbance threshold: >75 – ≤85 dBA	Major disturbance threshold: >85 dBA
Figure E – drop hammer piling at 1 location in south-east of main building	18 ha (54%)	1.3 ha (4%)	None
Figure F – drop hammer piling at 4 locations on main building	29 ha (86%)	4.7 ha (14%)	None

Given the ‘peaky’ nature of drop hammer piling noise, it is not surprising that under both modelled scenarios a large proportion of the field is predicted to be subject to noise levels in excess of 65 dB L_{max} during drop hammer piling. As stated in paragraph 10.6.22 of Chapter 10: Ecology of the ES (Volume I, Document Ref. 6.2), this may result in the displacement of birds from the field during drop hammer piling operations during the winter period and is assessed as a moderate adverse effect. The Applicant has committed to mitigation to avoid drop hammer piling for two hours either side of high tide (when birds are less likely to be present in terrestrial habitats), or to use CFA piling, and therefore with mitigation the effect on birds is assessed as not significant. This mitigation technique has been applied successfully to other coastal projects, and therefore it is reasonable to adopt it for the Proposed Development to reduce the magnitude of impact of noise disturbance to SPA/ Ramsar waterbirds during construction.

2.2.4 Construction Impacts on Fields to the North (Fields 30 & 31)

The total combined area of the fields to the north of the Site is approximately 19 ha. Only a very small proportion of this area (approximately 0.2%) would be subject to predicted noise levels in excess of 65 dB LAeq (the threshold for ‘minor’ disturbance) in the modelled drop hammer piling scenario (see Figure A), and this is limited to the very south-eastern corner of the field. It is reasonable to conclude that aggregations of waterbirds would not be present in close proximity to boundary features, for the reasons discussed above. The noise contour plot clearly shows that the vast majority of the combined field area is outside the 65 dB LAeq contour.

The modelled L_{max} values for the two different scenarios; piling at one location in the north-west of the main building (which represents the closest point to the fields to the north, and which was

assessed in the ES); and a comparison with piling at four locations on the main building, is presented in Table 3.

Table 3: Predicted L_{max} levels at Fields to the North during Construction (Fields 30 & 31)

Modelled Scenario	Approximate Proportion of Fields 30 & 31 affected		
	Minor disturbance threshold: >65 – ≤75 dBA	Moderate disturbance threshold: >75 – ≤85 dBA	Major disturbance threshold: >85 dBA
Figure D – drop hammer piling at 1 location in north-west of main building	10 ha (54%)	0.7 ha (3.6%)	None
Figure F – drop hammer piling at 4 locations on main building	17 ha (89%)	2 ha (10.5%)	<0.001 ha (<0.001%)

Given the ‘peaky’ nature of drop hammer piling noise, it is not surprising that a large proportion of the field is subject to noise levels in excess of 65 dB L_{max} during drop hammer piling operations. As stated in paragraph 10.6.26 of Chapter 10: Ecology of the ES (Volume I, Document Ref. 6.2), this may result in the localised displacement of birds within the field during drop hammer piling operations and is assessed as a minor adverse effect⁷.

As discussed above, the Applicant has committed to mitigation to avoid drop hammer piling for two hours either side of high tide (when birds are less likely to be present in terrestrial habitats), or to use CFA piling, and therefore with mitigation the effect on birds is assessed as not significant. This mitigation technique has been applied successfully to other coastal projects, and therefore it is reasonable to adopt it for the Proposed Development to reduce the magnitude of impact of noise disturbance to SPA/ Ramsar waterbirds during construction.

2.2.5 Operational Impacts on Fields to the North (Fields 30 & 31)

Figure 8.2 submitted with the ES (Volume II, Document Ref. 6.3) shows the predicted operational noise contours across the Site and adjacent fields. Of the 19 ha (combining the two fields to the north of the Site), approximately 0.5 ha is covered by operational noise contours above 64 dBA L_{Aeq}⁸; a very narrow strip along the western boundary (adjacent to Hobson Way), and a strip along the southern boundary (adjacent to South Marsh Road). This equates to around 2.5 % of the total combined field area. As discussed in the ES Chapter 10: Ecology (Volume I, Document Ref. 6.2), it is unlikely that waterbirds would favour the habitat alongside Hobson Way and South Marsh Road in any case, regardless of the ambient noise level, on the basis that they generally avoid boundary features for the reasons discussed earlier in this memo. However, if it is assumed that waterbirds are excluded from these habitat areas by virtue of the operational noise being at levels above which a disturbance response may be elicited, c. 97.5 % of the field remains ‘undisturbed’ for feeding/ roosting/ loafing waterbirds.

It is therefore reasonable to conclude that as the majority of the area of fields 30 and 31 is not predicted to experience operational noise levels above which disturbance may be expected, it will continue to provide functional supporting habitat for SPA/ Ramsar species.






⁷ The assessment conclusion assumed that there would not be complete disturbance from this field (i.e. all birds present would not be displaced during drop hammer piling), particularly given that the southern and western extents of these fields are already subject to higher ambient noise levels due to the presence of adjacent roads.

⁸ Based on ES Figure 8.2 (Volume II, Document Ref. 6.3); measurement has calculated area of field covered by noise contour band >64 dB L_{Aeq}

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LEGEND

-  Order Limits
-  Existing Building
-  Piling Location
-  Ecological Receptor
-  Field Boundary

Drop Hammer Piling LAEQ

dB(A)

-  ≤40
-  40 - 45
-  45 - 50
-  50 - 55
-  55 - 60
-  60 - 65
-  65 - 70
-  70 - 75
-  75 - 80
-  80 - 85
-  > 90

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Purpose of Issue
PRE EXAMINATION

Client
EP WASTE MANAGEMENT LTD

Project Title
**SOUTH HUMBER BANK
 ENERGY CENTRE DCO**

Application Document Ref
**DROP HAMMER PILING AT 1
 LOCATION – NW CORNER OF
 MAIN BUILDING FOOTPRINT
 PREDICTED NOISE LEVELS:
 LAeq dB
 HEIGHT: 0.5 METRES ABOVE
 GROUND LEVEL**

Drawn LC	Checked CS	Approved KC	Date 06/10/2020
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LEGEND

- Order Limits
- Existing Building
- ★ Piling Location
- ⊕ Ecological Receptor
- Field Boundary

**Drop Hammer Piling LAEQ
dB(A)**

- ≤40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- 75 - 80
- 80 - 85
- 85 - 90
- > 90

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Purpose of Issue
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Client
EP WASTE MANAGEMENT LTD

Project Title
SOUTH HUMBER BANK ENERGY CENTRE DCO

Application Document Ref
**DROP HAMMER PILING AT 1 LOCATION – SE CORNER OF MAIN BUILDING FOOTPRINT
 PREDICTED NOISE LEVELS:
 LAeq dB
 HEIGHT: 0.5 METRES ABOVE GROUND LEVEL**

Drawn LC	Checked CS	Approved KC	Date 06/10/2020
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FIGURE B

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LEGEND

- Order Limits
- Existing Building
- ★ Piling Location
- ⊕ Ecological Receptor
- Field Boundary

**Drop Hammer Piling LAEQ
dB(A)**

- ≤40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- 75 - 80
- 80 - 85
- 85 - 90
- > 90

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Client
EP WASTE MANAGEMENT LTD

Project Title
**SOUTH HUMBER BANK
 ENERGY CENTRE DCO**

Application Document Ref
**DROP HAMMER PILING AT 4
 LOCATIONS – EACH CORNER OF
 MAIN BUILDING FOOTPRINT
 PREDICTED NOISE LEVELS:
 LAeq dB
 HEIGHT: 0.5 METRES ABOVE
 GROUND LEVEL**

Drawn LC	Checked CS	Approved KC	Date 06/10/2020
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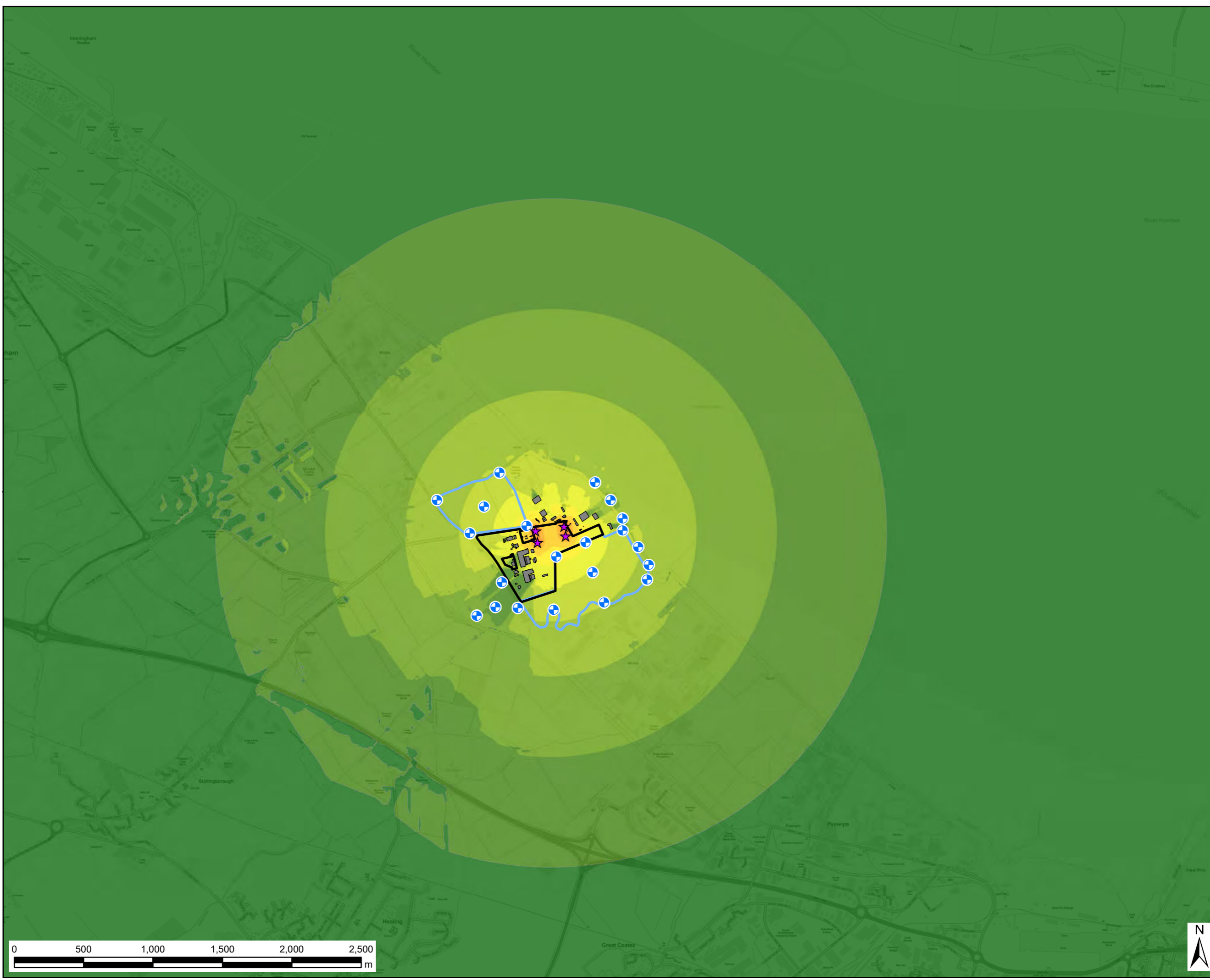
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FIGURE C

















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LEGEND

-  Order Limits
 -  Existing Building
 -  Piling Location
 -  Ecological Receptor
 -  Field Boundary
- Drop Hammer Piling LAMAX
dB(A)**
-  ≤40
 -  40 - 45
 -  45 - 50
 -  50 - 55
 -  55 - 60
 -  60 - 65
 -  65 - 70
 -  70 - 75
 -  75 - 80
 -  80 - 85
 -  > 90

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Application Document Ref
**DROP HAMMER PILING AT 1
 LOCATION – NW CORNER OF
 MAIN BUILDING FOOTPRINT
 PREDICTED NOISE LEVELS:
 LAmax dB
 HEIGHT: 0.5 METRES ABOVE
 GROUND LEVEL**

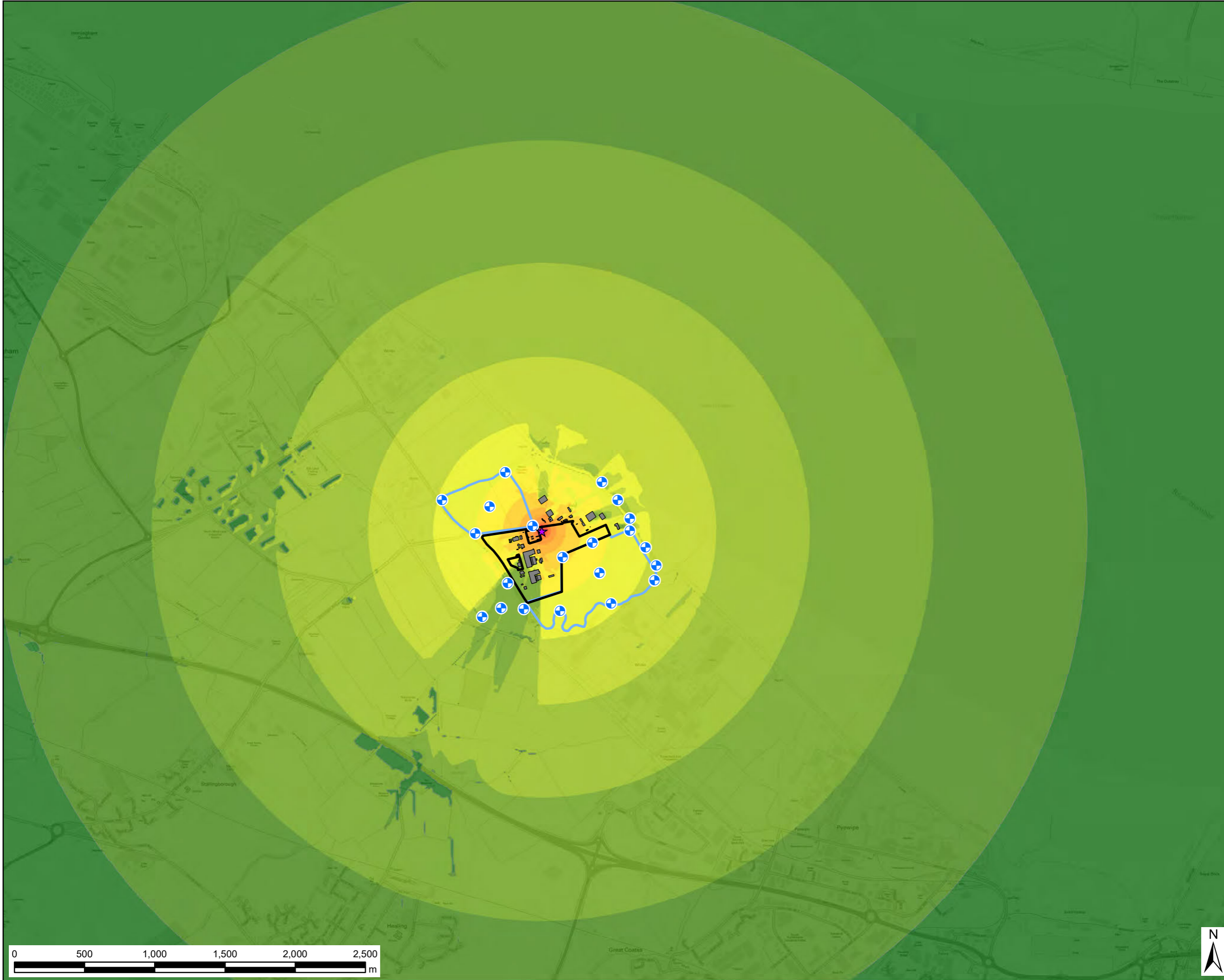
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FIGURE D



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LEGEND

- Order Limits
- Existing Building
- ★ Piling Location
- ⊕ Ecological Receptor
- Field Boundary

**Drop Hammer Piling LAMAX
dB(A)**

- ≤40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- 75 - 80
- 80 - 85
- 85 - 90
- > 90

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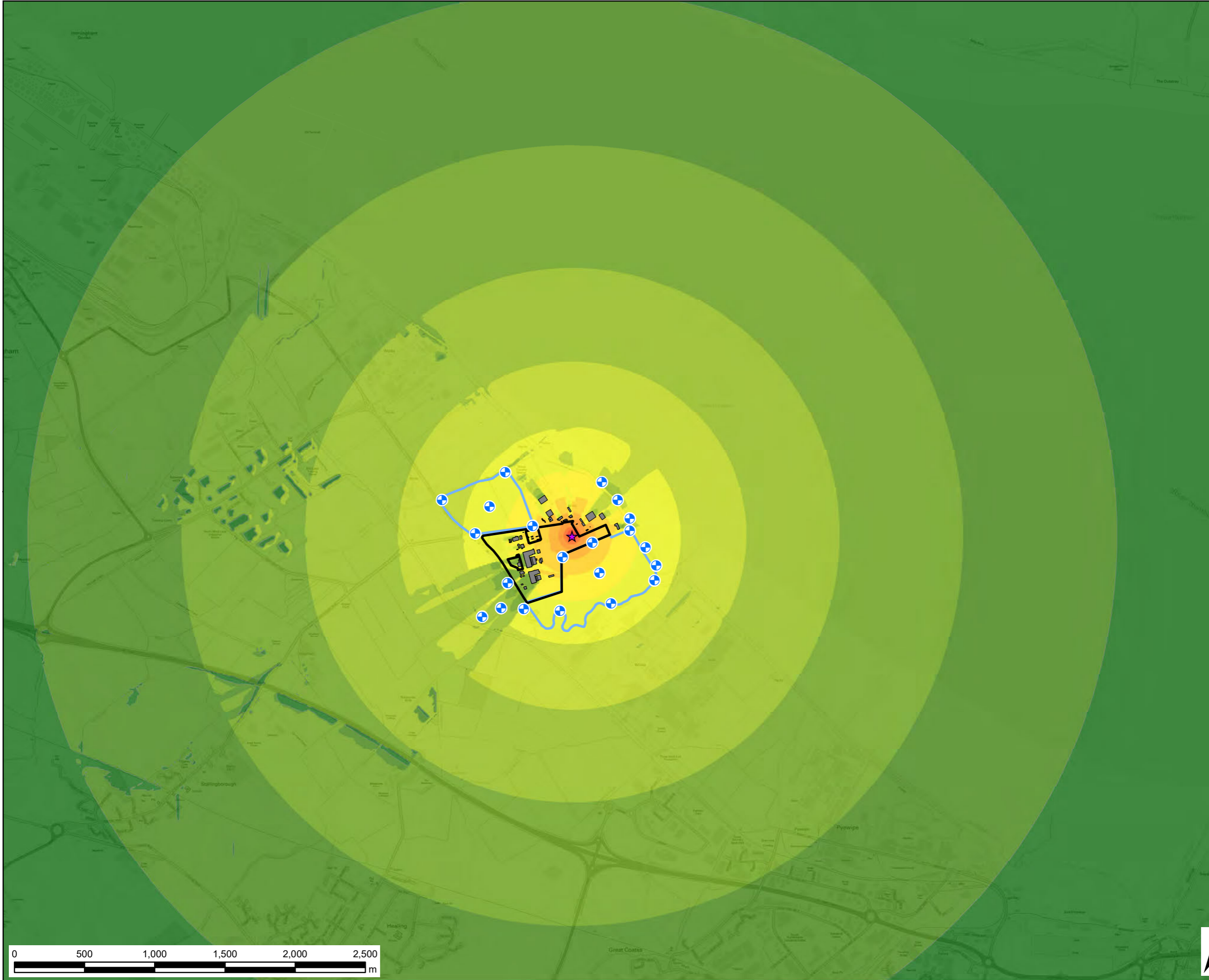
Application Document Ref
**DROP HAMMER PILING AT 1
 LOCATION – SE CORNER OF
 MAIN BUILDING FOOTPRINT
 PREDICTED NOISE LEVELS:
 LAmax dB
 HEIGHT: 0.5 METRES ABOVE
 GROUND LEVEL**

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FIGURE E



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LEGEND

- Order Limits
- Existing Building
- Piling Location
- Ecological Receptor
- Field Boundary

**Drop Hammer Piling LAMAX
dB(A)**

- ≤40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- 75 - 80
- 80 - 85
- 85 - 90
- > 90

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Project Title
**SOUTH HUMBER BANK
 ENERGY CENTRE DCO**

Application Document Ref
**DROP HAMMER PILING AT 4
 LOCATIONS – EACH CORNER OF
 MAIN BUILDING FOOTPRINT
 PREDICTED NOISE LEVELS:
 LAmx dB
 HEIGHT: 0.5 METRES ABOVE
 GROUND LEVEL**

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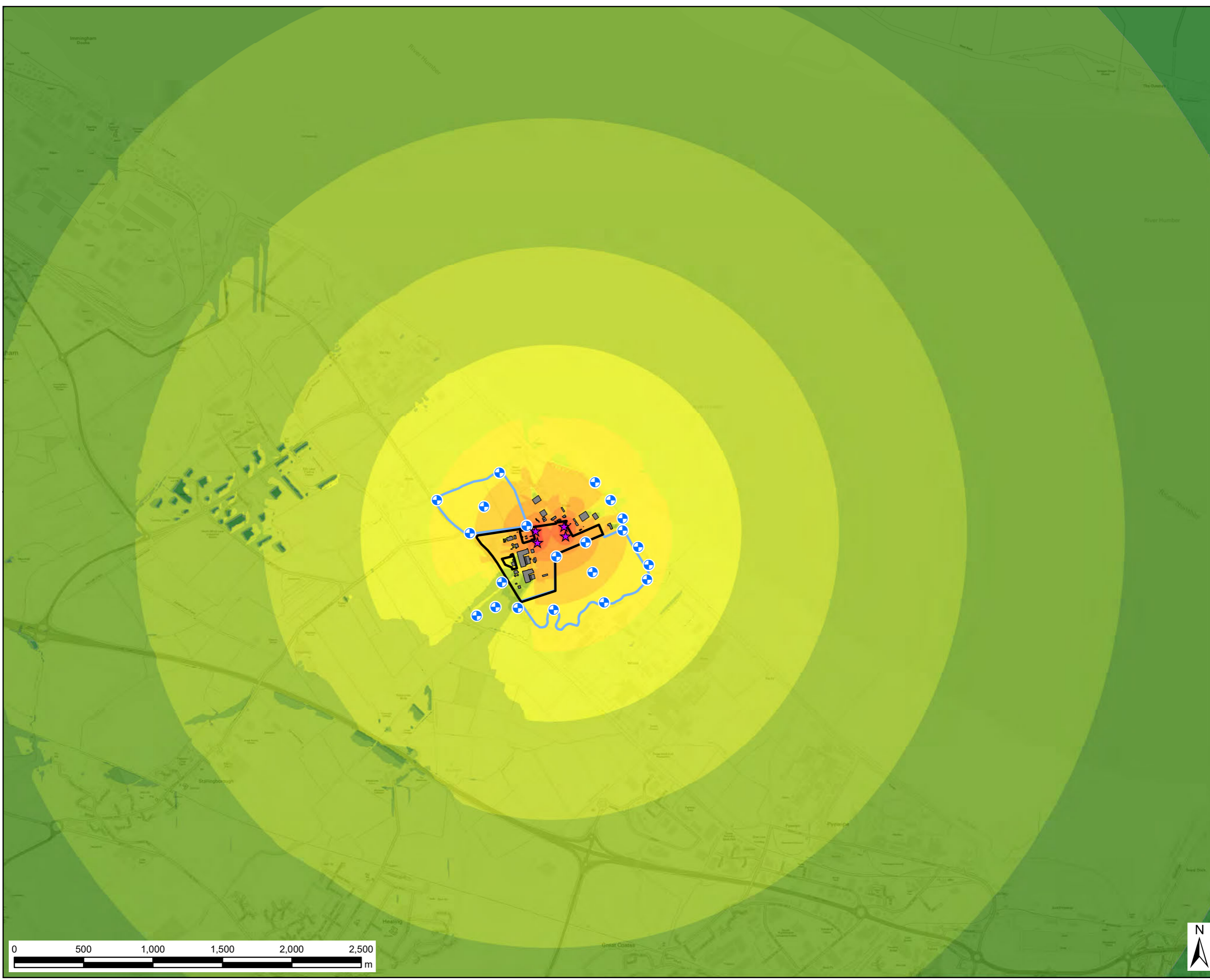
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FIGURE F

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LEGEND

- Order Limits
- Existing Building
- Piling Location
- Ecological Receptor
- Field Boundary

CFA Piling LAEQ
dB(A)

- ≤40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- 75 - 80
- 80 - 85
- 85 - 90
- > 90



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PRE EXAMINATION

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EP WASTE MANAGEMENT LTD

Project Title
SOUTH HUMBER BANK ENERGY CENTRE DCO

Application Document Ref
**CFA PILING AT 1
 LOCATION – NW CORNER OF
 MAIN BUILDING FOOTPRINT
 PREDICTED NOISE LEVELS:
 LAeq dB
 HEIGHT: 0.5 METRES ABOVE
 GROUND LEVEL**

Drawn LC	Checked CS	Approved KC	Date 06/10/2020
AECOM Internal Project No. 60580855		Scale @ A3 1:25,000	

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FIGURE G



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LEGEND

- Order Limits
- Existing Building
- ★ Piling Location
- ⊕ Ecological Receptor
- Field Boundary

CFA Piling LAEQ
dB(A)

- ≤40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- 75 - 80
- 80 - 85
- 85 - 90
- > 90

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 FIGURE H

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Purpose of Issue
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SOUTH HUMBER BANK ENERGY CENTRE DCO

Application Document Ref
CFA PILING AT 4 LOCATIONS – EACH CORNER OF MAIN BUILDING FOOTPRINT
PREDICTED NOISE LEVELS:
L_{Aeq} dB
HEIGHT: 0.5 METRES ABOVE GROUND LEVEL

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FIGURE I



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FIGURE K



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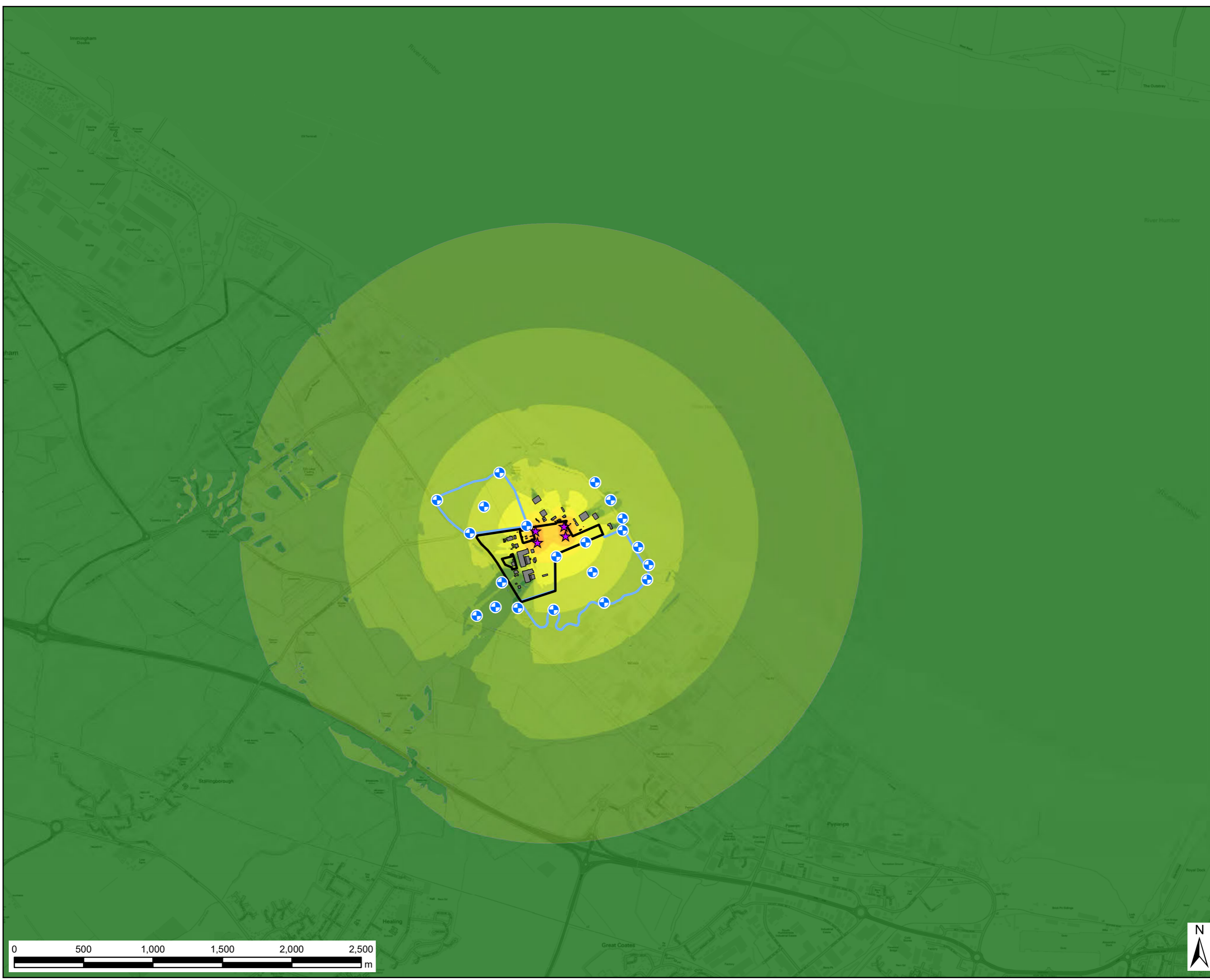
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FIGURE L



APPENDIX 10: SOUTH HUMBER GATEWAY ECOLOGICAL MITIGATION NORTH EAST LINCOLNSHIRE DELIVERY PLAN

South Humber Gateway Ecological Mitigation

North East Lincolnshire Delivery Plan

January 2019

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1.0 Executive Summary

- 1.1 The South Humber Gateway (SHG) is located on the south bank of the Humber estuary in northern Lincolnshire. Covering an area of approximately 1,000 hectares it represents one of the largest potential development areas in the UK. In recent years there has been significant development interest in the area particularly from the emerging renewable energy industry on the Humber.
- 1.2 The area is immediately adjacent to the Humber Estuary which is recognised for its importance for wildlife at both national and international levels. The Humber Estuary is designated as a Special Area of Conservation, a Special Protection Area, a Ramsar site and a Site of Special Scientific Interest. These designations mean that great care is required when undertaking works which may result in negative impacts on the wildlife interest features of the Estuary. A potential conflict therefore exists between the need to develop the South Humber Gateway's economic potential for the benefit of the national economy and the legal obligation to ensure that its wildlife is protected.
- 1.3 This document sets out a mechanism which will resolve the potential conflicts within the South Humber Gateway. In addition to providing details on the background to the strategy and the principles upon which it is founded, it seeks to identify the preferred mitigation sites for the North East Lincolnshire area, the proposals associated with them, and provide details of the approach to their implementation and delivery. Proposals for delivery within North Lincolnshire have been prepared separately.

2.0 The Strategy

Context

2.1 The South Humber Gateway (SHG) (Map 1) stretches from the outskirts of Grimsby to the East Halton Skitter on the South Bank of the Humber Estuary. Straddling the boundaries of North Lincolnshire and North East Lincolnshire Councils, the SHG is one of the most exciting strategic development locations in the UK. Covering almost 1,000 hectares of development land it is attracting significant global interest and unprecedented levels of investment. Major investments under way or planned are estimated to be worth almost £2 billion. If all goes to plan, upwards of 15,000 new quality jobs will be created by 2020. The SHG already provides 27 per cent of the UK's refinery capacity and is home to the UK's busiest ports complex and one of the world's largest Combined Heat and Power (CHP) plants. Together with its sister Port of Grimsby, Immingham is the UK's largest port by tonnage.



Map 1 South Humber Gateway

2.2 At the same time an estimated 175,000 birds visit the estuary every winter, the Humber is one of the top six estuaries for migratory birds in the UK and one of the top ten in Europe. The estuary forms an essential link in a chain of wetland sites creating what is known as the East Atlantic Flyway, stretching from the Arctic Circle to southern Europe and Africa, via the estuaries of North West Europe. The Humber

supports internationally important populations of a number of bird species (containing more than one per cent of the relevant biogeographic non-breeding population) which are attracted by the plentiful food supplies of the salt-marsh and mudflats; often moving inland to roost and feed. In recognition of its value for biodiversity the Humber Estuary has been designated for its national, European and international importance. The Humber Estuary and the populations of wild birds it supports are afforded special protection being designated at national and international levels. The estuary includes several Sites of Special Scientific Interest (SSSI) and is designated as a Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar site. As such, the estuary and its special features are covered by The Conservation of Habitats and Species Regulations 2017 (the “Habitats Regulations”) (SI No. 2017/1012) as amended.

- 2.3 A significant amount of effort has been expended on establishing the fact that large numbers of SPA birds rely upon terrestrial areas adjacent to the estuary for roosting, loafing and foraging especially at high tide. A suite of ecological surveys funded by the former regional development agency, Yorkshire Forward, North and North East Lincolnshire Councils, the Environment Agency and the RSPB and managed by the Humber Nature Partnership has established that these areas are of functional importance to the conservation of the SPA/Ramsar bird populations. Details of wintering and migratory wader surveys carried out to date are included in Box 1.

Box 1. South Humber Gateway wintering and migratory bird surveys

- North Lincolnshire (allocated land) – January 07 – March 07. Weekly surveys on a field by field basis by Nyctea Consultants. Attached to this there were further targeted surveys during April 07 and May 07 to identify field usage by passage curlew, ruff and whimbrel.
- North Lincolnshire (allocated land) – July 07 – March 08. Weekly surveys on a field by field basis by Nyctea Consultants.
- North East Lincolnshire (allocated land plus additional area both North and South of A180) – November 2007 – March 2007. Weekly surveys on a field by field basis by IECS.
- North East Lincolnshire (allocated land plus additional land both North and South of A80) – late July 2008 – November 2008. Weekly surveys on a field by field basis by Nyctea Consultants.
- North Lincolnshire (north and west of East Halton Skitter) – Jan 2009 – Mar 2009. Weekly surveys on a field by field basis by Nyctea Consultants.
- North Lincolnshire (north and west of East Halton Skitter) – August 2009 – March 2010. Weekly surveys on a field by field basis by Nyctea Consultants.
- Entire are (allocated land within North and North East Lincolnshire and area north and west of East Halton Skitter) – August 2010 – March 2011. Weekly surveys on a field by field basis by Nyctea Consultants.

Box 1. South Humber Gateway wintering and migratory bird surveys

2.4 Much of the early survey information was used by consultants to carry out a field-by-field study of usage of the South Humber Gateway by waterbirds at that time (Mott Macdonald 2009). Fields that had supported at least 1% of the Humber population of given waterbird species on at least one survey visit were flagged as being potentially important in supporting the waterbird assemblage of the Humber Estuary SPA. 454 hectares of such fields were identified across the SHG in North and North East Lincolnshire. However this resource was clearly highly variable, with some fields only being used on a few occasions, and other fields being used regularly by significant numbers of one or more species. More birds are concentrated on sites adjacent to the estuary than in fields further away. Habitats used varied from arable crops that might only be used at certain stages of growth or vegetation height to areas of permanent pasture that might be used more predictably from year to year.

- 2.5 The development of all or most of the SHG area is considered likely to lead to a significant loss of this supporting terrestrial habitat and it is not possible to conclude that an adverse effect on the integrity of the SPA will be avoided. The *Conservation of Habitats and Species Regulations 2017* require that appropriate mitigation must be provided to offset the loss of habitat used by SPA/Ramsar waterbirds. These mitigation measures must be in place prior to planning permission being supported.
- 2.6 It was determined that the most effective course of action in the SHG was to identify large areas of land which can be used to mitigate against the loss of land currently used by waders. In order to deliver this strategic mitigation, a South Humber Gateway Ecology Group was formed comprising local authorities, landowners and both statutory and non-statutory conservation bodies.
- 2.7 A Memorandum of Understanding (MOU) was prepared and signed by each of the parties within the SHG Ecology Group in June 2010. This demonstrated the commitment of all parties to cooperative working to the production, adoption and implementation of a framework to address the ecological and economical demands upon the Estuary. The signatories agreed to a strategic approach to delivery, believing this to be more preferable to piecemeal implementation and that positively planning reduces ad hoc loss, and speeds decision making. The objectives for the approach identified are detailed in Box 2.

Box 2. Objectives for Strategic Mitigation Approach

- To identify strategic conservation mitigation options through an agreed Delivery Plan, which will form part of the Local Development Frameworks for both North Lincolnshire and North East Lincolnshire Council.
- To ensure that the Delivery Plan and the emerging LDFs comply with the Habitat Regulations and are subject to the relevant Regulations 61,62 and 66
- To examine the need and nature of Strategic Environmental Assessment for the LDFs
- To acknowledge that both the LDF and Delivery Plan for strategic mitigation will be delivered over a period of time and work together to establish these timescales with agreement over what will need to be delivered to meet environmental requirements.
- To identify implementation and financial mechanisms for utilising the strategic mitigation that provide a clear process for development to address the issue of direct land take of areas used by SPA and Ramsar birds within the SHG
- To ensure the Delivery Plan takes into account the implementation of the approved Humber Estuary Flood Risk Management Strategy and subsequent reviews, recognising that there are intertidal issues
- To agree that mitigation areas identified by the Delivery Plan and associated LDF
- Allocations documents will be delivered both within the SHG Employment Allocation zone and in close proximity outside this zone, as currently adopted.
- To meet the requirements of PPS9 to build in biodiversity to all developments.
- To examine and agree the evidence base to support the development and implementation of the Delivery Plan, including identifying the location and extent of existing critical land areas for avifauna – identified through bird survey work.
- To agree the area where the Delivery Plan will operate, supported by an agreed evidence base, including optimal management guidelines and basic design principles to ensure that mitigation areas function appropriately
- To agree the basis for the ownership and management of mitigation sites, how contributions are worked out and methods of making contributions (S106 agreements/CIL etc.) as well as how they will be used and how mitigation sites will be managed and by whom.
- To agree requirements for monitoring and review of the Delivery Plan and the mitigation areas.
- To share data and to work together to ensure that data are interpreted in a consistent manner by developers and regulators.

Box 2. Objectives for strategic mitigation approach

2.8 The work proceeded outlining a series of general principles that would give a broad picture of what a final solution would likely look like. The principles identified in Box Three were utilised to assess the requirements.

Box 3. Strategic Mitigation – General principles

- Continued unmitigated development of the SHG will cause adverse effects on the integrity of the Humber SPA and Ramsar site
- It is highly unlikely that all adverse effects can be mitigated outside the SHG
- Given the size and length of the SHG a single mitigation site would not represent an acceptable solution
- The total area of mitigation will likely be less than the combined area of land used by birds, provide the mitigation is appropriately located, designed and managed
- There are likely to be areas in the SHG used in such large numbers that their loss alone or in combination with other development in the area constitute an adverse effect on the integrity of the Humber SPA and Ramsar site
- The pattern of bird use may indicate areas that subject to the right management could support higher levels of use and may be suitable for mitigation
- Some areas of the SHG will not be used by birds. This may be the result of factors that make areas unsuitable for mitigation (e.g. noise and visual disturbance). However this should be investigated on a case-by-case basis as usage may be affected by factors such as crop regimes rather than locational factors

Box 3. Strategic Mitigation – General principles

2.9 It was concluded that, in order to mitigate for the loss of 454ha of land used by SPA/Ramsar birds within the SHG area, four 20ha blocks of core wetland habitat, each surrounded by 150m wetland habitat buffers, would be sufficient to offset the potential loss of proposed development land. These should be located in close proximity to key intertidal feeding areas. These criteria led to the identification of a requirement for two of the above blocks to be provided in North Lincolnshire and two within North East Lincolnshire.

2.10 Further discussion relating to North East Lincolnshire led to agreement on an approach which will see the delivery of a number of sites smaller than the proposed buffered 20ha sites. These sites will provide a network of sites for birds which

reflects how birds are currently using the area. Whilst some of these sites are too small to function as mitigation alone, they are ecologically functional as part of the suite of mitigation sites. These were subsequently taken further and a set of Mitigation Principles have been developed and embodied in the Delivery Plan, as detailed in Box 4.

- 2.11 Care has been taken to consider and refine the mitigation principles, particularly considering their application in an area of existing landuses. In North East Lincolnshire the patchwork of existing industrial uses and the pattern of existing bird usage raises particular difficulties and considerations.

Preferred Sites

- 2.12 Whilst work advanced on refining the individual principles it became clear that there was not one solution that would deliver the mitigation solution based on the agreed principles and that specific site options needed to be considered and evaluated. This was not a simple process as there was no agreed consensus as to the significance of weighting or particular factors. It was therefore through a process of site identification, discussion and consideration that the site options were refined.
- 2.13 The options assessment resulted in the identification of five key sites, complemented by existing areas of grassland, totalling an area of c128ha as indicated on the plan below. These sites have been agreed within the Ecology group as the preferred sites for mitigation provision.

Box 4. Strategic Mitigation – Mitigation principles

Area (combined):

The mitigation required to enable continued development of the SHG will need to be sufficient to support the needs of the birds using the inland areas of the SHG and intertidal areas. Data collected through the HINCA coordinated surveys suggests that the SHG supports more than 1% of golden plover, lapwing, curlew, whimbrel and ruff on c.454ha of the available c.1000ha – *the creation of optimal mitigation would therefore need to mitigate for the loss of the 454ha of land.*

Area (individual):

The size of individual mitigation areas will need to take account of species and numbers of birds to be accommodated, preferred roosting densities, scanning requirements, disturbance effects and viable management. *Calculations suggest that to create a 20ha core refuge, allowing for minimal edge effect a minimum 150m sub optimal area of habitat to absorb edge effects would be 50ha. To achieve confidence in ecological functioning a minimum of four mitigation areas are required within the SHG.*

Location:

Mitigation must be located within appropriate distance of the intertidal areas, other mitigation areas and ‘the potential development areas’ used by SPA birds. The sites should allow for distance impacts and should ideally be contiguous/ near contiguous to the Humber flood banks and should be closely linked.

Availability and Suitability:

Potential mitigation should be available and suitable for use by target species prior to development commencing.

Accessibility:

Mitigation must be accessible to the birds they are to support, and provide clear pathways between other mitigation areas and areas of the Humber bank.

Timing:

The mitigation area required to support development must be ready to support SPA birds before that development commences.

Habitat Type and Management:

This should ensure that the needs of the target species are met and potential mitigation is maximised.

Efficacy

It is essential that adequate monitoring is undertaken to assess development and management and use of the mitigation areas.

Durability:

Arrangements for the ownership and management of the mitigation measures must be secured in the long term.

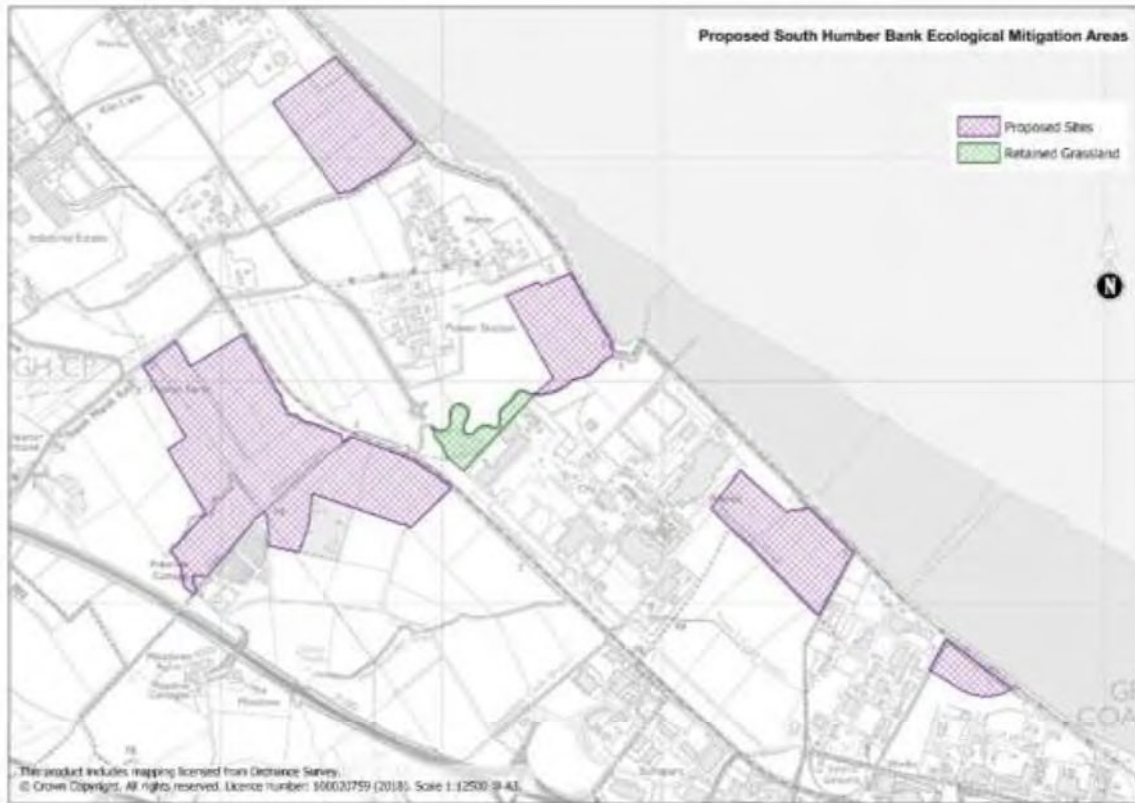


Figure 1. Proposed South Humber Bank Ecological Mitigation Areas

3.0 Delivery Plan

Site Specific Proposals

- 3.1 For the delivery plan a suite of *specific* mitigation sites must be identified, with clear boundaries, each with a *specific* long-term management plan that will deliver the appropriate habitat for the birds' functional needs. The key principles agreed by the Ecology Group are summarised as follows:

- 3.2 In terms of habitat management, wet grassland, managed to meet the requirements of passage and wintering birds, and fulfilling several functions to provide for foraging, roosting and loafing birds, was considered the most appropriate land use. To provide most value, the mitigation must be delivered close (preferably adjacent) to the estuary, and the areas should be of an appropriate size and shape to allow for undisturbed central 'refuges' surrounded by marginal habitats (acting as a buffer from disturbance).

- 3.3 Optimal management of such sites is generically well understood and would probably involve: the creation and management of ditches and other water features; the control of water levels; management of the sward through cattle grazing (with an appropriate breed of cattle), and vegetation control; maintaining open sight lines for waterbirds; and, keeping the areas free from disturbance while allowing access for stock checks and other maintenance works.
- 3.4 A complex mosaic of small-scale topography is also required due to being of greater potential benefit to waterbirds than larger-scale topographical work. This would result in a patchwork of dry and wet grassland, with the former providing a resource of invertebrate prey. Seasonal management of water levels would be actively managed and this was an early consideration in the design process.
- 3.5 A range of water features will be created, including field edge and in-field ditches (primarily for water and access management), including smaller drains (foot-drains) which are likely to be used by waders, scrapes and islands, and large seasonally inundated areas. Wet grassland will require an appropriate breed of cattle which would graze during the summer months to create a mosaic of tussocks and short turf (their dung will also help augment invertebrate populations). Cattle would (ideally) be removed, or stocking density at least reduced, during the passage and winter periods. Rush cover should be confined to less than 10% of the total waterbird mitigation area, this being controlled in part by trampling by cattle, but cutting and water-level manipulation may also be required to inhibit regrowth.
- 3.6 Mitigation areas are required to be as free as possible from disturbance during the key migration and winter periods. Both informal and formal access to the site should be controlled if possible to ensure the target birds are not subjected to disturbance. Measures to control disturbance have been designed and will be implemented on a site by site basis.
- 3.7 To progress the detailed design of the mitigation areas, North East Lincolnshire Council appointed The Environment Bank to undertake all necessary assessments,

discuss areas for inclusion with landowners and prepare detailed designs for each of the sites.

- 3.8 The principle habitat to be created and managed is wet grassland, primarily to provide displacement habitat and additional refuge for birds using the SPA during the overwinter period (principally September – March). The habitat will be established through a combination of seeding (sowing rates should be within 3-5g/m² and should be carried out in the spring or autumn), or use of green hay followed by a management regime based on that for coastal grazing marsh. The areas will be seeded with common plants from wet grassland habitats, including common grasses such as Red Fescue *Festuca rubra*, Rough Meadow-grass *Poa trivialis*, Marsh Foxtail *Alopecurus geniculatus*, Meadow Foxtail *Alopecurus pratensis*, Perennial Rye-grass *Lolium perenne* and Creeping Bent *Agrostis stolonifera*. Sowing blocks of taller tougher grasses such as Yorkshire Fog *Holcus lanatus*, Tall Fescue *Festuca arundinacea* and Tufted Hair-grass *Deschampsia caespitosa* provides tussocky structure to the sward and will therefore provide suitable habitat for nesting waders, recognising that the site will attract breeding waders. Low growing herbs of wet grasslands could also be sown such as Silverweed *Potentilla anserina*, Creeping Jenny *Lysimachia nummularia*, Cuckooflower *Cardamine pratense* and Self-heal *Prunella vulgaris*. (Final species that will form the planting list will be agreed prior to delivery.)
- 3.9 The key factors in creating wet grassland habitat for overwintering waterfowl are:
- a) Water management to create shallow standing water areas with muddy margins and a soft substrate
 - b) Sward management to create a suitable structure for invertebrates whilst maintaining an open landscape for bird predator detection
 - c) Disturbance management.
- 3.10 Due to the clay substrate, water level management will primarily be achieved through design of the habitat with scrapes and ditches impounding rainfall, with a much smaller influence through water level control structures. Perimeter ditch

water levels will be controlled by installed sluices to hold water back on site and distribute it across the field wetland features. These will be serviceable and maintained at specified levels to ensure sufficient surface water in features and a large perimeter of moist soil for terrestrial feeding. Small, shallow ephemeral pools will provide a food source for wader chicks through colonisation of invertebrate communities of high biomass such as the *Chironomidae*. Water levels will be monitored and adjusted in order to maintain desired features. As scrapes slowly silt up, they, or new ones will be dug to ensure that suitable habitat is always available. Water control structures will be inspected at least annually for damage.

- 3.11 The initial proposals for habitat creation on each of the sites are shown below. These may be subject to revision through the planning application process.
- 3.12 The former Huntsman Tioxide site, will be subject to separate management and monitoring, and will not be managed as wetland habitat. No mitigation plan for this site has therefore been provided. The delivery, management and monitoring proposals for this site will be progressed in accordance with the planning approval relating to the development of the adjacent employment site (DM/0304/17/FUL). The management of the mitigation site will be required to ensure the site continues to function as a roosting site for curlew.

INFORMATIVE

The sites shall be designed in such a way as not to compromise or constrain future flood management, and ongoing flood defence maintenance, considerations; including that where they abut existing tidal defences, a 16 metre buffer is set aside adjacent to the landward toe of the existing flood defences, to allow for future flood defence improvements. Screening and security fencing should be placed away from the toe of raised flood defences to allow for flood defence maintenance. Early dialogue with the Environment Agency must be undertaken in order to ensure these requirements are met and to establish the need or otherwise for an Environmental Permit.

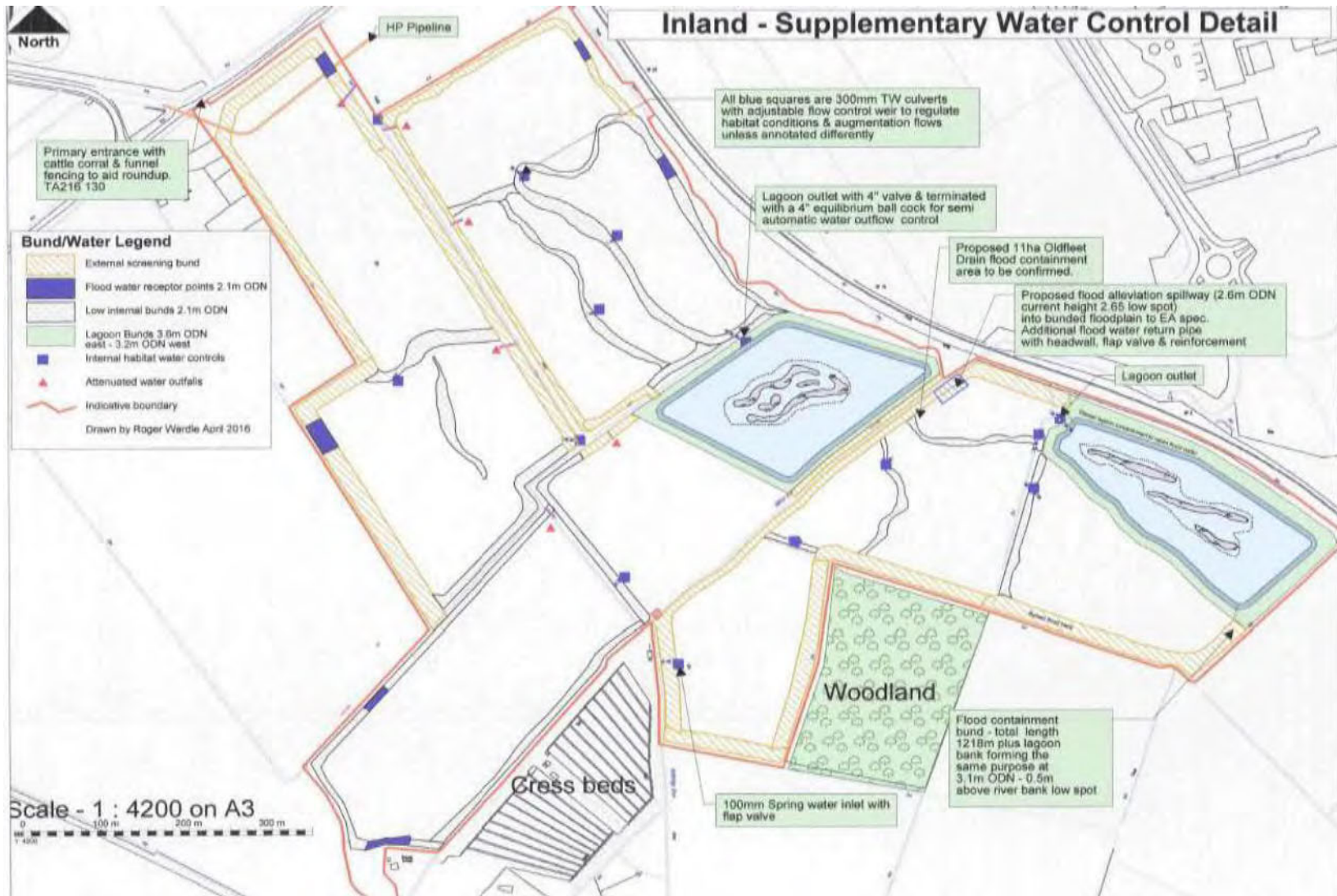


Figure 2. Inland – Supplementary water control detail

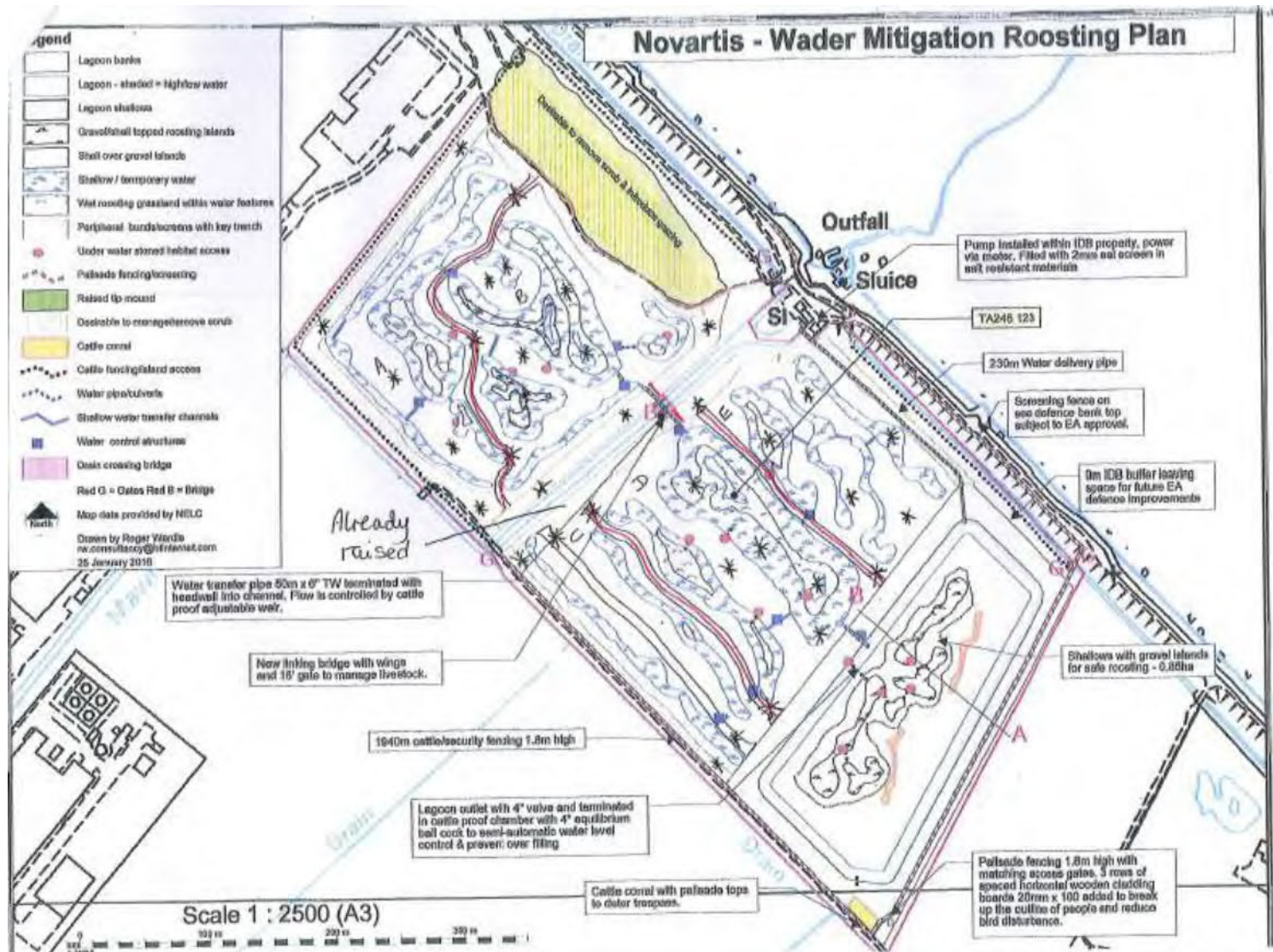


Figure 3. Novartis – Wader mitigation

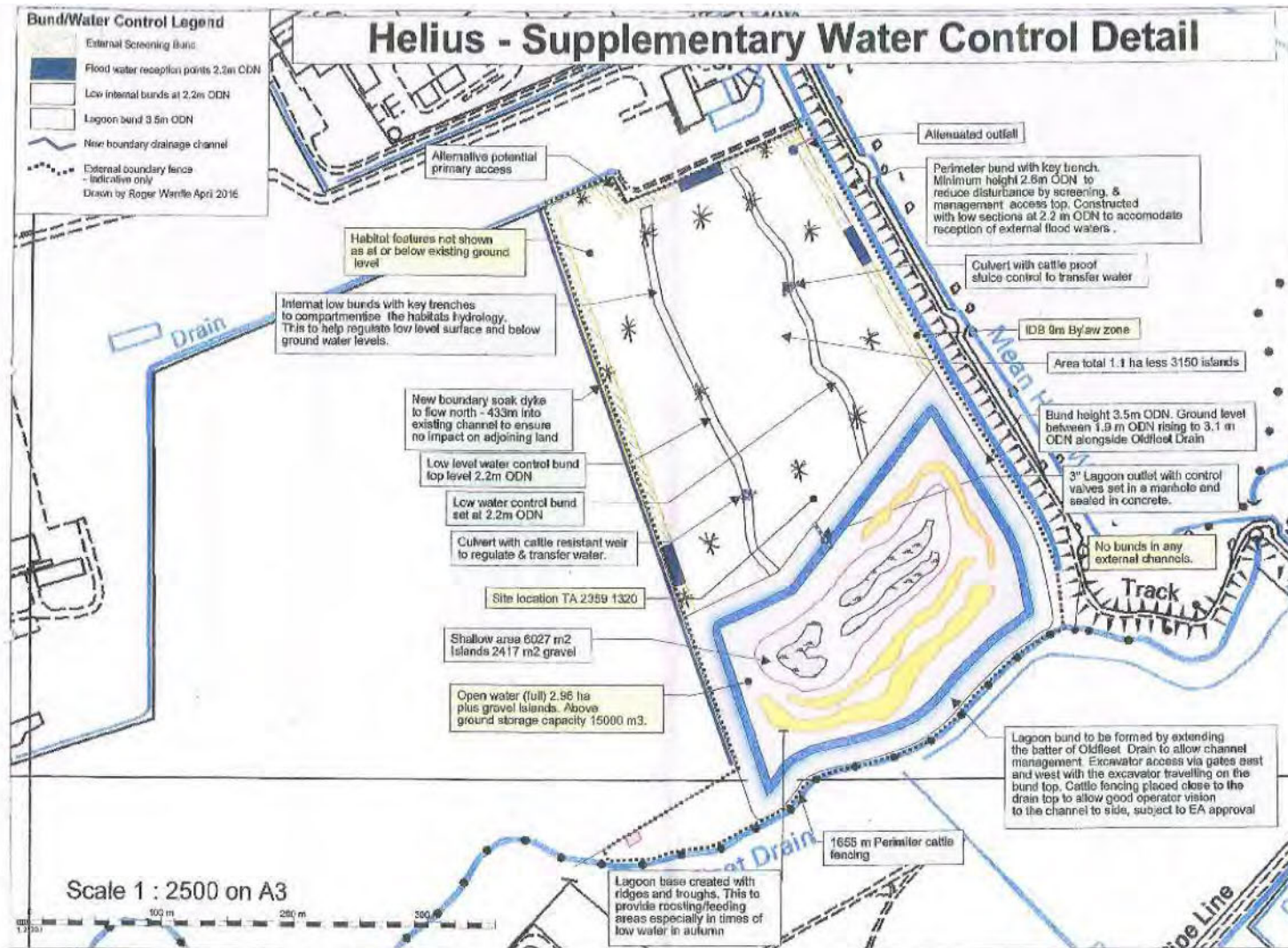


Figure 4. Helius – Supplementary water control detail

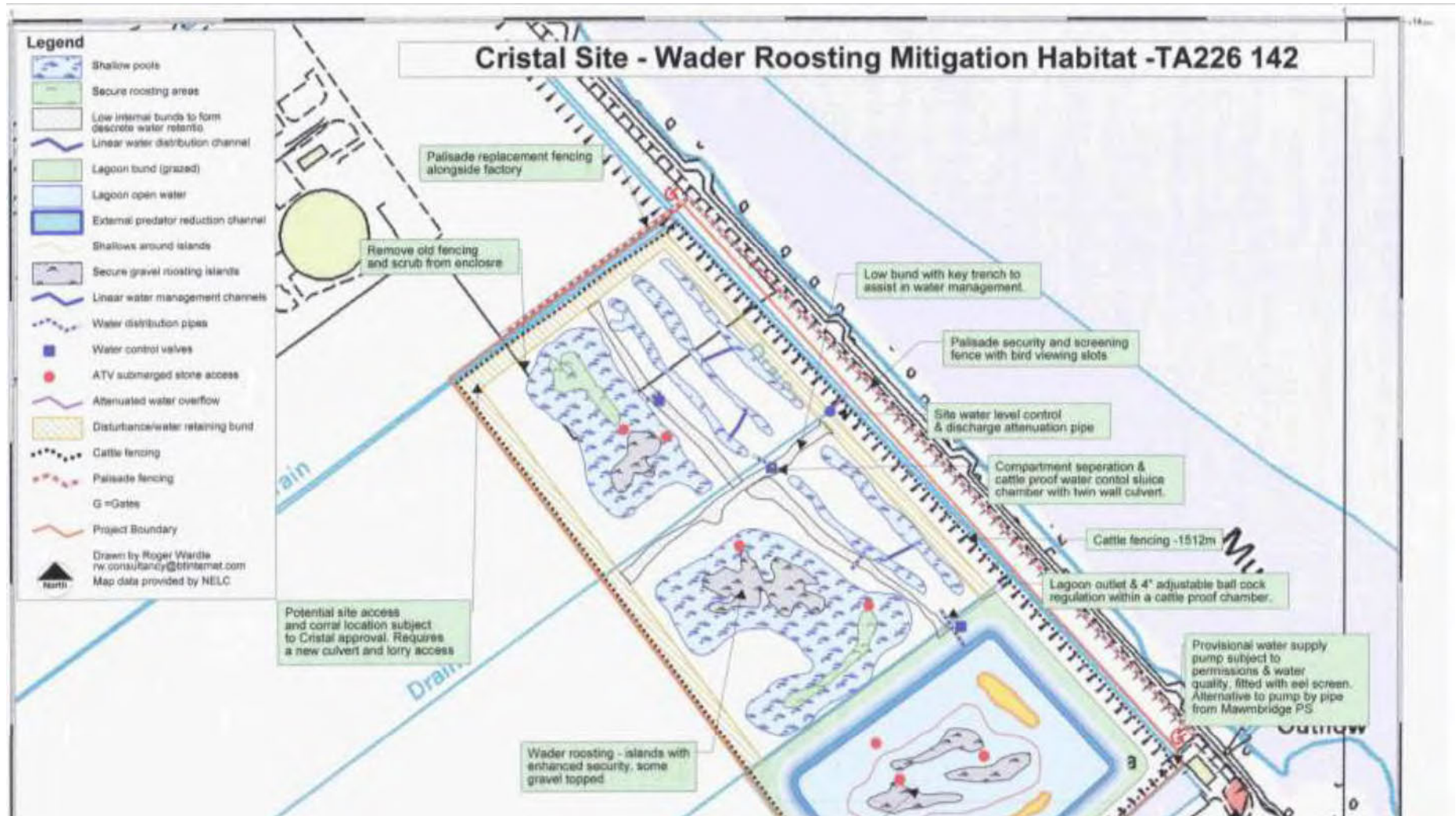


Figure 5. Cristal site – Wader roosting mitigation habitat

- 3.13 A management regime has been devised which incorporates, grazing with a breed of cow able to cope with wet exposed conditions to create the structure suitable for invertebrate prey populations and wintering waders. Grazing pressure should accord with the following: 0.2 livestock units per hectare per year in April to June inclusive in Year 1; and 0.3 livestock units per hectare per year in April to June inclusive in all subsequent years; in order to produce a mosaic of short sward of 5-7cm in length and tussocks (RSPB 1997).
- 3.14 In the spring and early summer grazing pressure should be lighter to avoid poaching and trampling the nests of breeding waders, and allow herbs to flower and seed. In the late summer and early autumn grazing pressure could be increased to allow cattle to break down any large stands of vegetation and open up the sward to create foraging areas for waders.
- 3.15 The ground will not be permitted to be poached, although small areas of bare ground can create niches for colonisation of plants. Cover of rushes *Juncus spp.* should be less than 10% (Natural England 2010). Tussocky swards require grazing to keep them more open between the tussocks (tussocks ideally at a density of 1 per m²). This provides suitable habitat for nesting waders. Where rushes are in the sward, management is needed to maintain the tussocks at the optimum density for Redshank and Lapwing. A combination of cutting in late summer and grazing can be used to keep density of tussocks to 1 in 10m². If tussocks are very dense they can be cut late autumn and flooded immediately to knock them back.
- 3.16 Signage and interpretative boards will be used to explain the management of the area and the importance of lack of disturbance to the area. Stock inspections will be done from a distance using binoculars, and management tasks will be undertaken in such a way as to limit the number of disturbance events.

Delivery and Phasing

- 3.17 The Council as the competent authority issuing planning permission require 'certainty' that the mitigation will meet the requirements of the Habitat regulations.

Natural England, as the statutory adviser on the Habitats Regulations is able to provide detailed advice.

- 3.18 The Council will through delivery of the mitigation sites ensure that sufficient mitigation land is always in place to support the development of employment sites. This approach will ensure the balance of mitigation land to developed employment sites on the South Humber Bank always remains effectively “in credit”.
- 3.19 The four main sites identified sit within seven separate ownerships. Arrangements for the ownership and management of the mitigation areas will be secured on either freehold or commercial lease terms.
- 3.20 Delivery of each site will be dependent upon the ability to quickly negotiate land interests and access arrangements with the respective landowners. However, it is recognised that development within the SHG area will remain restricted until the mitigation is in place; i.e. the Council must ensure the provision of mitigation remains “in credit”.
- 3.21 Prior to the positive determination of development planning applications, the balance sheet approach will be utilised to demonstrate the relationship between mitigation provision and development consented. This approach accounts for the variation in bird usage across the Mitigation Area, and seeks to ensure that sufficient mitigation area is always available and bird numbers are maintained.
- 3.22 In all circumstances, developers within the area will be expected to provide a financial contribution towards the cost of strategic mitigation provision in lieu of on-site mitigation. This is based upon an equal cost for each developer based upon the land take; i.e. a cost per hectare (to one decimal place) of the development site.
- 3.23 For the basis of determining the mitigation balance, where development is planned on land which is functionally linked to the estuary, development will draw down against the mitigation provision at a ratio of 1ha : 1ha (development to mitigation). Where land is not functionally linked, but is demonstrated to contribute towards the “in-combination” effect on the estuary, development will draw down against the

mitigation provision at a ratio of 5.2ha : 1ha (development to mitigation). During the construction period, temporary draw down of mitigation land may be secured in order to safeguard against disturbance effects. This will be assessed on a case by case basis. Details of the Balance Sheet Process are set out in Appendix THREE.

In perpetuity

- 3.24 The mitigation sites will be required to remain in place for the duration of development. This is anticipated to be beyond any lease term agreed. In circumstances where it is not possible to secure additional agreements for the identified sites, alternative mitigation areas will be required to be put in place prior to the loss of the mitigation site. The Council will need to identify whether there is sufficient mitigation capacity to allow further developments to be consented, in accordance with ensuring that the mitigation balance sheet remains “in credit”.
- 3.25 The Council will procure appropriate/suitable contractors to undertake the habitat creation works, and will also procure an appropriate management company to ensure that appropriate management of the mitigation sites is undertaken in accordance with the agreed. All appointments will be subject to the Public Procurement Regulations 2015.
- 3.26 The Council will ensure appropriate monitoring of the mitigation sites is undertaken in accordance with the monitoring framework and report the results to the ecology group to advise on on-going management and need for remedial measures.

Funding

- 3.27 Current estimates of cost for land acquisition, habitat creation and ongoing management are currently estimated at between £5.5m and £6.8m, the extent of which is dependent upon the result of land negotiations and final prices agreed. A breakdown of the funding requirement is shown below.

Strategic Ecological Mitigation Costs	
Land Acquisition/Lease costs (25 years)	£3,296,000 - £4,560,000 ¹
Habitat Creation	£1,380,500
Ongoing Management (25 years)	£894,000
TOTAL	£5,570,500 - £6,834,500

Table 1. Strategic ecological mitigation costs

- 3.28 Funding has been committed from the Council's SHIP programme, (a £15m funding programme to deliver key infrastructure projects across the South Humber Bank). In addition to Greater Lincolnshire LEP LGF and ESIF funding has been secured. All funds required to deliver the Ecological Strategic Mitigation are therefore in place.
- 3.29 It is intended that the Council will utilise the funds available to it to acquire appropriate interests in the sites, create wet grassland habitat and ensure a programme of ongoing management. This investment will therefore enable future economic/employment development within the South Humber Gateway area, subject to the balancing provisions referred to in Paragraph 3.22 above.
- 3.30 Planning legislation requires that responsibility for ensuring that the negative impact of development is appropriately mitigated rests with the developer. All development proposals within the Mitigation Zone will therefore be expected to contribute financially to the implementation of the Mitigation Strategy. This money will be used to support the securing of mitigation land and delivering future management and monitoring. Contributions are anticipated to be secured either through Unilateral Agreements or s106 agreements.
- 3.31 Analysis of the Employment Land Review indicates that within the proposed Mitigation Zone, the total developable area equates to 481ha (1,189 acres). This includes all sites held for some form of future potential development.

¹ Variations in Acquisition costs based on minimum and maximum values anticipated to be required as part of the negotiation process.

- 3.32 The contribution sought from developers will be therefore based on the following equation:

$$\text{Total Cost/Total Land} = \text{£ per ha (£ per acre)}$$

Based on an estimated project costs, this equates to:

$$£5,570,000/481 = \text{£11,580 per ha (} £4,685 \text{ per acre)}$$

- 3.33 **The Council has set a contribution figure of £11,580/ha (£4,685/acre) within the Local Plan.**

Programme

- 3.34 The external funding regimes (Greater Lincolnshire LGF and ESIF) associated with this scheme require that all funding is committed within the period April 2016 to March 2020. The Council funding commitment has the ability to be utilised more flexibly, but is currently anticipated to be fully expended by March 2021. The programme therefore anticipates delivery of Strategic Mitigation grassland sites within a five year programme, although schemes will be delivered as soon as possible as this will facilitate economic development within the SHG.

Monitoring

- 3.35 In order to ensure the efficacy of the mitigation sites, regular monitoring will take place over the perpetuity period to ensure the ecological functioning of the wet grassland sites on the following basis:

WET GRASSLAND & OPEN WATER

Creation of wet grassland is a well-established process and hence there is some certainty about the ability to develop it. Wet grassland habitat is known to be used by foraging and roosting shorebirds especially as intertidal food resources become depleted as winter progresses. Much of the open estuary land is intensively farmed resulting in little grassland around the Humber estuary. The establishment of wet grassland habitat will provide valuable habitat for shorebirds particularly at high tide.

Objective WG1: The site will contain wide open expanses of wet grassland habitat with unobscured views of the surrounding area.

TARGET 1	Creation of wet grassland habitat
Management	<ul style="list-style-type: none"> ● Sowing with an appropriate seed mix (for example EG8 Wet Grassland Mix from Emorsgate Seeds) and leaving uncut and un-grazed for 3-6 months, as appropriate ● Sowing rates should be within 3-5g/m² and should be carried out in Spring or Autumn ● 0.2 livestock units per hectare per year in April to June inclusive in Year 1; and ● 0.3 livestock units per hectare per year in April to June inclusive in all subsequent years; or ● Equivalent management by cutting the grassland ● No fertilisers to be used except if needed to boost earthworms ● No herbicides to be used except if needed to control problem plant species. These to be applied with a weed wipe or via spot control
Monitoring	<ul style="list-style-type: none"> ● Permanent quadrats to be established measuring 1m x 1m within the wet grassland area ● Plant species and abundance to be recorded for each quadrat
Who	<ul style="list-style-type: none"> ● Consultant Ecologist or appropriate Ecology Officer.
When	<ul style="list-style-type: none"> ● Monitoring to be undertaken annually in June for first 5 years, frequency can be reduced after this with the agreement of the Ecology Group ● Monitoring can cease if wet grassland habitat is achieved for three consecutive years, provided the management regime remains unchanged

Limits of Acceptability	<ul style="list-style-type: none"> At least one species characteristic of wet/damp grassland must be present in 80% of quadrats
Remedial Action	<ul style="list-style-type: none"> Adjust soil moisture through amending site drainage affecting extent of flooding

TARGET 2	No scrub (including bramble) or trees across the entirety of the site
Management	<ul style="list-style-type: none"> 0.2 livestock units per hectare per year in April to June inclusive in Year 1; and 0.3 livestock units per hectare per year in April to June inclusive in all subsequent years; or Equivalent management by cutting the grassland
Monitoring	<ul style="list-style-type: none"> Visual assessment of scrub
Who	<ul style="list-style-type: none"> Consultant Ecologist or appropriate Ecology Officer
When	<ul style="list-style-type: none"> Monitoring to be undertaken annually in June for first 5 years, frequency can be reduced after this with the agreement of the Ecology Group Monitoring can cease if wet grassland habitat is achieved for three consecutive years, provided the management regime remains unchanged
Limits of Acceptability	<ul style="list-style-type: none"> No more than 5% scrub or trees across the site
Remedial Action	<ul style="list-style-type: none"> Cutting down vegetation and treatment of stumps with herbicide

TARGET 3	No more than 10% dense stands of rushes (<i>Juncus</i> spp.), tall sedges (<i>Carex</i> spp.), reeds (<i>Phragmites australis</i>, <i>Phalaris arundinacea</i>, <i>Glyceria maxima</i>, <i>Typha</i> spp.) within the open water area
Management	<ul style="list-style-type: none"> • Management by cutting and removal of rushes and tall sedges
Monitoring	<ul style="list-style-type: none"> • Visual assessment
Who	<ul style="list-style-type: none"> • Consultant Ecologist or appropriate Ecology Officer
When	<ul style="list-style-type: none"> • Monitoring to be undertaken annually in June, for first 5 years, frequency can be reduced after this with the agreement of the Ecology Group
Limits of Acceptability	<ul style="list-style-type: none"> • No more than 10% dense stands of rushes (<i>Juncus</i> spp.), tall sedges (<i>Carex</i> spp.), reeds (<i>Phragmites australis</i>, <i>Phalaris arundinacea</i>, <i>Glyceria maxima</i>, <i>Typha</i> spp.) within the open water area
Remedial Action	<ul style="list-style-type: none"> • Cutting of rushes and sedges

Objective WG2: The wet grassland will be managed to give a suitable sward for wading birds throughout the months of August to March

TARGET 1	Creation of wet grassland with a suitable sward for wading birds (August to March)
Management	<ul style="list-style-type: none"> • Management by cutting to maintain Average sward height of 10cm across the wet grassland each month from July to March
Monitoring	<ul style="list-style-type: none"> • Visual assessment
Who	<ul style="list-style-type: none"> • Consultant Ecologist or appropriate Ecology Officer

When	<ul style="list-style-type: none"> Monitoring to be undertaken annually in June, for first 5 years, frequency can be reduced after this with the agreement of the Ecology Group
Limits of Acceptability	<ul style="list-style-type: none"> No more than 10% grassland with sward height >10cm
Remedial Action	<ul style="list-style-type: none"> Cutting of grassland, or increased grazing

Objective WG3: The site should contain open water with at least one island.

TARGET 1	Creation of shallow standing water with muddy margins and soft substrate
Management	<ul style="list-style-type: none"> Water level management through design of habitats with scrapes and ditches, impounding rainfall, with a much smaller influence through water level control structures Open Water - Average depth 0.20m to 0.30m in depth (footdrains and scrapes) and average depth 0.20m to 0.50m for permanent open water according to season
Monitoring	<ul style="list-style-type: none"> Visual assessment of extent of flooding Water control measures to be monitored annually
Who	<ul style="list-style-type: none"> Consultant Ecologist or appropriate Ecology Officer
When	<ul style="list-style-type: none"> Monitoring to be undertaken annually in June for first 5 years, frequency can be reduced after this with the agreement of the Ecology Group Monitoring can cease if target is achieved for three consecutive years, provided the management regime remains unchanged
Limits of Acceptability	<ul style="list-style-type: none"> No less than 0.25m average depth

Remedial Action	<ul style="list-style-type: none"> Adjust water control measures (adjusting sluice height, irrigate rates)
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BIRDS

The basic objective of the mitigation habitat is to maintain the population of birds displaced from within the SHG. The timely creation of suitably located secure wet grassland habitat will allow economic development to progress whilst ensuring that loss of open land does not impact on bird numbers.

Objective B1: The mitigation sites combined support annual peak and mean counts of displaced bird species for the whole NE Lincs SHG area

The effectiveness of the mitigation sites will be determined by assessing the numbers of birds using the mitigation site compared to the numbers that were recorded in the SHG survey work. *The respective bird targets will change as development comes forward; hence no numbers have been included in the target boxes. See Appendix ONE*

TARGET 1 - strategic	<p>For each species, the NE Lincs mitigation sites combined support an annual peak count equal to or greater than the annual peak count for the whole NE Lincs SHG area</p> <p>For each species, the NE Lincs mitigation sites combined support an annual mean count equal to or greater than the annual mean count for the whole NE Lincs SHG area</p>
Management	<ul style="list-style-type: none"> Provide secure roost Provide foraging opportunities
Monitoring	<ul style="list-style-type: none"> Monthly through the tide counts (counts to include details of any disturbance and disturbance response behaviour (especially alert and flushing distances)
Who	<ul style="list-style-type: none"> Suitable surveyors

<p>When</p>	<ul style="list-style-type: none"> • Monthly counts August-April for minimum of five years. • After 5 years the frequency of monitoring will be reviewed by the Ecology Group with an expectation that monitoring will continue at some level.
<p>Limits of Acceptability</p>	<ul style="list-style-type: none"> • Any one year where declines exceed Humber Estuary bird trends • Any one year where declines exceeded changes in national trend • Two years of consecutive decline, irrespective of being within the range of negative changes in national trend
<p>Remedial Action</p>	<ul style="list-style-type: none"> • Review data to ascertain if population is being maintained within the Humber • Make adjustments to habitat and environmental conditions to facilitate achievement of the objective, where a review of the monitoring data identifies any obvious cause for failure to reach the target. (These adjustments could include management of disturbance, • Increase/decrease of soil moisture, changing the number, size, location and shape of wader scrapes, and adding biomass to increase worm numbers.) • Sward height management through grazing or cutting.

Objective B2: The individual mitigation sites support annual peak and mean counts equal to or greater than the balance sheet target for each site.

The targets for individual mitigation sites are divided on a simple percentage basis i.e. the contribution (%) the individual mitigation site makes to the overall 126ha of mitigation.

(If the development of sites x, y and z require 10% of the mitigation land provision then the bird targets for the delivered mitigation will be equivalent to 10% of the total peaks and means for each species).

The respective bird targets will change as development comes forward; hence no numbers have been included in the target boxes. (Appendix ONE)

<p>TARGET 2 – Site Specific</p>	<p>For each species, the individual mitigation sites support annual peak counts equal to or greater than the relevant balance sheet target for each site.</p> <p>For each species, the individual mitigation sites support annual mean counts equal to or greater than the relevant balance sheet target for each site.</p> <p>Black-tailed godwit, ringed plover and whimbrel – targets triggered once either fields 293 or 398 are developed.</p>
<p>Management</p>	<ul style="list-style-type: none"> • Provide secure roost • Provide foraging opportunities
<p>Monitoring</p>	<ul style="list-style-type: none"> • Monthly through the tide counts (counts to include details of any disturbance and disturbance response behaviour (especially alert and flushing distances))
<p>Who</p>	<ul style="list-style-type: none"> • Suitable surveyors
<p>When</p>	<ul style="list-style-type: none"> • Monthly counts August-April for minimum of five years. • After 5 years the frequency of monitoring will be reviewed by the Ecology Group with an expectation that monitoring will continue at some level.
<p>Limits of Acceptability</p>	<ul style="list-style-type: none"> • Any one year where declines exceed Humber Estuary bird trends • Any one year where declines exceeded changes in national trend • Two years of consecutive decline, irrespective of being within the range of negative changes in national trend

<p>Remedial Action</p>	<ul style="list-style-type: none"> • Review data to ascertain if population is being maintained within the Humber • Make adjustments to habitat and environmental conditions to facilitate achievement of the objective, where a review of the monitoring data identifies any obvious cause for failure to reach the target. (These adjustments could include management of disturbance, increase/decrease of soil moisture, changing the number, size, location and shape of wader scrapes, and adding biomass to increase worm numbers.) • Sward height management through grazing or cutting. All mitigation sites will continue to be optimally managed in the long term and remedial measures will be implemented when necessary; however if the target 1 strategic objectives are met then the integrity of the Humber Estuary SPA/ Ramsar site will be maintained and therefore remedial measures may not be required.
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Objective B3: The individual mitigation sites support breeding birds. (Not legally required as part of the strategic mitigation)

There are no identified targets for individual mitigation sites but as the sites are likely to be attractive to breeding birds it is important to monitor the species present to allow the sites' contribution to local biodiversity to be assessed.

<p>TARGET 3 – Breeding birds</p>	<p>No identified target (not legally required as part of the mitigation strategy)</p>
<p>Management</p>	<ul style="list-style-type: none"> • Provide secure breeding opportunities • Provide foraging opportunities
<p>Monitoring</p>	<ul style="list-style-type: none"> • Monthly through the tide counts (counts to include details of any disturbance and disturbance response behaviour (especially alert and flushing distances)

Who	<ul style="list-style-type: none"> • Suitable surveyors
When	<ul style="list-style-type: none"> • Annual breeding bird survey for a minimum of 5 years. • After 5 years the frequency of monitoring will be reviewed by the Ecology Group with an expectation that monitoring will continue at some level.
Limits of Acceptability	<ul style="list-style-type: none"> • N/A
Remedial Action	<ul style="list-style-type: none"> • Make adjustments to habitat and environmental conditions to facilitate achievement of the objective, where a review of the monitoring data identifies any obvious cause for failure to reach the target. (These adjustments could include management of disturbance, • Increase/decrease of soil moisture, changing the number, size, location and shape of wader scrapes, and adding biomass to increase worm numbers.) • Sward height management through grazing or cutting.

4.0 Conclusions

- 4.1 This Mitigation Delivery Plan highlights the importance of the Humber Estuary in ecological terms, and the conflict that occurs between the protection of the ecological importance of the Estuary and the importance of economic development within the South Humber Gateway.
- 4.2 The Habitats Regulations require, that where it is not possible to rule out an adverse effect on the integrity of the designated, appropriate mitigation is required that can be put in place to off-set the adverse impacts.
- 4.3 A number of surveys relating to the important bird species utilising the estuary have been undertaken and these have established the extent and importance of the bird populations. Any development within the SHG is considered to contribute to impacts on the designated site, and therefore a strategic approach to mitigation has been devised.
- 4.4 Within North East Lincolnshire, four main mitigation sites have been identified which meet the overall criteria established by the Ecology Group. Detailed proposals for each of the sites have now been developed, and negotiations have commenced with all of the landowners concerned.
- 4.5 In addition, North East Lincolnshire Council has been successful in securing appropriate funds to ensure the delivery of the mitigation habitats, and progress has been made in securing sites for mitigation purposes. All funding needs to be utilised between 2016 and 2020. Developers within the SHG mitigation area as shown within the North East Lincolnshire Local Plan will be expected to make an appropriate contribution towards the cost of the mitigation scheme.
- 4.6 This document demonstrates the extent of work and level of commitment that North East Lincolnshire Council has put into delivering the Strategic Mitigation scheme. A funding strategy is in place, and a programme has been devised which enables the delivery of the scheme. This strategy will ensure that there is adequate provision of mitigation; maintaining the integrity of the Humber Estuary SPA whilst at the same

time enabling the planned level of economic development within the SHG to progress.

Appendices

Appendix ONE: The mitigation balance sheet

The calculation of the amount of mitigation that will need to be drawn down for development of a site within the Mitigation Zone is calculated utilising a balance sheet spreadsheet. This spreadsheet includes all fields within the South Humber Employment Zone and identifies the appropriate mitigation response based upon the record of bird use of each field. This determines whether or not a field was recorded as being used by significant numbers ($\geq 1\%$ of SPA population using the relevant 5 year mean) of SPA birds during the 2007/8 and 2010/11 SHG surveys.

The survey data is broken down to identify three categories:

- $>1\%$ = the field was used at least once in the two years of surveying by SPA birds in numbers $\geq 1\%$ of SPA population
- $<1\%$ = the field was used by SPA birds but in numbers $<1\%$ of SPA population
- None = no SPA bird usage was recorded during the SHG surveys

Using the survey information each field has then been assessed to determine whether a field is functionally linked to the SPA. Three categories:

- Functionally linked = used regularly by significant numbers of SPA birds
- In-combination impact = used by SPA birds in either non-significant numbers, or irregularly in significant numbers
- No use during SHG surveys = no use recorded during 2007/08 or 2010/11 surveys

Fields are classed as functionally linked if they had three or more significant counts of SPA birds during the SHG surveys. Three has been used as a threshold to establish regularity of use due to the specific results and patterns of bird usage recorded in the SHG surveying.

Within the spreadsheet when a field is identified for development it calculates the mitigation required based on the area of the field in question and the following ratios:

- Land identified through the SHG surveys as functionally linked land (land regularly used by significant numbers² of SPA/ Ramsar waterbirds) will draw down mitigation at a ratio of 1 : 1.
- Land identified through the SHG surveys to have some usage by SPA/ Ramsar waterbirds but is not functionally linked land – i.e. contributing to in-combination effects - will draw down mitigation at a ratio of 5.2 : 1 (development to mitigation).
- Land which had no SPA/ Ramsar waterbird usage during the SHG surveys will not draw down any mitigation, but developers are required to contribute financially. This is because it has been agreed that all developers within the SHG will contribute equally to the strategic mitigation. The bird surveys represent the distribution at set points in time when the surveys were undertaken. The distribution can be affected by cropping patterns, or specific temporary activity on a site.
- In exceptional circumstances developers can choose not to do this, but this will mean that they need to undertake at least one year's bird survey of their development site. If the land is now determined to be functionally linked to the SPA/ Ramsar site or to contribute to in-combination effects, they will need to provide sufficient mitigation either on their site or in close proximity. It is expected that this will be extremely difficult to achieve as this was one of the fundamental reasons for the strategic mitigation.

Bird Targets

Bird targets are allocated using the same principles as described above and are set out in a separate accompanying spreadsheet. Both the peak and average bird targets are based on the same principles; linking bird numbers to the habitat area required for development of a given field. This ensures that bird targets are proportional to mitigation habitat areas.

i.e. mitigation required (Ha) / overall NELC mitigation area = field bird target / NELC population for each field and species.

² Used by 1% or greater of the SPA/ Ramsar bird population

The peak count for each species is the highest recorded weekly total from any of the SHG surveys. The average count for each species is the average weekly count from all SHG surveys.

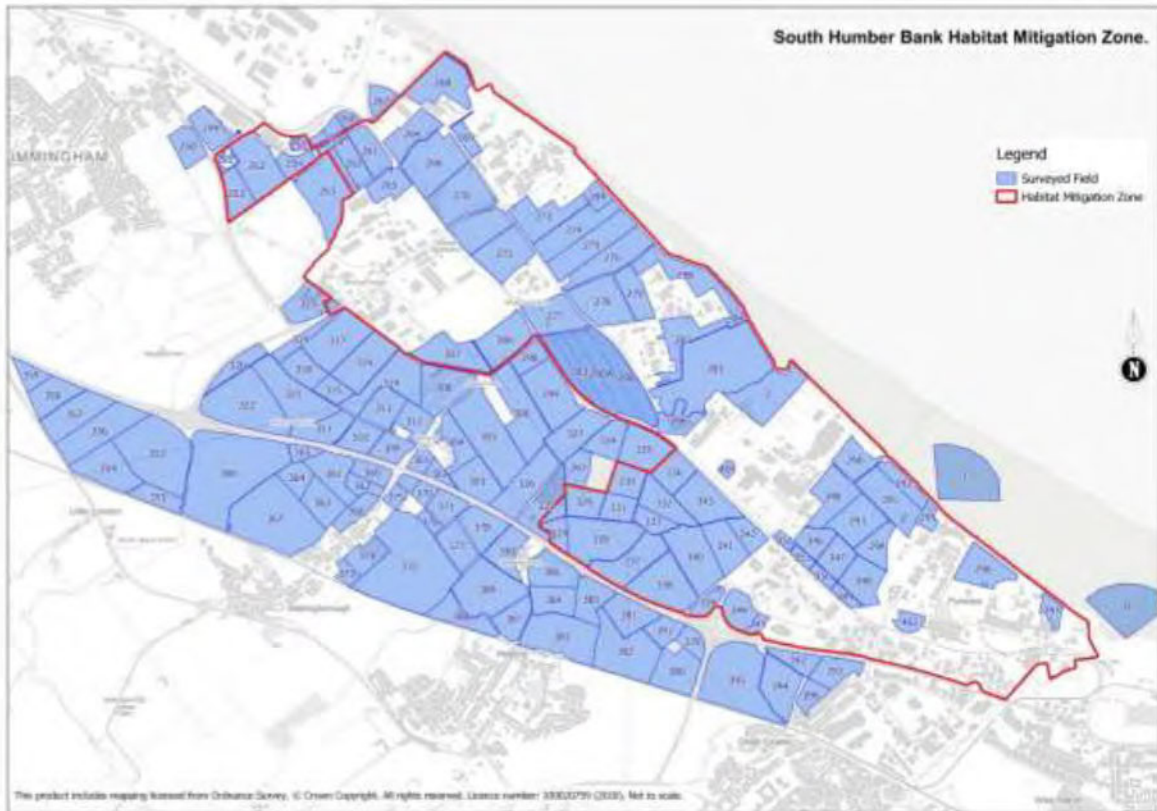
The exceptions to these principles are species with limited distributions, for which there are separate targets triggered once specific fields are developed as set out below:

Black-tailed godwit, ringed plover and whimbrel – targets triggered once either fields 293 or 398 are developed.

Targets to be met from any estuary side mitigation site		
	Peak	Mean
Black-tailed godwit	180	5.50
Ringed plover	37	1.50
Whimbrel	5	0.10

Table 2. Targets to be met from any estuary side mitigation site

Appendix TWO: Field location



Appendix THREE: South Humber Gateway balance sheet

North East Lincolnshire Council has been working with the South Humber Gateway (SHG) ecology group for many years on a strategic approach to mitigation. A number of mitigation sites have been agreed and wet grassland habitat will be created, and managed and maintained in the long term. Due to ongoing discussions with landowners, NELC is unable to deliver all the mitigation sites upfront and so it has been necessary to devise a balance sheet which will ensure that habitat creation always outweighs development. The SHG monitoring programme demonstrated that bird usage varies across the Gateway with some fields being more important to SPA/ Ramsar bird populations than others. The balance sheet has been designed to take this into account and ensure that sufficient habitat is always available to support the waterbird populations as the Gateway is developed. In this way, the Council and individual developers will ensure they comply with the Habitats Regulations.

Principles of the balance sheet

- All developers within the SHG will contribute financially at a rate agreed by the council
- The total agreed area of mitigation is 128ha
- Land identified through the SHG surveys as functionally linked land (land regularly used by significant numbers³ of SPA/ Ramsar waterbirds) will draw down mitigation at a ratio of 1 : 1
- Land identified through the SHG surveys to have some usage by SPA/ Ramsar waterbirds but is not functionally linked land – i.e. contributing to in-combination effects - will draw down mitigation at a ratio of 5.2 : 1 (development to mitigation) which will bring the total mitigation up to the 128ha figure
- Land which had no SPA/ Ramsar waterbird usage during the SHG surveys will not draw down any mitigation but developers are required to contribute financially. This is because it has been agreed that all developers within the SHG will contribute equally to the strategic mitigation. In exceptional circumstances developers can choose not to do this, but this will mean that they need to undertake at least one

³ Used by 1% or greater of the SPA/ Ramsar bird population

year's bird survey of their development site. If the land is now determined to be functionally linked to the SPA/ Ramsar site or to contribute to in-combination effects, they will need to provide sufficient mitigation either on their site or in close proximity. It is expected that this will be extremely difficult to achieve as this was one of the fundamental reasons for the strategic mitigation.

- Bird targets are allocated using the same principles as described above. The exception to this are species with limited distributions, for which there are separate targets - see the South Humber Gateway Bird Objectives document. (Appendix FOUR)

Disturbance

It is acknowledged that the full mitigation package cannot be delivered at this time. In North East Lincolnshire it was not possible to deliver the 2 x 50ha mitigation blocks agreed as part of the SHG mitigation principles and an alternative approach was devised which provided a number of smaller blocks which would function together to ensure that the overall package of mitigation was ecologically functional. Given that all the mitigation cannot be delivered at this time, it is necessary to consider disturbance as developments come forward.

- Disturbance from developments will be assessed on a case by case basis.
- If there will be temporary construction disturbance to adjacent fields this will be assessed using the actual data – i.e. what area will be affected and for how long. If noise is significant, there will be a temporary draw down from the mitigation using the agreed ratio based on bird usage recorded in the SHG surveys.
- If there will be construction and operational disturbance – i.e. permanent disturbance, then this will require a permanent draw down from the mitigation using the agreed ratio based on bird usage recorded in the SHG surveys.
- Wherever possible, development sites adjacent to a mitigation area should aim to retain some open areas and locate disturbing activities involving loud sudden noises and personnel away from the perimeter of the site. Screening/ bunding may also be required.

Appendix FOUR: South Humber Gateway bird objectives

This document should be used together with the South Humber Gateway balance sheet which sets out how much mitigation (hectares) is required for development of land within the SHG and provides the associated bird targets.

Key points:

- The South Humber Gateway partners have taken a strategic approach to the delivery of mitigation to offset the impacts of economic development on the Humber Estuary SPA/ Ramsar site. We have therefore also taken a strategic approach to bird targets based on the ultimate aim which is to maintain the integrity of the European site. We have therefore set targets across the total amount of mitigation that will be delivered in North East Lincolnshire.
- There are two levels of objectives – level one and level two – with the targets divided between the individual mitigation sites on a simple % basis – i.e. the contribution (%) the individual mitigation site makes to the overall 126ha of mitigation.
- The two levels of objectives are hierarchical and therefore as long as the level one targets are met (subject to the caveat regarding site condition), the overall target will have been achieved.
- Data – the SHG bird data set has been used – i.e. that collected between 2007 and 2011 and funded by the former regional development agency Yorkshire Forward, North and North East Lincolnshire Councils, the Environment Agency and the RSPB, and managed by the Humber Nature Partnership.

Objectives

Bird targets are identified using the same principles as mitigation sites and are set out in a separate accompanying spreadsheet (see Appendix THREE).

Level one – strategic objectives
For each species, the NE Lincs mitigation sites combined support an annual peak count equal to or greater than the annual peak count for the whole NE Lincs SHG area.
For each species, the NE Lincs mitigation sites combined support an annual mean count equal to or greater than the annual mean count for the whole NE Lincs SHG area.

Level two – mitigation site objectives												
For each species, the individual mitigation sites support annual peak counts equal to or greater than the relevant balance sheet target for each site.												
For each species, the individual mitigation sites support annual mean counts equal to or greater than the relevant balance sheet target for each site.												
Black-tailed godwit, ringed plover and whimbrel – targets triggered once either fields 293 or 398 are developed												
Targets to be met from any estuary-side mitigation site.												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 20%; text-align: center;">Peak</th> <th style="width: 20%; text-align: center;">Mean</th> </tr> </thead> <tbody> <tr> <td>Black-tailed godwit</td> <td style="text-align: center;">180</td> <td style="text-align: center;">5.50</td> </tr> <tr> <td>Ringed plover</td> <td style="text-align: center;">37</td> <td style="text-align: center;">1.50</td> </tr> <tr> <td>Whimbrel</td> <td style="text-align: center;">5</td> <td style="text-align: center;">0.10</td> </tr> </tbody> </table>		Peak	Mean	Black-tailed godwit	180	5.50	Ringed plover	37	1.50	Whimbrel	5	0.10
	Peak	Mean										
Black-tailed godwit	180	5.50										
Ringed plover	37	1.50										
Whimbrel	5	0.10										
All mitigation sites will continue to be optimally managed in the long term and remedial measures will be implemented when necessary; however if the level one objectives are met then the integrity of the Humber Estuary SPA/ Ramsar site will be maintained.												

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in partnership with ENGIE
New Oxford House
2 George Street
Grimsby
DN31 1HB

North East Lincolnshire Council and ENGIE, working in partnership to deliver a stronger economy and stronger communities

**APPENDIX 11: SECTION 36 CONSENT FOR SHBPS DATED 3
AUGUST 1992**



Department of Trade and Industry
Electricity Division
1 Palace Street
London SW1E 5HE

Mr E Salosaari
Managing Director
Humber Power Ltd
18 Savile Row
London
W1X 1AE

Fax No 071 630 9570
Switchboard 071 238 3000
Direct Line 071 238 3126

Our ref: B 257\166\62

3 August 1992

CCGT	AS	0010
IHA		
ESS		
JAD		
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RECEIVED J 4 1992

Dear Sir

ELECTRICITY ACT 1989
TOWN AND COUNTRY PLANNING ACT 1990

APPLICATION FOR CONSENT TO THE CONSTRUCTION AND OPERATION OF A
COMBINED CYCLE GAS TURBINE GENERATING STATION AT
STALLINGBOROUGH, HUMBERSIDE

I. THE APPLICATION

1.1 I am directed by the Secretary of State for Trade and Industry (the Secretary of State) to refer to the application dated 18 July 1991 by Humber Power Ltd (the Company) for the consent of the Secretary of State under section 36 of the Electricity Act 1989 (section 36 consent) to the construction and operation of a combined cycle gas turbine generating station with a capacity of about 1100 MW at Stallingborough in the County of Humberside (the Development) and for a direction under section 90(2) of the Town and Country Planning Act 1990 (section 90 direction) that planning permission for the Development be deemed to be granted.

1.2 On 19 November 1991 the Company submitted variations to the application of 18 July 1991. The application and variations are together hereafter referred to as "the Application".

1.3 In accordance with the Electricity and Pipe-line Works (Assessment of Environmental Effects) Regulations 1990 (the 1990 Regulations) the Company submitted on 18 July 1991 a document, entitled "Environmental Statement", describing the Development and giving an analysis of its environmental implications. The Company supplemented this document with a further document on 19 November 1991 entitled "Supplement to Environmental Statement" and with two letters containing additional environmental information on 7 January 1992. The two documents and the two letters are together hereafter referred to in this letter as the "Environmental Statement".

1.4 The Humberside County Council and the Cleethorpes Borough Council (the relevant planning authorities) entered into discussions with the Company about the terms on which they would be content for the Development to proceed. As a result of these discussions, 26 conditions to be attached to any

section 90 direction were agreed between the Company and the relevant planning authorities (the Planning Conditions).

1.5 In view of the successful conclusion of these discussions the relevant planning authorities entered no objection to the Application. This was, however, on the basis of the Planning Conditions being imposed, should the Secretary of State be minded to grant section 36 consent and give a section 90 direction in respect of the Development.

II. SECRETARY OF STATE'S CONSIDERATION OF THE PLANNING CONDITIONS

2 The Secretary of State has considered the Planning Conditions carefully. He agrees that they are suitable for inclusion in any section 90 direction which he may give.

III. SECRETARY OF STATE'S DECISION ON THE HOLDING OF A PUBLIC INQUIRY

3.1 As stated in paragraph 1.5 above, there were no objections by the relevant planning authorities to the Application, and the Secretary of State is not therefore obliged under paragraph 2(2) of Schedule 8 to the Electricity Act 1989 (the 1989 Act) to cause a public inquiry to be held.

3.2 Paragraph 3(2) of Schedule 8 to the 1989 Act, however, requires the Secretary of State to consider all objections that he has received pursuant to regulations made under paragraph 3(1) of that Schedule, together with all other material considerations, in order to determine whether it would nonetheless be appropriate to hold a public inquiry.

3.3 The Secretary of State received one objection under regulations made under paragraph 3(1) of Schedule 8 to the 1989 Act - from English Nature, whose principal concern was the effect of the construction and operation of the cooling water intake and outfall structures on the nearby Pyewipe and Cleethorpes Coast Site of Special Scientific Interest (SSSI).

3.4 Following negotiations, the Company and English Nature agreed an additional condition (the English Nature condition) which prevents any work associated with the Development being carried out within the SSSI until a scheme of works and restoration proposals for the SSSI has been agreed with English Nature, who withdrew its objection subject to the inclusion of this condition in any section 90 direction. The Secretary of State agrees that this additional condition is suitable for inclusion in any section 90 direction which he may give and considers that it adequately addresses English Nature's concerns.

3.5 The Secretary of State has carefully considered the views of the relevant planning authorities and all other material considerations including the Planning Conditions and the English Nature condition. He takes the view that it would not be appropriate to cause a public inquiry to be held into the Application.

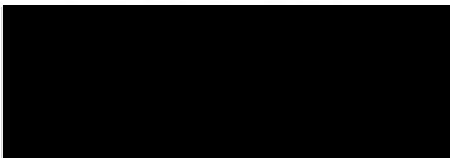
IV. ENVIRONMENTAL ASSESSMENT

- 4.1 The Secretary of State is satisfied with the content of the Environmental Statement.
- 4.2 The Secretary of State has carefully considered the environmental information, as defined in the 1990 Regulations; as well as the Environmental Statement he has considered the comments made by the relevant planning authorities, English Nature, the Countryside Commission and Her Majesty's Inspectorate of Pollution (HMIP).
- 4.3 Taking account of the way in which the environmental effects of the Development will be modified and mitigated by measures which the Company has undertaken to take or will be required to take under the Planning Conditions and the English Nature condition or by regulatory authorities, including HMIP, the Secretary of State believes that the environmental effects will not be such that it would be appropriate to refuse section 36 consent for the Development. He is therefore in a position to take a decision on the Application.

V. SECRETARY OF STATE'S DECISION ON THE APPLICATION

- 5.1 The Secretary of State, having had regard to the matters specified in paragraph 1(2) of Schedule 9 to the 1989 Act, has carefully considered the views of the relevant planning authorities, the environmental information and all other relevant matters. He has decided to grant section 36 consent to the Application, subject to a condition that the Development be in accordance with particulars submitted unless otherwise agreed, and to a condition concerning the time limit for the start of the Development.
- 5.2 The Secretary of State believes that the Planning Conditions and the English Nature condition form a satisfactory and sufficient basis on which the Development might proceed. He has therefore decided to give a section 90 direction that planning permission for the Development be deemed to be granted subject to the Planning Conditions and the English Nature condition.
- 5.3 I accordingly enclose the Secretary of State's consent under section 36 of the Electricity Act 1989 and a direction under section 90 of the Town and Country Planning Act 1990.

Yours faithfully



M A HIGSON
An Assistant Secretary
Department of Trade and Industry

DEPARTMENT OF TRADE AND INDUSTRY
ELECTRICITY ACT 1989
TOWN AND COUNTRY PLANNING ACT 1990
HUMBER POWER LTD
CONSTRUCTION AND OPERATION OF A GENERATING STATION AT
STALLINGBOROUGH IN THE COUNTY OF HUMBERSIDE

1. In pursuance of section 36 of the Electricity Act 1989 the Secretary of State for Trade and Industry (the Secretary of State) hereby consents to the construction by Humber Power Ltd (the Company), on the area of land coloured orange on Figure No CCGT-G60-0002, annexed hereto and duly endorsed on behalf of the Secretary of State, of a combined cycle gas turbine generating station at Stallingborough in the County of Humberside (the Development), and to the operation of that generating station.
2. The Development shall comprise:-
 - (a) One combined cycle gas turbine generating station of about 1100 MW consisting of:
 - i) six industrial gas turbines each with an associated waste heat boiler; and
 - ii) three steam turbines;
 - (b) a cooling system consisting of either
 - i) mechanical draught cooling plants; or
 - ii) direct sea water cooling;
 - (c) distillate oil storage facilities;
 - (d) ancillary plant and equipment; and
 - (e) the necessary buildings (including administration offices) and civil engineering works.
3. This consent is granted subject to the following conditions:
 - (1) Except where the prior written agreement of the Secretary of State has been given to any variation in design, construction or operation of the Development, the Development shall not be constructed or operated otherwise than in accordance with the technical and other

I certify that this is a true and accurate copy of the original

Signed. 

Director of Humber Power Limited

particulars contained in the Company's application of 18 July 1991, as varied on 19 November 1991.

- (2) Except where the written agreement of the Secretary of State has otherwise been given the construction of the Development shall be begun before the expiry of five years from the date of this consent.

4. The Secretary of State in exercise of the powers conferred by section 90(2) of the Town and Country Planning Act 1990 (the 1990 Act) hereby directs that planning permission for the Development be deemed to be granted subject to the following conditions:

- (1) In these Conditions, unless the context otherwise requires -

"the Borough Council" means the Cleethorpes Borough Council and shall include its successors in title and assigns;

"the commencement of the Development" means the date on which the Development shall be taken to be begun within the meaning of section 56 of the 1990 Act, as amended;

"the commissioning of the Development" means the date on which the Development first supplies electricity to the transmission system of the National Grid Company or direct to one of the Company's customers;

"the Company" means Humber Power Limited and shall include its successors in title and assigns;

"the County Council" means the Humberside County Council and shall include its successors in title and assigns;

"the Development" means the combined cycle gas turbine generating station at Stallingborough in the County of Humberside;

"emergency" means the circumstances in which there is a reasonable cause for apprehending imminent injury to persons or serious damage to property or danger of serious pollution to the environment;

"English Nature" means the Nature Conservancy Council for England and shall include its successors in title and assigns;

"HGV traffic" means heavy commercial vehicles as defined by section 138 of the Road Traffic Regulation Act 1984;

"the main Development" means the construction work commencing with the placing of the first concrete for the main plant foundations of the Development;

"operating weight" in relation to a goods vehicle has the meaning given by section 138 of the Road Traffic Regulation Act 1984;

"the Site" means the area of land coloured orange on Drawing No. CCGT-G60-0002; and

"the SSSI" means the Pyewipe and Cleethorpes Coast Site of Special Scientific Interest.

- (2) The construction of the Development shall take place within the boundary of the Site.

Reason: To ensure that no works take place beyond the boundary of the Site.

Time Limits

- (3) The construction of the Development shall be begun before the expiry of five years from the date of this permission.

Reason: To comply with the requirements of section 91 of the Town and Country Planning Act 1990.

Lavout and Design

- (4) The commencement of the main Development shall not take place until there has been submitted to and approved in writing by the Borough Council a scheme which shall indicate:

- i) the siting, design, external appearance and dimensions of all major permanent buildings and structures;
- ii) details of colour, materials and surface finishes in respect of those buildings and structures referred to in (i) above; and
- iii) details of parking, loading, off-loading and turning of vehicles on the Site.

- (5) During the period of construction of the Development, temporary access to the Site for construction vehicles shall be directly off the South Humber Bank Link Road.
- (6) Following the completion of the construction of the Development, the temporary access referred to in Condition (5) shall be closed and thereafter all vehicular usage shall be off South Marsh Road, except in an emergency or otherwise approved in writing by the County Council and the Borough Council.
- (7) In any instance where traffic does not use the route specified in Condition (6) because of an emergency the Company shall as soon as reasonably possible provide the County Council and the Borough Council with a written statement detailing the nature of the emergency and the reason why traffic had to go via a different route.

Reason: To enable reasonable and proper control to be exercised over aspects of the details of the Development.

Suppression of Dust and Dirt

- (8) The commencement of the Development shall not take place until there has been submitted to and approved in writing by the Borough Council a scheme for the provision of wheel cleansing facilities within the Site for HGV traffic and any other traffic which has an operating weight exceeding three tonnes. Such approved facilities shall be installed in accordance with a timescale to be approved in writing by the Borough Council.
- (9) All HGV traffic and any other traffic which has an operating weight exceeding three tonnes leaving the Site shall on each occasion, prior to leaving, pass through the wheel cleansing facilities provided pursuant to Condition (8).

Reason: To ensure that satisfactory measures are in place so as to alleviate any impact dust and dirt may have on the local environment.

Landscaping

- (10) The commencement of the main Development shall not take place until there has been submitted to and approved in writing by the Borough Council a scheme of landscaping and tree planting for the

Site. Such landscaping and tree planting shall only be carried out in accordance with such approved scheme.

Reason: To ensure the proper landscaping of the Site.

Construction Work and Noise

- (11) The commencement of impact piling shall not take place until there have been submitted to and approved in writing by the Borough Council details of a programme for such piling, including methods and duration. No such piling shall take place at weekends, except by prior agreement with the Borough Council.
- (12) The commencement of the Development shall not take place until there has been submitted to and approved in writing by the Borough Council a scheme detailing the routes that traffic associated with the construction and operation of the Development shall take. The approved routes shall be adhered to at all times, except in an emergency or unless otherwise approved in writing by the Borough Council.
- (13) In any instance where traffic associated with the construction of the Development does not use the routes approved in Condition (12) because of an emergency the Company shall as soon as reasonably possible provide the Borough Council with a written statement detailing the nature of the emergency and the reason why traffic had to go via a different route.
- (14) All construction activities associated with the Development shall be carried out in accordance with the recommendations contained in British Standard 5228, Parts 1 and 2 1984 and Part 4 1986.
- (15) The commencement of the Development shall not take place until there has been submitted to and approved in writing by the Borough Council a programme for the monitoring of noise generated during the construction of the Development. The programme shall specify the measurement locations at which noise levels shall be monitored. The programme shall make provision for such noise measurements to be taken by the Company as soon as possible following any significant change in construction activity and/or at the request of the

Borough Council. All results obtained during the course of such monitoring shall be given to the Borough Council as soon as they are available.

Reason: To ensure the proper control of noise during the construction of the Development.

Operational Noise

- (16) The noise generated during the period of operation of the Development shall be monitored by the Company in accordance with a programme to be agreed with the Borough Council. The programme shall specify the measurement locations from which the noise shall be monitored, equipment details and sampling techniques. The programme shall make provision for noise measurements to be taken by the Company as soon as possible following requests by the Borough Council and such measurements shall be given to the Borough Council as soon as they are available.
- (17) In any instance where a noise level agreed pursuant to Condition (16) is exceeded because of an emergency the Company shall as soon as reasonably possible provide the Borough Council with a written statement detailing the nature of the emergency and the reason why the noise level could not be observed.

Reason: To ensure the proper control of noise during the operation of the Development.

Emissions and Discharges

- (18) All data relating to emissions into the air and to cooling water discharged into the River Humber from the Development which are supplied by the Company to the enforcing authority pursuant to the Environmental Protection Act 1990 or any other relevant legislation, for publication on the register, shall also be supplied by the Company, as soon as possible after the data become available, to the Borough Council, except where the Borough Council has informed the Company in writing that it does not wish the Company to supply all or part of such data to it.

Reason: To ensure that the Borough Council is given access to information required for the exercise of its functions.

Monitoring of Emissions

- (19) The commissioning of the Development shall not take place until there has been submitted by the Company to, and approved in writing by, the Borough Council a scheme for the monitoring of emissions from the Development. Such scheme shall include the measurement location or locations from which emissions will be monitored, the equipment and methods to be used and the frequency of measurement. The Company shall supply full details of the measurements obtained in accordance with the scheme to the Borough Council as soon as possible after they become available.

Reason: To ensure that the Borough Council is kept informed on a regular and programmed basis about any changes in the level of air and water pollution in the vicinity of the Development.

Disposal of Foul and Surface Water

- (20) The commencement of the Development shall not take place until there have been submitted to and approved in writing by the Borough Council details of the means of disposal of sewage and surface water arising from the Development.

Reason: To minimise the contamination of watercourses.

Fuel

- (21) The period in which distillate oil can be used as a standby fuel in the operation of the Development because of an interruption of the gas supply shall not exceed 55 days in any given contract year, except in an emergency.
- (22) The Company shall make every effort to ensure that any distillate oil for use in the operation of the Development is free from contamination.
- (23) Notwithstanding the efforts made by the Company pursuant to Condition (22) no distillate oil shall be used in the operation of the Development in the period up to and including 1 October 1999 which has a sulphur content greater than 0.2% by weight and thereafter which has a sulphur content greater than 0.1% by weight.

Reason: To exercise control over the operation of the Development when the gas supply is interrupted.

Protection of the SSSI


- (24) No work associated with the Development shall be carried out within the SSSI until there has been submitted to and approved in writing by English Nature a scheme of works and restoration proposals for the SSSI.
- (25) No construction work on any pipelines across the foreshore of the River Humber shall take place until details of such work have been submitted to and approved in writing by the Borough Council. Such construction work shall only be carried out between 1 April and 31 August in accordance with a timetable which shall previously have been submitted to and approved in writing by the Borough Council.
- (26) All construction materials used in connection with the scheme referred to in Condition (25) shall only be stored on the landward side of the sea wall.

Reason: To minimise the effects the Development will have on the SSSI.

Default of Agreement

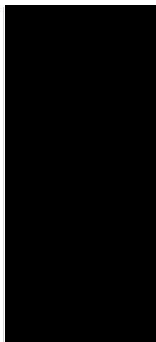
- (27) Where any matter is required to be agreed by the Borough Council, the County Council or English Nature under any of the foregoing Conditions that matter shall in default of agreement be determined by the Secretary of State for Trade and Industry.

Dated: 3 August 1992


M A Higson
An Assistant Secretary
Department of Trade and Industry

Electricity Act 1989
Town and Country Planning Act 1990

Certified to be Figure No CCGT-660-0002 referred to in the consent dated 3 August 1992 given by the Secretary of State for Trade and Industry to Humber Power Ltd for the construction and operation of a combined cycle gas turbine generating station at Stallingborough in the County of Humberside.

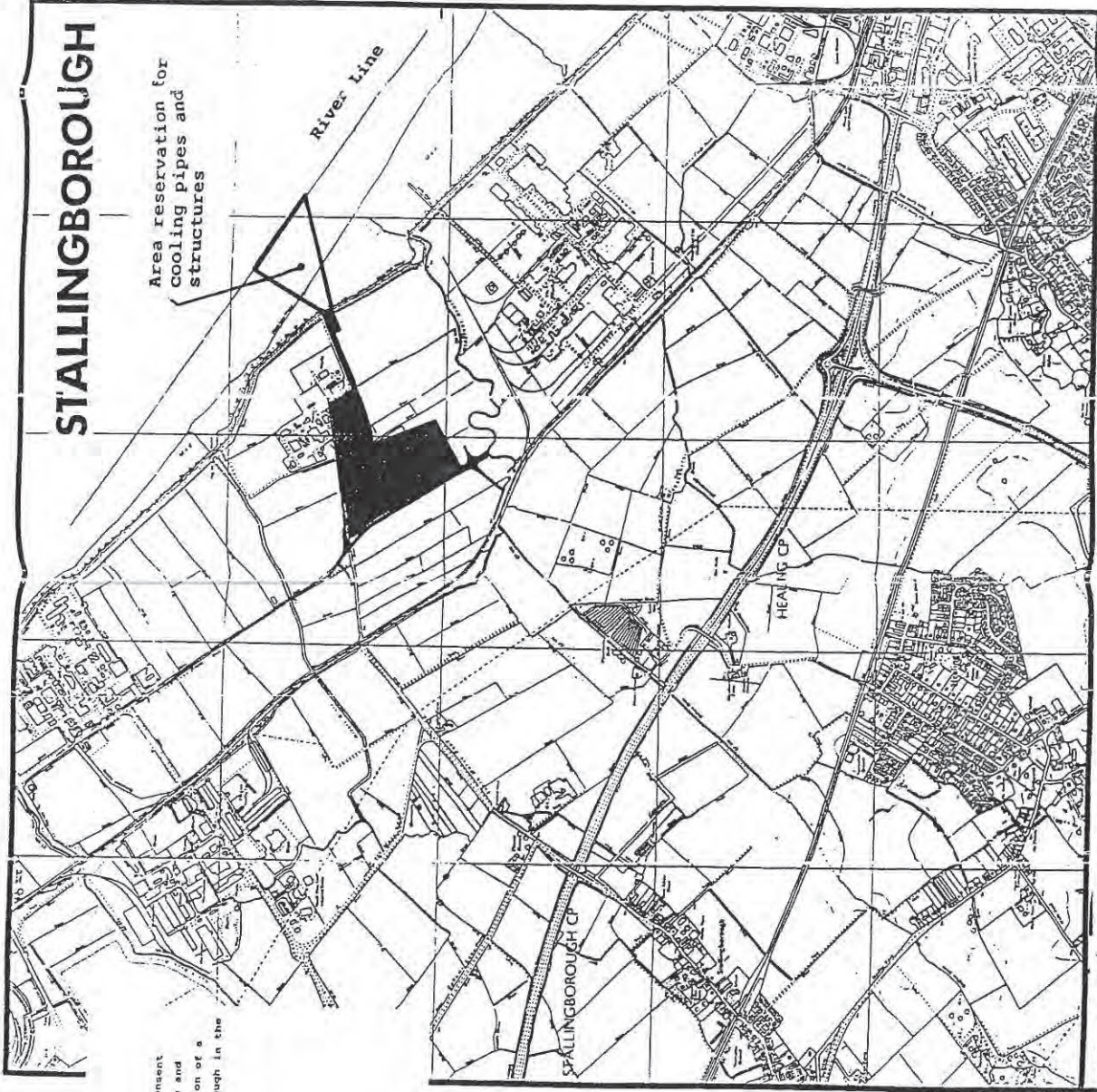


217

STALLINGBOROUGH

Area reservation for cooling pipes and structures

River Line



IVO ENERGY LIMITED

VICINITY

Keith Dalton & Associates

Tel: 071-89 0213

Original Scale 1:10 000 Chartered Surveyors & Planning Consultants

SITE LOCATION
CCGT-660-0002

APPENDIX 12: FULL TEXT OF POLICY 9 OF THE NELLP

Policies	Policy Text (including tables within policies)	Accompanying text
Policy 9 – Habitat Mitigation – South Humber Bank	<p>Habitat Mitigation - South Humber Bank</p> <ol style="list-style-type: none"> 1. Within the Mitigation Zone identified on the Policies Map, proposals which adversely affect the Humber Estuary SPA/Ramsar site due to the loss of functionally linked land will normally be required to provide their own mitigation in order to comply with the requirements of the Habitats Regulations. 2. The Strategic Mitigation sites, circa 120ha, identified on the Policies Map, represent those sites which have been identified to deliver appropriate mitigation which will address the adverse impacts of development within the Mitigation Zone at a strategic level. The identified Mitigation Sites will be safeguarded against development, and appropriate habitat will be delivered and managed on these sites in accordance with the North East Lincolnshire South Humber Gateway Ecological Mitigation Delivery Plan. 3. Development proposals on greenfield land ⁽⁵¹⁾ within the Mitigation Zone will be required to make contributions towards the provision and management of the mitigation sites identified on the Policies Map. Where landowners have contributed to the implementation strategy through the donation of land, the required contribution will be reduced by an equivalent value. 4. The Council will secure such contributions, based on a proportional approach relating to the site area. The formula for the calculation or the relevant contribution is as follows: <div style="text-align: center; margin: 10px 0;"> $\text{Contribution (£)} = SA \times (\text{EMC/ha})^{(52)}$ </div> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>The Mitigation Contribution (£MC/ha) will be £11,580/ha. This contribution is not index linked.</p> <p>The Contribution shall be paid when development commences on site, or through agreement with the Council where a phase approach to delivery is accepted by the Council.</p> </div> 5. All other planning requirement will also be expected to be met. 6. On an exceptional basis independent alternative mitigation proposal will be considered on sites within the identified Mitigation Zone. Proposals should be supported by evidence that demonstrates that the alternative mitigation contributes to the overall mitigation strategy and ensures that the development avoids adverse effects on the integrity of the SPA/Ramsar site, alone or in combination. It will be a requirement of any planning consent that mitigation is implemented prior to the commencement of development. 	<p>South Humber Bank habitat mitigation</p> <p>12.45 The Humber Estuary is designated as a Special Area of Conservation (SAC) and Special Protection Area (SPA) under the European Habitats Directive. The Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations) require consideration of the designations as well as consideration of the wetland as being of international importance under the Ramsar Convention.</p> <p>12.46 Specifically, it requires that an 'Appropriate Assessment' is undertaken to understand the implications of the site, and that, where for reasons of 'overriding public interest', (which include issues that are social or economic in nature), proposals for development are put forward that will have a negative impact upon the integrity of the designation, any necessary compensatory provisions are secured.</p> <p>12.47 As development of the South Humber Bank has proceeded, concerns have been raised about the importance of the agricultural land. Several bird species that use the South Humber Bank for roosting and feeding are recognised as important features of sites of European and International conservation importance⁽⁴⁹⁾. These designations afford legal and policy protection to the Estuary. Development is not acceptable in the context of the Conservation of Habitats and Species Regulations 2010 (SI No 490), unless mitigation to address potential effects can be delivered.</p> <p>12.48 Bird survey work undertaken between 2006 and 2011, has provided a good understanding of the nature and scale of the issue. This established the importance and function of the South Humber Bank to species such as Curlew, Golden Plover and Lapwing; and provided the basic justification for considering a mitigation strategy.</p> <p>12.49 A South Humber Bank Ecology Group was formed, made up of representatives from the unitary authorities of North and North East Lincolnshire, nature conservation bodies and industry representatives. A Memorandum of Understanding was signed in 2010 between the unitary authorities and conservation bodies, which committed all to delivering a strategic mitigation solution.</p> <p>12.50 Work progressed on providing strategic mitigation which would deliver sufficient land to provide adequate habitat for birds whilst allowing for the full economic development of the remaining land to be realised. The approach is considered to be the most effective way of meeting the requirements of the Habitats Regulations and reducing the risk of one development creating problems for others. An Initial South Humber Gateway SPA Delivery Plan (August 2010) was agreed between the local authorities, Natural England, RSPB, Lincolnshire Wildlife Trust and the Environment Agency. This set out a number of initial mitigation principles and provided the basis for exploring mitigation sites options.</p> <p>12.51 Within North East Lincolnshire, the patchwork of existing industrial uses and patterns of existing bird usage raised particular difficulties and considerations. A site options assessment was undertaken, and an 'Agreed Area of Search' identified, within which it was agreed the mitigation could be provided. Further detailed consideration of specific sites based upon the Area of Search resulted in an 'initial Preferred Approach' being identified.</p> <p>12.52 The Initial South Humber Gateway SPA Delivery Plan was reviewed in 2014 to reflect the latest position regarding mitigation proposals. This culminated in the production of the South Humber Gateway Mitigation Strategy (2015).</p> <p>12.53 Subsequent discussions with landowners and environmental agencies have focused upon the delivery and management of the strategic mitigation sites and have refined the boundaries of individual sites⁽⁵⁰⁾. Details of the delivery strategy are set out in the South Humber Bank Strategic Mitigation Delivery Options (2015). The final total gross area to be safeguarded and delivered as mitigation equates to circa 120ha. Figure 12.2'Habitat mitigation, South</p>

- 51 Exceptionally brownfield sites may be required to contribute if evidence identifies that SPA/Ramsar birds have been using the site in significant numbers.
- 52 Where: A = Gross site area of the development proposal, £MC/ha = Mitigation Contribution, per ha (TC/TL), TC = Total Cost of the Strategic Mitigation Scheme (for clarity including all land acquisitions and leases, costs of works, associated fees and maintenance costs), TL = Total area of the Land included in the Strategic Mitigation Scheme.

Humber Bank' identifies the mitigation land that has currently been identified, and is also shown on the Policies Map. An area of complimentary grassland is also protected, shown on the plan below. The land adjacent to Old Fleet Drain is protected as part of the Great Coates Business Park Site (ELR015 a&b).

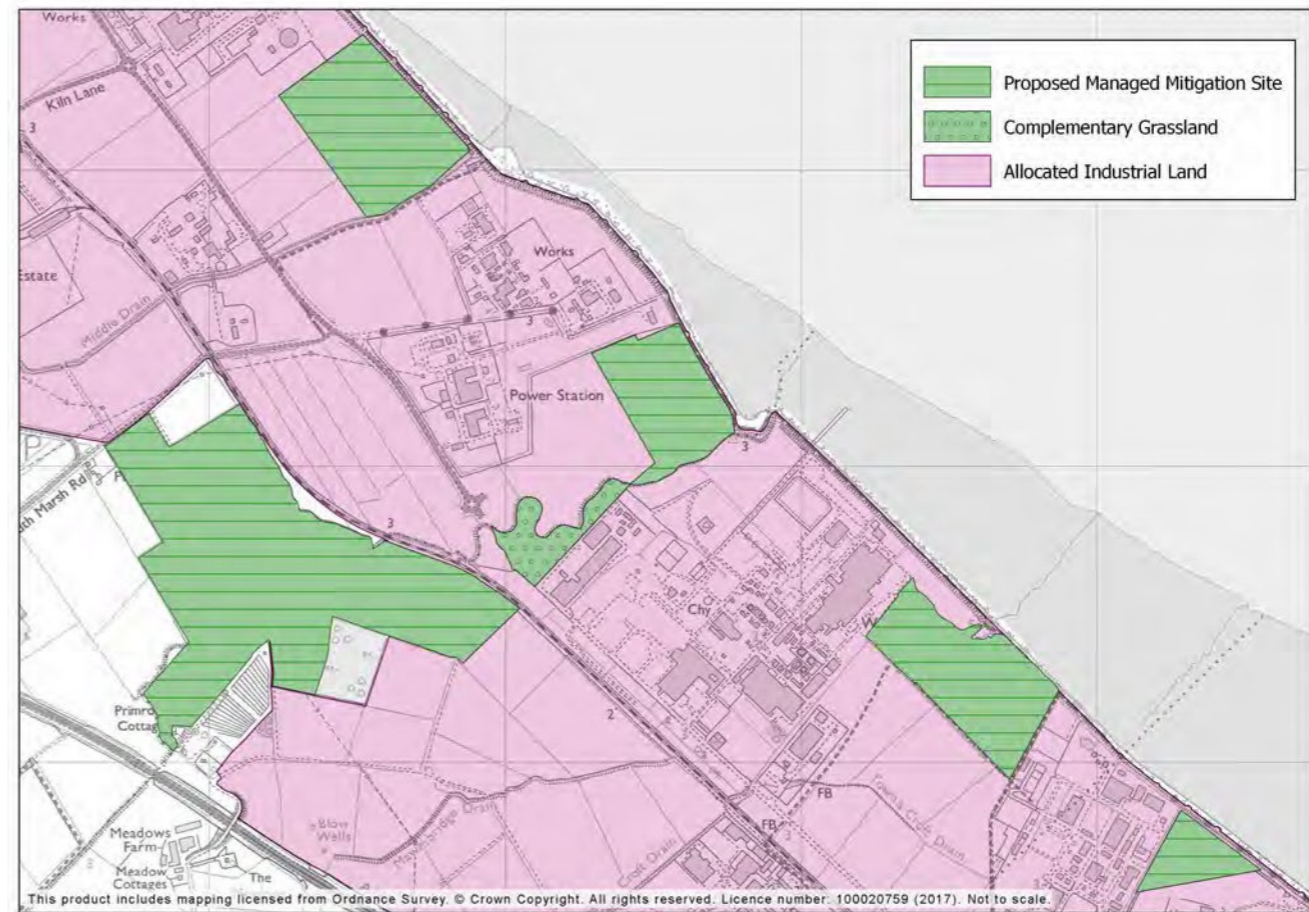


Figure 12.2 Habitat mitigation, South Humber Bank

Justification

12.54 The Council has worked hard over many years together with North Lincolnshire Council, nature conservation bodies and industry representatives, to develop a strategic approach that will identify and safeguard land to ensure that the integrity of the Humber Estuary Natura 2000 sites is maintained. After lengthy discussion and negotiation with landowners, industry and key conservation bodies a strategic solution has been identified.

12.55 The approach has significant benefits for landowners/developers of sites along the South Humber Bank who seek to bring forward proposals which support the economic growth aspirations for the area, and for the birds for whom the mitigation land is provided. The identification of strategic site means that the land lost from development is minimised, is optimally sited to maximise the potential for bird use and, most importantly, provides certainty across all interests that the integrity of the Humber Estuary Natura 2000 sites has been addressed and resolved. This is considered to be an exemplar approach to delivering mitigation on a strategic basis.

12.56 The Council has recognised that early implementation of the mitigation is vital to ensure that economic development is not delayed. Funding has been secured from the Greater Lincolnshire LEP and from the Council which will enable the early implementation of the scheme, which will then permit economic growth to be realised over the plan period⁽⁵³⁾. The Council will, through delivery of the mitigation sites, ensure that sufficient mitigation land is always in place to support the development of employment sites. This approach will ensure the

balance of mitigation land to developed sites on the South Humber Bank always remains effectively 'in credit'. Policy 9'Habitat Mitigation - South Humber Bank' does include a mechanism to recover costs from developers via contributions to support delivery of the mitigation and importantly support the future management of the habitat provided.

12.57 Arrangements for the ownership and management of the mitigation areas must be secured for the lifetime of the development plan. Beyond this period, it is expected that impacts (loss of functionally linked land) will remain, and that ongoing long term management of the mitigation areas will continue to be required and must be secured. If these areas cannot be secured then sufficient alternative mitigation areas will be needed to address the impacts. This alternative mitigation will be in place and functional prior to the loss of the existing mitigation areas. Until the alternative mitigation is secured and delivered, the Council will need to identify whether there is sufficient mitigation capacity to allow further developments to be consented, in accordance with ensuring that the mitigation balance sheet remains 'in credit'.

12.58 The Council has recognised that developers may consider an alternative approach; whilst the Policy allows for the possibility and includes wording to address all possible eventualities, in practice it would be very challenging to deliver. Participation in the scheme of strategic mitigation will be the preferred approach and is therefore recommended.

Policy 9'Habitat Mitigation - South Humber Bank' relationship to:	Links to:
National Planning Policy Framework	Paragraph 118
Local Plan Strategic Objectives	SO3, SO5 and SO6
Evidence base and other key documents and strategies	<ul style="list-style-type: none"> • <i>South Humber Gateway Mitigation Strategy (2015)</i> • <i>South Humber Gateway Mitigation Delivery Options (2015)</i> • <i>South Humber Industrial Investment Programme (2015)</i>

Table 12.5 Policy relationships

49 The Humber Special Protection Areas (SPA) and Ramsar Site.
 50 As final details are confirmed there are likely to be some final adjustments to site boundaries.
 53 South Humber Industrial Investment Programme (2015).

**APPENDIX 13: FULL TEXT OF POLICIES DETAILED IN
PARAGRAPHS 5.6.2 AND 5.6.3 OF THE PLANNING, DESIGN AND
ACCESS STATEMENT, WITH PRE- AND POST- AMBLES**

Policies	Policy Text (including tables within policies)	Accompanying text																											
Policies in 5.6.2																													
Policy 1 – Employment land supply	<p>Employment land supply</p> <ol style="list-style-type: none"> Between 2013 and 2032, the Council will support the development of a portfolio of sites which will support the generation of 8,800 jobs. The provision of a portfolio of sites will enable the development of B-class uses to accommodate growth primarily within the Renewables and Energy, Chemicals and Process Industries, Food Processing, and Ports and Logistics sectors. Sites selected will also ensure sufficient flexibility and choice for investors within these sectors, whilst ensuring that a minimum requirement of 123.6ha is accommodated. Additionally, the Council will support the development of the Visitor Economy, ensuring provision of a minimum of 33,600m² for non B-class uses within town centre opportunity sites. 	<p>Jobs (land requirement)</p> <p>8.1 Economic forecasts have been generated to assess the extent of growth that can be anticipated over the plan period (i.e. to 2032). Two models have been used in the assessment:</p> <ol style="list-style-type: none"> the Regional Econometric Model (REM) (updated since the Consultation Draft Local Plan was issued); and the approach considered by Atkins in the Economic Futures Report⁽²⁹⁾. <p>8.2 The REM model considers a range of factors along with economic activity trends, including population growth, and is, in effect, a labour market supply-led model.⁽³⁰⁾ The latest application of the model forecasts approximately 7,300 jobs being generated over the plan period.</p> <p>8.3 The Economic Futures Report takes a labour demand-led approach. It analyses the potential for growth by considering the current state of businesses within the area (derived from local business surveys), and considers a range of growth rates in order to ascertain the potential requirement for jobs from a business-led perspective. It also captures the extent of known projects and the impact of an economic development strategy in the forecasting calculations. The scenarios point to a range of between 4,000 and 14,000 jobs being created.</p> <p>8.4 The Council is pursuing a scenario that will lead to approximately 8,800 jobs being generated. It is based on an expectation that the scenario will be supported by a moderately successful economic development and inward investment strategy. It is recognised that this level of growth is aspirational, but with commitments to both the South Humber Industrial Investment Programme (SHIIP), and the extension of the Humber Enterprise Zone from April 2016 (which will include a number of sites identified in this Plan), there is good evidence to support confidence in the deliverability of this level of growth.</p> <p>8.5 Table 8.2'Employment growth forecast by SIC code' shows the spread of the predicted 8,800 jobs across the whole economy, not just the Borough's five key sectors. However, it should be noted that the standard industrial classification (SIC) codes are not directly compatible with the nature of local industries. For example, food processing figures are incorporated largely within the manufacturing sector, but also feature in the wholesale retail, and, potentially, transportation and storage predictions.</p>																											
		<table border="1"> <thead> <tr> <th colspan="3">Medium growth employment forecast by SIC code</th> </tr> <tr> <th>Sector</th> <th>% change</th> <th>Jobs total</th> </tr> </thead> <tbody> <tr> <td>Accommodation and food services</td> <td>24.4</td> <td>831</td> </tr> <tr> <td>Administrative and support service activities</td> <td>15.8</td> <td>946</td> </tr> <tr> <td>Agriculture, forestry and fishing</td> <td>0</td> <td>0</td> </tr> <tr> <td>Arts, entertainment and recreation</td> <td>12.8</td> <td>192</td> </tr> <tr> <td>Construction</td> <td>37.7</td> <td>908</td> </tr> <tr> <td>Education</td> <td>9.8</td> <td>619</td> </tr> <tr> <td>Electricity, gas, steam and air conditioning supply</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	Medium growth employment forecast by SIC code			Sector	% change	Jobs total	Accommodation and food services	24.4	831	Administrative and support service activities	15.8	946	Agriculture, forestry and fishing	0	0	Arts, entertainment and recreation	12.8	192	Construction	37.7	908	Education	9.8	619	Electricity, gas, steam and air conditioning supply	0	0
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Financial and insurance activities	31.7	253
Human health and social work activities	6.5	669
Information and communication	16.9	481
Manufacturing	12.7	1206
Other service activities	35.5	284
Professional, scientific and technical activities	16.6	118
Public administration and defence, compulsory social security	0	0
Real estate activities	16.6	99
Transportation and storage	21.5	1,095
Water supply, sewerage, waste management and remediation activities	16.4	82
Wholesale and retail trade, repair of motor vehicles and motorcycles	9.3	1,012
Total	13.6	8,792

Table 8.2 Employment growth forecast by SIC code

Justification

Provision for B-Class uses

8.6 To determine the employment land requirement, the business operations, defined by the SIC codes in Table .2'Employment growth forecast by SIC code', have been apportioned to Planning Use Classes. Traditionally, employment land has related to Use Class B1, B2 and B8. The North East Lincolnshire Economic Futures Report (2014) indicates that the number of jobs predicted to be generated within these industrial classifications relates to just 50% of the total jobs growth for the Borough. This is due to the fact that jobs growth in other parts of the economy, such as Wholesale and Retail Trade, would normally fall within non-B use classes and, therefore, is not considered as part of the Employment Land Supply.

8.7 Analysis within the Economic Futures Report applied the requirement for new jobs within Use Class B1, B2 and B8 to a land requirement based on standard floorspace and job densities. It identified a floorspace requirement of 151,773m², which equates to a total land requirement of 45ha.

8.8 However, due to the nature of the operations, many businesses within the Borough falling within use class categories B2 and B8 have exceptionally large building footprints. These uses typically have lower floorspace to job densities than the national standards would suggest. Local analysis⁽³¹⁾ has identified that, overall, the floorspace density (i.e. site coverage) tends to be greater (i.e. more floorspace is developed per ha), but that job densities (i.e. the number of square metres per job) tend to be significantly lower. Consequently, the application of standard calculations results in an under-estimate of the total floorspace requirement, and therefore the land requirement.

8.9 Evidence in the Employment Land Technical Paper, demonstrates that the floorspace requirements, and therefor land requirements area as follows:

Industrial floorspace requirements	B1a	B1(c) and B2	B8	Total
Jobs generated 2013 to 2032	2,031	958	994	3,983
Average North East Lincolnshire floorspace coverage	75%	50%	50%	
Average North East Lincolnshire job density (square metres per job)	12m ²	117m ²	301m ²	
North East Lincolnshire floorspace requirement (square metres) 2013 to 2032	23,374m ²	112,539m ²	299,904m ²	435,817m ²
North East Lincolnshire land requirement (ha) 2013 to 2032	3.2ha	21.8ha	57.4ha	82.4ha
50% buffer	1.6ha	10.9ha	28.7ha	41.2ha
Total land requirement: employment uses	4.8ha	32.7ha	86.1ha	123.6ha

Table 8.3 Industrial floorspace requirements

8.10 It is important that there is sufficient flexibility and choice in the selection of sites made available for development. An additional allowance of up to 50% is recommended in the Economic Futures Report and, in light of the current restrictions on the availability of land and premises, a buffer of 50% has been applied to and incorporated in the overall land requirement.

8.11 In view of the local context and the resulting scale of the employment land requirement, the provision of sites is expressed as a portfolio. The portfolio comprises strategic sites, sites for the ports and logistics, sites reserved for long term business use and sites for general employment needs. Site specific details and further information on the site selection process are presented in Policy 7'Employment allocations'.

Provision for non-B Class uses

8.12 Traditional employment land provision will accommodate approximately half of the jobs anticipated to be generated over the plan period.

The Local Plan needs to show how these additional jobs will also be accommodated. The details in Table 8.3'Industrial floorspace requirements' show that anticipated growth within the Wholesale and Retail trade is expected to generate a further 1,012 jobs, which generates a requirement for a minimum provision of 18,734m² of A Class floorspace. This compares to the Retail, Leisure and Three Centres Study, Retail Floorspace Capacity Update (2016) which identifies an expenditure based requirement for the town centres of circa 31,000m² net of comparison floorspace, and 2,600m² net convenience floorspace. The higher requirement would ensure that the total anticipated jobs identified can be accommodated.

8.13 Support uses including finance and insurance are likely to be brought forward through mixed use schemes; whilst other uses, such as those for education and health which are not specifically defined by job

density allowances, will be supported where required to meet growth in these sectors.

Policy 1'Employment land supply' relationship to:	Links to:
National Planning Policy Framework	Paragraphs 21, 156 and 157
Local Plan Strategic Objectives	SO3 and SO5
Evidence base and other key documents and strategies	<i>Employment Land Technical Paper (2015)</i> <i>North East Lincolnshire Economic Futures Report (2014)</i> <i>Retail, Leisure and Three Centres Study, Retail Floorspace Capacity Update (2016)</i>

Table 8.4 Policy relationships

29 *North East Lincolnshire Economic Futures Report (2014).*

30 A model that applies local population growth (e.g. labour force) to economic trends to identify the supply of labour.

31 *Employment Land Technical Paper (2015).*

Policy 5 – Development boundaries

Development boundaries

1. Development boundaries are identified on the Policies Map. All development proposals located within or outside of the defined boundaries will be considered with regard to suitability and sustainability, having regard to:
 - A. the size, scale, and density of the proposed development;
 - B. access and traffic generation;
 - C. provision of services (education, healthcare, community, retail and recreation);
 - D. impact upon neighbouring land uses by reason of noise, air quality, disturbance or visual intrusion;
 - E. intrusion;
 - F. advice from the Health and Safety Executive;
 - G. flood risk;
 - H. the quality of agricultural land;
 - I. measures to address any contamination of the site; and,
 - J. impact on areas of heritage, landscape, biodiversity and geodiversity value, including
 - K. open land that contributes to settlement character.
2. Development proposals located within but adjacent to defined boundaries will be permitted where schemes respond to:
 - A. the nature and form of the settlement edge;
 - B. the relationship between countryside and the settlement built-form; and,
 - C. opportunities to contribute to the network of green infrastructure.
3. Beyond the development boundaries land will be regarded as open countryside. Development will be supported where it recognises the distinctive open character, landscape quality and role these areas play in providing the individual settings for independent settlements, and:
 - A. supports a prosperous rural economy, particularly where it promotes the development
 - B. and diversification of agricultural and other land base rural businesses; or,
 - C. promotes the retention and development of local services and community facilities; or,

Development boundaries

11.1 Development boundaries distinguish between built-up areas and areas of open countryside. The use of development boundaries in planning has been successful in indicating clearly the locations where development will usually be acceptable, subject to meeting normal development management criteria. It is an approach that has, in the past, been strongly supported in North East Lincolnshire and continues to be supported today.

11.2 The development boundaries have been identified on the Policies Map. These boundaries take account of housing allocations. Where it is known that developments will incorporate extensive areas of perimeter landscaping at the edge of settlements, the development boundaries have been drawn to follow the extent of the built-up development.

11.3 The Policy goes on to establish the nature of development that would be supported and approved, both within, and beyond the development boundaries, setting out the key considerations and criteria that would apply.

Justification

11.4 A number of considerations informed the process of defining the development boundaries, including the nature and form of settlement edges. The Landscape Character Assessment (2015) provides an assessment of the landscape sensitivities and was valuable evidence for:

1. considering whether settlements include key characteristics or distinctive features which contribute to their sense of place;
2. identifying features that define current settlement edges and determining whether they are strong or weak; and,
3. assessing opportunities for enhancement through identification of approaches and views, distinctive features, visual open space and sensitivity to change.

- D. supports rural leisure and tourism developments; or,
- E. it consists of affordable housing to meet specific local needs; or,
- F. it is development that has been specifically defined and identified through the
- G. neighbourhood planning process.

Key aspects considered in defining development boundaries	
The need for new development	<p>Ensuring that sufficient sites area available to accommodate future requirements by incorporating sites that:</p> <ol style="list-style-type: none"> 1. contribute to the supply of housing (allocated sites); and, 2. contribute to the supply of employment land. <p>Boundaries are not drawn so tightly to exclude all new development; they are influenced by the physical features that define the settlement edge and will provide some opportunities for small scale development above and beyond allocated sites.</p>
The setting of the settlement	<p>Considering the particular landscape and surrounding countryside features in the vicinity of the settlement edge:</p> <ol style="list-style-type: none"> 1. recreation and amenity open space (including school playing fields), which is physically surrounded by the settlement or adjoining settlement on three sides, is included within the boundary; and, 2. recreation or amenity open space that extends into the countryside or primarily relates to the countryside, is excluded from the boundary.
The existing form, character and pattern of development	<p>Considering the impact of further development on the existing development pattern. Ensuring boundaries are not contiguous if the form of the settlement does not reflect this. If the settlement is characterised by small groups this is reflected in the boundaries.</p> <p>The defined boundaries are not drawn so as to 'round off' or 'straighten' edges as this would be contrary to an approach that seeks to safeguard local character and distinctiveness, as it is often the irregularity of settlement edges that adds to a settlement's attractiveness.</p>
Preventing coalescence of settlements	<p>Boundaries include the gardens (curtilage) of properties except where they are functionally separate from the dwelling or, where the scale of the site is such that it could, through future development, lead to ribbon development or coalescence with a nearby settlement.</p>
The presence of physical boundaries	<p>Recognising that natural or man made features such as rivers, woodlands, or roads and railways can form logical defining boundaries. However, areas of caravan, chalet and other temporary accommodation are excluded from the defined boundary reflecting their temporary status.</p>
Key aspects considered in defining development boundaries	

Minimising impacts on the character of open countryside	Boundaries ensure the intrinsic character and beauty of the countryside is respected, with particular consideration given to the Lincolnshire Wolds Area of Outstanding Natural Beauty designation.
Avoiding ribbon or scattered development	Ensuring that development does not creep along road frontages into open areas, or result in scattered development unrelated to existing development form. Freestanding buildings, individual and small groups of dwellings, including farm buildings which are detached or peripheral to the main built-up area of the settlement are excluded from boundaries (reflecting NPPF paragraph 55).
Minimising impacts on heritage and biodiversity value	Ensuring that sites of heritage or biodiversity value are identified and not put at risk.
The presence of HSE consultation zones	Recognising that development opportunities may be limited or restricted in specific areas.
Traffic noise	Based on current assessments of noise, boundaries exclude areas where it is known that road surface noise impacts on living conditions.
Accessibility to services and facilities	Boundaries reflect the findings of the <i>Settlement Accessibility Assessment</i> (2013).

Table 11.1 Key aspects considered in defining development boundaries

11.5 Policy 5'Development boundaries' outlines the generic considerations that will be applied when considering all development proposals, (within development areas, within development boundaries; and within open countryside, outside development boundaries). They reflect core principles and considerations set out in National Planning Policy. These generic considerations provide the basis for considering whether the development proposed should be supported and approved.

11.6 Policy 5'Development boundaries' specifically allows for development sites and opportunities to be identified and defined through the neighbourhood planning process. In some cases, where the local community decides that this is appropriate, a neighbourhood plan will effectively amend identified development boundaries.

11.7 In accordance with the NPPF (paragraph 54), the Policy also makes provision for allowing some market housing where this would support the development of a significant number of affordable housing units to meet local needs in rural areas. For example, to enable the delivery of affordable units without grant funding. Policy 19'Rural exceptions' provides further clarification.

Policy 5'Development boundaries' relationship to:	Link to:
National Planning Policy Framework	Paragraphs 55 and 58
Local Plan Strategic Objectives	SO4 and SO9

Evidence base and other key documents and strategies

North East Lincolnshire, Landscape Character Assessment (2015)
Settlement Accessibility Assessment (2014)

Table 11.2 Policy relationships

Policy 6 – Infrastructure

Infrastructure

1. The Council will support developments to create, expand or alter service facilities, including schools, health facilities and key infrastructure to meet the needs of existing and new communities.
2. The Council will work with developers and partner organisations to ensure the delivery of infrastructure, services and community facilities necessary to develop and maintain sustainable communities; and will require provision of infrastructure and infrastructure improvements which are necessary to make development acceptable to be delivered in association with those developments. These improvements will be secured by planning condition, obligations or levy charges as appropriate.
3. Contributions towards infrastructure will be based on the demands created by the specific development. This includes provision of new, or enhancement of the existing infrastructure and facilities, including, but not necessarily limited to:
 - A. physical infrastructure, including:
 - i. transport improvements, including highways, public transport, provision for cyclists and pedestrians;
 - ii. drainage and surface water management (including SuDS maintenance where appropriate);
 - iii. appropriate);
 - iv. flood defences (where site specific requirements warrant such an approach).
 - B. social infrastructure, including:
 - i. affordable housing;
 - ii. education, including primary and secondary provision⁽³⁷⁾.
 - C. green infrastructure, including:
 - i. green space, sport recreation and play space, including future maintenance;
 - ii. habitat mitigation provision and maintenance, particularly in association with South Humber Bank employment sites.
 - D. Existing infrastructure will be safeguarded, except where there is clear evidence that particular infrastructure is no longer required to meet current or future needs, or can be delivered through alternative provision.
 - E. Where financial contributions are made, and in the event it is found that they exceed the cost of necessary works or the contribution remains unspent after an agreed period of time, the contributions will be returned, in part or entirely, as may be appropriate.
 - F. The Council will in addition support:
 - i. proposals that deliver health infrastructure including doctor's surgeries and pharmacies, which offers improved services for their users; and,
 - ii. applications made by the emergency services which will deliver improved services for their users.
 - G. The Council will seek to ensure that all development is commercially viable and deliverable. Where the delivery of a proposed scheme is threatened on the basis of viability, the Council may consider a reduction in the extent of the obligations required to be met. In such circumstances, developers will be required to submit a detailed Financial Viability Assessment on an 'open book' basis, and in sufficient detail in order to justify any reduction from the expected requirements of the scheme. All such submissions, where required by the Council, should provide

Infrastructure

11.8 The delivery of key infrastructure of the right type, in the right place, and, at the right time, is vitally important to supporting growth and delivery of truly sustainable development. As settlements grown with new homes and places of work, it is important that the supporting infrastructure necessary to ensure health, social and cultural well-being and basic services meeting local needs are provided.

11.9 Developers will be expected to provide these basic needs and contribute fairly to the delivery of new infrastructure to support new development and the creation of new sustainable communities. This includes aspects of physical infrastructure, social infrastructure, and environmental infrastructure.

11.10 Developers will be expected to meet the infrastructure needs of the proposed development, and these will normally be secured through planning obligations, conditions or levy charges where appropriate. Where provision is required to address existing deficiencies as well as meeting future requirements, the Council will also utilise contributions from other public funding streams to ensure delivery.

Justification

11.11 The Council has produced an Infrastructure Development Plan (IDP) (2015) which sets out the infrastructure required to support sustainable communities over the plan period. The IDP identifies the following:

1. Improvement/enhancement of the current transport network, including requirements for highway provision and improvements; improved pedestrian, cycle and public transport facilities.
2. Requirement for improved education facilities for both primary and secondary provision throughout the area. In the majority of cases, additional school places can be made available either by take-up of existing capacity, or through additional provision by extending existing school facilities. However, the scale of development proposed in certain locations requires new school provision for primary in the Cleethorpes and Waltham planning areas, and in secondary provision in Grimsby town centre and in association with the Grimsby West strategic housing site.
3. Provision of green infrastructure. The standards identified in the Plan will apply to new development. A future Supplementary Planning Document will provide additional guidance on delivery and future management.
4. Provision of playing pitches. Provision of new facilities will be secured through a combination of on-site provision and off-site contributions towards enhanced provision and include management regimes.
5. Whilst there is sufficient electricity, gas and water supply to accommodate required growth, developers will be required to pay for local connections and substation upgrades to meet specific site requirements.
6. Requirements to improve Flood Defences in certain areas in the period to 2032. Specific schemes will be identified in the updated *Humber Flood Risk Management Strategy* and identified by the Environment Agency accordingly. Flood Risk Assessments will be required where appropriate, and mitigation strategies implemented where necessary.

sufficient information to enable an independent assessment to be undertaken. As a minimum, this should be in accordance with the guidance on such content set out within *RICS Guidance Note GN2012/94 Appendix C*. All submissions will be subject to an independent assessment prior to the determination of the application.

37 Pupil generation is based upon pupil generation ratios of; one primary pupil/four dwellings and one secondary pupil/five dwellings. The threshold at which contributions will be sought is ten units.

7. Potential provision of health services. Existing facilities are such that it is unlikely that specific new provision of newsurgeries will be required over the plan period, although capacity may be improved by additional provision at existing facilities. Funding will be secured from government sources through higher patient numbers. Qualitative and efficiency improvements are the primary focus of primary care provision and as a result there is no specific need to ensure improved primary or secondary care facilities.
8. There is currently sufficient capacity to address waste management requirements in the short to medium term.

11.12 The strategic ecological mitigation requirements identified in Policy 9'Habitat Mitigation - South Humber Bank' are considered to be essential requirements to deliver the anticipated level of economic growth. Under normal circumstances, developers would be required to undertake a site specific Appropriate Assessment and identify and implement all necessary mitigation measures. The approach identified in Policy 9'Habitat Mitigation - South Humber Bank' supports a strategic approach to provision against which all developers within the Mitigation Zone will be required to make appropriate contributions in lieu of meeting site specific requirements.

11.13 Policy 6'Infrastructure' provides the mechanism for ensuring that growth is delivered together with appropriate infrastructure. Where developer contributions are to be sought, the thresholds and triggers are set out in individual themed policies in this Plan, together with the mechanisms for determining the scale of contribution to be made.

11.14 The Council recognises that contributions may be delivered through planning obligations or levy. To ensure that planning obligations and the levy can operate in a complementary way, the Levy Regulations 122 and 123(38) place limits on the use of planning obligations in three respects:

1. they put the Government's policy tests on the use of planning obligations (NPPF, paragraph 204) on a statutory basis, for developments that are capable of being charged the levy;
2. they ensure the local use of the levy and planning obligations does not overlap; and,
3. they impose a limit on pooled contributions from planning obligations towards infrastructure that may be funded by the levy.

11.15 A planning obligation can only be taken into account when determining a planning application for a development, or part of a development, if the obligation meets all of the following tests:

1. it is necessary to make the development acceptable in planning terms;
2. it is directly related to the development; and,
3. it is fairly and reasonably related in scale and kind to the development.

11.16 The balance of contributions have been subject to viability assessment to ensure that the sum of contributions is not so great that it will place such a large burden on development so as to prevent the delivery of the development. Details of the viability assessment that has resulted in the stated contributions can be found in the North East Lincolnshire Local Plan Viability Assessment Update (2015).

Policy 6'Infrastructure' relationship to:	Link to:
National Planning Policy Framework	Paragraph 162
Local Plan Strategic Objectives	SO2, SO5, SO7 and SO8

Evidence base and other key documents and strategies	<ul style="list-style-type: none"> • <i>North East Lincolnshire Infrastructure Development Plan (2015)</i> • <i>North East Lincolnshire Local Plan Viability Assessment Update (2015)</i>
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Table 11.3 Policy relationships

Policy 8 – Existing employment areas

- Existing employment areas
1. Existing employment areas are identified on the Policies Map and will be safeguarded for employment uses. Proposals which promote development or reuse of vacant sites located within existing employment areas for employment use will be supported subject to other relevant policies in the Plan.
 2. Proposals for the development of non-employment uses on existing employment sites will be permitted where:
 - A. there is evidence to show that the site/building has reached the end of its useful economic life by:
 - i. demonstrating that there is no demand for the reuse of the building/site, following a minimum period of 12 months marketing for the existing use with a recognised commercial agent at a reasonable price reflecting typical local land values;
 - ii. demonstrating that the physical adaption or reuse of the building is uneconomic in commercial terms; and,
 - B. the non-employment use would be compatible with the operations of existing employment uses nearby.

Existing employment areas

12.40 In addition to undeveloped land allocated for employment uses, there are other existing employment areas identified on the Policies Map. These areas are home to many successful businesses that contribute to North East Lincolnshire's economy. There will inevitably be a degree of change within these areas over the plan period as businesses form, expand, contract and close. This is a normal process and the Plan accommodates this.

Justification

12.41 Policy 8'Existing employment areas' safeguards existing employment sites for employment uses. This approach provides support for existing business sectors that have established in the Borough. It recognises that businesses may need to expand over the plan period, depending on market conditions and working practices.

12.42 Policy 8'Existing employment areas' also recognises that market conditions may see certain employment sites fall out of employment use. The former Birds Eye factory site in Ladysmith Road, Grimsby is one such example. There is no justification for safeguarding sites in the long-term where there is no prospect of future employment use. Such an approach is considered to be unsustainable. To promote speedy regeneration, the Policy allows for development of non-employment uses subject to specific criteria being met. These criteria relate to evidence confirming there is no reasonable prospect of re-establishing employment use; and checks to ensure that the proposed new use is acceptable, and will not compromise the existing employment uses in the area.

12.43 The Council acknowledges that it would be wrong to require redundant premises to be held vacant for a long time in the vain hope that they may be reoccupied. However, there needs to be a period in which the market is tested to see if it is genuinely redundant. The Council considers that a 12-month period is appropriate and consistent with the principles set out in the NPPF which allows for market signals to be taken into account whilst avoiding undue long-term protection of sites.

12.44 The existing employment areas are set out in Table 12.3'Existing employment areas' and identified on the Policies Map.

Existing employment areas	
Settlement	Site location/description
Immingham	Manby Road Industrial Estate
Stallingborough	Kiln Lane Industrial Estate
Grimsby	Europarc

Grimsby	Europa Park
Grimsby	Great Grimsby Business Park
Grimsby	Acorn Business Park
Grimsby	South Humberside Industrial Estate
Grimsby	Birchin Way Industrial Estate
Grimsby	Ladysmith Road
Humberston	Wilton Road Industrial Estate
Humberston	Hewitts Circus Business Park

Table 12.3 Existing employment areas

Policy 8'Existing employment areas' relationship to:	Links to:
National Planning Policy Framework	Paragraph 22
Local Plan Strategic Objectives	SO3 and SO5
Evidence base and other key documents and strategies	<i>Employment Land Review (2014)</i>

Table 12.4 Policy relationships

		<p>Grimsby</p> <p>Europa Park</p> <p>Grimsby</p> <p>Great Grimsby Business Park</p> <p>Grimsby</p> <p>Acorn Business Park</p> <p>Grimsby</p> <p>South Humberside Industrial Estate</p> <p>Grimsby</p> <p>Birchin Way Industrial Estate</p> <p>Grimsby</p> <p>Ladysmith Road</p> <p>Humberston</p> <p>Wilton Road Industrial Estate</p> <p>Humberston</p> <p>Hewitts Circus Business Park</p> <p>Table 12.3 Existing employment areas</p> <table border="1"> <thead> <tr> <th>Policy 8'Existing employment areas' relationship to:</th> <th>Links to:</th> </tr> </thead> <tbody> <tr> <td>National Planning Policy Framework</td> <td>Paragraph 22</td> </tr> <tr> <td>Local Plan Strategic Objectives</td> <td>SO3 and SO5</td> </tr> <tr> <td>Evidence base and other key documents and strategies</td> <td><i>Employment Land Review (2014)</i></td> </tr> </tbody> </table> <p>Table 12.4 Policy relationships</p>	Policy 8'Existing employment areas' relationship to:	Links to:	National Planning Policy Framework	Paragraph 22	Local Plan Strategic Objectives	SO3 and SO5	Evidence base and other key documents and strategies	<i>Employment Land Review (2014)</i>
Policy 8'Existing employment areas' relationship to:	Links to:									
National Planning Policy Framework	Paragraph 22									
Local Plan Strategic Objectives	SO3 and SO5									
Evidence base and other key documents and strategies	<i>Employment Land Review (2014)</i>									
<p>Policy 9 – Habitat Mitigation – South Humber Bank</p>	<p>Habitat Mitigation - South Humber Bank</p> <ol style="list-style-type: none"> 1. Within the Mitigation Zone identified on the Policies Map, proposals which adversely affect the Humber Estuary SPA/Ramsar site due to the loss of functionally linked land will normally be required to provide their own mitigation in order to comply with the requirements of the Habitats Regulations. 2. The Strategic Mitigation sites, circa 120ha, identified on the Policies Map, represent those sites which have been identified to deliver appropriate mitigation which will address the adverse impacts of development within the Mitigation Zone at a strategic level. The identified Mitigation Sites will be safeguarded against development, and appropriate habitat will be delivered and managed on these sites in accordance with the North East Lincolnshire South Humber Gateway Ecological Mitigation Delivery Plan. 3. Development proposals on greenfield land ⁽⁵¹⁾ within the Mitigation Zone will be required to make contributions towards the provision and management of the mitigation sites identified on the Policies Map. Where landowners have contributed to the implementation strategy through the donation of land, the required contribution will be reduced by an equivalent value. 4. The Council will secure such contributions, based on a proportional approach relating to the site area. The formula for the calculation or the relevant contribution is as follows: 	<p>South Humber Bank habitat mitigation</p> <p>12.45 The Humber Estuary is designated as a Special Area of Conservation (SAC) and Special Protection Area (SPA) under the European Habitats Directive. The Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations) require consideration of the designations as well as consideration of the wetland as being of international importance under the Ramsar Convention.</p> <p>12.46 Specifically, it requires that an 'Appropriate Assessment' is undertaken to understand the implications of the site, and that, where for reasons of 'overriding public interest', (which include issues that are social or economic in nature), proposals for development are put forward that will have a negative impact upon the integrity of the designation, any necessary compensatory provisions are secured.</p> <p>12.47 As development of the South Humber Bank has proceeded, concerns have been raised about the importance of the agricultural land. Several bird species that use the South Humber Bank for roosting and feeding are recognised as important features of sites of European and International conservation importance⁽⁴⁹⁾. These designations afford legal and policy protection to the Estuary. Development is not acceptable in the context of the Conservation of Habitats and Species Regulations 2010 (SI No 490), unless mitigation to address potential effects can be delivered.</p> <p>12.48 Bird survey work undertaken between 2006 and 2011, has provided a good understanding of the nature and scale of the issue. This established the importance and function of the South Humber Bank to species such as Curlew, Golden Plover and Lapwing; and provided the basic justification for considering a mitigation strategy.</p> <p>12.49 A South Humber Bank Ecology Group was formed, made up of representatives from the unitary authorities of North and North East Lincolnshire, nature conservation bodies and industry representatives. A Memorandum of</p>								

$$\text{Contribution (£)} = SA \times (\text{EMC/ha})^{(52)}$$

The Mitigation Contribution (£MC/ha) will be £11,580/ha. This contribution is not index linked.

The Contribution shall be paid when development commences on site, or through agreement with the Council where a phase approach to delivery is accepted by the Council.

5. All other planning requirement will also be expected to be met.
6. On an exceptional basis independent alternative mitigation proposal will be considered on sites within the identified Mitigation Zone. Proposals should be supported by evidence that demonstrates that the alternative mitigation contributes to the overall mitigation strategy and ensures that the development avoids adverse effects on the integrity of the SPA/Ramsar site, alone or in combination. It will be a requirement of any planning consent that mitigation is implemented prior to the commencement of development.

51 Exceptionally brownfield sites may be required to contribute if evidence identifies that SPA/Ramsar birds have been using the site in significant numbers.

52 Where: A = Gross site area of the development proposal, EMC/ha = Mitigation Contribution, per ha (TC/TL), TC = Total Cost of the Strategic Mitigation Scheme (for clarity including all land acquisitions and leases, costs of works, associated fees and maintenance costs), TL = Total area of the Land included in the Strategic Mitigation Scheme.

Understanding was signed in 2010 between the unitary authorities and conservation bodies, which committed all to delivering a strategic mitigation solution.

12.50 Work progressed on providing strategic mitigation which would deliver sufficient land to provide adequate habitat for birds whilst allowing for the full economic development of the remaining land to be realised. The approach is considered to be the most effective way of meeting the requirements of the Habitats Regulations and reducing the risk of one development creating problems for others. An Initial South Humber Gateway SPA Delivery Plan (August 2010) was agreed between the local authorities, Natural England, RSPB, Lincolnshire Wildlife Trust and the Environment Agency. This set out a number of initial mitigation principles and provided the basis for exploring mitigation sites options.

12.51 Within North East Lincolnshire, the patchwork of existing industrial uses and patterns of existing bird usage raised particular difficulties and considerations. A site options assessment was undertaken, and an 'Agreed Area of Search' identified, within which it was agreed the mitigation could be provided. Further detailed consideration of specific sites based upon the Area of Search resulted in an 'initial Preferred Approach' being identified.

12.52 The Initial South Humber Gateway SPA Delivery Plan was reviewed in 2014 to reflect the latest position regarding mitigation proposals. This culminated in the production of the South Humber Gateway Mitigation Strategy (2015).

12.53 Subsequent discussions with landowners and environmental agencies have focused upon the delivery and management of the strategic mitigation sites and have refined the boundaries of individual sites⁽⁵⁰⁾. Details of the delivery strategy are set out in the South Humber Bank Strategic Mitigation Delivery Options (2015). The final total gross area to be safeguarded and delivered as mitigation equates to circa 120ha. Figure 12.2 'Habitat mitigation, South

Humber Bank' identifies the mitigation land that has currently been identified, and is also shown on the Policies Map. An area of complimentary grassland is also protected, shown on the plan below. The land adjacent to Old Fleet Drain is protected as part of the Great Coates Business Park Site (ELR015 a&b).

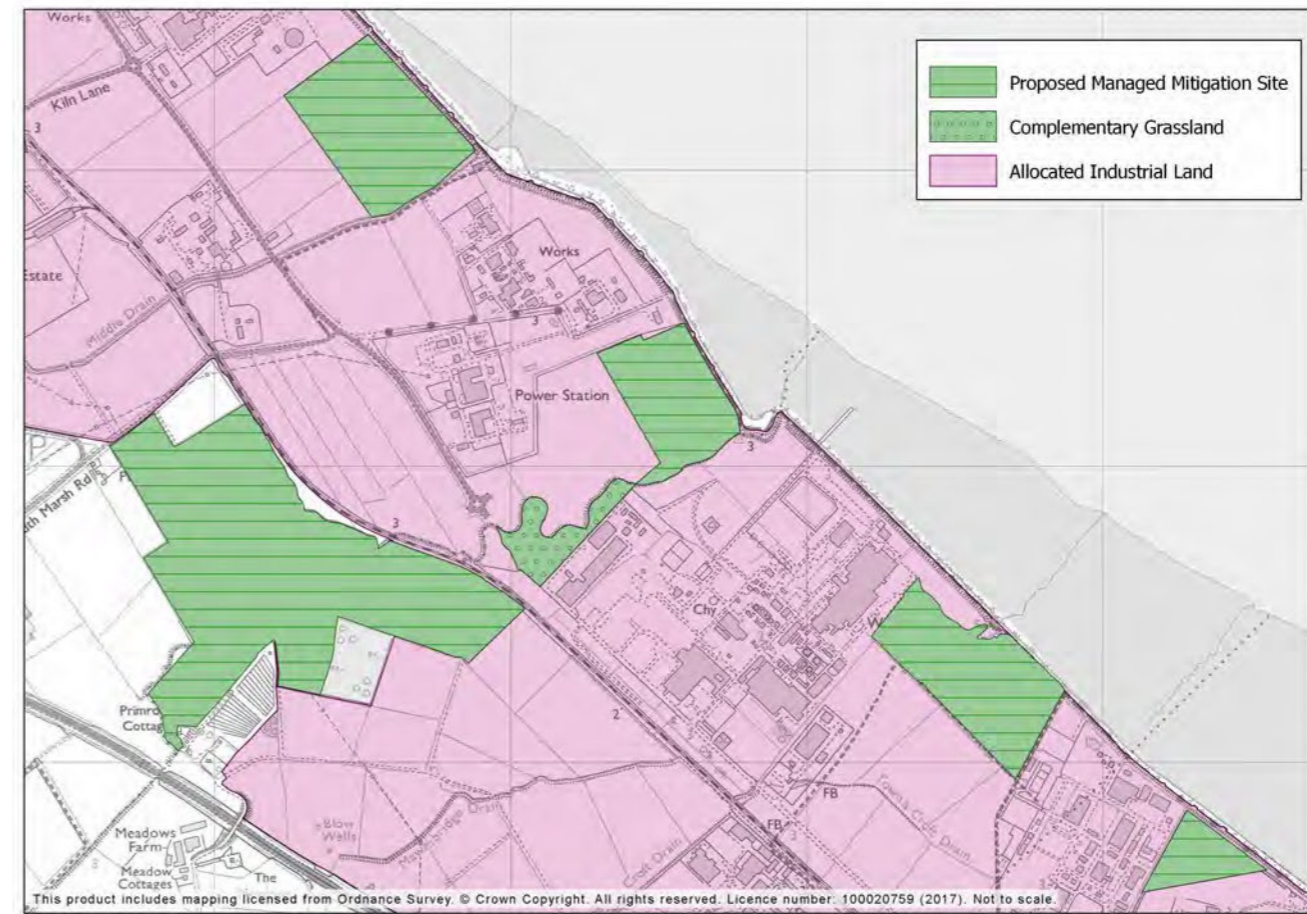


Figure 12.2 Habitat mitigation, South Humber Bank

Justification

12.54 The Council has worked hard over many years together with North Lincolnshire Council, nature conservation bodies and industry representatives, to develop a strategic approach that will identify and safeguard land to ensure that the integrity of the Humber Estuary Natura 2000 sites is maintained. After lengthy discussion and negotiation with landowners, industry and key conservation bodies a strategic solution has been identified.

12.55 The approach has significant benefits for landowners/developers of sites along the South Humber Bank who seek to bring forward proposals which support the economic growth aspirations for the area, and for the birds for whom the mitigation land is provided. The identification of strategic site means that the land lost from development is minimised, is optimally sited to maximise the potential for bird use and, most importantly, provides certainty across all interests that the integrity of the Humber Estuary Natura 2000 sites has been addressed and resolved. This is considered to be an exemplar approach to delivering mitigation on a strategic basis.

12.56 The Council has recognised that early implementation of the mitigation is vital to ensure that economic development is not delayed. Funding has been secured from the Greater Lincolnshire LEP and from the Council which will enable the early implementation of the scheme, which will then permit economic growth to be realised over the plan period⁽⁵³⁾. The Council will, through delivery of the mitigation sites, ensure that sufficient mitigation land is always in place to support the development of employment sites. This approach will ensure the balance of mitigation land to developed sites on the South Humber Bank always remains effectively 'in credit'. Policy 9'Habitat Mitigation - South Humber Bank' does include a mechanism to recover costs from developers via contributions to support delivery of the mitigation and importantly support the future management of the habitat provided.

12.57 Arrangements for the ownership and management of the mitigation areas must be secured for the lifetime of the development plan. Beyond this period, it is expected that impacts (loss of functionally linked land) will remain, and that ongoing long term management of the mitigation areas will continue to be required and must be secured. If these areas cannot be secured then sufficient alternative mitigation areas will be needed to address the impacts. This alternative mitigation will be in place and functional prior to the loss of the existing mitigation areas. Until the alternative mitigation is secured and delivered, the Council will need to identify whether there is sufficient mitigation capacity to allow further developments to be consented, in accordance with ensuring that the mitigation balance sheet remains 'in credit'.

12.58 The Council has recognised that developers may consider an alternative approach; whilst the Policy allows for the possibility and includes wording to address all possible eventualities, in practice it would be very challenging to deliver. Participation in the scheme of strategic mitigation will be the preferred approach and is therefore recommended.

Policy 9'Habitat Mitigation - South Humber Bank' relationship to:	Links to:
National Planning Policy Framework	Paragraph 118
Local Plan Strategic Objectives	SO3, SO5 and SO6
Evidence base and other key documents and strategies	<ul style="list-style-type: none"> • <i>South Humber Gateway Mitigation Strategy (2015)</i> • <i>South Humber Gateway Mitigation Delivery Options (2015)</i> • <i>South Humber Industrial Investment Programme (2015)</i>

Table 12.5 Policy relationships

49 The Humber Special Protection Areas (SPA) and Ramsar Site.

50 As final details are confirmed there are likely to be some final adjustments to site boundaries.

53 South Humber Industrial Investment Programme (2015).

Policy 22 – Good design in new developments

Good design in new developments

1. A high standard of sustainable design is required in all developments. The Council will expect the design approach of each development to be informed by:
 - A. a thorough consideration of the particular site's context (built and natural environment, and social and physical characteristics);
 - B. the need to achieve:
 - i. protection and enhancement of natural assets;
 - ii. resource efficiency;
 - iii. climate change resilience;
 - iv. sustainable transport;
 - v. accessibility and social inclusion;
 - vi. crime and fear of crime reduction;
 - vii. protection and enhancement of heritage assets, including character and local distinctiveness;
 - viii. high quality public realm; and,
 - ix. efficient use of land.

Well-designed places

14.1 Good design is a key aspect of sustainable development. It is indivisible from good planning and can contribute positively to aspects of health and well-being. Good design goes beyond the aesthetics of simple visual appearance, it involves the consideration of place and the interactions of people with the places they live, work in and visit; and requires appreciation of environmental influences and impacts.

14.2 The Council has set out clearly its desire to lift the quality of development within the Borough and to create places that work well and are pleasant and distinctive. It recognises that new development can be the vehicle for building a strong sense of place and creating a positive impression of the Borough.

14.3 In 2008 an Urban Design Framework and Urban Realm Strategy established the Council's long-term principles supporting the development of quality environments across the Borough. The stated aim was to:

"re-establish the importance of locating development in the right places, through the regeneration and repair of existing urban areas to ensure that new development contributes towards the vitality of existing local services and supports existing community infrastructure and public transport provision..."

	<p>C. Design guidance for North East Lincolnshire published by the Council; and,</p> <p>D. where applicable and relevant:</p> <ul style="list-style-type: none"> i. the objectives and expectations of the <i>Lincolnshire Wolds Area of Outstanding Natural Beauty Management Plan 2013-2018</i> (and any subsequent updates); ii. Landscape Character Assessment; and, iii. Conservation Area Appraisals. <p>2. Where a Design and Access Statement is required, this should describe the specific considerations and rationale on which design proposals have been based.</p> <p>3. Incorporation of elements of public art that serve to enrich the wider area will be encouraged in the development of sites within or adjoining prominent public locations, or sites which have significance in terms of local heritage.</p> <p>4. Proposals for express consent to display advertisements will be permitted if the proposal respects the interest of amenity and public safety, taking account of cumulative impacts.</p>	<p>14.4 The Strategy identified a series of actions aimed particularly at the regeneration of urban areas, whilst setting out guiding principles to protect and enhance the sense of place and identity of other areas, such as rural villages. The Council has taken a lead by delivering key projects embracing these principles, including major public realm and development projects in Grimsby town centre.</p> <p>14.5 It is, however, important to recognise that the need for good design is not restricted to major schemes - it is equally important that smaller schemes and minor works are well-designed. Good design is a prerequisite for delivering places that work well, feel right, look good and support healthy lives.</p> <p>Justification</p> <p>14.6 Policy 22'Good design in new developments' establishes the local considerations that will apply when assessing the design quality of development proposals. There is strong emphasis on considering each site's particular context and on the important roles of high quality and inclusive design in delivering sustainable development.</p> <p>14.7 The Council considers that design review is a key element in achieving high standards of design. At a local level, the Council's Development Management team undertake design review as part of regular weekly team meetings. In this way the design rationale of schemes presented as applications and pre-application enquiries can be interrogated by a wider professional audience. At the pre-application stage developers are also encouraged to meet with members of the Council's Planning Committee following the end of a formal meeting. This gives applicants/developers an opportunity to explain their proposals and explore any queries with the local councillors who will subsequently deliberate on the formal planning application.</p> <p>14.8 When major developments are proposed, applicants are further encouraged through the Council's Statement of Community Involvement to engage in meaningful dialogue with the communities close to their sites. The Council expects to see evidence that such engagement has taken place and will wish to consider the applicant's responses to the issues raised by residents, community groups and others.</p> <p>14.9 When it is considered appropriate, the Council will also continue to draw on support available via the Design Network and developers will be encouraged to have their scheme's reviewed via this process. Locally, this key activity is currently undertaken by 'Integreat Plus', the design network member covering Yorkshire and Humberside.</p> <p>14.10 The attractiveness of buildings and spaces can be enhanced through the introduction of public art. This can take many forms; for example, statues, sculptures, stained glass and murals all of which can add to the visual interest and sense of place. The approach seeks to maintain the tradition of enriching the environment through public art. This is not only important as a way of establishing local identity and instilling a sense of local pride, but can also lift the value of development and promote additional investment. Policy 22'Good design in new developments' encourages development located specifically in prominent public locations, or sites with significance in terms of local heritage to incorporate elements of public art in other schemes.</p> <p>14.11 It is also widely recognised that poorly placed advertisements can have a negative impact on the appearance of the built and natural environment. The Government advises that control over advertisements should be efficient, effective and simple in concept and operation.⁽⁸⁴⁾ A wide range of advertisements may be displayed with 'deemed consent', for example without the need for specific consent from the Council. Where consent is required this is generally judged on the merits of each case. In sensitive environments careful consideration is required. Policy 22'Good design in new developments' provides for consent to be granted except where the proposal would have a significant impact on amenity and/or public safety, or will lead to an over abundance of advertisements.</p>
<p>Policy 22'Good design in new developments' relationship to:</p>		<p>Links to:</p>

National Planning Policy Framework	Paragraphs 56 to 68
Planning Practice Guidance, Requiring Good Design (2015)	Paragraph 67
Local Plan Strategic Objectives	SO6 and SO9
Evidence base and other key documents and strategies	<ul style="list-style-type: none"> • <i>Design, North East Lincolnshire Places and Spaces Renaissance (2008)</i> • <i>Lincolnshire Wolds Area of Outstanding Natural Beauty Management Plan 2013 -2018 (and subsequent updates)</i> • <i>Landscape Character Assessment (2015)</i>

Table 14.1 Policy Relationships

84 *Planning Practice Guidance, Requiring Good Design, paragraph 67 (2015).*

		<table border="1"> <tr> <td>National Planning Policy Framework</td> <td>Paragraphs 56 to 68</td> </tr> <tr> <td>Planning Practice Guidance, Requiring Good Design (2015)</td> <td>Paragraph 67</td> </tr> <tr> <td>Local Plan Strategic Objectives</td> <td>SO6 and SO9</td> </tr> <tr> <td>Evidence base and other key documents and strategies</td> <td> <ul style="list-style-type: none"> • <i>Design, North East Lincolnshire Places and Spaces Renaissance (2008)</i> • <i>Lincolnshire Wolds Area of Outstanding Natural Beauty Management Plan 2013 -2018 (and subsequent updates)</i> • <i>Landscape Character Assessment (2015)</i> </td> </tr> </table> <p>Table 14.1 Policy Relationships</p> <p>84 <i>Planning Practice Guidance, Requiring Good Design, paragraph 67 (2015).</i></p>	National Planning Policy Framework	Paragraphs 56 to 68	Planning Practice Guidance, Requiring Good Design (2015)	Paragraph 67	Local Plan Strategic Objectives	SO6 and SO9	Evidence base and other key documents and strategies	<ul style="list-style-type: none"> • <i>Design, North East Lincolnshire Places and Spaces Renaissance (2008)</i> • <i>Lincolnshire Wolds Area of Outstanding Natural Beauty Management Plan 2013 -2018 (and subsequent updates)</i> • <i>Landscape Character Assessment (2015)</i>
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<p>Policy 31 – Renewable and low carbon infrastructure</p>	<p>Renewable and low carbon infrastructure</p> <ol style="list-style-type: none"> 1. The Council will support opportunities to maximise renewable energy capacity within the Borough and seeks to deliver at least 75MW of installed grid-connected renewable energy by 2032. 2. Proposals for renewable and low carbon energy generating systems will be supported where any significant adverse impacts are satisfactorily minimised and the residual harm is outweighed by the public benefits of the proposal. Developments and their associated infrastructure will be assessed on their merits and subject to the following impact considerations, taking account of individual and cumulative effects: <ol style="list-style-type: none"> A. the scale and nature of the impacts on landscapes and townscapes, particularly having regard to the <i>Landscape Character Assessment</i> and impact on the setting and scenic beauty of the AONB; B. local amenity, including noise, air quality, traffic, vibration, dust and visual impact; C. biodiversity, geodiversity and nature conservation, with regard given to the findings of the site and project specific HRA and potential impacts on SPA birds, where appropriate; D. the historic environment, including individual and groups of heritage assets; E. telecommunications and other networks; including the need for additional cabling to connect to the National Grid, electromagnetic production and interference, and aeronautical impacts such as on radar systems; F. highway safety and network capacity; G. increasing the risk of flooding; and, 	<p>Renewable and low carbon infrastructure</p> <p>14.102 The UK has committed to meeting a greater proportion of its future demand for energy through renewables, and this is reflected in recent legislation. EU Directive 2009/28/EC requires the UK to source 15% of its energy from renewable sources by 2020.</p> <p>14.103 The energy sector in North East Lincolnshire is not only important to both the UK and local economy, but also plays a significant role in ensuring the UK's fuel security. The Borough is already recognised as an operations and maintenance base for offshore windfarms and additional sites are very likely to be developed around the Humber during the plan period to facilitate the deployment of around 3,000 wind turbines in the southern North Sea, which are needed to meet the national energy targets.</p> <p>14.104 The presence of the port, combined with the Borough's infrastructure network associated with a long history of industry and energy production provides excellent foundations for a range of onshore renewable energy technologies to continue to be developed.</p> <p>14.105 The Low Carbon and Renewable Energy Capacity in Yorkshire and Humber Study (2011) specifically recognises the potential for additional large-scale biodiesel and biomass power plants to be developed. The concentration and nature of the commercial development along the South Humber Bank also presents opportunities for heat networks. These networks (often referred to as district heating schemes), supply heat from a central source directly to homes and businesses through a network of pipes. This is a more efficient method of supplying heat than individual boilers and is, therefore, considered to be low carbon technology. The Low Carbon and Renewable Energy Capacity in Yorkshire and Humber Study highlights the potential for the new renewable power facilities in the Borough to utilise this heat source (that would otherwise be wasted through cooling towers). The growing interest in combined heat and power (CHP) builds on the success of the Immingham Combined Heat and Power plant which, together with the nearby Humber refinery (to which the steam and electricity is supplied) is part of an ultra-low-carbon integrated energy hub.</p> <p>14.106 Other renewable energy technologies such as solar/photovoltaics and heat pumps, are expected to become more affordable and popular over the plan period and community schemes have the potential to play an increasing role in delivering renewable energy. The Borough has also been identified as one of three 'hotspots' in the UK having potential to secure geothermal energy from a vast saline aquifer that holds water underground at temperatures of between 40 and 60 degrees centigrade.</p>								

<p>H. the land, including land stability, contamination, soils resources and loss of agricultural land.</p> <p>3. Where appropriate, proposals should include provision for decommissioning at the end of their operational life. Where decommissioning is necessary the site should be restored, with minimal adverse impact on amenity, landscape and biodiversity, and opportunities taken for enhancement of these features.</p> <p>4. Proposals for onshore wind energy development will be permitted if:</p> <p>A. the development site is located in one of the following identified broad areas:</p> <ul style="list-style-type: none"> i. Flat Open Farmland - south of the settlements of Humberston, New Waltham and Waltham; ii. Wooded Open Farmland - east of the A18, and east and west of the A1173; iii. Open Farmland - along the A180 corridor; and, iv. Industrial Landscape - to the north west and south east of Immingham, and within the South Humber Bank employment zone; or, <p>B. located in an area that is identified as potentially suitable for wind energy development in an adopted Neighbourhood Plan; and,</p> <p>C. demonstrate that the impacts identified through consultation with the local community have been satisfactorily addressed.</p>	<p>Justification</p> <p>14.107 Applications for nationally significant infrastructure, including energy developments over 50MW and offshore developments (and their associated onshore infrastructure) are not determined by the Council. They are examined by the Planning Inspectorate and determined by the Secretary of State, but the Plan is a material consideration in this decision-making process.</p> <p>14.108 Policy 31'Renewable and low carbon infrastructure' provides a positive framework for delivering sustainable energy supplies and will ensure that the Borough contributes to achieving national renewable energy generation targets. The Policy applies to proposals for all types of renewable and low carbon energy infrastructure, including biomass and biofuels technologies, energy from waste, solar, geothermal energy, wind turbines (onshore and offshore facilities required for the manufacture, commissioning, installation and servicing of offshore windfarms) hydro-power and micro-generation.</p> <p>14.109 Renewable energy assessments⁽⁹⁸⁾ suggest that the Borough has the potential to produce at least an additional 16MW of electricity by renewable energy (excluding onshore wind). With installed capacity already amounting to 12MW⁽⁹⁹⁾ and 48MW consented through applications for large-scale solar farm projects at Laceby and Bradley, the Borough is on course to meet the target figure of 75MW. However, national policy indicates that meeting the target is no reason to not grant further proposals. The target is therefore a minimum figure and will be periodically reviewed.</p> <p>14.110 Policy 31'Renewable and low carbon infrastructure' reflects National Planning Practice Guidance on wind energy developments, which requires local planning authorities to only permit applications if:</p> <ul style="list-style-type: none"> 1. the development site is in an area identified as suitable for wind energy development in a Local or Neighbourhood Plan; and, 2. following consultation, it can be demonstrated that the planning impacts identified by affected communities have been fully addressed and therefore the proposal has their backing. <p>14.111 The Council has undertaken work to identify broad areas which are potentially suitable for wind energy development. This work has focused upon the main constraints which would affect such developments, and has included consideration of:</p> <ul style="list-style-type: none"> 1. landscape character and sensitivity (including the special qualities of the AONB designation); 2. residential amenity; 3. proximity to key infrastructure; and, 4. natural and historic environment designations. <p>14.112 The Council is preparing a Supplementary Planning Document (SPD) that will provide additional guidance to developers and residents. It should be recognised however, that opportunities for onshore wind energy developments are considered to be limited and renewable energy capacity is most likely to be increased through further solar farm development.</p> <p>14.113 The deployment of larger scale low carbon and renewable energy schemes can have a range of positive or negative effects on nearby communities. They can provide landowners with the opportunity for rural diversification, deliver local jobs and opportunities for community based schemes and benefits. However, proposals can have a range of impacts that will vary depending on the scale of development, typed of area where the development is proposed and type of low carbon and renewable energy technology deployed.</p> <p>14.114 When considering planning applications for low carbon and renewable energy, an assessment will need to take account of the impacts on landscape, townscape, natural, historical and cultural features, flood risk and areas of nature</p>
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conservation interests. Proposals should also ensure that high quality design features are used to minimise the the impacts on the amenity of the area in respect of visual intrusion, noise, dust and odour and traffic generation.

14.115 In determining the character and sensitivity of the landscape to accommodate development, the impact of the development on the historic character, sense of place, tranquility and remoteness of the landscape should be considered. Some energy developments appear industrial in nature, and where there are proposals in rural areas it will be important to ensure that any cumulative effects do not lead to a perception of industrialisation, either within a particular landscape of wider area. In assessing the capacity of the landscape to accept energy development, it will be important to consider Policy 42'Landscape' and the Landscape Character Assessment.

14.116 Development can impact on biodiversity at construction, operation and decommissioning stages. This is due to emissions, waste products and physical alterations to the environment arising from the development's footprint/structure and impacts on soil, hydrology and water quality. Proposals will also be considered against link Policy 41'Biodiversity and Geodiversity' and, where possible, mitigation measures should be used to compensate and improve biodiversity. The Council will give particular consideration to the potential for any proposal to disturb or displace SPA birds caused by the loss of suitable feeding, roosting and loafing sites or have the potential for damage or distance to the Humber Estuary Special Area of Conservation (SAC).

Policy 31'Renewable and low carbon infrastructure' relationship to:	Links to:
National Planning Policy Framework	Paragraphs 97, 98
Local Plan Strategic Objectives	SO2
Evidence base and other key documents and strategies	<i>Landscape Character Assessment (2015)</i> <i>Low Carbon and Renewable Energy Capacity in Yorkshire and Humber Study (2011)</i>

Table 14.13 Policy relationships

98 *Low Carbon and Renewable Energy Capacity in Yorkshire and Humber Study(2011).*

99 *Renewable Electricity by Local Authority, DECC (2014).*

Policy 32 – Energy and low carbon living

Energy and low carbon living

1. Where appropriate, the principles of the energy hierarchy should be followed in order to achieve energy efficient and low carbon development.
2. Design and Access Statements accompanying applications for major development should include information to demonstrate how appropriate design and construction practices have been considered and incorporated, specifically in relation to the following, and in accordance with other relevant policies in the Plan:
 - A. considerations of landform, layout, building orientation, massing and landscaping;
 - B. the use of materials, both in terms of embodied carbon and energy efficiency; and,
 - C. the minimisation of waste and re-use of material derived from excavation and demolition.

Energy and low carbon living

14.117 It is widely accepted that the burning of fossil fuels makes a significant contribution to climate change. Reducing greenhouse gas emissions is, therefore, a key part of the global response to minimising climate change.

14.118 The requirement for North East Lincolnshire to reduce carbon emissions is set out in Government policy and legislation: the Climate Change Act (2008), requires an 80% reduction in greenhouse gas emissions compared to 1990 levels by 2050, with a reduction of at least 34% by 2020 as an interim step. Data released in March 2015 by the Department of Energy and Climate Change indicated that the interim target has been met six years early. This has largely been attributed to continued reductions in energy demand and shifts to low carbon living.

14.119 Low carbon living means reducing the carbon emitted as a result of direct and indirect lifestyle choices such as avoiding car travel and purchasing locally sourced food. Whilst the UK appears to be on course to meet the greenhouse gas emissions target, continued change is needed across society and the economy. The planning system will play a key role in facilitating and delivering this process and the policies throughout this Plan are intended to work together to ensure that energy demands and usage are reduced at every opportunity.

Justification

14.120 North East Lincolnshire is considered an inefficient carbon economy due to its high industrial density relative to the size of population. A significant proportion of households are also classified as fuel poor⁽¹⁰⁰⁾ and Policy 32'Energy and low carbon living' works towards ensuring that this situation is not exacerbated as new development is delivered across the Borough and promotes low carbon living.

14.121 The energy hierarchy (see Table 14.14'Energy hierarchy') prioritises different means of cutting carbon emissions. It promotes elimination and efficiency considerations, which are often also the most cost efficient and effective means of achieving carbon savings. Applying the hierarchy to development proposals should help to minimise the carbon footprint associated with new development both during construction and once in use. In turn, this should bring about energy cost savings for future occupiers.

14.122 Proposals will not be expected to contribute to all aspects of the hierarchy, but measures to reduce demand and promote energy efficiency (levels 1 and 2) will be encouraged.

Energy Hierarchy	
Level 1: Reduce energy demand	Even renewable energy carries an embodied carbon cost so using less energy is better than using clean energy. New developments should be designed to minimise the need for energy by taking account of: <ul style="list-style-type: none"> • the scheme's layout; • the design and construction of individual buildings; and, • opportunities for passive heating and cooling systems.
Level 2: Use energy and resources efficiently	Development should use sustainable materials in the construction process, avoiding products with high embodied energy content and minimise construction waste.
Level 3: Supply energy from renewable and low carbon sources	Development could provide on-site decentralised or renewable energy.
Level 4: Offset carbon emissions	Emission could be offset by providing well-designed, multi-functional woodland, grassland or fenland that is suitable habitat for the particular area (the priority habitats relevant to North East Lincolnshire and as identified in the <i>UK Biodiversity Action Plan</i> should guide this decision).

Table 14.14 Energy hierarchy

Policy 32'Energy and low carbon living' relationship to:	Links to:
National Planning Policy Framework	Paragraph 95
Local Plan Strategic Objectives	SO2

Table 14.15 Policy relationships

Policy 33 –
Flood risk**Flood risk**

1. Development proposals should have regard to the requirements of the flood risk sequential test and, if necessary, the exception test. The regeneration benefits of development in areas of high flood risk should also be considered in light of the Council's Guidance Note on the application of the Sequential and Exception Tests in North East Lincolnshire, and the Environment Agency's Standing Advice.
2. In order to minimise flood risk impacts and mitigate against the likely effects of climate change, development proposals should demonstrate that:
 - A. where appropriate, a site specific flood risk assessment has been undertaken, which takes account of the best available information related to all potential forms of flooding;
 - B. there is no unacceptable increased risk of flooding to the development site or to existing properties;
 - C. the development will be safe during its lifetime;
 - D. Sustainable Drainage Systems (SuDS) have been incorporated into the development unless their use has been deemed inappropriate;
 - E. opportunities to provide natural flood management and mitigation through green infrastructure have been assessed and justified, based upon sound evidence, and, where appropriate, incorporated, particularly in combination with delivery of other aspects of green infrastructure in an integrated approach across the site;
 - F. arrangements for the adoption, maintenance and management of any mitigation measures have been established and the necessary agreements are in place;
 - G. access to any watercourse or flood defence asset for maintenance, clearance, repair or replacement is not adversely affected; and,
 - H. the restoration, improvement or provision of additional flood defence infrastructure represents an appropriate response to local flood risk, and does not conflict with other Plan policies.

Flood risk

14.123 Flooding is a natural process that can occur at any time in a variety of locations. The severity of a flood event's impact, depends on a range of factors, including the combination of weather and rainfall patterns, sources of floodwater, local topography and patterns of development.

14.124 With current climate change predictions pointing to the frequency, patterns and severity of flooding becoming more damaging, flood risk management is critical to protecting people and property from flooding. It is particularly important in the Borough as much of the urban area is within the high flood risk zone, including large parts of Grimsby, Cleethorpes and Immingham.

Justification

14.125 The Council recognises that the Plan must strike a fine balance between providing for much needed regeneration and development activities within the urban areas (the main centres of population), and minimising the amount of new development exposed to flood risks. Where possible, development will be directed to areas at lowest risk of flooding in accordance with the sequential risk based approach required by the NPPF.

14.126 The application of the sequential test within the Borough will be expected to follow the methodology set out in the Council's Flood Risk Sequential and Exception Tests Guidance Note which takes a rational approach to identifying the area of search for alternative sites with a lower probability of flooding, within defined regeneration areas.⁽¹⁰¹⁾ It essentially ensures that parts of the urban area, which are ranked as being some of the most deprived areas in the country, and therefore most in need of development, remain capable of being developed in policy terms. The guidance has been developed in collaboration with the Environment Agency and provides a robust basis for the application of the first part of the exception test, which requires the wider sustainability benefits of a proposal to outweigh the flood risk (NPPF, paragraph 102). Compliance with the second part of the exception test requires the development's safety to be demonstrated.

14.127 The Plan's employment and housing allocations have been subject to the sequential assessment and this has ensured that no housing development has been identified on greenfield sites within Flood Risk Zones 2 or 3, unless only part of the site is affected and these areas can be avoided.

14.128 The Strategic Flood Risk Assessment (2011) (SFRA), supplemented by additional flood risk data (collected by the Council as the Lead Local Flood Authority, the Environment Agency and Internal Drainage Boards (IDBs), supports the planning process and provides a better understanding of flood risk in the Borough.

14.129 Along with the other strategies and plans identified in Table 14.16 'Policy relationships', it provides the basis for flood and coastal erosion management across the Borough. These studies include a number of actions, measures and flood defence investment priorities all of which seek to protect lives and property and build resilience to future flood events. This includes the decision presented in the Shoreline Management Plan "to hold the line" along the south bank of the Humber, which means that the currently defended frontages are likely to require increasing investment to address climate change impacts and increased exposure to wave attack. New development must not compromise the

Council's or its partners' ability to deliver the action plans and where appropriate should help to contribute to their completion.

14.130 Surface water runoff is very likely to increase over the plan period as a result of more intense rainfall and further development across the Borough. This will place great pressure on existing drainage infrastructure and, if not carefully managed, will increase the risk of localised surface water flooding.

14.131 Sustainable Drainage Systems (SuDs) slow the rate of surface water runoff and improve infiltration by mimicking natural drainage on a site. Developers should ensure that good SuDs principles are considered and integrated into schemes early in the design process. Examples of elements that can be incorporated into SuDs include permeable paving or road surfaces, soakaways and swales. Where possible, infiltration into the ground will always be encouraged in accordance with the drainage hierarchy. Further guidance on the design of SuDs are provided in the North East Lincolnshire SuDs Guide (2015).

14.132 The provision of green infrastructure on a site can also reduce the risk of flash flooding by controlling surface water runoff. Features include green roofs, green walls and soft borders and landscaping, particularly large canopied trees.

14.133 Pre-application discussions will be especially important as SuDs can be complex and the suitability of any proposed drainage solution will also depend on its interaction with surrounding and downstream sites.

Policy 33'Flood risk' relationship to:	Links to:
National Planning Policy Framework	Paragraphs 94, 99 to 105
Local Plan Strategic Objectives	SO2, SO5 and SO6
Evidence base and other key documents and strategies	<ul style="list-style-type: none"> • <i>Flamborough Head to Gibraltar Point Shoreline Management Plan (2010)</i> • <i>Grimsby and Ancholme Catchment Flood Management Plan (2009)</i> • <i>Draft Humber Flood Risk Management Plan (2014)</i> • <i>Humber Flood Risk Management Strategy (2008)</i> • <i>Local Flood Risk Management Strategy (2015)</i> • <i>North East Lincolnshire SuDs Guide (2015)</i> • <i>Preliminary Flood Risk Assessment (2011)</i> • <i>Strategic Flood Risk Assessment (2011)</i>

Table 14.16 Policy relationships

101 Regeneration areas have been defined based on the 20% most deprived lower layer super output areas (LSOA) identified in the *Indices of Multiple Deprivation 2015* and successor datasets.

Policy 34 – Water management

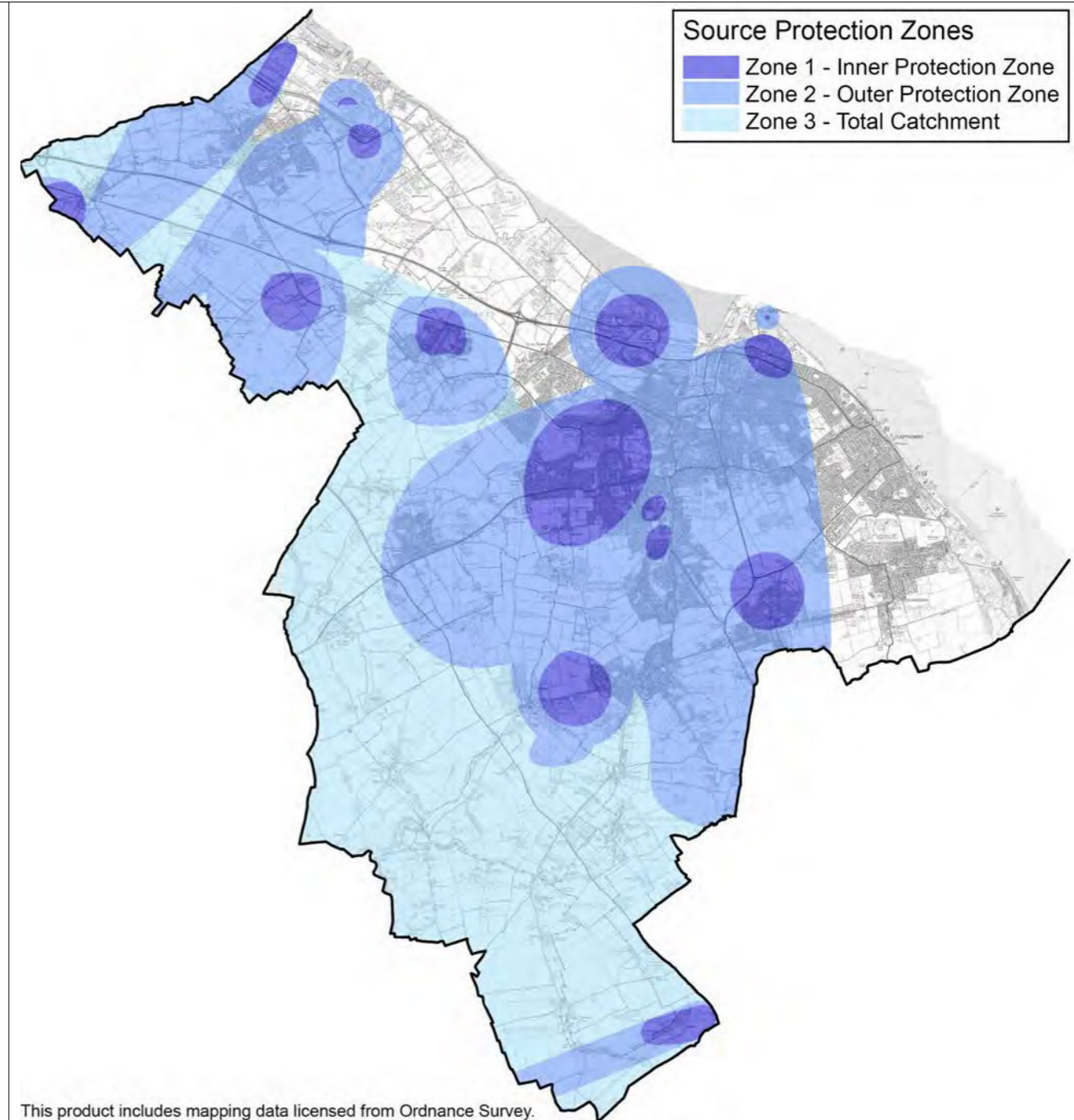
Water management

1. Development proposals that have the potential to impact on surface and ground water should consider the objectives and programme of measures set out in the Humber River Basin Management Plan.

Water management

14.134 The management of water resources is vital to ensure that water quantity and quality are maintained and improved throughout the Borough. Water resources include coastal waters, the internationally important Humber Estuary, rivers, streams, ponds and groundwater. They are important natural resources that provide wildlife habitats for a variety of species. They also facilitate land drainage, and many water bodies are valued tourism and recreation assets.

	<p>2. Development proposals should consider how water will be used on the site and ensure that appropriate methods for management are incorporated into the design. Development proposals should demonstrate that:</p> <ul style="list-style-type: none"> A. adequate and sustainable water supplies are available to support the development proposed; B. provisions are made for the efficient use of water, including reuse and recycling. Proposals for residential development will be expected to demonstrate that a water efficiency standard of 110 litres per person per day can be achieved; and, C. adequate foul water treatment already exists or can be provided in time to serve the development. Appropriate and sustainable sewerage systems should be provided for the collection and treatment of foul and surface water to ensure new development does not overload the existing sewerage infrastructure, minimising the need to discharge water into sewers, particularly combined sewers. <p>3. Where development is proposed within a Source Protection Zone, the potential for any risk to groundwater resources and groundwater quality must be assessed and it must be demonstrated that these would be protected throughout the construction and operational phase of development.</p>	<p>Justification</p> <p>14.135 The European Water Frameworks Directive was issued in 2000 to improve the quality of water bodies across the European Union. The Humber River Basin Management Plan (2009) was prepared to meet the requirements of this Directive, which focuses on the protection, improvement and sustainable use of water. The Council and its partners (including the Environment Agency) have a duty to ensure that these obligations are not compromised by new development and will need to be satisfied that it does not adversely effect the status of a water body or prohibit future ecological improvement from being made. Where there are clear opportunities for a development to contribute to improvements in the ecological status of a water body this will be supported.</p> <p>14.136 Currently the supply of both potable and non-potable water in the Borough is satisfactory. The Council's growth aspirations for the next twenty years are, however, likely to generate increased demands for water, especially non-potable water. Whilst the recent investment in the Elsham Water Treatment Works has ensured that there is capacity in the short and medium term, further capacity improvements may be required depending on the scale and speed of industrial development. Development will not therefore be permitted unless existing water supplies are adequate or they can be augmented to serve the development without affecting the water environment and groundwater systems.</p> <p>14.137 North East Lincolnshire is in an area of serious water stress. Anglian Water's Water Resource Management Plan (2014), at the time it was produced, identified that the supply of water can be managed in the long-term by various means including metering and importing water from other sources. However, demand measures including increased water efficiency should be considered first before any supply measures such as river/groundwater extraction, water storage (reservoirs) and water transfer. From a sustainability perspective, water should still be used efficiently in order to reduce the associated energy requirements (needed to pump water, for example) and to avert adverse environmental effects such as over-abstraction. Improving water efficiency will also help to reduce the volume of wastewater that the sewer system has to accommodate. Developers of new dwellings will be required to demonstrate that appropriate measures to conserve and reuse water, such as low flow showers and kitchen taps, and provision of water butts and rain/grey water harvesting have been incorporated to achieve water efficiency working to a standard of 110 litres per person per day or better. The additional costs of meeting this target have been assessed as being as little as £9 per dwelling.⁽¹⁰²⁾</p> <p>14.138 In most parts of the urban area rainwater drains into surface water sewers or sewers containing both surface and wastewater, these are known as 'combined sewers'. In Grimsby and Cleethorpes there are large areas served by combined sewers, mostly in the older parts of the towns.</p> <p>14.139 During periods of intense rainfall sewer flooding can occur. Flooding can also be triggered when a sewer is blocked or has insufficient capacity. There are a number of locations within Grimsby, Lacey, Humberston and New Waltham that are prone to flooding during heavy rainfall events. When this happens to combined sewers the risk of land and property flooding with water contaminated with raw sewage increases significantly.</p> <p>14.140 Given the vulnerability of the sewer systems and likelihood of rainfall amounts and frequencies increasing due to climate changes, development proposals must provide infrastructure of an acceptable standard to cope sufficiently with sewage and surface water. Foul and surface water drainage should be separated to reduce the likelihood of flooding and contamination. The use of natural sewage treatment methods, such as wetland/reed beds, will be encouraged and supported where it is practicable.</p>
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Figure 14.2 Ground water source protection zone

14.141 Groundwater resources provide an invaluable source of water for public supply, industry, agriculture and rivers; but can be harmed by a range of activities, such as contamination from industrial uses or infilling in the urban area. The Environment Agency has identified and mapped a number of these resources according to their significance and vulnerability to pollutants. A large area of North East Lincolnshire is designated as a Groundwater Source Protection Zone (see Figure 14.2'Ground water source protection zone'). The zones (1 to 3) show the risk of contamination from

any activities that might cause pollution in the area; the closer the activity, the greater the risk. Zone 1 represents the area of greatest risk. The protection of the groundwater resources in these areas is particularly important.

14.142 Where development potentially impacts on groundwater, relevant site investigations, risk assessments and necessary mitigation measures for source protection zones will need to be agreed with the relevant bodies. The Environment Agency advocates a risk-based approach to the protection of groundwater resources¹⁰³, and the Council will support this. Where potential risks to groundwater exists, especially close to water supply abstractions, the Council will consult the Environment Agency at an early stage.

14.143 Where development or land contamination from previous use could potentially impact surface water or groundwater, a preliminary risk assessment should be undertaken to assess the potential risk posed. Relevant site investigations, risk assessments and necessary mitigation measures will need to be agreed with the relevant bodies (the Environment Agency and relevant water companies). Any investigation should be undertaken in accordance with the Environment Agency guidance document CLR 11 Model Procedures for the Management of Land Contamination.

Policy 34 'Water management' relationship to:	Links to:
National Planning Policy Framework	Paragraphs 99, 109, 110, 111, 120, 121
Local Plan Strategic Objectives	SO2, SO6
Evidence base and other key documents and strategies	<i>Local Flood Risk Management Strategy (2015)</i> <i>River Basin Management Plan Humber River Basin District (2009)</i>

Table 14.17 Policy relationships

101 DCLG *Housing Standards Review* (Sept 2014).

102 *Groundwater Protection and Practice (GP3)* Environment Agency (2013).

Policy 38 – Parking

Parking

1. Development proposals that generate additional parking demand should ensure that appropriate vehicle, powered two wheeler and cycle parking provision is made. The form and scale of off-street parking required will be assessed against the following:
 - A. the accessibility of the development;
 - B. the type, mix and use of the development;
 - C. the availability and frequency of public transport services; and,
 - D. local car ownership levels.
2. Developers will be expected to have considered and incorporated measures to minimise parking provision without causing detriment to the functioning of the highway network, local amenity and safety.
3. Where private and/or public on-site parking for public use is to be provided at least 5% of parking bays, should be designed, set out and reserved for people with mobility impairments. Such parking bays should be located as close to the main access to the building as possible.

Parking provision

14.170 Parking can present problems when it is not considered as part of an integrated design approach, or when too little parking is provided relative to the local site circumstances.

14.171 Parking provision in new development must be designed to meet expected demand whilst making the most efficient use of land and maintaining the principles of sustainable development. Much evidence now exists to suggest that the over-restriction of residential

parking approach taken by local authorities in response to Planning Policy Guidance 3: Housing (PPG3), has had a negative impact on highway safety and good urban design.

14.172 It is important to ensure future developments provide sufficient parking that will not result in on-street parking congestion. There has to be a balance so that there is not an over provision of parking that would result in the inefficient use of land or encourage unsustainable transport choices.

14.173 The approach taken must recognise that certain factors may require deviation from any set standards, such as on-street parking levels, parking restrictions, narrow streets and other local factors. The Council must ultimately weigh up all the specific issues for each development and establish a balanced outcome.

	<p>4. Where 100 or more parking places are to be provided to serve a commercial development, a minimum of three charging points should be provided for electric vehicles.</p> <p>5. Development proposals that make provision for surface parking areas to serve more than a single household, visitor, employee, or customer, should ensure that appropriate low maintenance landscaping is integrated into the design and layout of the sites.</p>	<p>Justification</p> <p>14.174 Policy 38'Parking' sets out a flexible approach outlining key considerations to be taken into account with the aim of identifying the extent to which provision of additional off-street parking space could be minimised before problems would be experienced. This would naturally lead to a situation where developments in proximity to good transport services and close to frequently used services and facilities require fewer parking facilities than those in locations without these benefits.</p> <p>14.175 Policy 38'Parking' makes specific provision for people with mobility impairments. The requirement of five percent is representative of the national average of those with mobility impairments who have potential need for parking.⁽¹⁰⁴⁾ The Policy also supports the drive towards cleaner vehicles by seeking provision of charging points for electric vehicles in larger commercial schemes. The requirement for a minimum of three charging points is considered reasonable in car parks of 100 vehicles or more, and reflects the likely increase in ownership of electric vehicles over the plan period.</p> <p>14.176 The Government remains committed to electric vehicles and supports the further take-up by subsidising the purchase cost of a vehicle and the installation of a charging point as part of its drive to reduce carbon pollution from transport and improve air quality. The lack of supporting charging infrastructure is seen as a deterrent to increased take-up and frustrates efforts to address air quality impacts.</p> <p>14.177 The Council is committed to supporting the increased take-up of electric vehicles as part of its RENEWEL programme, which includes the promotion and investment in low carbon transport alongside a package of other measures and low carbon technologies.</p> <p>14.178 The Office of Low Emission Vehicles, Proposed transposition of EU Directive 2014/94/EU (Alternative Fuels Infrastructure Directive) identifies the cost of providing a publicly accessible charging point is on average £2,000. The requirement to provide a minimum of three public charging points relates only to commercial developments generating a requirement for 100 or more parking places. The cost is not considered to be onerous set against the overall cost of a scheme generating this level of parking. It is consistent with the wider government and council approaches to improve the network of charging points and supports measures to improve air quality.</p> <table border="1"> <thead> <tr> <th>Policy 38'Parking' relationship to:</th> <th>Links to:</th> </tr> </thead> <tbody> <tr> <td>National Planning Policy Framework</td> <td>Paragraphs 39, 40</td> </tr> <tr> <td>Local Plan Strategic Objectives</td> <td>SO5, SO7 and SO9</td> </tr> <tr> <td>Evidence base and other key documents and strategies</td> <td> <ul style="list-style-type: none"> Local Transport Plan (LTP3) (2011) </td> </tr> </tbody> </table> <p>Table 14.22 Policy relationships</p> <p><small>104 In March 2012 the estimated number of Blue Badge Holders was 2.62 million. This represents five percent of the English population <i>DfT Blue Badge Scheme Statistics 2011/12.</i></small></p>	Policy 38'Parking' relationship to:	Links to:	National Planning Policy Framework	Paragraphs 39, 40	Local Plan Strategic Objectives	SO5, SO7 and SO9	Evidence base and other key documents and strategies	<ul style="list-style-type: none"> Local Transport Plan (LTP3) (2011)
Policy 38'Parking' relationship to:	Links to:									
National Planning Policy Framework	Paragraphs 39, 40									
Local Plan Strategic Objectives	SO5, SO7 and SO9									
Evidence base and other key documents and strategies	<ul style="list-style-type: none"> Local Transport Plan (LTP3) (2011) 									
<p>Policy 39 – Conserving and enhancing the historic environment</p>	<p>Conserving and enhancing the historic environment</p> <p>1. Proposals for development will be permitted where they would sustain the cultural distinctiveness and significance of North East Lincolnshire's historic urban, rural and coastal environment by protecting, preserving and, where appropriate, enhancing the character, appearance, significance and historic value of designated and non-designated heritage assets and their settings.</p>	<p>Historic places</p> <p>14.179 North East Lincolnshire's historic environment is an asset of great social, cultural, economic and environmental value. This needs to be understood and taken fully into account as developments and changes are being planned, designed and implemented. The Council is committed to making the most of the best buildings and places inherited from previous generations, including encouraging the reuse of heritage assets where appropriate; as it seeks to meet the needs of people living here now and in the future.</p>								

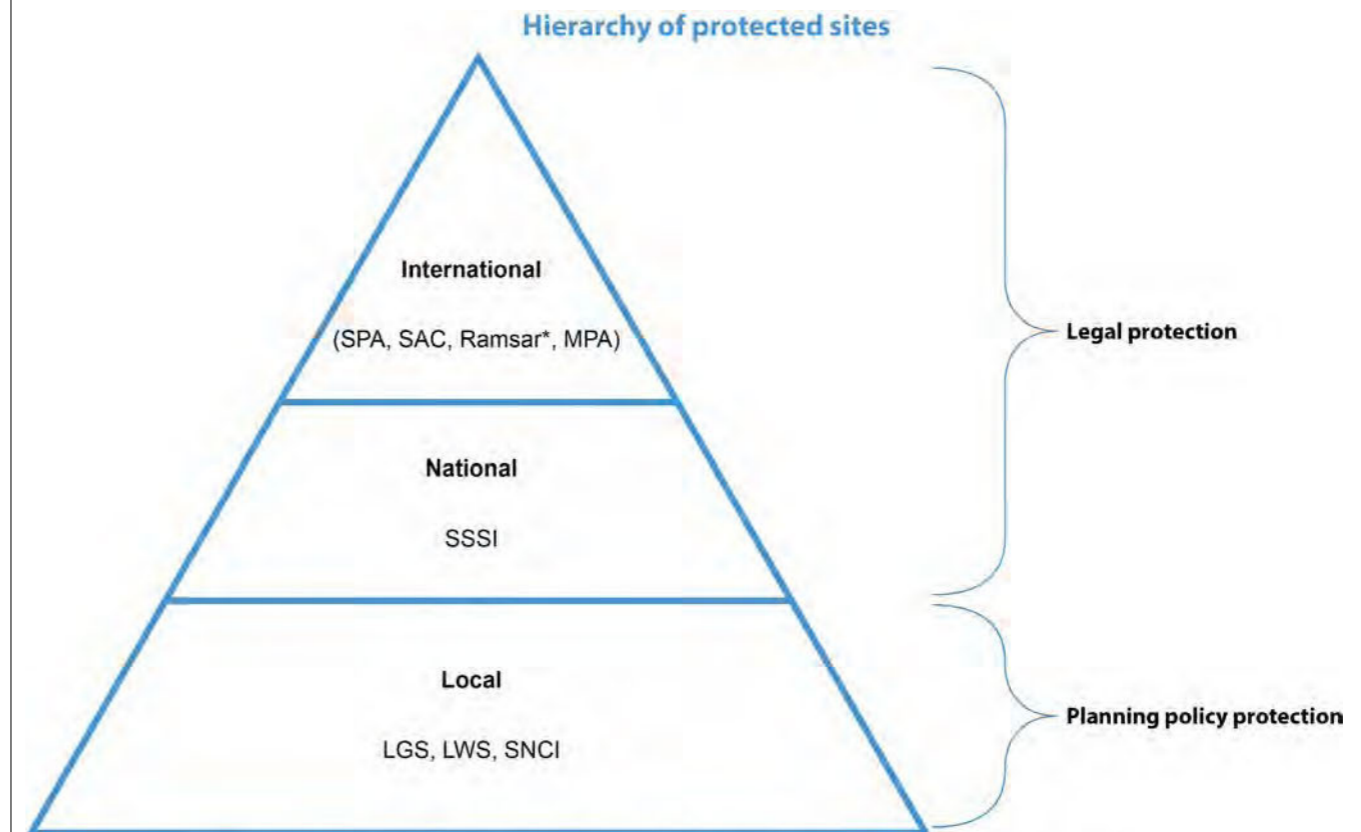
<p>2. In addition, the Council will pursue an integrated approach that:</p> <ul style="list-style-type: none"> A. seeks to update existing Conservation Area Appraisals and Management Plans to identify the qualities and interests of each area and management guidelines to guide future development; B. takes a positive and proactive approach to addressing Heritage at Risk (including those assets on the national and local Heritage at Risk Registers), where necessary using statutory powers to undertake enforcement action where there is identified harm, immediate threat or serious risk to the preservation of a heritage assets; C. considers the use of Article 4 Directions to remove permitted development rights in all or part of conservation areas or on local list assets where there is evidence that important features are at risk of being degraded; D. supports the development of Listed Building Heritage Partnership Agreements, where appropriate; E. supports heritage-led regeneration; F. encourages sympathetic uses, and repair, maintenance and restoration of heritage assets; and, G. considers the use of Local Listed Building Consent Orders. <p>3. Development will be supported, and planning permission granted, where proposals:</p> <ul style="list-style-type: none"> A. protect the significance of heritage assets, including their setting; through consideration of scale, design, materials, siting, mass, use and views; B. conserve and, where appropriate, enhance other historic landscape and townscape features, including historic shop fronts; C. preserve and enhance the special character and architectural appearance of Conservation Areas, especially those positive elements in any Conservation Area Appraisal; D. conserve and, where appropriate, enhance the design, character appearance and historic significance of the Borough's only registered park and garden (Peoples Park, Grimsby); E. make appropriate provision to record, and where possible preserve in situ features of archaeological significance; and, F. captures opportunities to increase knowledge and access to local heritage assets and better reveal their significance. <p>4. Where a development proposal would affect the significance of a heritage asset (whether designated or non-designated), including any contribution made to its setting, it should be informed by proportionate historic environment assessments and</p>	<p>14.180 North East Lincolnshire's historic environment plays a significant role in defining the character and setting of the Borough. Heritage assets contribute to a sense of community identity and local distinctiveness, and enhance the aesthetic, social and cultural quality of life available to residents. They also make positive contributions to economic viability, environmental sustainability and regeneration, for example by attracting visitors and by providing high quality settings for commercial and cultural activities.</p> <p>14.181 The NPPF (paragraph 126), emphasises that local plans should set out a positive strategy for the conservation and enjoyment of the historic environment. This includes heritage assets most at risk through neglect, decay and other threats. In doing so, careful consideration should be given to:</p> <ul style="list-style-type: none"> • "the desirability of sustaining and enhancing the significance of the heritage assets and putting them to viable uses consistent with their conservation; • the wider social, cultural, economic and environmental benefits that conservation of the historic environment can bring; • the desirability of new development making a positive contribution to local character and distinctiveness; • opportunities to draw on the contribution made by the historic environment to the character of a place". <p>14.182 The NPPF advises that, applicants seeking planning approval should be required to describe the significance of any heritage assets affected by the development proposals, including any contribution made by their setting. The NPPF also provides guidance regarding consideration of harm and of viability.</p> <p>14.183 Within North East Lincolnshire there are currently (August 2017):</p> <ol style="list-style-type: none"> 1. 222 nationally listed buildings, (196 Grade II, 13 Grade II* and 12 Grade I); 2. 11 nationally Schedule Monuments; 3. one nationally registered Park and Garden, (Peoples Park, Grimsby); 4. 16 Conservation Areas; 5. local lists of local heritage assets, comprising: <ul style="list-style-type: none"> a. a local list for Grimsby, adopted 2015, and Grimsby villages, adopted 2013; b. a local list for Cleethorpes, adopted 2013; c. a local list for Immingham and the villages, (draft). 6. in addition, there are many non-designated assets which are widely recognised as being of local heritage significance. <p>14.184 In broad terms, the Council considers the following to be of particular importance for the contribution to the Borough's distinctive character and sense of place:</p> <ol style="list-style-type: none"> 1. the unique legacy of buildings and structures associated with its maritime and fishing industry including the historic docks of Grimsby and Immingham (including the Dock Tower, Kasbah, Ice Factory and Smokehouses), and associated commercial and domestic architecture; 2. the seaside resort of Cleethorpes (including the Pier, promenades, and traditional seaside architecture); 3. the high quality archaeological deposits relating to the medieval town and Port of Grimsby and the settlement of Stallingborough; 4. the high quality early twentieth century domestic architecture of Grimsby, Cleethorpes and The Avenue, Healing; 5. the rural vernacular, archaeological and landscape character of traditional rural Wolds settlements (including Beelsby, Barnoldby le Beck, East Ravendale, Habrough and Wold Newton). 6. the isolated Iron Age and Roman settlements of the marshland parishes; and,
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<p>evaluations (such as heritage impact assessments, desk based appraisals, field evaluation and historic building reports) that:</p> <ul style="list-style-type: none"> A. identify all heritage assets likely to be affected by the proposal; B. explain the nature and degree of any effect on elements that contribute to their significance and demonstrating how, in order of preference, any harm will be avoided, minimised or mitigated; C. provide a clear explanation and justification for the proposal in order for the harm to be weighed against public benefits; and, D. demonstrate that all reasonable efforts have been made to sustain the existing use, find new uses, or mitigate the extent of the harm to the significance of the asset; and whether the works proposed are the minimum required to secure the long-term use of the asset. <p>5. The Council will assess each application individually in terms of the magnitude of impact of any change on the significance of the asset or the contribution that setting makes to that significance or experiencing significance. Where an impact equates to substantial loss of significance (demolition in the case of direct harm or the effective destruction of an asset's setting in the case of indirect harm), a proposal will be considered to cause substantial harm. Permission will only be granted where substantial harm to assets of the highest significance is wholly exceptional, and for all other nationally designated assets, exceptional.</p>	<p>7. the rural character of Old Clee Conservation Area.</p> <p>14.185 An up to date register of nationally protected heritage buildings and sites can be found on the National Heritage List for England website.⁽¹⁰⁵⁾ As these records are subject to continuous review and change these assets have not been identified on the Policies Map.</p> <p>Justification</p> <p>14.186 Policy 39'Conserving and enhancing the historic environment' sets out a clear approach providing guidance to developers on how to safeguard and respond to the historic environment, recognising designated and non-designated heritage assets. This includes understanding, safeguarding and where possible enhancing, the character, appearance, setting and integrity of identified heritage assets. It explains what supporting information will need to be submitted with applications and details how the Council will make appropriate judgements.</p> <p>14.187 Heritage assets are an irreplaceable resource. Therefore, proposals for development should be informed by, and will be determined in line with, statutory requirements, national policy and specific relevant guidance, principles and best practice.</p> <p>14.188 The determination of planning applications will be based on the assessment of the potential harmful impact. The Council will take into account the desirability of not only sustaining the asset's significance, but also enhancing that significance and the positive contribution both conservation and well-informed new design can make to sustainability, local character and distinctiveness.</p> <p>14.189 The significance of a heritage asset can be harmed or lost through alteration or destruction of the asset or development within its setting. Any harm or loss, including cumulative impacts leading to less than substantial harm, will require clear and convincing justification to allow the harm to be balanced against any public benefits of the proposal.</p> <p>14.190 The more important the asset, the greater the presumption against harm; proposals leading to substantial harm of the most important assets would have to be wholly exceptional, and will have to demonstrate a lack of viable alternative schemes or uses, and the most substantial overriding public benefits. The Borough's scheduled monuments, Grade I and II* listed buildings and the registered park and garden, are considered to be of the greatest importance in this regard.</p> <p>14.191 However, the same expectations for proportionate assessment and the need for justification through overriding public benefits apply to other designated assets and all non-designated assets, as appropriate to their significance. Non-designated assets could be buildings, Monuments, archaeological sites, places, areas of landscapes positively identified (in the Historic Environment Record, Conservation Area Appraisals or Neighbourhood Plans, or equivalent, or through assessment within the planning processes) as having a degree of significance meriting consideration in planning decisions.</p> <p>14.192 Policy 39'Conserving and enhancing the historic environment' goes on to outline the Council's strategy for securing and facilitating conservation of the historic environment and the Borough's heritage assets, how it has and will continue to implement that strategy over the plan period.</p> <p>14.193 There is a particular challenge in finding viable uses for heritage assets particularly where they are located within those parts of the Borough, where there are particularly demanding economic and social conditions that suppress property values. The 2014 record of 'Buildings and Risk' on the national register identifies two listed buildings, two scheduled monuments and seven conservation areas at risk. In addition survey work completed by the Heritage Trust for Lincolnshire in 2015 provides information on historic buildings, war memorials, archaeological sites, historic parks and gardens and conservation areas which helps to inform the overall heritage strategy.</p>
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		105 The National Heritage List for England is available at: https://historicengland.org.uk .
Policy 41 – Biodiversity and geodiversity	<p>Biodiversity and Geodiversity</p> <ol style="list-style-type: none"> 1. The Council will have regard to biodiversity and geodiversity when considering development proposals, seeking specifically to: <ol style="list-style-type: none"> A. establish and secure appropriate management of, long-term mitigation areas within the Estuary Employment Zone, managed specifically to protect the integrity of the internationally important biodiversity sites (see Policy 9'Habitat Mitigation - South Humber Bank'); B. designate Local Wildlife Sites (LWss) and Local Geological Sites (LGSs) in recognition of particular wildlife and geological value; C. protect manage and enhance international, national and local sites of biological and geological conservation importance, having regard to the hierarchy of designated sites, and the need for appropriate buffer zones; D. minimise the loss of biodiversity features, or where loss is unavoidable and justified ensure appropriate mitigation and compensation measures are provided; E. create opportunities to retain, protect, restore and enhance features of biodiversity value, including priority habitats and species; and, F. take opportunities to retain, protect and restore the connectivity between components of the Borough's ecological network. 2. Any development which would, either individually or cumulatively, result in significant harm to biodiversity which cannot be avoided, adequately mitigated or as a last resort compensated for, will be refused. 	<p>Biodiversity and Geodiversity</p> <p>14.203 The natural environment is extremely important in ensuring a high quality of life for all who live, work and play in North East Lincolnshire. The natural habitats and ecosystems help to sustain our lives and our standard of living (providing what are often referred to as 'ecosystems services'), including food, fuel, textiles, medicinal products, clean air and fresh water. Ecosystems, and the life they support, play an important role in regulating our environment, for example, climate regulation by absorbing carbon dioxide, purifying our water, pollinating crops and controlling floods.</p> <p>14.204 Biodiversity - is shorthand for biological diversity. It is a term commonly used to describe the variety of life in a particular area, including plants, animals and other living organisms. The Convention on Biological Diversity (CBD) defines biodiversity as: <i>"the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part, this includes diversity within species, between species and of ecosystems".⁽¹⁰⁶⁾</i></p> <p>14.205 Geodiversity - is shorthand for geological diversity. It is a term which is commonly used to describe the variety of earth materials, forms and processes that constitute and shape the Earth. This includes a variety of rocks, minerals, fossils and other geological features.</p> <p>14.206 The importance of biodiversity and geodiversity is reflected in the wealth of national and international legislation that exists to protect these assets. The NPPF also seeks to ensure that the planning system contributes to and enhances the natural and local environment. It places a requirement on local planning authorities to:</p> <ol style="list-style-type: none"> 1. minimise the impact of development on biodiversity and seek to provide net gains in biodiversity where possible; 2. allocate land for development with the least environmental or amenity value and seek to reuse brownfield land where it is not of high environment value; 3. plan for biodiversity across local authority boundaries, at a landscape-scale; 4. apply criteria-based policies against which planning application affecting designated biodiversity and geodiversity sites will be judged; 5. follow a strategic approach to protecting, creating, enhancing and managing positively biodiversity and green infrastructure; and, 6. promote the preservation, restoration, and re-creation of priority habitats and the protection and recovery of priority species populations. <p>14.207 The NPPF (paragraph 118) emphasises that if harm resulting from development cannot be avoided (through locating development on an alternative site with less harmful impacts), adequately mitigated or, as a last resort compensated for, then planning permission should be refused.</p> <p>14.208 North East Lincolnshire is a diverse area displaying a wide variety of natural habitats, landscape and geological/geomorphological interest. Figure 14.3'Site hierarchy' provides an overview of the hierarchy of sites relevant to the Borough. These sites are identified on the Policies Map.</p> <p>14.209 The biodiversity of the Humber Estuary is of international significance, particularly with regard to migratory and overwintering wading birds that feed on the saltmarsh and mudflats and move inland to roost. These designations are collectively referred to as Natura 2000 sites. In addition to these international designations, the Humber Estuary is also designated as, the Humber Estuary Site of Special Scientific Interest (SSSI).</p>

14.210 Over a number of years, surveys of local biodiversity and geodiversity sites have been carried out in the Borough. These have been funded by a number of organisations including the Council. A process is now in place where the Greater Lincolnshire Nature Partnership (GLNP) processes the data from the surveys against specified criteria for selecting local geological sites (LGSs) and Local Wildlife Sites (LWSs). Those sites which are identified as meeting the required criteria are then identified for possible designation. It is the Council which formally designates these sites.⁽¹⁰⁷⁾

14.211 The Council has recently undertaken a review of a number of designated sites where circumstances have changed since original designation or where there are acknowledged development pressures. This is part of a rolling review process, which seeks to capture new sites and changes to existing sites. The review of sites utilises the GLNP process which ensure consistency across sites, and across the wider Lincolnshire geographical area. The sites which are currently designated as LGSs and LWSs have been identified on the Policies Map, together with remaining SNCIs.⁽¹⁰⁸⁾



* Ramsar sites do not provide legal protection but are always underpinned with a SSSI designation

Figure 14.3 Site hierarchy

Justification

14.212 Policy 41 'Biodiversity and Geodiversity' sets out a strategic approach which positively plans for the creation, protection, enhancement and management of sites of biodiversity and geodiversity. It acknowledges the hierarchy of international, national and locally designated sites and refers specifically to the designation process for local sites, linked to processes of monitoring and review undertaken in partnership with the Greater Lincolnshire Nature Partnership.

14.213 Recognition is made that sites identified, to compensate for adverse effects on European sites should be given the same protection as the European site. This is significant in relation to the habitat mitigation provided within the South Humber Bank.

14.214 The Council will seek to capture opportunities to develop ecological networks, incorporating biodiversity in and around new developments through thoughtful design approaches, and will specifically support proposals which seek directly to conserve or enhance biodiversity.

14.215 In accordance with the NPPF, if significant harm resulting from a proposed development cannot be avoided (through locating on an alternative site with less harmful effects), adequately mitigates, or as a last resort compensated for, then planning permission will be refused.

Policy 41 'Biodiversity and Geodiversity' relationship to:	Links to:
National Planning Policy Framework	Paragraphs 109, 117, 118
Local Plan Strategic Objectives	SO6
Evidence base and other key documents and strategies	Natural England datasets Greater Lincolnshire Nature Partnership datasets

Table 14.25 Policy relationships

106 *Convention on Biological Diversity*, United Nations (1992).

107 There are still a number of Sites of Nature Conservation Interest (SNCIs) that were originally identified in the North East Lincolnshire Local Plan (2003) which have yet to be reviewed. These sites still maintain their original protection as local sites.

108 Applicants should check, to determine whether any changes to local designations have been made.

Policy 42 – Landscape

Landscape

1. Landscape character should be given due consideration in the nature, location, design and implementation of development proposals. Developers should:
 - A. have regard to the landscape context and type within which the development is to be located, (as identified in the Landscape Character Assessment); considering the landscape guidelines and management strategies relevant to the prevalent landscape type. Priority will be given to the protection and enhancement of the landscape character and natural beauty, and setting of the Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB);
 - B. complete a site specific landscape appraisal, proportionate to the anticipated scale and impact of a proposal, and submit a landscaping scheme for all development where this is appropriate, which complements the character and appearance of the site, responds to landscape character, climate change and flood alleviation where appropriate, and improves local biodiversity and levels of amenity;
 - C. seek opportunities, when incorporating landscape buffers to offset development impacts, to enhance landscape quality including opportunities to incorporate suitable landscape planting;
 - D. retain and protect trees and hedgerows which offer value for amenity, biodiversity and landscape; and,

Landscape

14.216 One of the core principles of the NPPF is that planning should recognise the intrinsic character and beauty of the countryside. Local plans should include strategic policies for the conservation and enhancement of the natural environment, including landscape. This includes designated landscapes such as the Lincolnshire Wolds Area of Outstanding Natural Beauty but also the non-designated wider countryside.

14.217 A North East Lincolnshire Landscape Character Assessment (2015) has been prepared which provides a useful aid to understand the character and local distinctiveness of the landscape, and helps to identify the features that give it a sense of place. It also provides information regarding the sensitivity of areas, and information as to how change can be accommodated. Mapping is also available relating to the historic landscape character, which has been collated through the Lincolnshire Historic Landscape Characterisation Project.

14.218 The Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB) designation puts it on a par with the protection offered to National Parks. A management plan⁽¹⁰⁹⁾ has been prepared for the AONB identifying the value and special qualities of the designation. The management plan does not carry the same planning weight as the Local Plan, but does establish key principles. For developments within the boundaries of the Lincolnshire Wolds AONB, the management plan will be a material consideration.

14.219 When considering landscape character and designing landscape schemes it is important to recognise the wider role that landscape performs. Whilst complementing the character and appearance of the site, landscape elements can provide wider functional purposes. Trees and hedges can provide important shade, aid drainage and provide important biodiversity sites. Broader landscape areas can also provide a mechanism for responding to climate change and flood

E. take opportunities where appropriate, to retain, protect and restore elements that contribute to historic landscape character.

alleviation. It is also recognised that landscaping can be beneficial to air quality and the atmosphere. Good landscaping can also instil a feeling of confidence and sense of well-being which can promote healthy living.

Justification

14.220 Landscape plays an important role in defining the character and appearance of the environment and importantly, the settling of new development within the environment. It is important that new developments are located and designed so as to recognise existing landscape character. Where appropriate this should be through a specific landscape appraisal.

14.221 North East Lincolnshire contains large parts of two Historic Landscape Character Areas identified by the Lincolnshire Historic Landscape Characterisation Project: The Northern Marshes and The Wolds. These are largely rural areas (the Grimsby and Cleethorpes conurbation does not form part of the historic landscape character area), within which a number of zones are defined:

1. NOM1 - The Humber Bank;
2. NOM2 - The Immingham Coastal Marsh;
3. NOM3 - The Grimsby Commuter Belt;
4. WOL1 - The Brocklesby Heath (although the area relating to the Borough is too small to be of any significance); and,
5. WOL3 - The Upper Wolds.

14.222 The area of the Borough contained within zone WOL3 corresponds well with the area of the Borough that is part of the Lincolnshire Wolds AONB, and weight will be afforded to the impact of development on the historic landscape character that is present here. Stretching away from this area, along the course of Waithe Beck, are areas of Ancient Enclosure, a Landscape Park, and the historic settlement cores of Barnoldby le Beck, Ashby cum Fenby and Brigsley. This landscape is within the NOM3 zone and has not been assessed for significance but is considered to be of local historic interest.

14.223 The presence and significance of mature trees and hedgerows should be recognised. Trees not only provide a living element in the environment that lasts for generations, they also provide important natural habitats, filter dust and emissions, suppress noise and form familiar landmarks. Hedgerows possess many of the qualities common to trees and are just as viable, with many also having historical significance.

14.224 The Council will seek to protect trees and hedgerows that offer value for amenity and biodiversity. The Council has extensive powers through Tree Preservation Orders to protect trees whether they are individual specimens, groups or trees of entire woodlands. Protection can also be provided for important hedgerows which meet certain criteria under the Hedgerow Regulations (1997). In addition to these powers the Council will seek, through conditions to safeguard important landscape assets, this will include measures to ensure they are integrated in landscaping schemes to safeguard them through the construction period to avoid damage due to proximity of vehicle and plant manoeuvres, material storage or provision of services.

14.225 The design of new landscaping must take into account responsibility for future maintenance and, where appropriate this should accord with the delivery mechanisms for green space set out in Policy 43'Green space and recreation'.

Policy 42'Landscapes' relationship to:	Link to:
National Planning Policy Framework	Paragraphs 113 and 115
Local Plan Strategic Objectives	SO6

Evidence base and other key documents and strategies

Landscape Character Assessment (2015)
Lincolnshire Historic Landscape Characterisation Project (2011)

Table 14.26 Policy relationships

Policy 47 – Future requirements for waste facilities

Future requirements for waste facilities

1. Proposals for waste management facilities should be developed on sites in accordance with the following locational criteria:

Waste management facility	Locational preference
Materials recycling facilities	Existing employment land at:
Waste transfer facilities	1. Kiln Lane Industrial Estate, Stallingborough;
Civic amenity sites	2. South Humberside Industrial Estate, Grimsby;
Waste treatment and recovery facilities, (including energy from waste, and biological/mechanical treatment)	3. Wilton Road Industrial Estate, Humberston; or,
	Allocated employment sites at:
	1. ELR005 Former Huntsman Tioxide Site, Moody Lane, Grimsby;
	2. ELR015 a&b Great Coates Business Park, Moody Lane, Grimsby.
	Current waste management facilities.
	(While the preferred location for civic amenity sites is on industrial land/employment allocations, other locations may be appropriate to allow the civic amenity site to be accessible to residential properties thereby reducing the distance travelled by residents to dispose of waste, these proposals will be considered on a site-by site basis.)

Future waste facilities

16.13 Waste management, in terms of planning for facilities, is increasingly becoming similar to that for general industrial facilities, in that proposals come forward as a consequence of site finding and progression through the development control process by industry stakeholders; largely outside of the plan-making process. It is therefore not appropriate for the Plan, to attempt to identify all of the sites that will be required for waste management facilities over the full plan period. To do so would be too prescriptive and inflexible and would mean that good sites identified outside of the plan-making process could be prevented from being implemented.

16.14 Evidence has been prepared⁽¹³⁰⁾ to assess the level of waste that can be expected to be generate across the plan period. An indication of the expected arisings in the plan period is provided below. Acting as waste disposal authority (WDA), the Council are also preparing a revised Municipal Waste Management Strategy. The Council is a member of the Yorkshire and Humber Waste Technical Advisory Body, which brings together representatives from all waste planning authorities in the Yorkshire and Humber area to address cross-boundary waste issues, in recognition that waste movements occur between authorities.

What do we need to plan for?

16.15 Forecasts of waste arisings in the period to 2032 have been closely aligned to key local plan evidence documents. This includes the findings for the Strategic Housing Market Assessment (2013), Local Economic Assessment (2014), and Demographic analysis and forecast (2015) with regards to the potential for population growth (and the resulting household growth) linked to economic growth forecasts.

16.16 Waste in the local authority collected stream is expected to decline in the first few years of the plan period, due to a reduction in the quantity of waste produced per person. However, it is expected to increase in later years of the plan period due to the rate of population growth. North East Lincolnshire is net self-sufficient in the management of waste, in that as much waste is managed in the area as is generated.

16.17 Some growth is expected in the commercial and industrial waste stream, due to the expansion of the commercial and particularly, the industrial sector, in North East Lincolnshire. These forecasts are aligned to jobs growth forecasts, but also incorporate adjustments for both the commercial and industrial sectors to represent resource efficiency changes. Over the plan period, the commercial and industrial waste stream is expected to grow by just over 9%. It is estimated that around 175,500 tonnes per annum is currently produces, and that arisings in this waste stream will remain static across the plan period.

16.18 The Council's draft Waste Needs Assessment (2015) suggests that no additional capacity is required to meet North East Lincolnshire's waste management needs. While a shortfall of waste management capacity is identified for the hazardous waste stream, this is not significant enough to enable an economically viable facility to be brought forward. The Council will work with other regional authorities through the Yorkshire and Humber Waste Technical Advisory Body (WTAB) to identify how the identified shortfall can be met in regional facilities.

16.19 Forecasts are not provided for agricultural waste, low level radioactive waste, and wastewater. Agricultural waste is expected to form a small component of the waste stream, and some growth in the agricultural sector is

Outdoor composting facilities	Adjacent to current waste management facilities, or land in rural locations, where development meets the Council's criteria for developments in these locations (outlined in Policy 5'Development boundaries').
Wastewater recycling facilities	Adjacent to existing sites, or new sites where it can be demonstrated that expansion of existing facilities is not feasible.

Table 16.2 Locational criteria

2. Development should be located, designed and operated to minimise impacts, having specific regard to:

- A. visual intrusion;
- B. landscape character;
- C. noise, light and vibration;
- D. odours;
- E. air emissions, including dust;
- F. vermin and birds;
- G. litter;
- H. traffic and access;
- I. potential land use conflict;
- J. stability of land;
- K. protection of water quality and resources and flood risk management;
- L. conserving the historic environment; and,
- M. nature conservation.

3. The Council will support the co-locating of complementary waste facilities to facilitate efficiencies in waste management and transport; and the co-location of waste facilities with developments that could make use of the output of a waste facility, such as a district-heating scheme, or industrial process.

4. The Council will also seek to secure the recycling of Construction, Demolition and Excavation (CD&E) waste at the locations where waste is produced, including the temporary provision for recovery, separation and where appropriate processing of on-site materials.

reflected in the commercial and industrial waste, and hazardous waste forecasts. Low level radioactive waste is produced primarily at healthcare premises in North East Lincolnshire, and there is not expected to be a significant increase in production requiring treatment capacity to be identified. Wastewater is planned for by Anglian Water. The Council will work with Anglian Water to establish the need for future capacity, and report on progress in the Infrastructure Delivery Plan (IDP).

Waste management requirements to 2032					
Waste stream	Tonnes to be managed per annum ⁽¹³¹⁾				
	Baseline	2016/17	2021/22	2026/27	2031/32
Local Authority Collected Municipal Waste	77,400	76,100	75,500	79,000	82,300
Commercial and Industrial Waste	310,200	314,900	322,900	331,000	339,300
Construction, Demolition and Excavation Waste	175,500	175,500	175,500	175,500	175,500
Hazardous Waste	76,000	76,000	76,000	76,000	76,000
Total	639,100	642,500	649,900	661,500	673,100

Table 16.1 Waste management requirement to 2032

16.20 As an increase is expected, further discussions with other authorities will continue in recognition that waste movements will continue to occur due to existing contacts remaining in place. Figure 16.1'Hazardous waste movements' provides an illustration of the scale of hazardous waste movements. It shows, on the left, where hazardous waste arises that is received at facilities in North East Lincolnshire and, on the right, the destinations of hazardous waste arisings in North East Lincolnshire.

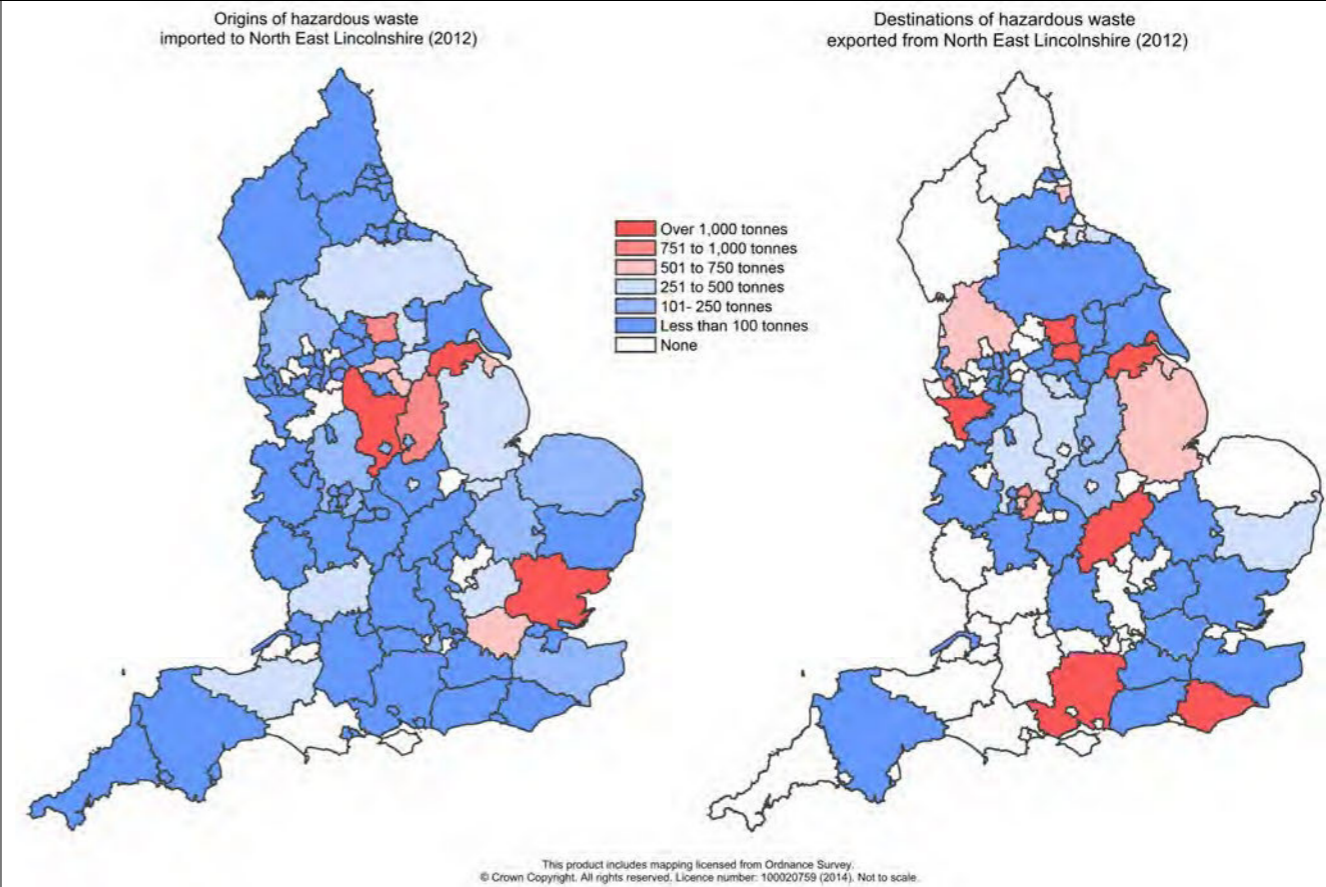


Figure 16.1 Hazardous waste movements

16.21 The areas from which North East Lincolnshire receives the highest quantity of hazardous waste is primarily those which have a quick connection to the Borough via the motorway network. However, due to the presence of a facility in North East Lincolnshire with a large catchment area, the Borough receives small waste movements from across the country. Conversely, much of North East Lincolnshire's hazardous waste is handled elsewhere, and in particular Cheshire West and Chester, Leeds, and North Lincolnshire play significant roles.

Justification

16.22 Policy 47'Future requirements for waste facilities' sets out precise locational criteria to ensure that proposals for waste management facilities will not cause harm to amenity or the local environment. The approach generally seeks to locate waste management facilities away from residential areas, except where there would be clear benefits to the residential communities.

16.23 Many waste management facilities are industrial in nature and are therefore not appropriate to be located in close proximity to residential areas. Significant levels of traffic movements are also often required to transport waste to these facilities, and the location of much of the area's industrial land is within easy access for the strategic road network, particularly the A180(T). The Council has historically been successful in locating major waste facilities within the existing employment areas.

16.24 Policy 47'Future requirements for waste facilities' also provides some flexibility, to allow specific waste developments in rural areas where they would benefit from this location, provided that they meet development management criteria outline in other sections of the Plan. This refers specifically to composting or wastewater treatment facilities.

16.25 Policy 47'Future requirements for waste facilities' supports to co-location of facilities, to maximise efficiency and minimise adverse impacts, and promotes co-location where use of the output of a waste facility, such as a district-heating scheme, or industrial process. The existing waste to energy plant at Stallingborough is a good example of such a joint venture. It exports steam, an output of the waste process, directly to a neighbouring chemical factory for use in their production processes. This provides operational and commercial benefits for both the waste operator and the chemical company.

Policy 47'Future requirements for waste facilities' relationship to:	Links to:
National Planning Policy Framework	Paragraphs (see NPPF principles)
Local Plan Strategic Objectives	SO10
Evidence base and other key documents and strategies	<ul style="list-style-type: none"> • <i>Municipal Waste Management Plan, Summary 2016-2019</i> • <i>Municipal Waste Management Plan, Technical Plan 2016-2019</i> • <i>North East Lincolnshire Waste Needs Assessment (2015)</i>

Table 16.3 Policy relationships

¹³⁰ *North East Lincolnshire Waste Needs Assessment (2015).*

¹³¹ *All figures have been rounded to the nearest 100.*

¹³²

Policy 48 – Safeguarding waste facilities and related infrastructure

Safeguarding waste facilities and related infrastructure

1. The Council will safeguard the existing waste management facilities identified on the Policies Map (Minerals and Waste) from the encroachment of incompatible development unless the planning permission has expired and/or it can be demonstrated that the site is no longer required.

Safeguarding waste facilities and related infrastructure

16.26 There is a necessity to ensure that there are sufficient waste management facilities within the Borough to meet the requirements of the area. Over time waste sites will cease to operate which could lead to a loss in overall waste management capacity. The Council has identified the current waste sites and wastewater treatment facilities on the Policies Map (Minerals and Waste) and listed the locations in Table 16.4'Licenced waste operators' and Table 16.5'Wastewater treatment facilities'. This does not include the numerous small recycling sites that are located across the Borough or sites granted a waste licence on a temporary basis related to a specific development.

Justification

16.27 The Council will seek to ensure that new development in proximity to a waste site is not incompatible with the waste management facility and will not prejudice its ongoing operation. The vast majority of waste sites and facilities (listed in Table 16.4'Licenced waste operators' and Table 16.5'Wastewater treatment facilities'⁽¹³²⁾ below) are located within employment areas. In such areas there is unlikely to be any compatibility concerns. However, waste facilities can be considered as bad neighbours where neighbouring uses are more sensitive for example, residential.

16.28 There is no established, evidence based distance to define a 'Waste Buffer' that covers every waste facility type. Public perception concern about the risk of effects arising from waste facilities (e.g. effects on health from bio-aerosols or emissions, or noise, dust and traffic emissions), have led to a commonly referred to 250 metre suggested buffer distance between waste facilities and sensitive receptors.⁽¹³³⁾ Therefore, the buffer which the Council will apply will normally cover and extend for up to 250 metres beyond the boundary of safeguarded sites. However, each site will be considered individually, and if circumstances suggest the depth of the 250 metre zone for the edge of the site should be varied, for example due to mitigation measures proposed, then this will be taken into account.⁽¹³⁴⁾ Identifying the waste sites and facilities together with defining a 250m buffer, is designed to inform prospective

developers and waste operators of an existing waste management operation and to ensure compatibility of adjacent new development.

Licensed waste operators and site locations		
Ref no.	Operator	Site location
WM01	Mettalis Recycling Ltd	Mineral Quay, Immingham Docks, Immingham
WM02	Immingham Storage Company Ltd	Immingham Oil Storage, West Riverside, Immingham Docks, Immingham
WM03	Associated British Ports	Immingham Dock Olive Residue Storage
WM04	SAR Recycling Ltd	Pelham Industrial Estate, Manby Road, Immingham
WM05	Grimsby Operations Ltd	Household Waste Recycling Centre, Queens Road, Immingham
WM07	Integrated Waste Management Ltd	Queens Road, Immingham
WM08	Selvic Shipping Services Ltd and FBM Metals (UK) Ltd	Kiln Lane Treatment Plant, Netherlands Way, Stallingborough
WM09	SJP Trading Ltd	Huckers Yard, Netherlands Way, Stallingborough
WM10	BOC Ltd	Hobson Way, Stallingborough
WM11	NewLincs Development Ltd	Stallingborough Transfer Station NewLincs EFW, South Marsh Road, Stallingborough
WM12	Metropes (Metals) Ltd	Estate Road No 3, South Humberside Industrial Estate, Grimsby
WM14	Jonathan Potts Ltd	Estate Road No 1, South Humberside Industrial Estate, Grimsby
WM15	Brianplant (Humberside) Ltd	Estate Road No 2, South Humberside Industrial Estate, Grimsby
WM16	H Cope & Sons Ltd	Moody Lane, Grimsby
WM17	UK Waste Management Ltd	Gilbey Road Transfer Station, Gilbey Road, Grimsby
WM18	Cleanway Ltd	Household Waste Recycling Centre, Estuary Way, Grimsby
	Grimsby Operations Ltd	
WM20	Freshney Cargo Services Ltd	Westside Road, Royal Dock, Grimsby

WM21	Brianplant (Humberside) Ltd	Rear of number's 2 & 3 Cold Stores, Wickham Road, Fish Docks, Grimsby
WM22	W Bloy Ltd	King Edward Street, Grimsby
WM24	Rimar Salvage	Railway Street, Grimsby
WM25	North East Lincolnshire Council	Works Department, Doughty Road, Grimsby

Table 16.4 Licenced waste operators

Wastewater treatment facilities		
Ref no.	Operator	Site location
WM06	Anglian Water Services Ltd	Queens Road Treatment Facility, Immingham
WM19	Anglian Water Services Ltd	Pyewipe Treatment Facility, Gate Way, Grimsby
WM26	Anglian Water Services Ltd	Grimsby Road Treatment Facility, Laceby
WM27	Anglian Water Services Ltd	East Ravendale Treatment Facility

Table 16.5 Wastewater treatment facilities

Policy 48'Safeguarding waste facilities and related infrastructure' relationship to:	Links to:
National Planning Policy Framework	Paragraphs (see NPPF principles)
Local Plan Strategic Objectives	SO10
Evidence base and other key documents and strategies	<ul style="list-style-type: none"> North East Lincolnshire Waste Needs Assessment (2015)

Table 16.6 Policy relationships

132 These sites are derived from the Environment Agency's record of environmental permits (waste operations).

133 Health and Safety Executive (HSE) *Bioaerosol emissions from waste composting and the potential for workers' exposure* (2010). Prepared by the Health and Safety Laboratory for the Health and Safety Executive.

134 Anglian Water adopt a risk assessment process to consider any application within 400m of a wastewater treatment works or within 15m of a sewerage pumping station. While the results of the assessment will not decide the outcome of a planning application, it will inform potential developers and provide planning officers and elected councillors with evidence based findings to help inform their planning decisions. Further details are set out in *Anglian Water's Asset Encroachment Policy* (Dec 2012), or any successor document.

Paragraph 5.6.4

SO3 – Economy

Support environmentally responsive local economic growth by promoting conditions that sustain an increase in the number of better paid jobs; removing barriers to investment and access to jobs; and, raising skills. Promote rural regeneration and diversification, including a strengthened tourism offer.

No accompanying text.

	<p>Critical success factors:</p> <ol style="list-style-type: none"> 1. reduced unemployment, through job creation and development to skills to support sector growth; 2. reduced the proportion of population subject to social deprivation; 3. delivered infrastructure to support economic development; and, 4. strengthened rural economy. 																																					
<p>SO10 – Minerals and waste</p>	<p>Safeguard important mineral resources and support minerals infrastructure for the future. Promote the application waste hierarchy in the management of waste and deliver sustainable facilities to manage waste.</p> <p>Critical success factors:</p> <ol style="list-style-type: none"> 1. safeguarded mineral resource; 2. planned for the supply of minerals to accommodate future growth; 3. delivered adequate provision for the management of waste arisings; and, 4. achieved reduction in waste generation and increased waste recycling. 	<p>No accompanying text.</p>																																				
<p>Policy 7 – Employment allocations</p>	<p>Employment allocations</p> <ol style="list-style-type: none"> 1. The following employment sites, as identified on the Policies Maps, are allocated for employment development, use classes B1 (Business), B2 (General Industrial) and B8 (Storage and Distribution). <table border="1"> <thead> <tr> <th></th> <th>Allocation reference/ Settlement (ELR ref)</th> <th>Site location</th> <th>Enterprise/ Habitat mitigation zone</th> <th>Gross site area (expected delivery in plan period)</th> <th>Indicative sector</th> </tr> </thead> <tbody> <tr> <td>Strategic sites</td> <td>ELR001 Immingham</td> <td>Kings Road</td> <td>Imm-Port Enterprise Zone/Habitat mitigation zone</td> <td>21.6ha</td> <td>Ports and logistics</td> </tr> <tr> <td></td> <td>ELR016 a&b Stallingborough</td> <td>Stallingborough Interchange⁽⁴⁰⁾</td> <td>ELR016a - Stallingborough Enterprise Zone</td> <td>20ha⁽⁴¹⁾</td> <td>Ports and logistics</td> </tr> <tr> <td></td> <td>ELR027 Immingham</td> <td>Land east of Queens Road</td> <td>Queens Road Enterprise Zone/Habitat mitigation zone</td> <td>15ha</td> <td>Ports and logistics</td> </tr> <tr> <td></td> <td>ELR015 a&b Grimsby</td> <td>Great Coates Business Park, Moody Lane</td> <td>Humber Gate Enterprise Zone/Habitat mitigation zone</td> <td>22.6ha</td> <td>Chemicals and process industries</td> </tr> <tr> <td></td> <td>ELR008 a-e Grimsby</td> <td>Europarc Phase III</td> <td>Habitat mitigation</td> <td>14.9ha</td> <td>Food processing</td> </tr> </tbody> </table>		Allocation reference/ Settlement (ELR ref)	Site location	Enterprise/ Habitat mitigation zone	Gross site area (expected delivery in plan period)	Indicative sector	Strategic sites	ELR001 Immingham	Kings Road	Imm-Port Enterprise Zone/Habitat mitigation zone	21.6ha	Ports and logistics		ELR016 a&b Stallingborough	Stallingborough Interchange ⁽⁴⁰⁾	ELR016a - Stallingborough Enterprise Zone	20ha ⁽⁴¹⁾	Ports and logistics		ELR027 Immingham	Land east of Queens Road	Queens Road Enterprise Zone/Habitat mitigation zone	15ha	Ports and logistics		ELR015 a&b Grimsby	Great Coates Business Park, Moody Lane	Humber Gate Enterprise Zone/Habitat mitigation zone	22.6ha	Chemicals and process industries		ELR008 a-e Grimsby	Europarc Phase III	Habitat mitigation	14.9ha	Food processing	<p>Employment allocations</p> <p>12.25 To ensure that appropriate land is identified which meets the needs set out in Policy 1'Employment land supply', the sites listed in Table 12.1'Employment allocations' have been identified.</p> <p>Justification</p> <p>12.26 The justification for the site selection process is detailed in the Employment Land Technical Paper which provides commentary on the availability, suitability and deliverability assessments that have been undertaken. The assessment identified a number of developable sites which, together exceed the land requirement identified in Policy 1'Employment land supply'. Importantly, it also highlighted the clustering benefits and operational requirements of particular business sectors in the Borough. For example, it would be impractical for a food processing operation to locate on the same site, or in the vicinity, of a chemical/processing plant. In view of the need to ensure there is a choice of sites available during the plan period, all sites considered developable are allocated, and an indicative sector attributed to each site as a guide to investors/applicants of the most suitable uses.</p> <p>12.27 In addition to particular locational and sector considerations, the Council has also considered the need to provide for different scales of development. A portfolio of sites has, therefore, been identified in Policy 7'Employment allocations' to accommodate the full range of business sizes from major international companies to small, locally based Small and Medium-sized Enterprise (SME) operations. These sites have been categorised as follows.</p> <p>Strategic sites</p> <p>12.28 Strategic sites are large-scale, principally estuary wide sites identified to meet demands arising from large-scale operations and major investment opportunities from all sectors. They are therefore intended to serve a long-term strategic function, which may see delivery beyond the current plan period. Some strategic sites are designated Enterprise Zones, where additional incentives are available to attract investment. Early development of sites within the designated Enterprise Zones is anticipated.</p> <p>12.29 Given their long-term and strategic function, it is anticipated that some strategic sites will not be fully developed within the plan period. On these sites the amount of land that is expected to be brought forward over the plan period is identified in Table 12.1'Employment allocations'. This quantum is derived from the proposed delivery strategy identified within SHIP as set out in the Employment Land Technical Paper and South Humber Industrial Investment Summary Paper.</p>
	Allocation reference/ Settlement (ELR ref)	Site location	Enterprise/ Habitat mitigation zone	Gross site area (expected delivery in plan period)	Indicative sector																																	
Strategic sites	ELR001 Immingham	Kings Road	Imm-Port Enterprise Zone/Habitat mitigation zone	21.6ha	Ports and logistics																																	
	ELR016 a&b Stallingborough	Stallingborough Interchange ⁽⁴⁰⁾	ELR016a - Stallingborough Enterprise Zone	20ha ⁽⁴¹⁾	Ports and logistics																																	
	ELR027 Immingham	Land east of Queens Road	Queens Road Enterprise Zone/Habitat mitigation zone	15ha	Ports and logistics																																	
	ELR015 a&b Grimsby	Great Coates Business Park, Moody Lane	Humber Gate Enterprise Zone/Habitat mitigation zone	22.6ha	Chemicals and process industries																																	
	ELR008 a-e Grimsby	Europarc Phase III	Habitat mitigation	14.9ha	Food processing																																	

			zone		
	ELR011 Grimsby	Europarc Phase IV	Habitat mitigation zone	15ha ⁽⁴²⁾	Food procession
	ELR020 Stallingborough	RWE/Helius Site, Hobson Way	Habitat mitigation zone	19.5ha	Renewables and energy
	ELR019 Stallingborough	Abengoa Site, Hobson Way	Hobson Way Enterprise Zone/Habitat mitigation zone	20ha ⁽⁴³⁾	Renewables and energy
General needs	ELR010 Humberston	Altyre Way (Hewitts Circus Business Park)	-	2.49ha ⁽⁴⁴⁾	Mixed
	ELR007 Immingham	Land at Hall Park Way	-	1.21ha	Mixed

	Allocation reference/Settlement (ELR ref)	Site location	Enterprise/Habitat mitigation zone	Gross site area (expected delivery in plan period)	Indicative sector
	ELR022 Stallingborough	Plot Q, Kiln Lane	Habitat mitigation zone	2.11ha ⁽⁴⁵⁾	Renewables and energy
	ELR024 Grimsby	Estate Road 1	Habitat mitigation zone	2.3ha	Mixed
	ELR036 Grimsby	Land at Westgate Park, Armstrong Street	-	0.61ha	Mixed
	ELR037 Immingham	Land to rear of Marlin House	-	1.1ha	Mixed
Port specific	ELR003 Stallingborough	Land south of Kiln Lane	Habitat mitigation zone	16.9ha	Ports and logistics
	ELR005 Grimsby	Former Huntsman Tioxide Site, Moody	Moody Lane Enterprise Zone/Habitat mitigation zone	25ha ⁽⁴⁷⁾	Ports and logistics

12.30 However, if development progresses faster than envisaged, or a major scheme requiring a significant land take were to be progressed, the Council would support the development of a greater proportion of the site provided the proposal is contained within the site boundary identified on the Policies Map, and accords with other policies within this Plan.

General needs

12.31 General needs sites are considered appropriate for meeting general demand within the local economy. Development of such sites is largely anticipated by smaller scale SME operations.

Port specific

12.32 The Port operator, ABP, has secured land outside of the Operational Port Area in order to accommodate increasing demand generated by port activities within the Ports and Logistics sector at both Immingham and Grimsby. These sites are allocated specifically to support the long-term development of the ports.

12.33 Over the plan period, it is anticipated that some parts of the current operational port area will become surplus to port requirements. This is largely anticipated to be in the area to the east of the Royal Dock. In such circumstances the Council will support a diversification of use which takes advantage of the dockside location provided that the change of use would not conflict with port operations.

Land reserved for long-term business expansion

12.34 The nature of the chemical and process sectors is such that large tracts of land are held primarily as buffer zones to avoid unnecessary disturbance to neighbours, or the company in the event of a major incident. However, the companies involved have also indicated long-term interests in developing land to meet company-specific requirements. Given the difficulty of predicting the timing of such requirements (company investment decisions are often taken in an international context, and often require a quick response), the Plan identifies these sites and provides flexibility to accommodate sector-specific requirements.

12.35 The allocation of land 'Reserved for long-term business expansion' identified in Policy 7'Employment allocations' and on the Policies Map operates as a safeguarding measure for land in specific company ownership to enable future development/expansion of their operations. These sites are not required to meet future general market needs.

Impacts on Natura 2000 site

12.36 Any proposed employment uses that give rise to emissions to air will be required to demonstrate they have had regard to the requirements of the Habitats Regulations, in relation to their effect on the integrity of the Humber Estuary SAC, SPA and Ramsar site, alone or in combination with other existing or planned sources of air pollution. Planning consent will not be granted until such assessment concludes that there will be no adverse effects on the integrity of the SAC, SPA and Ramsar site, either alone or in combination with other plans or projects.

12.37 Sites that are located within the South Humber Bank Mitigation Zone will need to be progressed in accordance with the provisions set out in Policy 9'Habitat Mitigation - South Humber Bank'. All sites located outside of the mitigation zone have been assessed through the Local Plan's Habitat Regulations Assessment Report (updated December 2016) to determine their likely importance for SPA birds. ELR016a and ELR016b are identified as having high potential to support these qualifying bird species. All other sites were found to have either a low or negligible potential.

12.38 ELR016a and ELR016b are located immediately to the south of the South Humber Bank Mitigation Zone. The South Humber Bank areas has been subjected to extensive survey effort and therefore a wealth of data exists regarding

		Lane ⁽⁴⁶⁾				
Land reserved for long-term business expansion	ELR021 Grimsby	Novartis, Moody Lane	Habitat mitigation zone	56ha	Chemicals and process	
	ELR025 a-e Stallingborough	Cristal, Laporte Road	Habitat mitigation zone	122ha	-	
	ELR039 a&b Stallingborough	BOC	Habitat mitigation zone	-	-	

Table 12.1 Employment allocations

2. Sites ELR016a and ELR016b have been identified as having high potential to support SPA/Ramsar birds and proposals will need to be supported by an assessment for these species. This assessment should incorporate a suitable level of data collection and/or bird surveying to determine the individual and cumulative importance of the site for SPA/Ramsar species. Where the assessment identifies the potential for adverse effects resulting from the off-site habitat loss and/or disturbance, appropriate and timely measures must be taken to mitigate such impacts. Such mitigation is likely to be in the form of alternative habitat managed specifically for the affected bird species and/or contributions towards the provision of strategic mitigation sites. Any strategic mitigation provision must be additional to that provided through the South Humber Bank Strategic Mitigation which only mitigates for sites within the South Humber Bank Mitigation Zone. All such measures must be in place and operational prior to the relevant impact(s), and must be maintained for the duration of the impact(s).

Operational Port areas

3. Within the operation port areas identified on the Policies Map development proposals for port related use will be supported and, where appropriate, approved by the Council if the submitted scheme accords with the development plan as a whole and subject to the ability to satisfy the requirements of the Habitats Regulations.⁽⁴⁸⁾
4. Within the Port of Grimsby a diversification of uses will be supported where it is proposed on land identified as surplus to port requirements, and the proposed use can be shown to be in accordance with the development plan as a whole, and would not conflict with port operations.

Land reserved for long-term business expansion

5. Land reserved for long-term business expansion, as identified on the Policies Map will be safeguarded for future employment development within use classes B1 (Business), B2 (General Industrial) and B8 (Storage and Distribution).

41 Total area 64ha, of which 20ha expected to be delivered within the plan period. The ELR016b site has been reduced in area from that identified in the *Employment Land Review*.

40 Site known to include features of specific archaeological value.

the distribution and relative importance of specific locations for SPA birds in this area. The data review conducted as part of the Habitat Regulations Assessment (HRA) for the Local Plan concludes that, despite numerous bird records from within and adjacent to these allocations, numbers of SPA birds considered significant at the Humber Estuary population level (i.e. at least on percent of the Humber population) have not been recorded.

12.39 Whilst these employment sites are unlikely to represent an important resource for SPA birds at the Humber Estuary SPA/Ramsar population scale, SPA birds have been recorded utilising the sites. In view of this, and the habitat features that the sites possess, further site assessment is required to ensure the integrity of the Humber SPA/Ramsar will not be adversely affected as a result of development.

Policy 7'Employment allocations' relationship to:	Links to:
National Planning Policy Framework	Paragraphs 18 to 22
Local Plan Strategic Objectives	SO3 and SO5
Evidence base and other key documents and strategies	<ul style="list-style-type: none"> • <i>Commercial Property Market Assessment (2014)</i> • <i>Employment Land Review (2014)</i> • <i>Employment Land Technical Paper (2015)</i> • <i>North East Lincolnshire Economic Baseline Report (2014)</i> • <i>North East Lincolnshire Economic Futures Report (2014)</i> • <i>South Humber Industrial Investment Programme Technical Summary Paper (2015)</i>

	<p>42 Total 80ha of which 15ha expected to be delivered over the plan period. 43 Total 31.7ha of which 20ha expected to be delivered over the plan period. 44 Office scheme currently under construction, application DM/107/14/FUL 45 Renewable energy plant under construction, application DM/0848/14/FUL. 46 Total 39.5ha of which 25ha expected to be delivered over the plan period. 47 A section of the former Huntsman Tioxide site has been identified as a LWS. 48 The extent of the operational port areas of Immingham and Grimsby ports extends beyond the jurisdiction of North East Lincolnshire Council, the Policies Map identifies only land within the control of North East Lincolnshire Council.</p>	
<p>Policy 49 – Restoration and aftercare (waste)</p>	<p>Restoration and aftercare (waste)</p> <p>1. In exceptional cases, where it can first be demonstrated that there is a need arising within the Borough for an additional landfill/landraise operation, applications should be accompanied by detailed proposals for subsequent restoration of the site, which should:</p> <p>A. take account of the former use of the site;</p> <p>B. ensure land is reclaimed at the earliest opportunity, and to a high quality recognising key biodiversity objectives;</p> <p>C. provide specific details relating to:</p> <ul style="list-style-type: none"> i. stripping of soils and soil-making materials, and either their storage or their direct replacement on another part of the site; ii. storage and replacement of overburden; iii. achieving the landscape and landform objectives for the site, (to be agreed taking account of local topography and filling proposals); iv. the contribution to other multi-functional environmental gains consistent with local landscape character, informed by the latest Landscape Character Assessment; v. restoration, including soil placement, relief of compaction and provision of surface features; and, vi. aftercare. <p>D. include a phasing plan for restoration which seeks to minimise local disturbance and impacts, and which represents a rolling programme of restoration and aftercare management.</p>	<p>Restoration and aftercare – waste</p> <p>16.29 Responsible restoration and aftercare of landfill and landraise waste sites can provide for a wide range of opportunities for enhancement and beneficial after-uses. However, opportunities for enhancement should not take precedence over the need to protect and maintain existing environmental assets.</p> <p>16.30 As with minerals sites there are often competing interests in establishing restoration and after-use objectives. It is important to balance these competing interests. Restoration should seek to maximise public and environmental benefits whilst also giving consideration to the land use context and local environmental conditions.</p> <p>16.31 After-use with the primary purpose of restoration to agriculture, forestry, economic development, and amenity purposes should seek to integrate secondary after-use aspects in order to maximise opportunities. Secondary after-use aspects may include: landscape enhancement, habitat enhancement or creation of ecological networks (contributing towards BAP targets and green infrastructure linkages), water catchment conservation, flood attenuation, enhancement of the historic environment, geodiversity, recreation, and environmental education. A mix of after-uses may be the most valuable way of restoring a piece of land and maximising opportunities.</p> <p>Justification</p> <p>16.32 The waste hierarchy is clear that waste disposal through means such as landfill is the least desirable waste management option and should only be considered when no other options are available. The Council will, therefore, require an application for landfill or landraise to clearly demonstrate that there is a need for such an operation. The evidence will need to show that the need arises mainly from within the Borough and that the waste could not be moved further up the waste hierarchy.</p> <p>16.33 All application will be expected to properly and thoroughly address the restoration needs of the sites. The restoration of landfill/landraise waste sites, as with mineral extraction sites, should be considered at all stages of development and should commence at the earliest opportunity. It should be completed within an acceptable timescale, as set out in the relevant planning approval. Restoration will expect to be phased, allowing worked land to be restored, minimising local distance and impacts, as development proceeds. Where phased restoration is not appropriate, all restoration works should proceed as soon as practically possible after extraction has been completed.</p> <p>16.34 Restoration should take account of the landscape of the wider area, take opportunities for mitigating climate change, re-create/enhance important habitats and seek to establish a coherent and resilient ecological network where possible. This approach will ensure the multi-functionality of the proposed restoration is fully explored and the greatest range of environmental benefits are delivered.</p> <p>16.35 Soils displaced should be adequately protected to maintain soil quality, especially if the original site qualified as best and most versatile agricultural land (grades 1, 2 and 3a). Restoration of best and most versatile agricultural land should be returned to an equivalent standard to that which existed prior to extraction, though the proposed after-use need not always be for agriculture.</p> <p>16.36 The period of aftercare should be given detailed consideration. This is to maintain and improve the structure and stability of soils and allow vegetation to mature. The length of the aftercare period will normally be at least five</p>

years, negotiated on a site-by-site basis. In some case longer-term management may be required, in such cases a management organisation will need to be identified.

Policy 49'Restoration and aftercare (waste)' relationship to:	Links to:
National Planning Policy Framework	Paragraphs (NPPF Principles)
Local Plan Strategic Objectives	SO10
Evidence base and other key documents and strategies	<i>North East Lincolnshire Waste Needs Assessment (2015)</i>

Table 16.7 Policy relationships