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Ecological Impact Assessment (EcIA)

Naylor Farms

Factory 2, Surfleet

Version:	1
Date:	March 2024
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REVISION HISTORY

Rev	Description of change	Date	Initials
1	Original report	27.02.2024	ED
	Quality control	22.03.2024	SR
	Final report	26.03.2024	ED

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DISCLAIMER

It should be noted that the information above provides details of the Site's current ecological situation. In the event that the proposed development does not commence within 12 months of the date of this report, further advice should be sought from a suitably qualified ecologist as to whether the information provided requires updating in light of changing ecological conditions.

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EXECUTIVE SUMMARY

Ecological features connected with the Site

There were no statutory designated sites within 2km, however Surfleet Lows SSSI was located 2.7km southwest of the Site, and we also consider The Wash SPA Ramsar NNR SSSI and The Wash & North Norfolk Coast SAC (6.7km east) at a greater distance due to the dispersal and ecological requirements of waterfowl and wading birds, for which they are cited. The Site fell into an Impact Risk Zone for all of the aforementioned sites for air pollution and discharge, for which the proposed development should consult with Natural England.

There were seven Local Wildlife Sites (LWS) within 2km of the site, the closest being A16 Verges North of the River Glen LWS, located approximately 300m southwest.

The Site comprised agricultural land enclosed by grassland margins, a small area of grassland, bare ground, mixed scrub, a non-native hedgerow and ornamental hedgerow, wet ditches, a line of trees, and scattered trees. There were limited opportunities for a wide range of species to forage, commute, and shelter, which are elaborated further in this report.

Further surveys and planning considerations

The potential impacts upon statutory and non-statutory designated sites should be considered further, and additional consultation with the local Wildlife Trusts and Environment Agency are recommended.

A further scoping survey for water vole is highly recommended, in relation to both the potential impacts of the construction and active phases of the proposed development.

The boundary trees and shrubs should be retained and where this is not possible – further inspections for bats are recommended.

Method statements will be needed for pollution (air/water) prevention measures, which are likely to be included within a CEMP. Further hydrological assessment of the impacts to local waterways are highly recommended.

Opportunities for biodiversity net gain and enhancement

The baseline biodiversity value is expected to be fairly low, and there is good opportunity to increase biodiversity within the Site, by considering the following:

- Retention of ditches, mixed shrub and trees on the boundary line and enhancement of the boundary with scrub planting.
- Minimising use of formal planting areas and using native scrub planting as opposed to non-native shrubs.

Opportunities for biodiversity net gain and enhancement
• Encouraging species diversity in planting by minimising fertile topsoil use, using species rich seed mixes for grassland areas/verges/frontages. • Designing integrated features including bat and bird boxes, further detail, and specification to be agreed with an ecologist. • A single barn owl box is recommended to be positioned upon a 5m pole within the new greenspace area.

1. INTRODUCTION

Terms of Instruction

1.1 Nicholsons has been commissioned by Naylor Farms to undertake an ecological assessment of land east of Surfleet Bank, denoted as 'Factory 2, Surfleet' ("the Site") in respect of the proposed creation of an anaerobic digestate factory, with associated infrastructure and greenspace.

Aim of the study

1.2 The purpose of this report is to provide an assessment of ecological features present within the Site, to identify any ecological constraints and provide appropriate avoidance, mitigation, and compensation measures to ensure no significant loss in biodiversity as a result of the proposals.

Documents Provided

1.3 As background information, the following documentation was provided:

- P&R Architects – Proposed Site Plan – 3952 P01 – Dated: December 2023

Site Description

1.4 The Site is located north of Surfleet Seas End (Central grid reference: TF 27637 30599). The assessment covered the whole of the Site, which is approximately 14.2ha in area.

1.5 At the time of the assessment the Site comprised agricultural land, bare ground, a line of trees, mixed scrub, a small area of grassland, a non-native hedgerow and ornamental hedgerow, wet ditches, and scattered trees.

1.6 The Site was surrounded by agricultural land in all directions, bordered by a farm track to the north, Surfleet Bank road along the west, and agricultural buildings to the southwest and southeast. Hedgerows and substantial wet ditches radiated from the Site in all directions.

1.7 The wider landscape comprised predominantly agricultural land, with occasional farm and residential buildings, along with road networks. The closest village was Surfleet Seas End (1.5km southeast), the River Welland ran close to the Site (850m southeast), and the nearest dense area of semi-natural habitat was Spalding Golf Club (1.2km south). The Sites' boundary wet ditches and nearby hedgerows (e.g., off-site to the west) provided good connectivity within the landscape.

1.8 The Site location plan is provided at **Figure 1** and a survey redline boundary is provided at **Figure 2**.

Figure 1: Site Location Plan

Ref: Factory2Surfleet_SiteLocation_v1_SR_220424

526000 527000 528000 529000 530000

332000 331000 330000 329000

Boston
Bicker Haven
Newstead
Ireland's Farm
Marsh La
Vicarage Farm
Rochewood Farm
Elm Tree Farm
Gosberton Bank
Bridge House Farm
A16
Bicker Creek
River
Ivy House
Hill's Farm
Surfleet Marsh Farm
The Gables
Welland House Farm
Marsh Drove
Sea Dike
Big Tree Farm
Wood Farm
Wragg Marsh Farm
Lindham House
Burnt House
Marsh Rd
The Spinne
The Ferns
Scoldall La
Bendike La
Red House Cottage
Colbeach House
Bendyke Farm
Smithfield
Thary La
River Glen
Reservoir Rd
Crowtree Farm
Western Barn House
Hun Gate
Surfleet Seas End
Seas End Rd
Station Rd
Welland House Farm

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LEGEND

Redline boundary

N

0 740 m

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TITLE:	Site Location
PROJECT/SITE:	Factory 2, Surfleet
CLIENT:	Naylor Farms
MAP REF:	-
VERSION:	v1
DATE:	22/04/2024
SCALE:	1:15,000 @ A3
APPROVED BY:	SF
PRODUCED BY:	SR

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Figure 2: Site boundary

Ref: Factory2Surfleet_SiteBoundary_v1_SR_220424



LEGEND

Redline boundary

N

0 120 m

NICHOLSONS

TITLE:	Site Boundary
PROJECT/SITE:	Factory 2, Surfleet
CLIENT:	Naylor Farms
MAP REF:	-
VERSION:	v1
DATE:	22/04/2024
SCALE:	1:2,600 @ A3
APPROVED BY:	SF
PRODUCED BY:	SR

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Proposed Development

1.6 The client intends to build an anaerobic digestate factory, along with associated infrastructure, including a car parking area, processing facilities, waste transfer, and storage tanks, juxtaposed by significant woodland screening, and greenspace in the north, west, and southern areas of the Site, including two attenuation ponds and a significant area of wildflower meadow ("the Proposed Development").

Legislation

1.7 The planning policy framework that relates to nature conservation and biodiversity in Surfleet (South Halland District Council and Surfleet Parish Council) is provided at two levels: nationally through the National Planning Policy Framework (NPPF) and locally through policies in the South East Lincolnshire Local Plan.

1.8 Full information regarding national and local legislation is provided in **Appendix 1**.

2. METHODOLOGY

2.1 The methodology for the ecological assessment was split into three main areas: a desk study, habitat survey and faunal survey. These are discussed in more detail below.

Desk Study

2.2 Existing ecological information on the Site and surrounding area was requested from the Lincolnshire Environmental Records Centre (LERC). The purpose of the desk study was to collect baseline information to identify statutory and non-statutory designated sites, legally protected species and species of conservation concern within a 2km radius of the Site in line with CIEEM Guidelines for Preliminary Ecological Appraisal (2017). Full information is provided upon request.

2.3 A review of online resources, including the Multi Agency Geographic Information for the Countryside (MAGIC) database was also undertaken to establish the ecological context for the Site (accessed 16/02/2024). The MAGIC database was also reviewed to identify any designated sites of European Importance within 2km of the Site (15km for SAC, SPAs and Ramsar site, 5km for SSSIs).

2.4 The Local Biodiversity Action Plan (LBAP) was reviewed to consider any potential effects to or use of the Site by targeted habitats or species listed. Further details of LBAP habitats and species are provided within **Appendix 1**.

2.5 In addition, Ordnance Survey and aerial mapping was reviewed to identify any ponds within 500m of the Site.

UK Habitat Classification Field Survey

2.6 A UK Habitat Classification survey was undertaken by Eleanor Dring and Sam Reynolds on 15th February 2024 in good weather conditions (30% cloud cover, Beaufort Scale 2) in order to ascertain the general ecological value of the Site and to determine the need for further assessment.

2.7 The UKHab survey was undertaken in accordance with standard methodology (Butcher *et al.*, 2020) utilising the UKHab Professional edition up to Level 5 and all secondary codes. The UKHab methodology involves the classification of habitat types based on vegetation present. The Site was classified into areas of similar botanical community types, with a representative species list provided for each habitat type identified. In addition, invasive plants were also searched for during the survey, as listed on Schedule 9 of the Wildlife and Countryside Act, 1981 (as amended).

2.8 Abundance and area coverage were recorded for all botanical species present. This was determined using the DAFOR scale detailed in **Table 2**.

Table 1: DAFOR Scale

Value	Species Abundance Percentage
D – Dominant	>75%
A – Abundant	51-75%
F – Frequent	26-50%
O – Occasional	11-25%
R - Rare	1-10%

2.9 The information is presented in accordance with the standard UKHab Survey format with habitat descriptions and a habitat map, provided at **Appendix 2**.

Faunal Surveys

2.10 The following specific protected species surveys have also been undertaken:

- Bat tree assessment.
- Habitat Suitability Index (HSI) of all ponds within 500m of the Site

2.11 Further details of the method for the species-specific surveys undertaken as part of the EcIA are provided in **Appendix 3**.

Principles of Ecological Evaluation

2.12 The evaluation of ecological features and an assessment of likely impacts should be based on available resources and the professional judgement of the ecologist concerned. Ecological value of features should be undertaken in accordance with the approach outlined in the Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018).

2.13 A five-point evaluation scale has been applied to assist with the identification of key features of ecological significance in relation to the proposed development. This is an arbitrary scale based upon characteristics of ecological importance as listed in CIEEM (2018), which experience has shown is effective at this level of assessment.

2.14 In evaluating ecological features and resources, geographic frame of reference is considered. The value of an ecological feature is determined within a defined geographical frame of reference as detailed in **Table 2**:

Table 2: Classification of the value of ecological features and resources

Value	Importance	Species	Habitat
Very High	International	A regularly occurring population of an internationally important species, which is threatened or rare in the UK, where the population is a critical part of a wider population or where a species is at a critical phase in its life cycle at this scale.	An internationally designated site including SAC, SPA, Ramsar, or one proposed for designation. Sites supporting areas of priority habitats which are scarce at an international level of where it is needed to maintain the viability of a larger area at that level.
High	National	A regularly occurring population / number of a nationally important species which is threatened, or rare, where the population is a critical part of wider population or where a species is at a critical phase in its life cycle at this scale. A regularly occurring population of a nationally important species on the edge of its natural range. A species assemblage of national significance.	A nationally designated site i.e. SSSI, or one that meets the published criteria. Sites supporting areas of priority habitats which are scarce at a national level or where it is needed to maintain the viability of a larger area at that level.
Medium	Regional / County	A regularly occurring locally significant population of a species listed as being nationally scarce or a county Red Data book or BAP on account of its rarity. A regularly occurring, locally significant number of a regionally / county important species or where the population is a critical part of a wider population or where a species is at a critical phase in its life cycle at this scale. A species assemblage of regional or county significance.	Sites supporting a viable area of a priority habitat which is scarce at a regionally or county level or where is needed to maintain the viability of a larger area. A County designated site or one that meets published criteria. Local Nature Reserves, Local Wildlife Sites / potential Local Wildlife Sites at that level.
Low	Local	A population of a species that is listed in a district BAP because of its rarity in the locality and a species assemblage of local or district significance. A regularly occurring, locally significant number of district importance or where the population is a critical phase in its life cycle at this scale.	Sites / features that are scarce within the local area or district. Areas of habitat considered enriching appreciably the habitat resource within the context of the locality or which buffer those of a more important nature.
Site	Site Only	Species, which are not protected or rare in the local area and are not at a critical phase in its life cycle at this scale.	Habitats of very low importance and rarity but of ecological importance within the Site.

2.15 Ecological features may also be deemed to be of negligible value if they are deemed to be of very low ecological importance and / or rarity.

2.16 All habitats recorded will be considered for their status as a Habitat of Principal Importance (HPI) as determined by Maddock (2011) and their Section 41 (S.41) status under the Natural Environment and Rural Communities (NERC) Act (2006, as amended).

2.17 Ecological features may be defined as:

- Statutorily protected (Natura 2000, national Nature Reserves, Sites of Special Scientific Interest and Local Nature Reserves) or locally designated sites (local Wildlife Sites or Sites of Importance to Nature Conservation);
- Sites and features of biodiversity value not designated in this way such as ancient woodland; or
- Species of biodiversity value or other significance, including those protected and controlled by law.

2.18 In addition, all incidental species recorded within the Site during the walkover survey or as part of the desk study will be evaluated for their S.41 status under the NERC Act (2006, as amended).

Impact Evaluation

2.19 **Table 3** details how the classification of the level of impact the Proposed Development will have on a particular ecological feature, is assessed.

Table 3: Impact Levels and Criteria

Classification	Criteria
Negative (Significant)	Likely to create a significant effect, including loss, or long-term irreversible damage on the integrity / status of a valued ecological feature
Negative (non-significant)	Likely to create a negative effect without causing long-term or irreversible damage on the integrity / status of a valued ecological feature
Neutral	Effects are either absent or such that no overall net change to the ecological feature occurs.
Positive (non-significant)	Likely to create a beneficial effect on an ecological feature, or providing a new (lower value) ecological feature, without improving its conservation status markedly
Positive (significant)	Activity is likely to create a significant beneficial effect, including long-term enhancement and favourable condition of an existing valued ecological feature, or creation of a new valued ecological feature.

Limitations

2.20 All of the species that occur within each habitat type would not necessarily be detectable during survey work carried out at any given time of year. The botanical work was undertaken outside of the optimal survey period, however given the types of habitat present, it is considered that a robust assessment was undertaken.

3. RESULTS AND EVALUATION

Site Context

3.1 Desk study results for designated sites within 2km (15km for SAC, SPAs and Ramsar site, 5km for SSSIs) of the search radius are evaluated in **Table 4**.

3.2 The Site itself was located northeast of Surfleet, just off the A16. Surrounding habitats included agricultural fields, farm buildings/residential properties, ditches, and scattered trees.

Designated Sites

3.3 The Site itself was not situated within a statutory or non-statutory nature conservation designation, however, it was situated within Impact Risk Zones.

3.4 There were no statutory designated sites within 2km, however Surfleet Lows SSSI was located 2.7km southwest of the Site, and we also consider The Wash SPA Ramsar NNR SSSI and The Wash & North Norfolk Coast SAC (6.7km east) at a greater distance due to the dispersal and ecological requirements of waterfowl and wading birds, for which they are cited.

3.5 There were seven non-statutory designated sites within 2km of the Site, the closest being A16 Verges North of the River Glen LWS, located approximately 300m southwest.

3.6 Given the nature of the Proposed Development, the reasons for the designations identified, and the distance between them; it is considered likely that the Proposed Development may result in adverse impacts to various statutory and non-statutory designations, through air or water pollution, which will need to be considered further.

3.7 Impact Risk Zones (IRZs) are a tool developed by Natural England to provide an initial assessment of the potential risks to SSSIs, SPAs, SACs and Ramsar sites. A review of the Site location and potential IRZs is provided within **Table 4.**

Table 4: Designated Sites Results and Evaluation

Designated Site Name and Status	Reason for Designation	Distance from the Site	Potential Adverse Effects
The Wash SPA Ramsar NNR SSSI **The Wash & North Norfolk Coast SAC**	These two designations overlapped significantly and are considered together for the purposes of this report. The latter extended into the marine environment. The Wash & North Norfolk Coast – covers an area of 107719.95ha, with The Wash covering 62044.22ha of the SAC. Habitats included marine areas, tidal watercourses, mudflats, lagoons and salt flats, marshes, pasture, and steppe habitats. Through consideration of the IRZ, the Proposed Development should consult with Natural England on the following points: • Air Pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t. • Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (i.e. to seep away) or to surface water, such as a beck or stream.	6.7km east of the site	Yes – The site is located within the IRZ. Considered together, all designations may be negatively impacted by air and water pollution **(significant)**.
Surfleet Lows SSSI	An important wet alluvial meadow habitat in Lincolnshire, including a high salinity hallow, along with pools, tall fen plant species and wet fen woodland. These saline conditions are suitable for brackish marsh plants, with marsh foxtail *Alopecurus geniculatus* and floating sweet-grass *Glyceria fluitans* being the dominant species. Additional species	2.7km southwest of the Site	Yes – The site is located within the IRZ. This designation may be negatively impacted by air, water and combustion pollution **(significant)**.

Designated Site Name and Status	Reason for Designation	Distance from the Site	Potential Adverse Effects
	include: hammer sedge *Carex hirta*, tubular water-dropwort *Oenanthe fistulosa,* celery-leaved buttercup *Ranunculus sceleratus*, hairy buttercup *Ranunculus sardous*, strawberry clover *Trifolium fragiferum* and sea milkwort *Glaux maritima.* Wintering bird species present include mallards *Anas platyrhynchos*, teal *Anas crecca*, wigeon *Mareca Penelope* and snipe *Gallinago gallinago.* Breeding birds present include reed warblers *Acrocephalus scirpaceus*. Through consideration of the IRZ, the Proposed Development should consult with Natural England on the following points: • Air Pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t. • Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (i.e. to seep away) or to surface water, such as a beck or stream. The Site was not within the IRZ zone for consideration of anaerobic digestant pollution, though it is important to consider the combustion pollutants to the nearby SSSI: • Combustion - All general combustion processes. Including: energy from waste incineration, other incineration, landfill gas generation plant,		

Designated Site Name and Status	Reason for Designation	Distance from the Site	Potential Adverse Effects
	pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.		
A16 Verges North of the River Glen - Local Wildlife Site	A16 Verges North of the River Glen - 0.9km of course/rank grassland along with scattered shrub and ditches. The 0.85km of eastern and western verge are mostly un-managed grassland, with several significant species, such as: common Birdsfoot trefoil *Lotus Corniculatus*, hop trefoil *Trifolium campestre*, meadow vetchling *Lathyrus pratensis*, tufted vetch *Vicia cracca*, common knapweed *Centaurea nigra*, cat's-ear *Hypochaeris radicata*, yarrow *Achillea millefolium*, and glaucous sedge *Carex flacca.* Black anthills are scattered across the grassland. The ditch seasonally holds water and contains the following plant species: common fleabane *Pulicaria dysenterica*, amphibious bistort *Persicaria amphibia*, yellow loosestrife *Lysimachia vulgaris*, water figwort *Scrophularia umbrosa*, bulrush *Typha spp.*, and jointed rush *Juncus articulatus*. Along the western verge, Grid salt from the A16 has increased the salinity of the soil along the tarmac, in turn, buck's-horn plantain *Plantago coronopus*, grass-leaved orache *Atriplex littoralis* and reflexed saltmarsh-grass *Puccinellia distans* can grow.	0.3km southwest of the site	Yes – The LWS may be subject to air and water pollution **(significant)**.
Surfleet Bank - Local Wildlife Site	Surfleet Bank – 0.8km length of majority neutral grassland, along with shrubs, semi-improved calcareous and coarse grassland.	0.8km east of the site	Yes – The LWS may be subject to air and water pollution **(significant)**.

Designated Site Name and Status	Reason for Designation	Distance from the Site	Potential Adverse Effects
	Significantly important for its autumn ladies' tresses orchid *Spiranthes spiralis.* Additional species include common bird's-foot-trefoil, fairy flax *Linum catharticum*, lady's bedstraw *Galium verum*, yellow oat-grass *Trisetum flavescens*, quaking-grass *Briza media*, and prickly sedge *Carex muricata*. Species rich grassland is patches is suitable habitat for butterflies and moths, along with black ants. Plant species include cat's-ear *Hypochaeris radicata*, bulbous buttercup *Ranunculus bulbosus*, meadow vetchling, lady's bedstraw, crested dog's-tail *Cynosurus cristatus*, sweet vernal-grass *Anthoxanthum odoratum*, pyramidal orchid *Anacamptis pyramidalis*, and knotted hedge-parsley *Torilis nodosa*. The grassland gradually moves into saltmarsh habitat.		
Risegate Eau - Local Wildlife Site	Risegate Eau – 9km length of watercourse drain, including course/rank grassland, reedbeds, shrub habitat and ancient woodland. An important plant species of national rarity present is Deptford pink *Dianthus armeria*. An significant mammal present is water vole *Arvicola amphibius*. Important bird species include reed warbler, kingfisher *Alcedo Atthis*, grey heron *Ardea cinerea*, and green sandpiper *Tringa ochropus.* Some of the important insect records include the large garden or ruderal bumblebee and tawny longhorn beetle *Paracorymbia fulva*.	0.8km north of the site.	Yes – The LWS may be subject to air and water pollution **(significant)**.

Designated Site Name and Status	Reason for Designation	Distance from the Site	Potential Adverse Effects
River Glen Corridor - Local Wildlife Site	River Glen Corridor – 21.6km of river and sloping banks, surrounded by coarse/rank and semi-improved neutral grassland, along with shrubs, reedbed, scattered trees. Aspects of the river are adjacent to Thurlby Fens SSSI. Diverse range of plant species recorded, including whorled water-milfoil *Myriophyllum verticillatum*, water starwort *Callitriche stagnalis*, blue water-speedwell *Veronica anagallis-aquatica* and water forget-me-not *Myosotis scorpioides*.	1.1km southwest of the site	Yes – The LWS may be subject to air and water pollution **(significant)**.
Blue Gowt Drain, North - Local Wildlife Site	Blue Gowt Drain, North – steep sloping sides of 1.1km of drain and course/rank grassland along with scattered shrubs and reedbeds. Significantly important for its populations of ribbon-leaved water plantain *Alisma gramineum* (Wildlife and Countryside Act 1981, Schedule 8 protected species). Additional water-tolerant plants such as spiked water-milfoil *Myriophyllum spicatum,* perfoliate pondweed *Potamogeton perfoliatus*, fennel pondweed *Potamogeton pectinatus*, duckweed *Lemna minor*, non-native Nuttall's waterweed *Elodea nuttallii*, yellow iris *Iris pseudacorus,* water rigwort *Jacobaea aquatica*, meadowsweet *Filipendula ulmaria*, amphibious bistort, great willowherb *Epilobium hirsutum*, reed sweet-grass *Glyceria maxima*, reed canary-grass *Phalaris arundinacea*, common reed *Phragmites australis*, and greater pond-sedge *Carex riparia*.	1.2km south of the site	Yes – The LWS may be subject to air and water pollution **(significant)**.

Designated Site Name and Status	Reason for Designation	Distance from the Site	Potential Adverse Effects
	Banksides of tufted vetch *Vicia cracca*, meadow vetchling, lesser trefoil *Trifolium dubium,* and red fescue *Festuca rubra*, together with hawthorn *Crataegus monogyna* and elder *Sambucus nigra*.		
Surfleet Seas End Saltmarsh - Local Wildlife Site	Surfleet Seas End Saltmarsh – a 1.7km long stretch of river and steep slopes, along with marsh and calcareous grassland. Additional habitats include tidal saltmarsh and mudflats. An ecologically valuable habitat for birds such as waders, sand martins and birds of prey. Supplementary features include anthills and seasonally saturated land.	1.2km south of the site	Yes – The LWS may be subject to air and water pollution **(significant)**.
Vernatt's Drain - Local Wildlife Site	Vernatt's Drain – 10.7km of drain with steep slopes, which meets the River Welland. Species-rich neutral grassland, with plant species such as yellow rattle *Rhinanthus minor*, pignut *Conopodium majus*, and southern marsh orchid *Dactylorhiza praetermissa*. Calcareous grassland, with plant species such as marjoram *Origanum majorana*, pyramidal orchid *Anacamptis pyramidalis*, and perforate St John's-wort *Hypericum perforatum.* Several aquatic plants, such as pondweed, arrowhead *Sagittaria sagittifolia*, and ribbon-leaved water-plantain *Alisma gramineum* (protected under Schedule 8). Further habitats include coarse grassland, reedbeds, scattered trees, tussock plants and hummocky ground. Wet soil species where also present, including fool's-watercress	1.2km south of the site.	Yes – The LWS may be subject to air and water pollution **(significant)**.

Designated Site Name and Status	Reason for Designation	Distance from the Site	Potential Adverse Effects
	Helosciadium *nodiflorum* and angelica *Angelica archangelica*. Otter spraint was observed onsite. Breeding birds were present, along with several invertebrates.		
Other site of local importance	Priority Habitats within 2km of the site include Coastal Saltmarsh, Intertidal Mudflats, Reedbeds and Rivers (LERC data search). Along with Deciduous Woodland and Traditional Orchards (DEFRA Magic).	▪ Coastal Saltmarsh & mudflats: 0.9km southeast ▪ Reedbeds: 2.0km southwest ▪ River Welland: 0.9km southeast ▪ River Glen joins River Welland 1.1km south ▪ Closest Deciduous woodland: 0.2km north ▪ Orchards: 1.8km southwest	Yes – These habitats may be subject to air and water pollution **(significant)**.
Key: **SAC: Special Area of Conservation** **SPA: Special Protection Area** **Ramsar: Ramsar site** **NNR: National Nature Reserve** **SSSI: Site of Special Scientific Interest** **LWS: Local Wildlife Site**			

Habitats

3.8 The full UKHab Habitat Survey Map detailing the location of the above habitats and other features of ecological interest with Target Notes is presented at **Appendix 2**. The habitat descriptions below should be read in conjunction with this plan and any associated Target Notes.

3.9 Habitats identified during the UKHab Habitat Survey are detailed below in alphabetical order (not in order of ecological importance):

- Annuals horticulture (c1f5)
- Bare ground (g 510 – beneath temporary structure)
- Line of trees (w 33)
- Mixed scrub (h3h)
- Modified grassland (g4)
- Non-native hedgerow and ornamental hedgerow (h2b 11 – with trees)
- Other standing water (r1g 50 - ditch)
- Scattered trees (c 32 203 – mature trees) & Scattered trees (c 32)

Annuals horticulture (c1f5)

3.10 The majority of the Site comprised agricultural land and was planted with cabbage at the time of survey (annuals horticulture). At the time of survey, there had been an extended period of heavy rainfall, the water table was high, and soil was waterlogged in the northwest corner of the site.

3.11 A small grassland margin bordered the horticultural field, and included abundant Cock's foot *Dactylis glomerata* and Red fescue, frequent Yarrow, Cow parsley *Anthriscus sylvestris*, and Perennial rye-grass *Lolium perenne*, and occasional Spear thistle *Cirsium vulgare*, Sun spurge *Euphorbia helioscopia*, Cleavers *Galium aparine*, Rough hawkbit *Leontodon hispidus*, Common reed, Ribwort plantain *Plantago lanceolata*, Bramble *Rubus fruticosus agg.,* Common sorrel *Rumex acetosa*, Broadleaved dock *Rumex obtusifolius*, Wild mustard *Sinapis arvensis*, and Common nettle *Urtica dioica*, Daffodil sp. *Narcissus sp.*, Hemlock water dropwort *Oenanthe crocata*, Silverweed *Potentilla anserina*, and Speedwell sp. *Veronica sp*.

3.12 This habitat was valued as being of **low** ecological value overall, with the grassland margins being of **low** ecological importance.



Photograph 1: Bare soil of horticultural field, with Woad Farm buildings along the horizon (photo taken from the northwest, facing the southwest).



Photograph 2: Waterlogged horticultural field in the northwest corner of the site.

Bare ground (g 510 – beneath temporary structure)

3.13 Bare ground is situated in the south of the survey site, beneath a dilapidated storage shed. The shed was approximately 3m by 2m in size, and built of corrugate panels. The shed contained wooden pallets and debris of stone and brick

3.14 The shed could not be entered due to the safety hazard of potential asbestos.

3.15 This habitat was valued as being of **low** ecological importance



Line of Trees

3.16 A short line of *leylandii* trees formed a line in the southwest corner of the survey site, just west of the mixed shrub. These trees were largely unmanaged and had an understory of elder.

3.17 This habitat was valued as being of **low** ecological value.



Photograph 4: Line of Leylandii's

Mixed scrub (h3h)

3.18 A relatively small area of mixed shrub, located within the southwest corner of the survey site, with shrubs up to 4m tall in sections. The vegetation is largely unmanaged.

3.19 Mixed shrub containing abundant blackthorn, elder, bramble, privet, and non-native border forsythia *Forsythia × intermedia,* with Nettle *Urtica dioica* dominant in ground flora.

3.21 This habitat was valued as being of **moderate** ecological value



Photograph 5: Mixed shrub to the central right of the photograph.

Modified grassland (g4)

3.22 Relatively small area of modified grassland in the southwest corner of the site (see Photograph 5 above). The grassland was intermingled between the bareground, line of trees and mixed shrub. The grassland contained vehicle tracks and is likely a regular access way through to the horticultural field.

3.23 Abundant species include cock's foot and red fescue, in addition, perennial ryegrass was frequent.

3.24 This habitat was valued as being of **low** ecological value.

Non-native hedgerow and ornamental hedgerow (h2b 11 – with trees)

3.25 The hedgerow (H1) was approximately 55m in length and situated between a residential garden and the agricultural land in the southeast corner of the Site.

3.26 The hedger was species-poor, intact, dominated by non-native ornamental privet, and occasional holly was present. The hedgerow contained two trees, a sycamore (T4) at the northern end and Beech at the southern end (T5). Measuring 2.5m in height and 1.5m in width, the hedgerow was heavily managed and shaped. Ground flora consisted of ivy, common nettle, and cleavers.

3.27 This habitat was valued as being of **low** ecological importance.



Photograph 6: Ornamental privet hedgerow with beech and holly in the foreground (photo faces northeast).

Other standing water (r1g 50 - ditch)

3.28 Substantial historic fenland ditches were present on the northern (D1), eastern (D1, continued), and southern (D2) boundaries of the Site.

3.29 These habitats were considered to be of **moderate** ecological value.

3.30 A description and adapted HSI (adapted as HSI is intended for ponds, but the ditches were significant and slow moving) for each waterbody has been provided in Table 5:

Table 5: Descriptions of Waterbodies, Surveyed within the Site

Waterbody	Description	HSI[1] Score
Ditch 1 (D1)	A wet ditch measuring 3.0m in width and 2.0m in depth, with a water surface width of 1.5m and depth of approximately 0.5m. Water had a very slow flow and was surrounded by grassland banks and field margins. Ground flora in vegetative state included abundant cock's foot, red fescue and cow parsley, frequent perennial rye-grass and occasional common hogweed.  **Photograph 7: Ditch 1, photograph of northeast corner.**	0.42 (poor)
Ditch 2 (D2)	A wet ditch measuring 2.5m in width and 2.0m in depth, with a water surface width of 1.5m and depth of approximately 0.5cm. Water had a very slow flow surrounded by grassland banks and field margins. Species within the grassland banks included	0.44 (poor)

[1] HSI – the HSI score for each of the ponds within the survey area was calculated based on the scoring system and guidance published by Oldham *et al* (2000). The HSI represents a measurement of habitat suitability and as such does not represent a substitute for full survey involving a range of methods including trapping and torching.

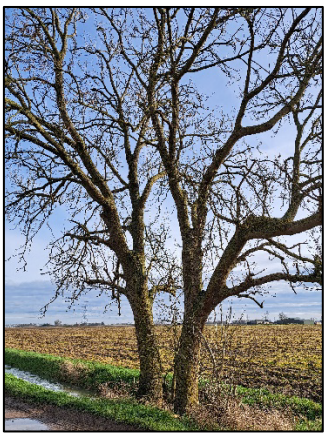
Waterbody	Description	HSI[1] Score
	abundant cock's foot, red fescue and cow parsley, along with frequent Perennial rye-grass.  **Photograph 8: Ditch 2, photograph facing southwest.**	

Scattered trees (c 32 203 – mature trees) & Scattered trees (c 32)

3.31 Mature and semi-mature trees were scattered around the outer perimeter of the site. Species comprised Ash, Horse chestnut, Sycamore, Blackthorn and Beech.

3.32 Trees were considered to be of **moderate** ecological value overall, as many were mature and possessed potential bat roosting features, and additionally they likely support invertebrates and nesting birds.

Table 6: Description of Trees Surveyed within the Site

Tree No.	Description	Potential Suitability for Roosting Bats
T1	Semi-mature ash tree near ditch. Potential bat features include a wound and possible cavity at 3m in height on the west facing aspect.  **Photograph 9: Ash trees, T1 to the right, T2 to the left.**	**PRF**
T2	Semi-mature ash tree near ditch. Potential bat features include a wound and possible cavity at 3m and 4m in height on the north facing aspect.	**PRF**

Tree No.	Description	Potential Suitability for Roosting Bats
T3	Mature horse chestnut with ivy growing on stem. Visible bat features include two wounds and three crevices at 3m in height on the west and south aspect.  **Photograph 10: Horse Chestnut (T3)**	**PRF**
T4	Semi-mature sycamore within hedge, with a potential bat feature, a cavity, 1.5m high.  **Photograph 11: Sycamore (T4)**	**PRF**
T5	Mature beech within hedge, with ivy growing up stem.  **Photograph 12: Beech (T5)**	**PRF**

Tree No.	Description	Potential Suitability for Roosting Bats
T6	Semi-mature blackthorn along roadside verge, with potential bat features in loose bark.  **Photograph 13: Blackthorn (T6)**	**PRF**
T7, T8, T9, T10	Four semi-mature sycamore trees along roadside verge. No potential bat features present.  **Photograph 14: Four Sycamore, T7 to T10 from right to left.**	**None**

Species

3.33 Protected species are evaluated in this section to identify any potential ecological constraints based on the results of the desk study records, signs of presence during the walkover survey, their S.41 status, extent and viability of existing habitat, ecological connectivity and perceived nature and extent of effects. This information is summarised in **Table 7**.

3.34 Evidence of common fauna, such as muntjac, grey heron, and rabbit tracks and signs, were observed throughout the survey.

3.35 Multiple potential water vole burrows were observed in the banks of the southern ditch (D2), situated a foot above the surface water and approximately 100m apart. Grass nearby was cleanly cut at a 45°C angle, indicating the potential presence of water vole. An additional scoping survey and associated camera trapping is highly recommended.



Photograph 15: **Potential Water Vole Burrow (photograph facing south) and grass cuttings indicative of water vole.**

Table 7: Protected Species Results and Evaluation

Species	Desk Study Results	Evidence on Site	Potential to Support Presence on Site	Description of Likely Impact on Species	Likely Impact
Amphibians	Yes – a common assemblage of amphibians were recorded within 2km. The data search and a further search of MagicMaps returned no GCN records within 2km.	None	Yes – A wet ditches and their banks may act as suitable terrestrial habitat. In regard to GCN, the ditches had an adapted HSI score of poor. Busy roads to the west of the Site likely act as a barrier to dispersal and movement, although the network of wet ditches may likely enable this through the wider landscape.	Agricultural habitat will be lost, however wet ditches are proposed to be retained in their entirety. A new greenspace and attenuation ponds will provide new opportunities within the Site for a wide range of amphibians.	**Positive (non-significant)**

Species	Desk Study Results	Evidence on Site	Potential to Support Presence on Site	Description of Likely Impact on Species	Likely Impact
Bats	Yes –41 records were retrieved for bats within 2km of the Site, including six Daubenton's Bat *Myotis daubentoniid* records between 2015 and 2017.	None	Yes – the arable land and ditches provide suitable habitat for bat foraging and commuting. The majority of semi-mature and mature trees surrounding within the site possessed potential bat roosting features.	If trees are to be removed or significantly managed (e.g., limb removal), this may destroy potential roosting sites for bats. Additionally, light and dust pollution may likely impact bats without taking appropriate measures.	Where trees are removed – **Negative (significant)** Where trees are not removed – **Negative (non-significant)**

Species	Desk Study Results	Evidence on Site	Potential to Support Presence on Site	Description of Likely Impact on Species	Likely Impact
Birds	Yes –114 records were retrieved for birds (comprising 35 species), within 2km of the Site. Notable species relevant to the Site included: skylark *Alauda arvensis*, yellowhammer *Emberiza citrinella*, barn owl *Tyto alba*, grey partridge *Perdix perdix,* turtle dove *Streptopelia turtur*, corn bunting *Emberiza Calandra*, yellow wagtail *Motacilla flava*. Full details of protected bird species recorded within 2km of the Site are available upon request.	Yes – bird species were observed onsite, such as: Long-tailed tit *Aegithalos caudatus*, Meadow pipit *Anthus pratensis*, Black-headed gull *Chroicocephalus ridibundus*, Woodpigeon *Columba palumbus*, Rook *Corvus frugilegus,* Blue tit *Cyanistes caeruleus*, Yellowhammer, Kestrel *Falco tinnunculus*, Chaffinch *Fringilla coelebs*, Lesser black-backed gull *Larus fuscus*, Great tit *Parus major*, Starling, Wren *Troglodytes troglodytes*, Blackbird *Turdus merula. Skylark were observed offsite, in the adjacent field to the east.* Heron footprints were observed along the southern boundary ditch.	Yes – there is potential for birds to be utilising the mixed shrub and scattered trees for foraging and nesting, as well as the grassland margins and agricultural land for foraging.	The proposed development will entirely remove the agricultural land, but will provide a significant greenspace area which will benefit the majority of bird species observed and expected within the existing Site.	**Positive (non-significant)**

Species	Desk Study Results	Evidence on Site	Potential to Support Presence on Site	Description of Likely Impact on Species	Likely Impact
Crustaceans	Yes – 47records were returned for non-native freshwater crustaceans such as *Crangonyx pseudogracilis/floridanus sens. lat.,* and Chinese Mitten Crab *Eriocheir sinensis* within 2km of the site. The closest record of Chinese Mitten Crab over 1.3km south (29/09/2009).	None	No – there were no suitable waterbodies within the Site for white-clawed crayfish. However, the wet ditches may be suitable for common crustaceans.	None	**Neutral**
Invertebrates	Yes – several S.41 and BAP species records were retrieved within 2km of the Site, including Shaded Broad-bar moth *Scotopteryx chenopodiata*, Small Heath Butterfly *Coenonympha pamphilus,* Sea-aster Bee *Colletes halophilus*, Large Garden Bumblebee *Bombus ruderatus,* and Necklace Ground Beetle *Carabus monilis.* Full details of protected invertebrate species recorded within 2km of the Site are available upon request.	Yes – A range of common species were observed during the survey, including Water boatman sp. *Corixa sp.* were observed in the eastern ditch (D2). Bumble bees *Bombus terrestris* were also observed throughout the Site.	Yes – the arable land, mixed shrub, and scattered trees would provide suitable sheltering and foraging opportunities for invertebrates. The ditch onsite would provide habitat for a range a freshwater invertebrate.	Majority of the arable land is to be removed as part of the Proposed Development, reducing opportunities for invertebrates within the Site.	**Negative** (non-significant)

Species	Desk Study Results	Evidence on Site	Potential to Support Presence on Site	Description of Likely Impact on Species	Likely Impact
Otter	Yes - 6 records were retrieved for otter with2km of the site, between 1994 and 2015.	None	Yes – ditches bordering the site could be used by Otters for foraging and commuting but are unlikely to be used for breeding or sheltering. Based on local records, there was potential for otters to be an inhabitant of the River Welland and River Glen.	Ditches are proposed to be retained, though there may be an increase in noise, water, and air pollution from anaerobic digesters. The new greenspace may provide some additional opportunities for this species within the Site.	**Negative (non-significant)**
Reptiles	Yes - three records were retrieved for grass snake *Natrix Helvetica* within 2km of the Site. The most recent record was from 20/07/2015 1.8km southwest.	None	Yes – there is some limited potential for reptiles to be forage and shelter within the mixed shrub, agricultural land margins, and wet ditches may provide further suitable foraging opportunity.	Wet ditches are proposed to be retained, and the new greenspace will provide additional suitable habitat for foraging and shelter if reptiles are present.	**Positive** (non-significant)

Species	Desk Study Results	Evidence on Site	Potential to Support Presence on Site	Description of Likely Impact on Species	Likely Impact
Water Voles	Yes - 45 records were retrieved for Water vole *Arvicola amphibius* within 2km of the Site. The most recent recordings were from 0.7km southwest of the site (26/10/2021), 15/11/2022 (1.1km east), 21/10/2022 (0.8km south), and 24/08/2022 (2.0km east).	Yes – multiple potential water vole burrows along the bank of the southern ditch. A cluster of grass on a ditch bank along the southern boundary had been cut at a 45^{O}C angle, indicating the potential presence of Water voles.	Yes – wet ditches within the site were likely to hold water throughout the year, and ditch banks were suitable for breeding, foraging and shelter. Based on the local records and suitable watercourses onsite and in the local landscape, there was high potential for water voles to be present in all watercourses onsite.	Ditches are proposed to be retained, although there may likely be an increase in noise, disturbance, water pollution, and air pollution from anaerobic digesters. The new greenspace may provide additional opportunities for foraging and shelter. Retention of the existing waterway connectivity preserves the network of water vole habitat, reducing impacts to potentially present, neighbouring, and future water voles.	If present – **Negative (significant)**
Other faunal interest	Yes –Two records of Polecat were recorded recently (12/08/2023), 1.4km from the site. Seven records of West European Hedgehog were retrieved within 2km of the site, the most recent record 1.4km north (12/08/2021). Additional species	Yes – Muntjac footprints were observed to the south of the survey site.	Yes – The ditches, agricultural land, grassland margins and scrub are suitable habitats for a range of common fauna to forage and shelter.	The new greenspace is likely to provide greater opportunities for foraging and shelter than the existing agricultural land.	**Positive (significant)**

Species	Desk Study Results	Evidence on Site	Potential to Support Presence on Site	Description of Likely Impact on Species	Likely Impact
	recorded within 2km included Brown Hare and Chinese Muntjac.				

4. RECOMMENDATIONS, FURTHER SURVEYS AND ENHANCEMENTS

Overview

4.1 Recommendations have been provided within this report that will safeguard the existing ecological interest features within the Site. Wherever possible, measures to enhance ecological and biodiversity value have also been set out.

4.2 The implementation of the measures provided within this report enable the proposals to accord with national and local planning policy for nature conservation.

4.3 This report assesses that the Proposed Development will incur significant negative impacts upon local statutory and non-statutory designated sites and should therefore seek to address and appropriately mitigate for these impacts, particularly relating to operational air and water pollution.

4.4 Consultation with the local Wildlife Trusts and the Environment Agency is recommended, specifically in relation to changes and impacts to hydrology, as well as the potential impacts upon water vole (if present, not surveyed, or survey evidence inconclusive).

Designated Sites

4.5 Given the nature of the Proposed Development, the reasons for the designations identified, and the distance between them; it is considered likely that the Proposed Development may result in adverse impacts to various statutory and non-statutory designations, through air or water pollution, which will need to be considered further.

Statutory

4.6 There were no statutory designated sites within 2km, however Surfleet Lows SSSI was located 2.7km southwest of the Site.

4.7 Statutory designated sites cited for wide-ranging species, such as waterfowl and wading birds, were considered at a greater distance due to the dispersal and ecological requirements of waterfowl and wading birds. Two such sites were identified within a 15km radius, and included The Wash SPA Ramsar NNR SSSI and The Wash & North Norfolk Coast SAC (6.7km east), which both covered a similar on land area.

4.8 The site lay within the IRZ of Surfleet Lows SSSI, and The Wash SPA Ramsar NNR SSSI and The Wash & North Norfolk Coast SAC, therefore additional consultation should be sought from Natural England.

Non-statutory

4.9 There were seven non-statutory designated sites within 2km of the Site, the closest being A16 Verges North of the River Glen LWS, located approximately 300m southwest.

Habitats

4.10 The Site comprised predominantly of agricultural land, as well as bare ground, a line of trees, mixed scrub, a small area of grassland, a non-native hedgerow and ornamental hedgerow, wet ditches, and scattered trees. Much of the Site is considered to be of low ecological value, with the exception of trees, mixed scrub and wet ditches which were considered to be of moderate ecological value.

4.11 As a priority, wet ditches should also be retained as an important habitat for water vole and the fenland area.

4.13 It is recommended that as far as possible, the boundary features including the intact hedgerows and associated scattered trees, should be retained as they offer potential foraging, breeding and sheltering opportunities for a range of species. South East Lincolnshire Local Plan states that existing hedgerows and trees should be incorporated into the design and therefore retained where possible.

4.14 In order to increase the biodiversity value of the site as part of the development any landscape planting should incorporate native species, including those species known to provide foraging opportunities for breeding birds and nectar sources for invertebrates.

4.15 Proposed habitat enhancements include, two attenuation ponds, wildflower and woodland roundabout, plantation of woodland and shrub borders. The proposed greenspace is likely to be a significant addition to local biodiversity, including improving connectivity and semi-natural habitat in an area largely dominated by agricultural land.

Pollution Prevention

4.16 During construction, safeguards should be put in place in accordance with the Environment Agency's Pollution Prevention Guidelines (2013). Whilst these guidelines are no longer active they provide good practice guidelines to follow. Following these safeguards will reduce potential pollution events to nil, minimising harm to wildlife associated with the watercourse. Safeguards will include:

- Storage areas of chemicals, fuels, etc. will be located well away from the watercourse;
- Water washing of vehicles, for example those carrying concrete, should be carried out in a contained area so as to avoid contaminated water entering the watercourse; and
- Refuelling of plant will take place in a designated area, preferably on an impermeable surface

Species

Amphibians

4.17 Overall the Site was of low value to amphibians, with only small areas of potentially suitable terrestrial habitat present. However, it is recommended that the amphibian method statement given below is implemented to safeguard any common amphibians which may use the Site on occasion:

- Suitable refugia present within the proposed works area including rubble and log piles is to be searched and removed by the hand.
- Any amphibians or reptiles captured as part of this will be relocated to an area of habitat away from the construction area.
- Any areas of longer vegetation including the tall ruderal to be lost will be strimmed initially to a height of 150mm.

- After a 5 day period this area is then to be strimmed to a height of 50mm before being soil stripped.

4.18 Should any great crested newt be encountered, works must stop immediately and a member of the Nicholsons ecology team contacted for advice.

4.19 As an enhancement, it is recommended that brash from any cleared areas of woody vegetation is used to create habitat piles and hibernacula at Site boundaries or adjacent to the new waterbody. These may be used by amphibian species if present in the vicinity as well as providing general wildlife value to a range of species groups.

Water vole

4.23 Due to potential water vole signs being observed within the ditches on-site, and the local propensity for water vole, we highly recommend a further water vole scoping survey and associated camera trap monitoring.

4.24 This scoping survey will confirm presence or likely absence of water vole, enabling appropriate mitigation to be undertaken as part of the Proposed Development. Further surveys may be recommended if water voles are confirmed to be present.

4.25 Careful consideration of water vole, their suitable habitats on-site, and the connectivity of those habitats in the wider landscape should be taken throughout the construction and operational phases of the Proposed Development. In particular, the continued connectivity and levels of pollution within local hydrology must be appropriately minimised to adequate levels, and vegetation screening and offset from the development (as proposed already within the landscape plan) should be implemented to reduce the effects of noise and light disturbance.

4.26 We consider a further scoping survey, followed by an appropriate assessment of hydrological impacts (if present or likely present) to be appropriate next steps.

Mammal Safeguards

4.27 General construction safeguards should also be implemented as a precaution, which will act to safeguard mammals, such as fox:

- All contractors and Site personnel will be briefed on the potential presence of mammals within the Site.
- Any trenches or deep pits within the Site are to be left open overnight will be provided with a means of escape should an animal enter. This could simply be in the form of a roughened plank of wood placed in the trench as a ramp to the surface. This is particularly important if the trench fills with water.
- Any trenches will be inspected each morning to ensure no animals have become trapped overnight.
- Food and litter should not be left within the working area overnight.

Bats: Roosting

4.28 Several trees with bat roosting suitability have also been identified on or adjacent to the Site. Should removal of any of these trees be required, further aerial survey (climbing or from a Mobile Elevated Working Platform) must be undertaken first. Further surveys of these trees may then be required, as directed by the aerial inspections.

Bats: Foraging and Commuting

4.29 The Site offers foraging and commuting opportunities for bats, primarily over wet ditches. It is recommended that the scattered trees are retained where practicable, providing foraging and commuting features for bats and other species, along with the maintenance of connectivity between the Site and surrounding, wider landscape.

4.30 Where this is not possible, for example to facilitate access into the Proposed Development, enhancement of remaining hedgerows with native planting, and the planting of new hedgerows and other screening vegetation is recommended as a tool to offset the loss in bat foraging and commuting habitat.

4.31 A sensitive lighting scheme should be designed for the Proposed Development, which must follow best practice guidelines for bats and lighting (ILP, 2018). This should be designed with ecologist input. Measures in relation to the lighting scheme include the following:

- Night working should be avoided where possible, where unavoidable lighting used during the construction phase must be directed away from adjacent tree lines and riverine habitats.
- Any exterior lighting during the operational phase should be minimised as far as possible, and follow best practice guidelines, for example use of LED luminaires (non-UV) using a warm white spectrum (<2700 Kelvin), peak wavelengths above 550nm and the use of hoods/baffles to reduce upwards light spill). Lux levels should be maintained within 0.5 lux of baseline levels as far as practical.
- New lighting within the Proposed Development should be directed away from the retained trees, adjacent woodland and riverine habitats.

4.32 Construction practices should also follow best practice in terms of dust and noise control.

4.33 As good practice, opportunities should be sought to provide enhanced bat roosting opportunities on the Site through the proposals. For example, bat boxes should be installed on some of the trees to be retained (facing new or retained greenspace).

Birds

4.34 It is recommended that existing habitats with bird nesting suitability (for example scattered trees and mixed scrub) are retained as far as possible. Where this is unavoidable, to avoid killing or injuring nesting birds and destroying their nests all clearance of trees and shrubs associated with the development should be conducted outside the breeding season (March to August inclusive).

4.35 If clearance within the breeding season is unavoidable, it may be conducted under the supervision of an ecologist, who will search the vegetation before clearance for nesting birds (please be aware this is only practical for relatively small areas of vegetation). Where nests are

found, clearance work will need to be suspended over a suitable buffer area (as advised by the ecologist) around the nest until chicks have fledged, or the nest is confirmed as no longer active by an ecologist.

4.36 To compensate for the loss of scattered trees on the Site, additional suitable features for nesting birds should be provided within the proposals for the Site. This should include the planting of new woodland or scrub habitats, and retaining existing trees.

4.37 A single barn owl box is recommended to be positioned upon a 5m pole within the new greenspace area.

Invertebrates

4.38 It is recommended as good practice that features of value for invertebrates should be created under the Proposed Development or integrated into landscaping for the Proposed Development.

4.39 There may be some scope to create opportunities for invertebrate species within the proposed development, for example by the creation of a wildflower area surrounding the proposed central waterbody. This area should be planted with a wildflower-rich mix to increase the diversity of potential larval food plants present.

4.40 Brash generated from any trees or hedgerow areas removed could be retained in discrete piles around the boundaries of the Site, where they will provide value for a range of invertebrate species.

4.41 It is recommended that any new landscaping schemes includes a range of native broadleaved species, which would benefit invertebrates. It is also recommended that the hedgerow areas removed are compensated via planting of new hedgerow areas formed of native species such as blackthorn, hawthorn and elder. This will benefit a range of invertebrate species.

4.42 It is recommended that any ornamental planting of the Site and communal areas should consider the inclusion of plant species with value to invertebrates. This could include scented species and herbs, such as lavender Lavandula sp..

Reptiles

4.43 The Site offers limited suitable habitat for reptiles. On-site suitable habitats included grassland margins and mixed shrub.

4.44 Recommendations provided in respect of amphibians will also act to safeguard any reptiles, which may use the Site on occasion.

Enhancements

4.45 The Proposed Development should seek to provide enhancement opportunities for species using the Site. This could include the following measures:

- Enhancement of hedgerows across the Site infilling with native species;
- Enhancement of aquatic habitats through new wetland habitat creation and marginal and aquatic planting of native species within existing ditches;

- Enhancement of grassland areas through planting of wildflower areas and appropriate mowing regimes / establishment of tussocky grassland margins;
- Removal of non-native invasive species and replacement with suitable native species;
- Planting of nectar, fruit and nut producing species;
- Provision of birds and bat boxes;
- Provision of suitable gaps in fence lines to allow the movement of species such as hedgehog;
- Creation of log piles and hibernaculum suitable for reptiles and amphibians;
- Installation of insect houses and bee banks in retained areas of grassland vegetation;
- Creation of log/habitat piles suitable for invertebrates.

General

4.46 If in the unlikely event any protected species (e.g. amphibians, bats, reptiles, or nesting birds) are encountered as part of the works, then all works must stop, with advice sought immediately from Nicholsons (01869 340342 / 01536 408840).

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6. APPENDICES

Appendix 1: Legislation and Planning Policy

A summary of the legislative and planning context which has been used to inform this ecological assessment is provided below.

Legislation

A number of tiers of legislation protect wildlife and habitats within England and Wales, the highest of which being European legislation. A summary of relevant legislation is provided below:

- The Wildlife and Countryside Act 1981 (as amended).
- The Natural Environment and Rural Communities Act 2006 (NERC).
- The Conservation of Habitats and Species Regulations 2017.

Policy

The planning policy framework that relates to nature conservation in Surfleet (South Halland District Council and Surfleet Parish Council) is provided at two levels: nationally through the National Planning Policy Framework (NPPF) and locally through policies in the South East Lincolnshire Local Plan.

Local Policy – South East Lincolnshire Local Plan (2011-2036) (adopted 2019)

The current Development Plan in relation to the Site is the South East Lincolnshire Local Plan (2011-2036) (adopted 2019). Specific nature conservation policies to consider are:

POLICY 3 – Deign of New Development.

- 'The use of locally sourced building materials, minimising the use of water and minimising land take, to protect best and most versatile soils.'
- 'The incorporation of existing hedgerows and trees and the provision of appropriate new landscaping to enhance biodiversity, green infrastructure, flood risk mitigation and urban cooling'.

POLICY 4 – Approach to Flood Risk

- 'Demonstrates that adequate foul water treatment and disposal already exists or can be provided in time to serve the development'.

Policy 28: The Natural Environment

- 'Nationally or locally-designated sites and protected or priority habitats and species:
  a. development proposals that would directly or indirectly adversely
  affect these assets will not be permitted unless...'
- 'Addressing gaps in the ecological network: a. by ensuring that all development proposals shall provide an overall net gain in biodiversity'.

Biodiversity Action Plan (BAP) and 2006 NERC Act Habitats and Species of Principal Importance

In 2007, the UK Biodiversity Action Plan (BAP) Partnership published an updated list of priority UK species and habitats covering terrestrial, freshwater and marine biodiversity to focus conservation action for species and habitats in the UK. The UK Post-2010 Biodiversity Framework succeeds the UK

BAP. The Framework continues the conservation work initiated by the UK BAP following the establishment of the Convention on Biological Diversity in 1992.

The purpose of the Framework is to set a broad structure for conservation across the UK until 2020. In summary:

- To set out a shared vision and priorities for UK-wide activities, in a framework jointly owned by the four countries, and to which their own strategies will contribute;
- To identify priorities at a UK scale which will help deliver biodiversity targets and the EU Biodiversity Strategy;
- To facilitate the aggregation and collation of information on activity and outcomes across all countries of the UK; and
- To streamline governance arrangements for UK-wide activities.

The habitats and species are identified as Habitats and Species of Principal Importance for the conservation of biological diversity in England under Section 41 of the 2006 Natural Environment and Rural Communities (NERC) Act. The NERC Act and NPPF make these species had habitats a material consideration in the planning process.

The South Holland Internal Drainage Board Biodiversity Action Plan (LBAP) produced in 2015, lists several habitats (priority species) of particular relevance to this Site, namely Lowland Calcareous Grassland (Farmland birds), Arable Field Margins, Rivers, Canals and Drains (water vole, otter, barn owl, kestrel, sand martin, kingfisher, fish), Fens (bittern, reed bunting), Reedbed and Bittern, Ponds (newts, common toad, grass snake), Saline ditches (Lagoon sand shrimp *Gammarus insensibilis*), Wet Woodland (farmland birds, bats). The presence of these species and habitats within the Site is considered within this report.

The LBAP contains objectives and targets for the species and habitats identified above. They should be considered in regard to the proposed development in order to identify opportunities for avoidance, mitigation and enhancement.

Appendix 2: UKHab Habitat Map

Ref: Factory2Surfleet_UKHabHabitatMap_v1_SR_220424

527200 527400 527600 527800 528000

330800 330600 330400

NOTES
No dimensions to be scaled from this drawing and must NOT be used for construction purposes. This drawing is the property of Nicholsons and may not be reproduced without permission.

Red Line Boundary - 143,343sqm
AD Plant (Inside bund) - 33,135sqm
AD Plant (Including Bund) - 41,804sqm

SCALE 1:1000

Project
PROPOSED FACTORY AND AD PLANT

Address
LAND ADJACENT A16
SURFLEET
LINCOLNSHIRE

Client
NAYLOR FARMS

Drawing
PROPOSED
SITE PLAN

Date
DEC 2023

Scale
1:1000 @ A1 - 1:2000 @ A3

Project No.
3862

Drawing No.
P01

Revision

Fern Lea

A16

Surfleet Bank

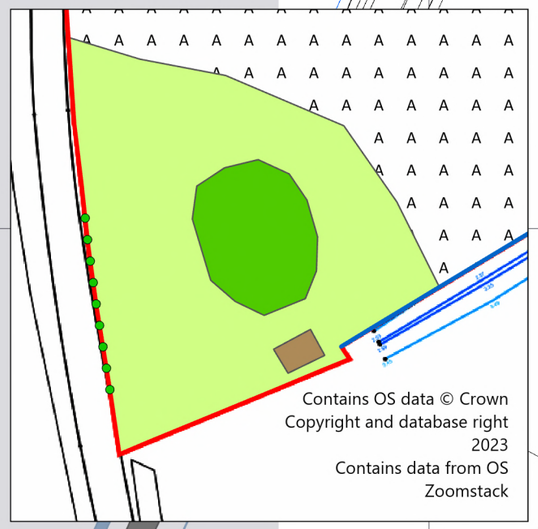
Ponds

Drain

Woad Farm

Weighbridge

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LEGEND

N

- Redline boundary
- Urban: Bare ground, Moderate condition
- Cropland: Horticulture, N/a
- Grassland: Modified grassland, Moderate condition
- Heathland and shrub: Mixed scrub, Moderate condition
- Line of trees, Moderate condition
- Non-native and ornamental hedgerow, N/a
- Watercourse: Ditch, Moderate condition
- Individual trees: Rural tree, Large size, Moderate condition
- Individual trees: Rural tree, Medium size, Moderate condition

0 140 m

NICHOLSONS

TITLE:
Baseline Habitat Map

PROJECT/SITE:
Factory 2, Surfleet

CLIENT:
Naylor Farms

MAP REF:
-

VERSION:
v1

DATE:
22/04/2024

SCALE:
1:2,600 @ A3

APPROVED BY:
SF

PRODUCED BY:
SR

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Appendix 3: Faunal Surveys Methodology

Faunal Surveys

General faunal activity was recorded during the EcIA field survey, including mammals and birds observed or heard. Specific attention was also paid to the potential presence of any protected, rare or notable species, as described below.

Bats

Tree Assessment

A preliminary ground-based assessment of all suitable trees located on or immediately adjacent to the study area was undertaken to determine their potential to support roosting bats (for details on the location of trees with bat roost potential refer to highlighted trees on the habitat map in **Appendix 2**).

All suitable features such as cracks and splits in limbs, hollows and cavities, natural holes, woodpecker holes, loose bark and dense ivy were assessed using binoculars and high-powered torches where appropriate. Evidence of bat roost themselves, including droppings, feeding remains and urine staining were also searched for during the assessment.

Where no direct or indirect evidence of roosting bats were confirmed, trees were categorised as being of high, moderate, low or negligible suitability to support roosting bats based on the type and number of suitable bat features present, in accordance with best practice guidance, Bat Conservation Trust (2016) Bat Surveys: Good Practice Guidelines 4th Edition.

- High suitability – one or more potential roosting features present within a structure, with enough suitable surrounding commuting and foraging habitat, which is large enough to be able to shelter a large number of bats on a regular basis. These include maternity and hibernation roosts.
- Moderate suitability – one or more potential roosting features present within a structure that is likely to shelter a number of bats, but unlikely to support a roost of conservation status.
- Low suitability – one or more potential roost features present within a structure yet is not surrounded by suitable commuting and foraging habitat and does not provide enough

protection and space to shelter a large number of bats. This also includes trees with no visible potential roost features but is of adequate age and structure to offer limited roosting potential.

- Negligible suitability – whereby no evidence of bats was observed and no suitable features for bats are supported, such that their presence is considered negligible.

The roosting suitability of a tree for bats is categorised as one of the following:

- NONE – No or highly unlikely to be any Potential Root Features (PRF) in a tree.
- FAR – Further Assessment Required (FAR) to confirm if the tree contains PRFs.
- PRF – One or more PRFs on a tree.

Great Crested Newt

Accessible ponds within 250m of the Site were assessed for their suitability to support great crested newt (GCN) *Triturus cristatus*. The assessment was undertaken in accordance with the methodology and criteria set out by Oldham *et al*. (2000), which assesses the likely presence of GCN in ponds based on a number of parameters, such as pond size, location, shading, presence of fish and wildfowl and macrophyte cover.

Data from the field assessment are used to calculate a Habitat Suitability Index (HSI), represented by a number from zero to one, as demonstrated in **Table 8**:

Table 8: HSI Categories of Pond Suitability

HSI Score	Pond Suitability for GCN
<0.5	Poor
0.5-0.59	Below Average
0.6-0.69	Average
0.7-0.79	Good
>0.8	Excellent

Appendix 4: HSI Results

Table 9: D1 HSI result

Category	Value
Geographic Location	Zone A
Pond Area	~1000m^2
Permanence	Dries Annually
Water Quality	Poor
Shade	0%
Water Fowl	Absent
Fish	Minor
Pond Within 1km	0.1
Habitat	Poor
Macrophyte Cover	20%
HSI Score	**0.42 (Poor)**

Table 10: D2 HSI result

Category	Value
Geographic Location	Zone A
Pond Area	~500m^2
Permanence	Dries Annually
Water Quality	Poor
Shade	0%
Water Fowl	Absent
Fish	Minor
Pond Within 1km	0.1
Habitat	Moderate
Macrophyte Cover	5%
HSI Score	**0.44 (Poor)**

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Arboriculture
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Building with Nature
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Garden & Landscape Design and Construction

Garden Design and Construction
Landscape Design and Construction
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Garden & Landscape Maintenance

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