Land South of Darton Lane, Darton, Staincross

Ecological Appraisal

Prepared by:
The Environmental Dimension Partnership Ltd

On behalf of:
The Church Commissioners for England

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Contents

Executive Summary

Section 1 Introduction, Purpose and Context 1

Section 2 Methodology (Baseline Investigations) 3

Section 3 Results (Baseline Conditions) 9

Section 4 Discussion and Recommendations 17

Section 5 Summary and Conclusions 25

Appendices

Appendix EDP 1 Indicative Site Layout
(Edward Architecture, 0708-SK10 C)

Appendix EDP 2 Desk Study Results

Appendix EDP 3 Barnsley Metropolitan Borough Council Preliminary Habitat Survey

Appendix EDP 4 Land at Staincross, Barnsley – Botanical Survey Map – 2018

Appendix EDP 5 NVC Community Descriptions and Floristic Tables for Fields 1 to 6

Appendix EDP 6 Great Crested Newt eDNA Survey Results

Appendix EDP 7 Outline Ecology Management Plan (edp3487_r004)

Plan

Plan EDP 1 Extended Phase 1 Habitat Plan
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Executive Summary

S.1 The Environmental Dimension Partnership Ltd (EDP) was commissioned by The Church Commissioners for England to undertake an Ecological Impact Assessment of 3.64 hectares (ha) of Land South of Darton Lane, Darton, Staincross.

S.2 The baseline ecological investigations undertaken included a Desk Study, Extended Phase 1 survey an NVC survey relating to the grassland interest and detailed Phase 2 surveys relating to great crested newts. All surveys were undertaken with reference to best practice guidance where this exists.

S.3 There are no statutory or non-statutory designations within the Site and owing to proximity, accessibility and reasons for designation, no statutory or non-statutory designations nearby that would be impacted by the proposals.

S.4 The majority of the Site is semi-improved, heavily grazed grassland with some scattered scrub and ponds, bounded to the south by a disused railway colonised by scrub and to the north by a stone wall. The majority of habitats at the Site are of ecological value at a less than Local level with some of the grassland of value at the Local level.

S.5 There is an approximately 1.9ha area of grassland of higher botanical interest in the west of the Site which is of value at a Local level.

S.6 In terms of protected species, the Site can potentially support small numbers of common and widespread foraging birds, bats and reptiles and small numbers of common and widespread breeding birds.

S.7 The ecological mitigation strategy for the scheme includes: (1) avoidance measures embedded within the Indicative Site Layout; (2) measures which should be incorporated at the construction stage; (3) those which should be designed and specified within the landscaping scheme; and (4) management measures to ensure that the design vision is achieved in the long term.

S.8 On this basis, EDP considers that the scheme is capable of compliance with relevant legislation and planning policy for the conservation of the natural environment at all levels.

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Section 1
Introduction, Purpose and Context

1.1 This Ecological Appraisal has been prepared by The Environmental Dimension Partnership Ltd (EDP) on behalf of The Church Commissioners for England. It considers the ecological implications of a proposed development at Land South of Darton Lane, Darton, Staincross in South Yorkshire (hereafter referred to as 'the Site').

1.2 EDP is an independent environmental planning consultancy with offices in Cirencester, Cardiff and Cheltenham. The practice provides advice to private and public-sector clients throughout the UK in the fields of landscape, ecology, archaeology, cultural heritage, arboriculture, rights of way and masterplanning. Details of the practice can be obtained at our website www.edp-uk.co.uk.

Site Context

1.3 The Site is centred approximately at Ordnance Survey Grid Reference (OSGR) SE 320 098 and measures 3.64 hectares (ha). It is located to the south of Darton Lane which connects Darton to the west and Mapplewell to the east and lies north of Barnsley, South Yorkshire. The Local Planning Authority is Barnsley Metropolitan Borough Council (BMBC).

1.4 The Site comprises a parcel of land split into three main areas which are further split by electric fences into six field parcels which are all (except Field 4) used for grazing horses. Darton Lane and residential development bounds the Site to the north and a disused railway line, which has been colonised with mature scrub and trees, bounds the Site to the south. The Site supports three ponds (four in 2016) and a further area of damp/tall ruderal vegetation is also located centrally (in Field 4). Within the wider context, the Site borders existing developed land to the north, east and west while to the south lies generally open farmland. The principal ecological features and field numbers within the Site (identified through site survey) are illustrated on **Plan EDP 1** – Extended Phase 1 Habitat Plan.

Development Proposals

1.5 In brief, the proposals are for an outline application for a residential development of up to 68 dwellings and associated access, attenuation basin and public open space. The Indicative Site Layout is included as **Appendix EDP 1**.

Scope of Assessment

1.6 This Appraisal describes the current ecological interest within and around the Site, which has been identified through standard desk- and field-based investigations. It then

considers the potential ecological impacts and opportunities for ecological enhancement based on the parameter plan (incorporating inherent mitigation) in the context of relevant legislation and planning policy. Finally, it identifies the necessary additional measures to avoid, mitigate or provide compensation for potential impacts, and the mechanisms for securing such measures.

1.7 The remainder of this report is structured as follows:

- **Section 2** summarises the methodology employed in determining the baseline ecological conditions within and around the Site (with further details provided within Appendices and on Plans where appropriate);

- **Section 3** summarises the baseline ecological conditions (with further details provided within Appendices and on Plans where appropriate) and identifies and evaluates any pertinent ecological features/receptors;

- **Section 4** considers the potential impacts of the proposal on pertinent ecological features in the context of legislative, planning policy and biodiversity action planning considerations. Recommended mitigation and enhancement measures are provided for the current and possible future planning stages; and

- **Section 5** summarises the inherent and recommended additional mitigation measures and provides the overall conclusions of the Assessment.

Section 2
Methodology (Baseline Investigations)

2.1 This section summarises the methodologies employed in determining the baseline ecological conditions within and around the Site. The assessment has been undertaken by appropriately qualified ecologists using relevant best practice methodologies wherever possible. Full details of the techniques and process adopted are, where appropriate, provided within Appendices and on Plans to the rear of this report.

Desk Study and Consultation

2.2 The desk study is an important element of undertaking an initial ecological appraisal of a site proposed for development, enabling the initial collation and review of contextual information, such as designated sites, together with known records of protected and priority species.

2.3 The desk study involved collating biodiversity information from the following sources:

- Sheffield Biological Records Centre (SBRC), the host centre for Barnsley's biological database;
- South Yorkshire Badger Group (SYBG); and
- Multi-Agency Geographic Information for the Countryside (MAGIC) website[1].

2.4 The desk study information was undertaken during July 2016 and updated in February 2018, with the following information collected:

- International and national statutory designations (5km radius around Site);
- Local statutory designations and non-statutory local sites (2km);
- Annex II bat species[2] records (4km); and
- All other protected/notable species records (1km).

2.5 The SYBG was contacted in February 2019 to provide records of badgers from within 1km of the Site.

[1] www.magic.gov.uk
[2] Bat species listed in Annex II of the EC Habitats Directive, namely Greater horseshoe, Lesser horseshoe, Barbastelle and Bechstein's bats

2.6 These search areas are considered sufficient to cover the potential Zones of Influence (ZoI)[3] of the proposed development in relation to designated sites, habitats and species. Results can be found in **Appendix EDP 2**.

Extended Phase 1 Survey

2.7 The survey technique adopted for the initial habitat assessment was at a level intermediate between a standard Phase 1 Survey technique[4], based on habitat mapping and description, and a Phase 2 Survey, based on detailed habitat and species surveys. The survey technique is commonly known as an Extended Phase 1 survey and involves identifying and mapping the principal habitat types and identifying the dominant plant species present in each principal habitat type. In addition, any actual or potential protected species or species of principal importance are identified and scoped.

2.8 The Extended Phase 1 survey was undertaken by a suitably experienced surveyor on 21 June 2016 and updated on 19 April 2018 to determine if there had been any material changes to the habitats in the intervening period. During the survey the weather was sunny, dry and warm.

2.9 Mindful of the aims of the survey, it is not considered that the timing of the survey or the weather conditions experienced during the survey were significant limitations to the findings. There had been no material changes on Site between 2016 and 2018 and it is considered unlikely that conditions will have changed between 2018 and 2019 and so no further update surveys are considered necessary.

Detailed (Phase 2) Surveys

2.10 The scope of Phase 2 Surveys was defined following the desk study and Extended Phase 1 survey. The surveys completed related to great crested newts (GCN) and grassland since, following the completion of the initial studies, these posed a potential constraint to the proposed development of the Site.

Great Crested Newt eDNA Survey

2.11 During the Extended Phase 1 survey in 2016, four ponds were identified within the Site and in 2018, only three ponds were present on Site. The ponds were subject to eDNA testing to confirm the presence/likely absence of GCN. eDNA testing was formally approved by Natural England in spring 2014 and can remove the need for the time-consuming standard survey procedures if the results are returned negative.

2.12 Four ponds in 2016 and three ponds in 2018 (P1, P2 and P3 on **Plan EDP 1**) were subject to eDNA testing during the GCN breeding season in accordance with the

[3] Zone of Influence - the areas and resources that may be affected by the proposed development
[4] Joint Nature Conservation Council (2004) *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit* (reprinted with minor corrections for original Nature Conservancy Council publication).

Technical Advice Note for field and laboratory sampling of GCN environmental DNA (WC1067)[5], using sampling kits supplied by Surescreen Scientifics. This technique involved the collection of twenty 40ml water samples from locations spread around the perimeter of the pond, which are then combined and decanted into six sample tubes. The samples were then forwarded to the Surescreen laboratory to be analysed.

Grassland NVC Survey

2.13 During the course of the Extended Phase 1 survey, it was identified that Fields 1, 2 and 3 may support a grassland habitat of at least local note. This consideration was given added credence when EDP was made aware of a survey completed on behalf of the BMBC for this and other potential development sites within the BMBC area (**Appendix EDP 3**). The BMBC survey was completed during April 2014 and it noted that "*the site includes two species-rich meadows…so these two fields should be retained*". The meadows identified in the Council's report for the site relate to Fields 1, 2, 3, 4 and 5 in this Appraisal.

2.14 In light of these preliminary considerations, it was considered that all of the grassland on the Site should be subject to a National Vegetation Survey (NVC) and assessment to determine the grassland communities present within the Site.

2.15 The NVC survey was undertaken on 07 August 2016 by Phill Quinn (MCIEEM), an experienced field Ecologist with over 27 years' experience of botanical survey and ecological site evaluation. This was updated by the same surveyor on 18 June 2018.

2.16 Full access was gained to most of the Site, the only exception being a strip of land in the western centre of the Site (Field 4) which contains an area of land associated with former coal mining activity; the surveyor was requested not to enter this area. For each field, distinct plant communities and sub-communities were identified and, where safely accessible, within each of these communities/sub-communities, five 2m square quadrats were recorded with the quadrats being scored in accordance with standard NVC methodology. The species scores were referenced to the plant community tables contained within British Plant Communities Volume 3: Grasslands and montane communities. Ed J.S. Rodwell. Cambridge University Press 1992 (1998 edition).

2.17 Where NVC survey could not be safely undertaken a DAFOR level survey was conducted from outside the unsafe area where the abundance of plant species was ranked as per the following:

- D = Dominant;
- A = Abundant;
- F = Frequent;

[5] Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

- = Occasional; and
- R = Rare.

2.18 This survey was limited to recording plant species present in both vegetative and floristic forms at the time of survey. The lack of any species record from this report cannot be taken to automatically infer that species' absence from the Site.

Surveys Scoped Out

2.19 **Table EDP 2.1** below summarises other survey types which, while commonly required as part of an Ecological Appraisal for development sites, were not considered necessary/appropriate in this case.

Table EDP 2.1: Ecology Surveys Scoped Out

Survey Type	Reasons for Scoping Out
Great Crested Newt Survey	eDNA results were returned negative.
Bat Activity Survey	Whilst seven bat species have been recorded within 6km of the Site, there is very limited foraging and no roosting habitat present on the Site. It is limited to the scrub and trees on the disused railway line to the south. A sensitive lighting scheme will avoid any impacts on bats using this habitat.
Reptile Survey	The disused railway offers potential reptile habitat and a grass snake was seen in this area during the Extended Phase 1 survey. The Site itself offers limited foraging and the presence of horses meant that reptile refugia could not safely be left on the Site.
Breeding Bird Survey	There is very limited breeding habitat within the Site to support a notable assemblage of breeding birds. Higher quality habitat is present adjacent on the disused railway.
Dormouse Survey	There is no suitable habitat on Site and no records returned during the desk study.
Otter and Water Vole	There are no linear watercourses or other suitable wetland habitat on Site and no records were returned during the desk study.
Badger Survey	No evidence of badger was returned during the Extended Phase 1 survey or any other surveys conducted at the Site. The Site offers limited foraging and sett building opportunities are limited to the scrub and trees on the disused railway line to the south. Only one record from 2010 was returned during the desk study. There is a low chance that badgers may use the Site for foraging, precautionary methods of working during construction will avoid harm to this species.
Notable Mammals	A lack of evidence and habitat for any such species was found during the Extended Phase 1 survey and no records were returned during the desk study.
Invertebrates	There is very limited habitat within the Site to support a notable assemblage of invertebrates due to the high level of grazing and disturbance maintaining a very short grassland sward.

Evaluation

2.20 In 2013, the UK Biodiversity Action Plan (BAP) Priority Habitats and Priority Species, and the Section 41 Species and Habitats of Principal Importance for Conservation under the Natural Environment and Rural Communities (NERC) Act 2006, were rationalised under the 'Post-2010 Biodiversity Framework'. As a result, a new list of Priority Species and Priority Habitats is now in operation at the UK level with 24 Priority Habitats and 213 Priority Species. These lists are provided in Biodiversity 2020 which is the national biodiversity policy for England.

2.21 Within this report, where relevant, these species and habitats of national nature conservation priority will therefore be referred to as 'Priority Species' and 'Priority Habitats', except where indicated otherwise.

2.22 Where a particular ecological feature/receptor has been confirmed to be present, or presence is inferred based on habitat suitability, the ecological value or significance of the population or assemblage is assessed on the following geographic scale:

- International importance (ecological features which, if impacted, would affect the distribution and/or conservation status of this feature in Europe);
- National importance (ecological features which, if impacted, would affect the distribution and/or conservation status of this feature in England);
- County importance (ecological features which, if impacted, would affect the distribution and/or conservation status of this feature in the south Yorkshire); and
- Local importance (ecological features which, if impacted, would affect the distribution and/or conservation status of this feature in Mapplewell).

2.23 Any other ecological features/receptors will be assessed as being of Less than Local importance.

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Section 3
Results (Baseline Conditions)

3.1 This section summarises the baseline ecological conditions determined through the investigations described in **Section 2**. It identifies and evaluates those ecological features/receptors that lie within the Site's potential ZoI and which are pertinent in the context of the proposed development. Further technical details are, where appropriate, provided within Appendices and on Plans to the rear of this report.

Designated Sites

3.2 Information regarding designated sites was obtained during the Desk Study from the MAGIC website and SBRC. Statutory designations (those receiving legal protection) and non-statutory designations (those receiving planning policy protection only) are discussed in turn below.

Statutory Designations

3.3 Statutory designations represent the most significant ecological receptors, being of recognised importance at an international and/or national level. International designations include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar Sites. National designations include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs). Local designations include Local Nature Reserves (LNRs).

3.4 The Site is not covered by any statutory designations and no international designations occur within 5km. The nearest national statutory designation is a 48ha woodland named Seckar Wood SSSI, 4.1km north. Most of this site is in unfavourable but recovering condition with areas of no change. This has been attributed to woodland management. A small proportion of the broadleaved, mixed and yew woodland is in favourable condition.

Non-statutory Designations

3.5 Non-statutory designations in Yorkshire are known as Local Wildlife Sites (LWSs).

3.6 The Site itself is not covered by any non-statutory designations; however, two occur within 2km. These LWSs are listed in **Table EDP 3.1**.

Table EDP 3.1: Local Wildlife Sites within 2km of the Site

Site Name	Approx. Distance from the Site	Interest Feature(s)
Daking Brook LWS	1.1km S	Vegetated upland stream containing white clawed crayfish.
Barnsley Canal at Wilthorpe LWS	1.8km SE	Disused canal with reed sweet grass swamp with some unimproved and semi-improved grassland.

Habitats

3.7 Information on habitats within and around the Site was obtained during the ecological assessment work carried out on behalf of BMBC (**Appendix EDP 3**), the Extended Phase 1 surveys and the detailed NVC surveys (**Appendix EDP 4** and **5**).

3.8 The distribution of different habitat types within and adjacent to the Site is illustrated on **Plan EDP 1** and summarised in **Table EDP 3.2**. Detailed descriptions of the habitat types within the Site are provided below. In addition, habitats noted immediately adjacent to the Site pertinent to the consideration of the potential to support notable and/or protected species are also described.

Table EDP 3.2: Summary of Habitats within the Site

Habitat	Distribution within the Site	Intrinsic Ecological Value
Semi Improved Grassland (NVC community MG5)	Fields 1 and 3, west of the Site	**Local**. Is a priority habitat and species-rich.
Species Poor Semi Improved grassland	Middle and east of the Site, Fields 5 and 6	**Less than local**. No notable communities.
Scattered scrub	Scattered along the northern boundary, especially in the east	**Less than Local.** No notable species and small extent.
Dense continuous scrub	Adjacent to the southern boundary	**Local.** Forms a green corridor to the wider area.
Marshy Grassland	Centre of the Site, Field 4	**Less than Local**. Small extent and no notable communities.
Tall ruderal	Small patches throughout the Site	**Less than Local**. Small extent and low distinctiveness.
Ponds	Three ponds along the southern edge	**Less than Local**. Poor condition and would not qualify as a Priority Habitat[6].

[6] UK Biodiversity Action Plan Priority Habitat Descriptions Ponds From: UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008.

Grassland

3.9 The following descriptions should be read in conjunction with the plan included as **Appendix EDP 4** and the community details and floristic tables included as **Appendix EDP 5**.

3.10 The most notable communities are present in the west of the Site where relatively species-rich neutral grassland predominates and small areas of semi-improved acidic grassland and marshy grassland are also recorded. This corresponds to Fields 1 and 3. The grassland communities in Fields 1 and 3 are considered to be of Local value but all other communities are considered to be of less than local value. Further detail on the communities in the fields can be found in **Appendix EDP 5**.

Species-rich Semi-improved Grassland (of Local Value)

3.11 Those fields containing MG5 communities are considered to be of Local value and fit the habitat description for Priority Habitat; lowland meadow[7].

3.12 Field 1 contains the following five NVC communities:

- U4b – *Festuca ovina-Agrostis capilalris-Galium saxatile* grassland *Holcus lanatus-Trifolium repens* sub-community;
- MG5a – *Cynosurus cristatus-Centaurea nigra* grassland *Lathyrus pratensis* sub-community;
- MG10a – *Holcus lanatus-Juncus effusus* rush-pasture Typical sub-community;
- MG5c – *Cynosurus cristatus-Centaurea nigra* grassland *Danthonia decumbens* sub-community; and
- OV21c – *Poa annua-Plantago major* community *Poylgonum aviculare-Ranunculus repens* sub-community.

3.13 Field 3 contains the following NVC communities:

- MG5a sub-community OR MG6b – *Lolium perenne-Cynosurus cristatus* grassland *Anthoxanthum odoratum* sub-community;
- OV25b – *Urtica dioica-Cirsium arvense* community *Rumex obtusifolius-Artemesia vulgaruis* sub-community;
- *MG5c – Cynosurus* cristatus-Centaurea nigra grassland *Danthonia decumbens* sub-community;

[7] UK Biodiversity Action Plan Priority Habitat Descriptions, Lowland Meadows From: UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008.

- U4b sub-community;
- MG10a typical sub-community;
- MG6a - *Lolium perenne-Cynosurus cristatus* grassland Typical sub-community; and
- OV21c sub-community.

Other Grassland and Tall Herb Communities (of Less than Local Value)

3.14 Field 2 contains the following NVC communities:

- MG1e – *Arrhenatherum elatius* grassland *Centaurea nigra* sub-community; and
- W24b – *Rubus fruticosus-Holcus lanatus* underscrub community *Arrhenatherum elatius-Heracleum sphondylium* sub-community.

3.15 Field 4 contains the following NVC communities:

- OV26 – *Epilobium hirsutum* community;
- W21a – *Crataegus monogyna-Hedera helix* scrub *Hedera helix-Urtica dioica* sub-community; and
- MG1e – *Arrhenatherum elatius* grassland *Centaurea nigra* sub-community.

3.16 Field 5 contains the following NVC communities:

- MG6b sub-community;
- OV25b sub-community;
- OV21c sub-community; and
- OV21b – *Poa annua-Plantago major* community *Lolium perenne* sub-community.

3.17 Field 6 contains the following NVC communities:

- MG6b sub-community;
- OV21c sub-community;
- OV25b sub-community;
- MG5a sub-community (very small extent);

- OV32 - *Myosotis scorpioides-Ranunculus scleratus* community;
- W21a sub-community; and
- MG6 community.

Ponds

3.18 The Site contains three ponds in 2018 (P1, P2 and P3 on **Plan EDP 1**). Ponds P1 and P2 lie within the east of the Site and were both approximately 40m to 50m long by 10m to 15m wide at the time of survey. These are oval and generally shallow with evidence of seasonal variation in water levels or variation following heavy or prolonged periods of rain. They support little emergent or submerged aquatic vegetation other than occasional spikes of arrowhead (*Sagittaria sagittifolia*), floating sweet-grass (*Glyceria fluitans*) and water-crowfoot (*Ranunculus* sp.). The margins within both ponds are heavily poached by horses.

3.19 Pond 3 is a small pond c.3m wide in either direction. It supported a shallow depth of water at the time of the Extended Phase 1 survey and was completely inundated by floating sweet-grass.

3.20 None of the ponds are considered to be of value in their own right due to either their condition or their extent. In the context of Appraisal, these ponds are considered to be of less than Local value.

Scrub

3.21 The scrub associated with the dismantled railway to the south of the Site encroaches into the Site in the east and there are other patches of scattered scrub along the northern boundary and associated with the area of reedmace/tall ruderal vegetation in the centre of the Site (Field 4). The scrub consists predominantly of hawthorn (*Crataegus monogyna*) and elder (*Sambucus nigra*) with occasional birch (*Betulus* sp.), blackthorn (*Prunus spinosa*) and ash (*Fraxinus excelsior*). The scrub within the Site is considered to be of less than Local value.

3.22 Immediately beyond the southern boundary is the disused railway embankment which has been colonised by dense scrub and forms a generally strong and thick band of vegetation which runs east west along this boundary. Due to its function as a wildlife corridor, this band of vegetation is considered to be of Local value.

Buildings

3.23 The Site does not support any permanent built structure, however, there are various temporary field shelters for the horses which graze the paddocks. These do not afford opportunities for roosting bats and are of no ecological significance in their own right.

Priority Habitats

3.24 The Desk Study and Phase 1 Survey showed that there are no Priority Habitats within the Site. However, the NVC survey revealed areas of lowland meadow (see above). There are small areas of deciduous woodland within 500m of the Site.

3.25 A majority of the habitats within the Site are of Less than Local value except the grassland communities in Fields 1 and 3 which are considered to be of Local value.

3.26 Habitats or other features which are of less than Local value may also require consideration in relation to their importance in maintaining populations of protected and/or notable species. This is discussed further below.

Breeding Birds

3.27 The desk study returned records of a range of bird species of conservation concern including mistle thrush (*Turdus viscivorus*), redwing (*Turdus llacus*) and song thrush (*Turdus philomelos*) (further details are provided in **Appendix EDP 2**). Records reflected the environs in which the Site sits; namely species associated with farmland and urban edge habitats. In light of the desk study records and the Extended Phase 1 survey, it is considered that the Site is unlikely to support a notable assemblage of birds or notable populations of one or more bird species. The Site does, however, provide opportunities for a range bird species typical of urban/rural edges. The scrub and boundary features provide breeding, foraging and refuge opportunities for bird species but the likely assemblage is considered to be of Less than Local importance.

Bats

3.28 The desk study provided records of a range of bat species within the vicinity of the Site including common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*P. pygmaeus*), noctule (*Nyctalus noctula*) and brown long-eared (*Plecotus auritus*).

3.29 In relation to roosting, the Site does not support buildings suitable to support roosting bats and there are no trees of sufficient maturity or supporting suitable features to support roosting bats.

3.30 Although dominated by grassland with few linear corridors, the Site does provide limited opportunities for bat foraging and commuting. The core areas of potential though are associated with the boundary features which define the southern, eastern and western boundaries. It is likely that the Site is also subject to street light spillage from the adjacent Darton Lane, which may further limit the potential for foraging by light intolerant species (particularly along the northern boundary). Based on the desk study and assessment of habitats on Site it is likely the Site supports common and widespread bat species and therefore the assemblage of bats likely to be using the Site is considered to be of Less than Local importance.

Badgers

3.31 The desk study returned a single record for badger (*Meles meles*) in the vicinity of the Site. It is not considered that the number of records is reflective of the likely extent of the badger population locally since the species is typically common and widespread in lowland England.

3.32 During the Extended Phase 1 survey, no evidence of badger was identified within the Site and the flat, heavily poached nature of the Site means that there is limited opportunities for the construction of badger setts within it. Badgers are not considered likely to ever breed on the Site but the adjacent railway cutting provides suitable breeding habitat and so badger may use the Site for foraging.

Amphibians

3.33 Records of GCN (*Triturus cristatus*), common toad (*Bufo bufo*), common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*) were provided during the desk study and these were located c.1km to the south of the Site.

3.34 Due to the presence of four ponds in 2016 and three ponds in 2018 within the Site, these were subject to eDNA sampling and analysis for GCN in 2016 and 2018. The analysis of the laboratory report showed a negative response for GCN eDNA from all ponds in both years (**Appendix EDP 6**). The analysis states that a "*negative means that GCN DNA was not detected or is below the threshold detection level and the test result should be considered as no evidence of great crested newt presence*". Great crested newt are therefore, not considered present on the Site.

Reptiles

3.35 The desk study did not return any records of reptiles within the vicinity of the Site and the heavily grazed nature of the Site means that suitable foraging habitat is limited to the marshy grassland/tall ruderal vegetation in Field 4. A grass snake was sighted during the Extended Phase 1 survey in 2018 immediately adjacent to the Site on the railway embankment. Reptiles are considered likely to occasionally stray onto the Site for foraging from this adjacent habitat, but any population/assemblage is likely to be small and therefore of Less than Local importance.

Invertebrates

3.36 The desk study returned a record for dingy skipper (*Erynnis tages*). Despite the presence of locally valuable MG5 grasslands on Site, these communities are maintained in a very short sward by the horse grazing with the plants having limited ability to flower. However, many of the identified communities contain birds foot trefoil, the larval foodplant of dingy skipper and so the presence of this species is assumed, however, the population likely to be small and of Local value only.

Summary of Key Issues Arising from Survey Findings

3.37 Based on the survey findings described above, the key ecological features/receptors pertinent to the development proposals are as follows:

- Areas of relatively species-rich grassland which qualify as the Priority Habitat Lowland meadow in Fields 1 and 3 recommended for retention, enhancement and translocation;
- Breeding Birds – Habitats suitable for breeding birds within the scrub on Site but are unlikely to support a notable assemblage;
- Bats – A small assemblage of bats could potentially use the Site for foraging;
- Reptiles – small numbers of reptiles could occasionally use the Site for foraging; and
- Dingy skipper – birds foot trefoil within the grassland has the potential to support a small population.

Section 4
Discussion and Recommendations

4.1 This section considers the likely impacts of the Indicative Site Layout included as **Appendix EDP 1** on the existing ecological resource. Where impacts cannot be avoided by inherent mitigation alone, additional mitigation or enhancement measures are recommended which, if implemented, would as a minimum enable the proposed development to meet legislative and/or planning policy requirements.

4.2 The term 'significant impact' is taken from the CIEEM guidelines[8] to mean: "*An effect that either supports or undermines nature conservation objectives for important ecological resources or features*".

4.3 In accordance with the NERC Act 2006, within England, LPAs have a statutory duty to have regard to effects upon biodiversity when exercising their functions; this includes consideration of effects upon ecological features such as designated sites and Priority Habitats/Priority Species when determining planning applications. In accordance with planning policy at all levels, local planning authorities must also consider whether or not 'significant harm' to biodiversity may occur due to effects upon such ecological features. This, and the statutory protection afforded to certain designated sites and species, is explored in further detail below.

4.4 To reflect this, Policy BIO1 of the BMDC Local Plan (adopted January 2019) states:

"Development will be expected to conserve and enhance the biodiversity and geological features of the borough by:

- *Protecting and improving habitats, species, sites of ecological value and sites of geological value with particular regard to designated wildlife and geological sites of international, national and local significance, ancient woodland and species and habitats of principal importance identified via Section 41 of the Natural Environment & Rural Communities Act 2006 (for list of the species and habitats of principal importance) and in the Barnsley Biodiversity Action Plan;*

- *Maximising biodiversity and geodiversity opportunities in and around new developments;*

- *Conserving and enhancing the form, local character and distinctiveness of the boroughs natural assets such as the river corridors of the Don, the Dearne and Dove as natural floodplains and important strategic wildlife corridors;*

- *Development which may harm a biodiversity or geological feature or habitat, including ancient woodland and aged or veteran trees found outside ancient*

[8] CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

woodland will not be permitted unless effective mitigation and/or compensatory measures can be ensured;

- *Development which adversely effects a European Site will not be permitted unless there is no alternative option and imperative reasons of overriding public interest (IROPI). Proposals will be expected to have followed the national mitigation hierarchy (avoid, mitigate, compensate) which is used to evaluate the impacts of a development on biodiversity interest;*

- *Protecting ancient and veteran trees where identified; and*

- *Encouraging provision of biodiversity enhancements".*

Designated Sites

Statutory Designations

4.5 Statutory designations receive legal protection under various international and national legislative instruments. This protection is also reflected in policies included within National Planning Policy Framework (NPPF) (February 2019), which are given material consideration during the planning application process.

4.6 In relation to statutory designations, the only one within 5km of the Site is Seckar Wood SSSI. The BMBC assessment of the Site (**Appendix EDP 3**) did not consider that the proposed development of the Site would have any influences on the SSSI. Given the scale of the proposed development and the spatial relationship between the Site and the SSSI, it is concluded that the proposed development is unlikely to significantly or adversely affect the designated interests of the SSSI. It is understood that access to the SSSI is managed and that the key drivers for the current condition of the SSSI are more related to vegetation management issues rather than recreational pressures. It is therefore not considered that the SSSI is a constraint to the proposed development.

Non-statutory Designations

4.7 Non-statutory designations/local sites do not receive any formal legal protection. However, they do receive local planning policy protection, as reflected in Policy BIO1 of the Barnsley Local Plan (adopted January 2019).

4.8 The Site is not covered by or is adjacent to any land covered by non-statutory designation. However, Darkin Brook LWS and Barnsley Canal at Wilthrope LWS lie within 2km.

4.9 The proposed development is unlikely to result in any significant adverse effects to the designated interests of these non-statutory designations, which both lie over 1km from the Site. This conclusion is reached in light of the proximity, accessibility, reasons for designation and spatial relationship of the designations to the Site and the nature and scale of the proposed development.

Habitats

4.10 There are several mechanisms through which habitats receive protection with the statutory and non-statutory designated site frameworks. For instance, the NPPF states:

"175. When determining planning applications, local planning authorities should apply the following principles:

a) if significant harm to biodiversity 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;

b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact 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;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity".

4.11 Habitats within the Site and along the Site boundaries have been assessed through an Extended Phase 1 survey and, with respect to the grassland, through detailed NVC survey. The habitats found on the Site are grassland of varying quality, ponds and scrub. The Site does not support any ditches or streams with flowing water.

4.12 A detailed botanical survey of the Site has been completed in light of the BMBC assessment that the east and centre of the Site supported grassland of botanical note. Overall, the detailed botanical assessment concludes that only the unimproved neutral grassland within Fields 1 and 3 is of Local value. The remainder of the Site, contrary to the BMBC assessment, is considered to be of low botanical value.

4.13 The remainder of the Site comprises grazed species poor, semi-improved grassland, scrub, ponds and small patches of tall ruderal vegetation which is considered to be of less than local value, such that development in these areas would have a minimal impact on biodiversity.

4.14 As a result of an iterative design process in which ecological sensitivities were considered it is proposed that the approximately 0.63ha of the grassland with botanical interest

within Fields 1 and 3 will be retained and managed in the long-term to maintain and enhance their botanical diversity, with this being secured via the development of the remainder of the Site. The outline principles of management for this grassland is provided in the Outline Ecology Management Plan (EMP) (**Appendix EDP 7**).

4.15 As stated in **Appendix EDP 7**, to avoid damage/disturbance of the retained grassland during construction, it is recommended that Ecological Protection Zones (EPZs) with an appropriate buffer should be established during the construction phase. These EPZs can often be achieved through co-ordination with tree protection measures required as good arboricultural practice (see EDP report ref: edp3487_r002), including temporary protective fencing and signage. It is recommended that details of such measures and their implementation are delivered through an Ecological Construction Method Statement (ECMS) prepared for the Site.

4.16 Some loss of semi-improved grassland, tall ruderal/marshy vegetation, scattered scrub and ponds is unavoidable. However, given that the majority of these habitats are considered to be of less than Local value and the valuable grassland habitat is currently under inappropriate management, there is significant scope for enhancement and restoration of the retained grassland and habitat creation within the public open space and attenuation areas. The recommendations for habitat creation and management within the attenuation areas are discussed within the outline EMP (**Appendix EDP 7**) and summarized below:

- An area of permanent open water within the attenuation basin managed for wildlife and planted with an appropriate pond edge mixture;
- The remainder of the attenuation area seeded with a bespoke grassland seed mix to match that of the retained grassland of ecological value;
- Some scrub planting within the grassland to link to that on the railway embankment immediately south; and
- Creation of reptile hibernacula in this scrub area to provide additional breeding and sheltering opportunities for reptiles.

4.17 Such measures can and should be incorporated into future Reserved Matters applications. Specifications for new planting and other habitat creation should be provided with a detailed Soft Landscaping Scheme secured by planning condition. In addition, it is recommended that measures to restore and enhance existing habitats, to ensure successful establishment of new habitats, and to maintain the value of all ecological features in the long-term are discussed within a detailed Ecological Management Plan (EMP) secured by planning condition.

4.18 Some of the habitats present within the Site, including those of low or negligible intrinsic value, require further consideration in relation to supporting protected species as discussed below.

Protected and/or Notable Species

4.19 Certain species receive legal protection in the United Kingdom and are commonly known as 'protected species'. In reality, the level of protection for different species varies considerably, from protection solely against 'killing and injury' to full protection of the species and their places of refuge. Where pertinent, details of legal protection afforded to species/species-groups are provided below.

4.20 In addition to protected species, there are other species/species-groups that do not receive legal protection, but which are notable owing to their conservation status as Priority Species or other status. Details of any actual or potential notable species within the Site are identified below.

4.21 With respect to planning policy, protected and notable species are afforded policy protection at a national level by the NPPF (paragraph 175).

4.22 Baseline investigations have identified actual or potential protected species implications for the Site relating to breeding birds, foraging bats and reptiles; which are discussed in turn below.

Breeding Birds

4.23 All wild birds, their nests and eggs are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- Intentionally kill, injure or take any wild bird;
- Take, damage or destroy the nest of any wild bird while it is in use or being built;
- Take, damage or destroy the egg of any wild bird; or
- To have in one's possession, or control, any wild bird (dead or alive) or egg or any part of a wild bird or egg.

4.24 In addition, further protection is afforded to those wild bird species listed on Schedule 1, prohibiting any intentional or reckless disturbance to these species while it is nest building, or at a nest containing eggs or young, or to recklessly disturb the dependent young of such a bird. In addition to, or in the absence of, legal protection, some species are also of conservation concern and may also be subject to specific UK and local BAP measures.

4.25 The majority of species using the Site will be associated with the scrub and will be removed as part of the development proposals.

4.26 If the scrub removal works should commence during the breeding season (March to August inclusive), it is recommended that a precautionary method of working is detailed within an ECMS prepared for the Site. This would include checking any areas to be

cleared for signs of nesting (nests or displaying males), by an ecologist prior to commencement. If evidence of nesting is recorded, works within that particular area shall not proceed until the chicks have fledged, with a buffer zone around the active nest of five metres. Toolbox talks should be conducted to site personnel prior to any vegetation works taking place.

4.27 In addition, it is recommended that bird boxes suitable for a range of species are installed on the sides of selected dwellings within the development to enhance breeding opportunities on Site.

4.28 Subject to these recommendations being fulfilled no significant impacts upon birds are anticipated to arise as a result of the development.

Bats

4.29 All species of British bat are listed as European Protected Species (EPS) on Schedule 2 of the Conservation Regulations (Annex IV(a) to the Habitats Directive). This affords them strict protection under the Conservation of Habitats and Species (Amendment) Regulations 2012, making it an offence to:

- Deliberately capture, injure or kill a wild animal of an EPS;
- Deliberately disturb wild animals of an EPS wherever they are occurring, in particular any disturbance that is likely to impair their ability to survive, to breed or reproduce, or in the case of hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong;
- Deliberately take or destroy the eggs of a wild animal of an EPS; or
- Damage or destroy a breeding site or resting place of a wild animal of an EPS.

4.30 Additional protection for bats is also afforded under the Wildlife and Countryside Act 1981 (as amended), making it an offence to intentionally or recklessly disturb bats whilst they are occupying a structure or place which is used for shelter or protection, or to obstruct access to this structure or place.

4.31 The Site is likely to support foraging and commuting along the edge of the scrub on the dismantled railway adjacent to the southern boundary. This scrub habitat will be retained.

4.32 Whilst a majority of the bat foraging and commuting habitats will be retained, the retained habitats may be subject to increased light levels during the construction and operational phases of the development which could impact foraging bats. Therefore, it is recommended that, at the detailed design/reserved matters stage, a wildlife-sensitive lighting scheme should be devised to avoid or minimise light spill where development is located in close proximity to retained foraging habitats. This could be achieved through a combination of positioning of fittings/luminaires and other design features such as

directional hoods/baffles, timers, low level bollards etc. to maintain 'dark zones' in key locations.

4.33 Subject to these recommendations being fulfilled, no significant impacts upon bats are anticipated to arise as a result of the development.

Badgers

4.34 Badgers receive legal protection under The Protection of Badgers Act 1992. The protection is afforded due to animal welfare grounds rather than due to the adverse conservation status of the species; a species which is generally common and widespread in lowland England.

4.35 No evidence of badger was found during any surveys on the Site and there are no sett building opportunities within it. There is potential for badgers to use the Site for foraging as part of a wider territory and so it is recommended that a precautionary method of working is detailed within an ECMS prepared for the Site. This will include:

- All fencing used during construction (perimeter and tree protection zones) will contain badger gates or sufficiently large gaps underneath; and

- Good practice construction measures to ensure badgers and other mammals cannot become trapped in excavations will be followed (e.g. by covering up at night or inserting an 'escape ramp').

4.36 Subject to these recommendations being fulfilled, no significant impacts upon badgers are anticipated to arise as a result of the development.

Reptiles

4.37 In England and Wales all reptile species are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This affords them protection against killing and injuring.

4.38 A single grass snake was seen adjacent to the Site on the southern boundary meaning that small numbers of reptiles could stray onto the Site.

4.39 The likelihood of large numbers of reptiles being present on the Site is considered low and therefore, it is recommended that the ECMS for the Site includes a precautionary method of working for reptiles. This should include maintenance of the current management regime to ensure the habitat remains suboptimal prior to the start of development. If this should not prove possible and a longer, more suitable sward develops, clearance should be timed between November and February (inclusive) to prevent harm. If clearance is required between March and October, then as a precaution, this should be a phased clearance under supervision to ensure no reptiles are present. Toolbox Talks should be conducted to site personnel prior to any vegetation works taking place.

4.40 In addition, the enhanced management of the retained grassland and the creation and management of habitats within the attenuation basin will make this habitat more suitable for reptiles, and the provision of reptile hibernacula will provide sheltering opportunities for reptiles within the Site.

4.41 Subject to these recommendations being fulfilled no significant impacts upon reptiles are anticipated to arise as a result of the development.

Summary of Predicted Impacts and Principal Mitigation Measures

4.42 **Table EDP 4.1** is a summary of predicted Impacts and Principal Mitigation Measures.

Table EDP 4.1: Predicted Impacts and Principal Mitigation Measures

Feature	Inherent Mitigation	Potential Impacts	Additional Mitigation and/or Enhancement
Habitats (species rich neutral grassland)	Retention of some parts	Some loss and damage during construction.	Habitat management.
Species (birds, bats, badgers and reptiles)	Habitat retention and buffering	Harm/disturbance and habitat loss during construction and post-development.	Protection during construction; habitat creation and management.

Section 5
Summary and Conclusions

5.1 This section summarises the Ecology Strategy for the proposed development, in terms of inherent and recommended additional mitigation measures, and then provides the overall conclusions of the Assessments.

Summary of Ecology Strategy

Inherent Mitigation Embedded in the Illustrative Masterplan

5.2 It is recommended that the area of grassland retention and attenuation area within the Indicative Site Layout is translated into the detailed layout at the Reserved Matters stages. These principles could be secured by the attachment of an appropriately worded planning condition requiring the submission of a detailed ecological strategy or management plan to accompany any Reserved Matters application:

Construction Measures

5.3 It is recommended that the following measures are detailed with an ECMS secured by a suitably worded pre-commencement condition attached to planning consent:

- Protection of retained habitats (EPZs);
- Briefing of site personnel with regards to breeding birds and reptiles;
- Pre-commencement checks with regards to breeding birds and reptiles;
- Good practice construction measures with regards to badgers; and
- Sensitive timing and methods of vegetation clearance with regards to breeding birds and reptiles.

Detailed Design Measures

5.4 It is recommended that the following measures (discussed in edp3487_r004) are incorporated into the Soft Landscaping scheme secured by a suitably worded pre-commencement condition attached to planning consent:

- Grassland seeding in POS and attenuation area;
- Pond edge planting in attenuation area;
- Fencing of retained grassland and attenuation area to prevent public access;

- Sensitive lighting scheme for bats;
- Provision of bird boxes on selected dwellings; and
- Provision of reptile refugia within the attenuation area.

Restoration, Enhancement and Maintenance Measures

5.5 It is recommended that these measures are set out within a detailed EMP secured by a suitably worded pre-commencement condition attached to planning consent:

- An appropriate mowing/cutting regime for the grassland; and
- An appropriate monitoring programme for the grassland.

Overall Conclusions

5.6 EDP's desk and field-based baseline investigations have demonstrated that the habitats and species present within and around the Site do not pose an 'in principle' constraint to the proposed development that is the subject of this Assessment. There are no statutorily protected nature conservation interests within the Site and none nearby that would be materially affected by the proposals.

5.7 However, EDP's surveys have identified a number of valuable habitat features and protected species that will need to be respected and relevant mitigation embedded into any future reserved matters applications.

5.8 Accordingly, from the outset of the design process, EDP has contributed to the design of the masterplan assessed by this report which accompanies the planning application. Specific proposals for the avoidance, mitigation and compensation of any predicted impacts are considered in this report and summarised above. These measures include: those already embedded within the Indicative Site Layout; measures which should be incorporated at the construction stage; those which should be designed and specified within the landscaping scheme; and management measures to ensure that the design vision is achieved in the long term.

5.9 On this basis, and upon liaison with BMDC regarding an appropriate compensation figure, EDP finds that by virtue of the relatively limited constraint posed by a majority of the Site's habitats and protected species interest, coupled with the scope of the proposed mitigation measures, the scheme is capable of compliance with relevant planning policy for the conservation of the natural environment at all levels.

Appendix EDP 1
Indicative Site Layout
(Edward Architecture, 0708-SK10 C)

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Proposed Site Layout

Approximate number of proposed units- 68 (excluding 13 in the adjacent allocated site)
Total Site Area (red line only) = 3.64 Ha

Scale- 1:1250 @ A2

Project Number : 0708
Project Name : Church Commissioners Darton
Drawing Number: 0708-SK10 C
Date : 23/06/20

edward architecture

Appendix EDP 2
Desk Study Results

Statutory Designations

A2.1 The Site is not covered by any statutory designations and no international designations occur within 5km. The nearest national statutory designation is a 48ha woodland named Seckar Wood SSSI, 4.1km north. Most of this Site is in unfavourable but recovering condition with areas of no change. This has been attributed to woodland management. A small proportion of the broadleaved, mixed and yew woodland is in favourable condition.

Non-statutory Designations

Table EDP A2.1: Non-statutory Sites of Nature Conservation Importance within 2km of the Site

Site Name	Size (ha)	Grid Ref.	Approx. Distance from the Site	Interest Feature(s)
Daking Brook LWS	10km (length)	SE265076	1.1km S	Vegetated upland stream containing white clawed crayfish.
Barnsley Canal at Wilthorpe LWS	33	SE337083	1.8km SE	Disused canal with reed sweet grass swamp with some unimproved and semi improved grassland.

Priority Habitats

Table EDP A2.2: Priority Habitats within 500m of the Site

Habitat	Size (ha)	Approx. Distance from the Site	Locality Note
Deciduous woodland	<1	Adjacent - S	Disused railway.
Deciduous woodland	<1	120m SE	South of track by disused railway.
Deciduous woodland	<1	200m SW	South of Darton Primary School.
Deciduous woodland	<1ha	380m S	South of recreation ground.

Protected and Notable Species

A2.2 No notable or protected species were found within the Site and no Annex II bat species have been recorded within 6km.

Table EDP A2.3: Notable Species Records within 1km of the Site

Scientific Name	Common Name	Grid Ref	Approx. Distance from the Site	Date	Status
Birds					
Bullfinch, dunnock, fieldfare, goldcrest, goldfinch, house sparrow, kestrel, lapwing, lesser redpoll, mistle thrush, redwing, song thrush, starling, swallow, water rail, yellowhammer		Multiple locations within 1km		2013 - 2008	WCA S.1 NERC S.41 Amber listed BoCC
Reptiles and Amphibians					
Triturus cristatus	Great crested newt	SE319088	1km S	2014	EPS NERC, S.41 LBAP
Mammals					
Meles meles	European badger	SE315103	510m N	2010	PBA
Bats					
Plecotus auritus	Brown long-eared bat	Multiple observations and locations within 1km		2010 - 2008	EPS
Pipistrellus pipistrellus	Common pipistrelle	Multiple observations and locations within 1km		2014 - 2008	
Myotis daubentoni	Daubenton's bat	SE348080 SE3408 SE3710	3.6km SE Unknown Unknown	2014 2012 2014	
Nyctalus leisleri	Leisler's bat	SE284125 SE280123	4km NW 4.1km NW	2006	
Nyctalus noctula	Noctule	SE3309 SE3710	Unknown	2013	
Pipistrellus pygmaeus	Soprano pipistrelle	SE319090	825m S	2007	
Myotis mystacinus	Whiskered bat	SE282077	3.9km SW	2007	
Invertebrates					
Tyria jacobaeae	Cinnabar	SE322097	350m E	2013	NERC s.41
Erynnis tages	Dingy skipper	SE3109	Unknown	2011	NERC s.41

Note: WCA = Wildlife and Countryside Act 1981 (As amended), LBAP = Local Biodiversity Action Plan, NERC S.41 = Priority Species, EPS = European Protected Species under Conservation of Habitats and Species (Amendment) Regulations (2016), BoCC = Birds of Conservation Concern, PBA = Protection of Badgers Act (1992).

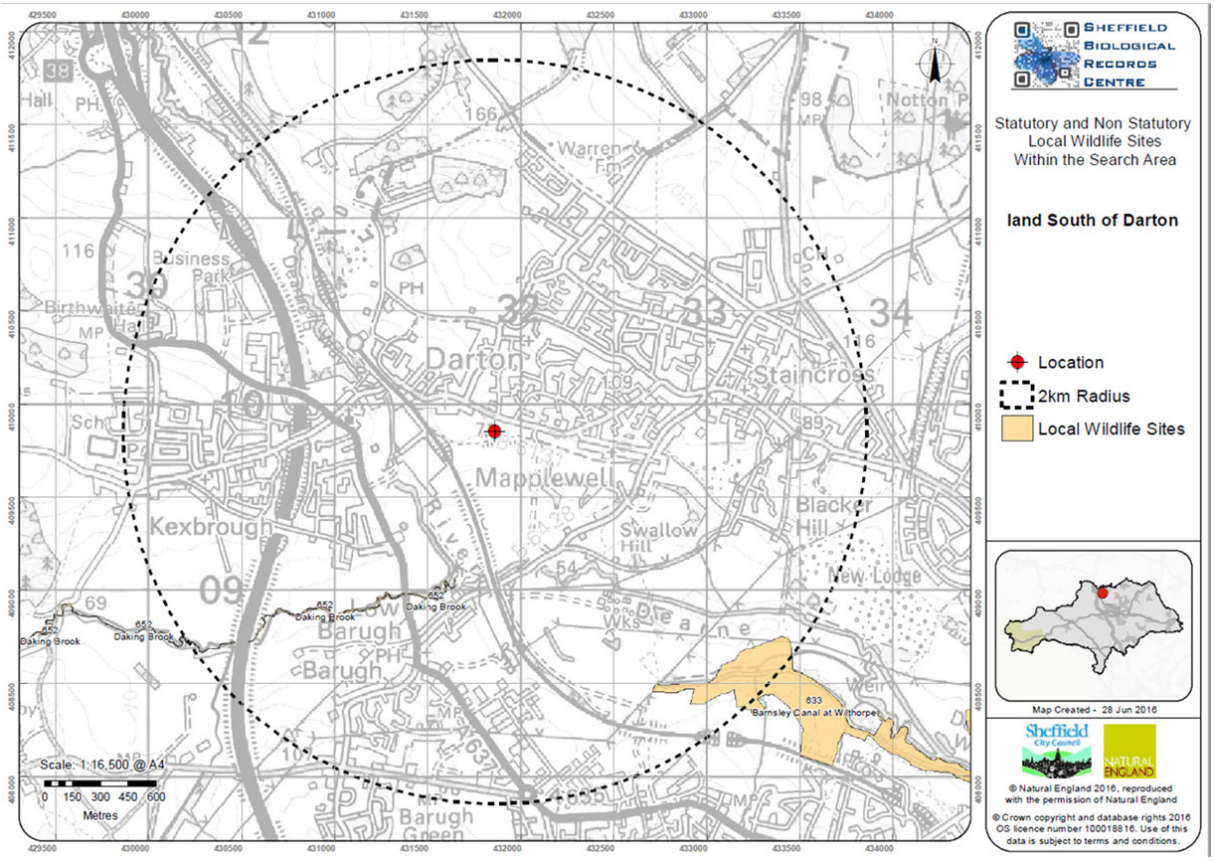

Figure A2. 1.: Designated Sites within 2km of the Site (as supplied by SBRC)

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Appendix EDP 3
Barnsley Metropolitan Borough Council Preliminary Habitat Survey

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Summary Sheet

Date	24/04/2014
Grid Reference	SE 3224 0978
Site Area	7.7 hectares
Surveyor	Elizabeth McBride, Wildscapes

Site Name	Land at Mapplewell
Site Ref Number	MPW6B

1 ASSESSMENT

Biodiversity interest (record presence by a cross as appropriate)

Habitat	Present	Notes & Photo refs
Woodland	X	Young plantation Woodland along track
Scrub	X	
Scattered trees	X	
Species poor or defunct hedgerows		
Species rich hedgerows		
Amenity or improved grassland	X	School playing field
Semi-improved grassland	X	Species-rich & species-poor MPW6B.1, MPW6B.2, MPW6B.3, MPW6B.4, MPW6B.5
Unimproved grassland		
Marshy grassland		
Tall ruderals	X	Great willowherb MPW6B.3
Dwarf shrub heath		
Lichen/bryophyte heath		
Reedbed		
Swamp	X	Small area of bulrush
Standing water (ponds)	X	Two small ponds MPW6B.4
Flowing watercourses		
Arable / cultivated farmland		
Other: Private gardens & yards	X	Along Pye Avenue

Species	Present (seen)	Quality of habitat		
		Low	Mod	High
Plants	X		X	
Invertebrates	X		X	
Amphibians		X		
Reptiles		X		
Birds	X		X	
Mammals			X	
Fish		X		
Other				

Influences on external features

On watercourse	No
On wildlife corridor	No
Would lead to habitat isolation	No
Proximity/linkage to SSSI/LNR	None
Other	The River Dearne is within 250 metres to the west, but is separated from the site by an active railway line and two large warehouses.

2 RECOMMENDATION

	Mitigation measures / design considerations	Score
a) Development of the site would have minimal detrimental local ecological impact.		
b) Development of the site would result in some adverse local ecological impact but there is scope for mitigation.	The site includes two species-rich meadows. Species-rich grassland is a valuable habitat, so these two fields should be retained.	3
c) Development of the site would result in detrimental ecological impacts.		

3 PHOTOGRAPHIC DETAILS

Photograph locations are recorded on the site map.

Photo Ref	Caption
MPW6B.1	Unmanaged grassland to the west
MPW6B.2	Species-rich grassland
MPW6B.3	Area of tall ruderals and swamp
MPW6B.4	Poor semi-improved grassland and pond
MPW6B.5	Poor semi-improved grassland

4 FURTHER INFORMATION

Brief Site Description

The site includes three adjacent horse-grazed fields, two of which are species-rich. There is also a small damp area of bulrush and great willowherb, and two small ponds. To the west is an unmanaged grassland and part of a school playing field, whilst to the west to site includes the backyards and gardens of the houses along Pye Avenue.

Additional comments / information

Figure 1 shows the Phase 1 habitat map for the site.
Figure 2 shows the areas with significant ecological value.

With reference to the data search, no significant issues for protected or priority species have arisen for this site.

Area: Mapplewell

Site MPW6B

Site Area: 7.7 hectares

OS Grid Ref: SE 3224 0978

Date Surveyed: 24/04/2014

Surveyor: Elizabeth McBride

Site Description

The site is located to the south of Mapplewell. Darton Lane follows the northern edge, with housing beyond. There is an active railway line to the west, with two large warehouses and the River Dearne behind. The large site MPW66 is adjacent to the south.

To the west is an unmanaged grassland adjacent to a school (Photo MPW6B.1). There are a few desire lines crossing the area but no public footpaths. The grass is tall and rank, with cocksfoot (*Dactylis glomerata*), false oat-grass (*Arrhenatherum elatius*), and frequent tall ruderals throughout including creeping thistle (*Cirsium arvense*), nettle (*Urtica dioica*) and cow parsley (*Anthriscus sylvestris*). There are large patches of bramble (*Rubus fruticosus*) along the eastern edge and frequent lupin (*Lupinus sp*.) throughout. Bramble and hawthorn (*Crataegus monogyna*) are present along the western edge and there are a few sycamore (*Acer pseudoplatanus*) trees, hawthorn and rose (Rosa sp.) within the grassland itself. The field slopes steeply down to the railway line and along the bank is frequent hawthorn and bramble, with some young trees of ash (*Fraxinus excelsior*), oak (*Quercus sp*.) and silver birch (*Betula pendula*). Although there are a few desirable meadow species present in small amounts, such as knapweed (*Centaurea nigra*) and meadow vetchling (*Lathyrus pratensis*), the field's lack of management has resulted in coarse grasses and a high percentage of plants considered weeds.

Directly to the east is part of the school grounds and this area is surrounded by a tall security fence. It includes a playground and a playing field. Young trees have been planted around the inside perimeter of the fence and species include hawthorn, field maple (*Acer campestre*), hazel (*Corylus avellana*) and cherry (*Prunus avium*).

Along the southern edge of the site is a narrow wooded embankment following a track. It supports abundant hawthorn, frequent silver birch and occasional sycamore, oak and willow (*Salix sp*.).

Along Darton Lane are three horse grazed fields, all of which were surveyed from the road edge. The western field appears species-rich, though it has been grazed short and only the northern edge was clearly visible (Photo MPW6B.2). Ribwort plantain (*Plantago lanceolata*) and dandelion (*Taraxaum officinale*) are frequent and there is also some knapweed (*Centaurea nigra*) and oxeye daisy (*Leucanthemum vulgaris*). At the western edge is a horse shed surrounded by tall trees, adjacent to a garden belonging to a house just outside the site boundary. There is a wall along Darton Lane and some scattered hawthorn and bramble scrub. At the eastern edge of the grassland is a small wet area which has been fenced off from the adjacent fields. It includes areas of bulrush (*Typha latifolia*), a large patch of tall ruderals and some scattered hawthorn scrub (Photo MPW3B.3).

The middle field is more heavily grazed than the one to the west and includes more undesirable species such as broadleaved dock (*Rumex obtusifolius*). Although still species-rich in places, it does not appear to be as diverse as the first field. The eastern end is used for supplementary feeding and has been grazed to mud.

A track separates this field from another to the east. The eastern field is very churned up and over-grazed in places, with species such as broadleaved dock, creeping thistle and nettle growing in mud (Photo MPW6B.5). The sections along the road are slightly more diverse with some red clover (*Trifolium pratense*), oxeye daisy, ribwort plantain and knapweed, but overall the field is in poor condition. At the southern edge of the field are two ponds, though they appear more like large puddles and have flat, trampled edges with no visible wetland vegetation (Photo MPW6B.4). A moorhen and two mallards were present on the ponds. There are a couple of apple (*Malus sp*.) trees along the boundary with Darton Lane and some hawthorn scrub which is spreading into the field. An old caravan has been left in the edge of the grassland. Cockshot Lane crosses the site from north to south and to the east of the lane the site consists of narrow yards and gardens belonging to the houses along Pye Avenue. They are fenced or walled and many include garages and sheds.

Photo MPW6B.1. Unmanaged grassland to the west

Photo MPW6B.2. Species-rich grassland

Photo MPW6B.3. Area of tall ruderals and swamp

Photo MPW6B.4. Poor semi-improved grassland and pond

Photo MPW6B.5. Poor semi-improved grassland

Species List for MPW6B

DAFOR Scale

D=dominant, A=abundant, F=frequent, O=occasional, R=rare, L=locally, P=present

Unmanaged grassland to west

Trees and shrubs

Sycamore	*Acer pseudoplatanus*	O
Silver Birch	*Betula pendula*	R
Hawthorn	*Crataegus monogyna*	O
Ash	*Fraxinus excelsior*	O
Oak sp.	*Quercus sp.*	R
Rose	*Rosa* sp.	R
Bramble	*Rubus fruticosus* agg.	F

Herbs

Mugwort	*Artemisia vulgaris*	R
Common Knapweed	*Centaurea nigra*	O
Rosebay Willowherb	*Chamerion angustifolium*	O
Creeping Thistle	*Circium arvense*	F
Teasel	*Dipsacus fullonum*	R
Cleavers	*Galium aparine*	O
Hogweed	*Heracleum sphondylium*	O
Meadow Vetchling	*Lathyrus pratensis*	R
Lupin	*Lupinus* sp.	F
Creeping Buttercup	*Ranunculus repens*	O
Broad-leaved Dock	*Rumex obtusifolius*	O
Common Ragwort	*Senecio jacobaea*	R
Comfrey	*Symphytum* sp.	R
Tansy	*Tanacetum vulgare*	R
Dandelion	*Taraxacum* agg.	R
White Clover	*Trifolium repens*	R
Common Nettle	*Urtica dioica*	F
Bush Vetch	*Vicia sepium*	R

Grasses, rushes and sedges

False Oat-grass	*Arrhenatherum elatius*	F
Cock's-foot	*Dactylis glomerata*	F
Fescue sp.	*Festuca sp.*	R

Woodland - west & south

Trees and shrubs

Field Maple	*Acer campestre*	R
Sycamore	*Acer pseudoplatanus*	O
Silver Birch	*Betula pendula*	F
Hawthorn	*Crataegus monogyna*	A
Ash	*Fraxinus excelsior*	R
Honeysuckle	*Lonicera* sp.	R
Blackthorn	*Prunus spinosa*	R
Oak sp.	*Quercus sp.*	O
Rose	*Rosa* sp.	R
Bramble	*Rubus fruticosus* agg.	F
Goat Willow	*Salix capraea*	O
Elder	*Sambucus nigra*	R

Horse fields

Trees and shrubs		
Hawthorn	*Crataegus monogyna*	P
Bramble	*Rubus fruticosus* agg.	P
Herbs		
Lesser Burdock	*Arctium minus*	P
Daisy	*Bellis perennis*	P
Common Knapweed	*Centaurea nigra*	P
Creeping Thistle	*Circium arvense*	P
Oxeye Daisy	*Leucanthemum vulgare*	P
Ribwort Plantain	*Plantago lanceolata*	P
Greater Plantain	*Plantago major*	P
Meadow Buttercup	*Ranunculus acris*	P
Broad-leaved Dock	*Rumex obtusifolius*	P
Dandelion	*Taraxacum* agg.	P
White Clover	*Trifolium repens*	P
Common Nettle	*Urtica dioica*	P
Grasses, rushes and sedges		
Perennial Rye-grass	*Lolium perenne*	P

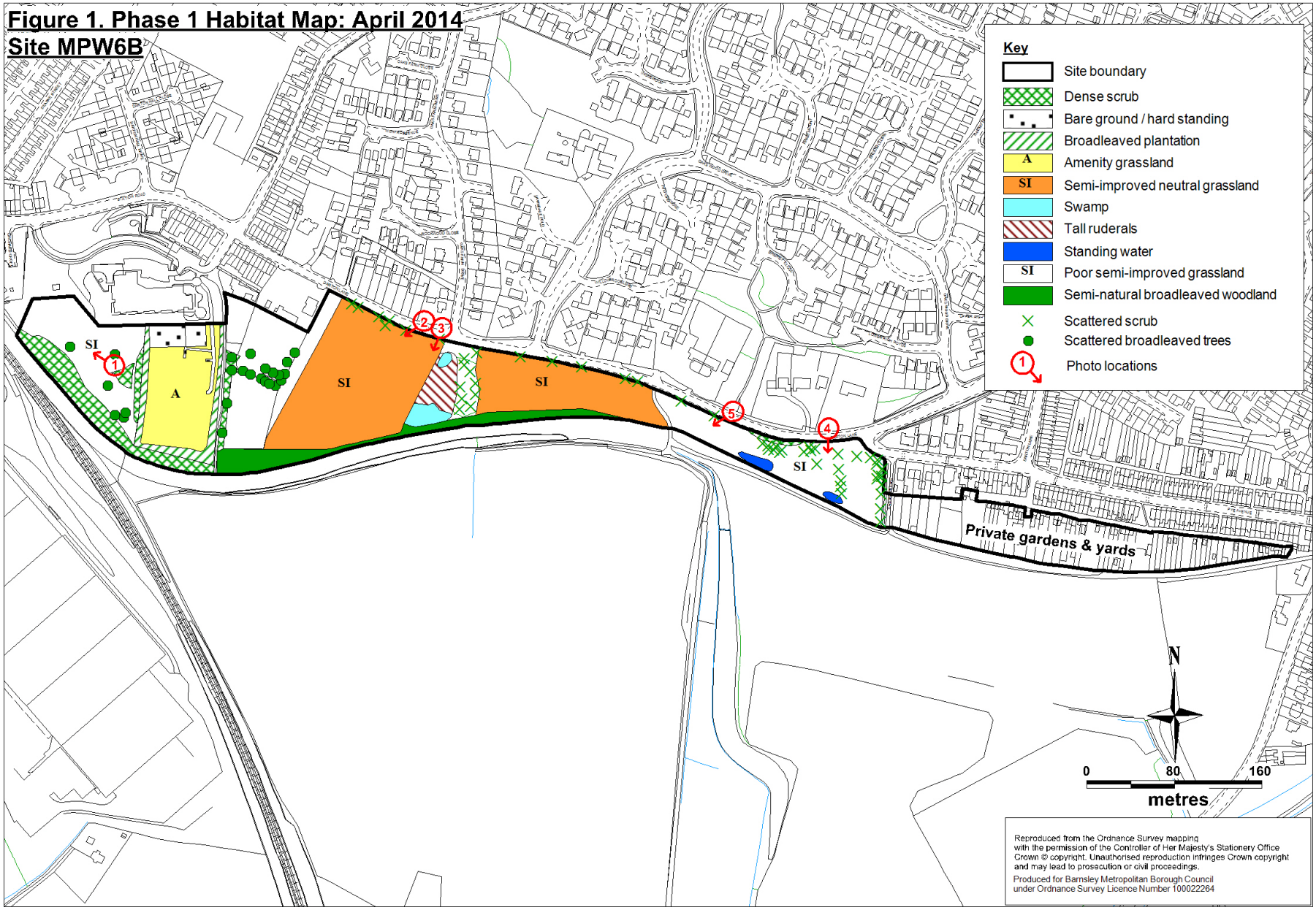
Figure 1. Phase 1 Habitat Map: April 2014
Site MPW6B
Key
Site boundary
Dense scrub
Bare ground / hard standing
Broadleaved plantation
A
Amenity grassland
SI
Semi-improved neutral grassland
Swamp
Tall ruderals
Standing water
SI
Poor semi-improved grassland
Semi-natural broadleaved woodland
Scattered scrub
Scattered broadleaved trees
Photo locations
SI
A
SI
SI
SI
Private gardens & yards
N
0
80
160
metres
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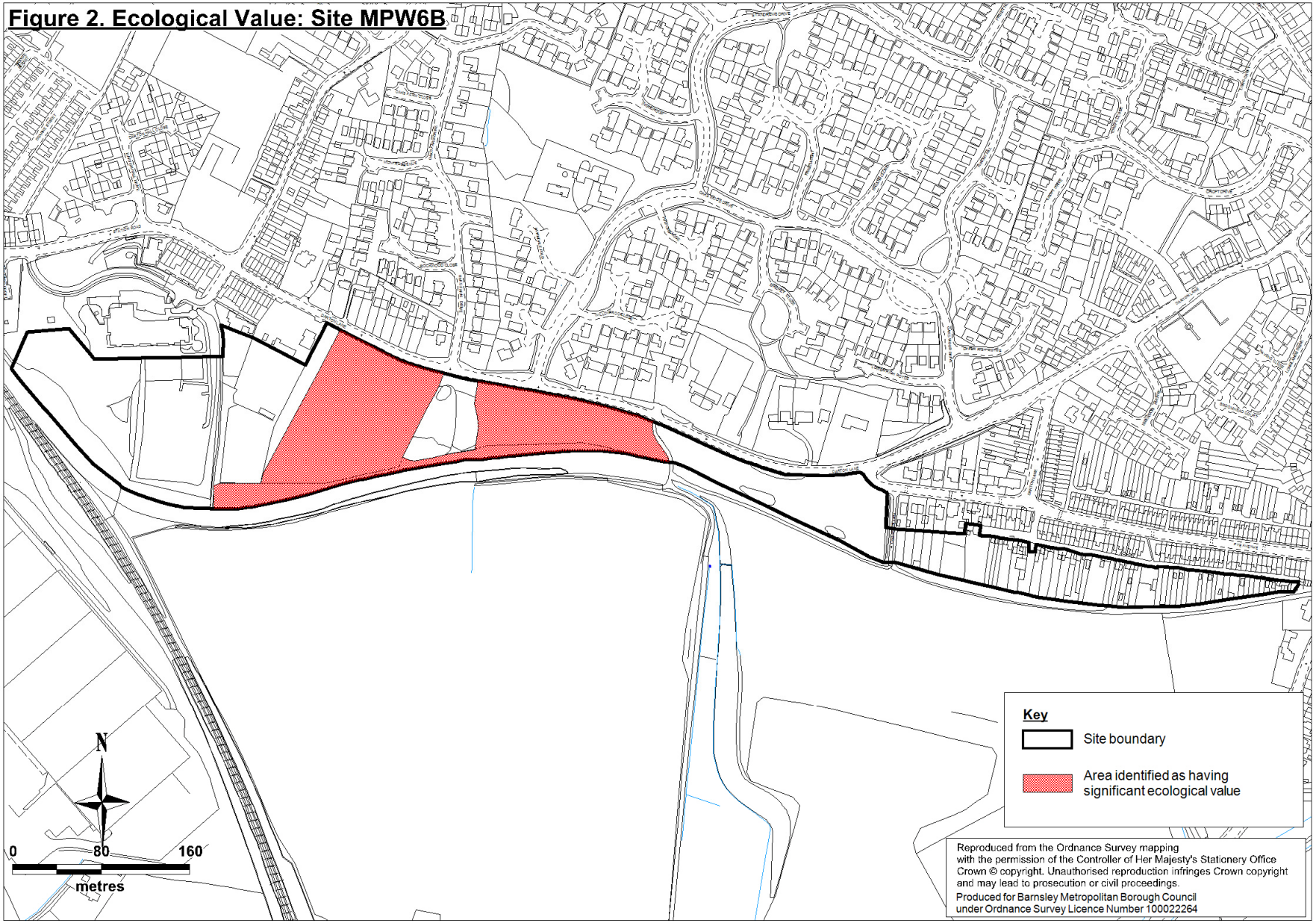


Site MPW6B. Land at Mapplewell

Data Search – Local Records Centre
Notable species recorded within 1km of the site in the last 10 years (2003 – 2014)
A search for badger records has been carried out separately.

Group	Scientific Name	Common Name	Year	Location
amphibian	*Bufo bufo*	Common Toad	2012	Barnsley Canal at Wilthorpe LWS
amphibian	*Bufo bufo*	Common Toad	2012	Barnsley Canal general
amphibian	*Rana temporaria*	Common Frog	2011	Darton pond 4
amphibian	*Triturus cristatus*	Great Crested Newt	2012	Barnsley Canal: E of Low Barugh
amphibian	*Triturus cristatus*	Great Crested Newt	2012	Barnsley Canal at Wilthorpe LWS
amphibian	*Triturus vulgaris*	Smooth Newt	2011	Wilthorpe Marsh
bird	*Alauda arvensis*	Skylark	2007	Wilthorpe
bird	*Alauda arvensis*	Skylark	2010	Wilthorpe Marsh
bird	*Alauda arvensis*	Skylark	2011	Wilthorpe Marsh
bird	*Alcedo atthis*	Kingfisher	2008	Wilthorpe Marsh
bird	*Alcedo atthis*	Kingfisher	2010	Wilthorpe Marsh
bird	*Alcedo atthis*	Kingfisher	2011	Wilthorpe Marsh
bird	*Alcedo atthis*	Kingfisher	2012	River Dearne
bird	*Anas strepera*	Gadwall	2008	Wilthorpe Marsh
bird	*Anas strepera*	Gadwall	2010	Wilthorpe Marsh
bird	*Charadrius dubius*	Little Ringed Plover	2007	Wilthorpe Marsh
bird	*Charadrius dubius*	Little Ringed Plover	2008	Wilthorpe Marsh
bird	*Charadrius dubius*	Little Ringed Plover	2009	Wilthorpe Marsh
bird	*Charadrius dubius*	Little Ringed Plover	2010	Wilthorpe Marsh
bird	*Cuculus canorus*	Cuckoo	2007	Wilthorpe Marsh
bird	*Cuculus canorus*	Cuckoo	2008	Wilthorpe Marsh
bird	*Cuculus canorus*	Cuckoo	2010	Wilthorpe Marsh
bird	*Cuculus canorus*	Cuckoo	2011	Wilthorpe Marsh
bird	*Cuculus canorus*	Cuckoo	2012	Barnsley Canal at Wilthorpe LWS
bird	*Emberiza citrinella*	Yellowhammer	2007	Wilthorpe Marsh
bird	*Emberiza citrinella*	Yellowhammer	2009	Wilthorpe Marsh
bird	*Emberiza citrinella*	Yellowhammer	2010	Wilthorpe Marsh
bird	*Emberiza citrinella*	Yellowhammer	2011	Wilthorpe Marsh

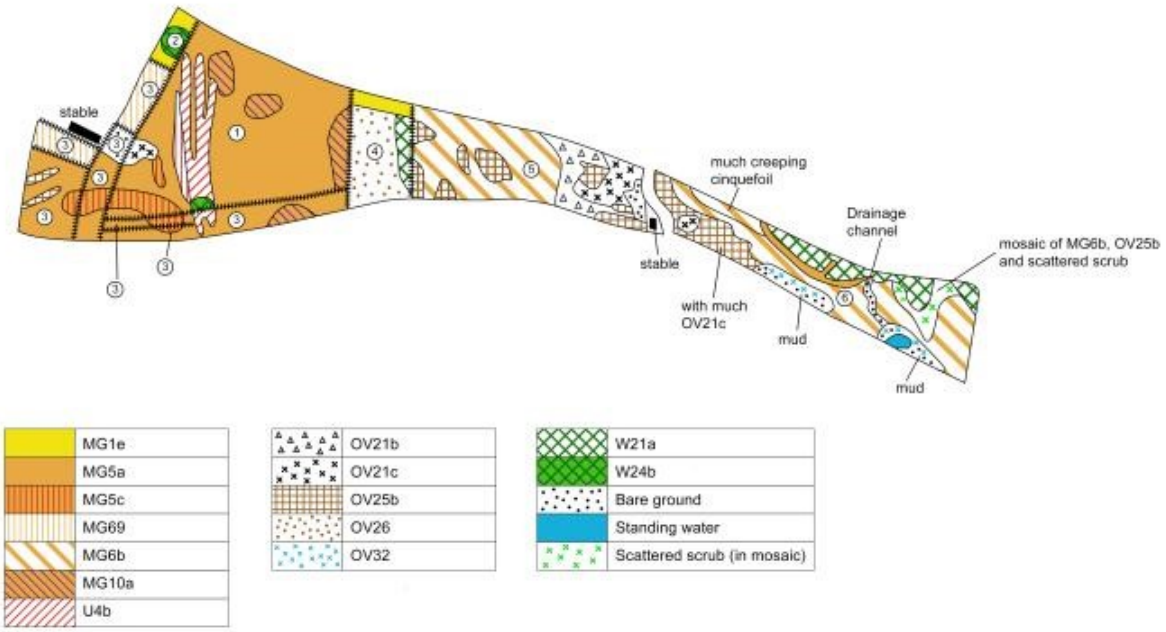
bird	*Emberiza citrinella*	Yellowhammer	2012	Barnsley Canal at Wilthorpe LWS
bird	*Emberiza schoeniclus*	Reed Bunting	2007	Wilthorpe Marsh
bird	*Emberiza schoeniclus*	Reed Bunting	2010	Wilthorpe Marsh
bird	*Emberiza schoeniclus*	Reed Bunting	2011	Wilthorpe Marsh
bird	*Emberiza schoeniclus*	Reed Bunting	2012	Wilthorpe Marsh
bird	*Emberiza schoeniclus*	Reed Bunting	2012	Barnsley Canal at Wilthorpe LWS
bird	*Emberiza schoeniclus*	Reed Bunting	2013	Wilthorpe Marsh
bird	*Falco peregrinus*	Peregrine	2010	Wilthorpe Marsh
bird	*Falco subbuteo*	Hobby	2008	Wilthorpe Marsh
bird	*Falco tinnunculus*	Kestrel	2007	Wilthorpe Marsh
bird	*Falco tinnunculus*	Kestrel	2013	Barugh Green
bird	*Falco tinnunculus*	Kestrel	2013	Darton Sewage Treatment Works
bird	*Gallinago gallinago*	Snipe	2007	Wilthorpe Marsh
bird	*Gallinago gallinago*	Snipe	2008	Wilthorpe Marsh
bird	*Gallinago gallinago*	Snipe	2009	Wilthorpe Marsh
bird	*Gallinago gallinago*	Snipe	2010	Wilthorpe Marsh
bird	*Gallinago gallinago*	Snipe	2011	Wilthorpe Marsh
bird	*Gallinago gallinago*	Snipe	2012	Low Barugh
bird	*Gallinago gallinago*	Snipe	2013	Wilthorpe Marsh
bird	*Larus ridibundus*	Black-Headed Gull	2012	Sewage Works near Swallow Hill
bird	*Larus ridibundus*	Black-Headed Gull	2013	'BARNSLEY MBC'
bird	*Larus ridibundus*	Black-Headed Gull	2013	Wilthorpe Marsh
bird	*Locustella naevia*	Grasshopper Warbler	2007	Wilthorpe Marsh
bird	*Locustella naevia*	Grasshopper Warbler	2008	Wilthorpe Marsh
bird	*Locustella naevia*	Grasshopper Warbler	2009	Wilthorpe Marsh
bird	*Locustella naevia*	Grasshopper Warbler	2010	Wilthorpe Marsh
bird	*Locustella naevia*	Grasshopper Warbler	2011	Wilthorpe Marsh
bird	*Locustella naevia*	Grasshopper Warbler	2012	Barugh Green
bird	*Numenius arquata*	Curlew	2007	Wilthorpe Marsh
bird	*Numenius arquata*	Curlew	2009	Wilthorpe Marsh
bird	*Passer montanus*	Tree Sparrow	2011	Wilthorpe Marsh
bird	*Passer montanus*	Tree Sparrow	2013	Swallow Hill
bird	*Perdix perdix*	Grey Partridge	2007	Wilthorpe Marsh

bird	*Perdix perdix*	Grey Partridge	2009	Wilthorpe Marsh
bird	*Perdix perdix*	Grey Partridge	2010	Wilthorpe Marsh
bird	*Perdix perdix*	Grey Partridge	2011	Wilthorpe Marsh
bird	*Phalacrocorax carbo*	Cormorant	2009	Wilthorpe Marsh
bird	*Phalacrocorax carbo*	Cormorant	2011	Wilthorpe Marsh
bird	*Rallus aquaticus*	Water Rail	2007	Wilthorpe Marsh
bird	*Rallus aquaticus*	Water Rail	2008	Wilthorpe Marsh
bird	*Rallus aquaticus*	Water Rail	2009	Wilthorpe Marsh
bird	*Rallus aquaticus*	Water Rail	2009	'BARNSLEY MBC'
bird	*Rallus aquaticus*	Water Rail	2010	Barnsley Canal at Wilthorpe LWS
bird	*Rallus aquaticus*	Water Rail	2010	Wilthorpe Marsh
bird	*Rallus aquaticus*	Water Rail	2011	Wilthorpe Marsh
bird	*Rallus aquaticus*	Water Rail	2013	Wilthorpe Marsh
bird	*Tringa glareola*	Wood Sandpiper	2008	Wilthorpe Marsh
bird	*Tringa ochropus*	Green Sandpiper	2007	Wilthorpe Marsh
bird	*Tringa ochropus*	Green Sandpiper	2008	Wilthorpe Marsh
bird	*Tringa ochropus*	Green Sandpiper	2009	Wilthorpe Marsh
bird	*Tringa ochropus*	Green Sandpiper	2013	Wilthorpe Marsh
bird	*Tringa ochropus*	Green Sandpiper	2013	Darton Sewage Treatment Works
bird	*Tringa totanus*	Redshank	2008	Wilthorpe Marsh
bird	*Tringa totanus*	Redshank	2009	Wilthorpe Marsh
bird	*Turdus iliacus*	Redwing	2008	Wilthorpe Marsh
bird	*Turdus iliacus*	Redwing	2009	Wilthorpe Marsh
bird	*Turdus iliacus*	Redwing	2009	'BARNSLEY MBC'
bird	*Turdus iliacus*	Redwing	2011	Wilthorpe Marsh
bird	*Turdus iliacus*	Redwing	2013	Barugh Green
bird	*Turdus pilaris*	Fieldfare	2007	Wilthorpe Marsh
bird	*Turdus pilaris*	Fieldfare	2008	Wilthorpe Marsh
bird	*Turdus pilaris*	Fieldfare	2011	Wilthorpe Marsh
bird	*Turdus pilaris*	Fieldfare	2013	Barugh Green
bird	*Turdus pilaris*	Fieldfare	2013	'BARNSLEY MBC'
bird	*Vanellus vanellus*	Lapwing	2007	Wilthorpe Marsh
bird	*Vanellus vanellus*	Lapwing	2007	Wilthorpe Marsh

bird	*Vanellus vanellus*	Lapwing	2008	Wilthorpe Marsh
bird	*Vanellus vanellus*	Lapwing	2009	Wilthorpe Marsh
bird	*Vanellus vanellus*	Lapwing	2009	'BARNSLEY MBC'
bird	*Vanellus vanellus*	Lapwing	2010	Wilthorpe Marsh
bird	*Vanellus vanellus*	Lapwing	2011	Wilthorpe Marsh
bird	*Vanellus vanellus*	Lapwing	2012	Barugh Green
bird	*Vanellus vanellus*	Lapwing	2012	Low Barugh
bird	*Vanellus vanellus*	Lapwing	2012	Barnsley Canal at Wilthorpe LWS
bird	*Vanellus vanellus*	Lapwing	2013	Darton Sewage Treatment Works
bird	*Vanellus vanellus*	Lapwing	2013	Wilthorpe Marsh
bird	*Vanellus vanellus*	Lapwing	2013	Swallow Hill
crustacean	*Austropotamobius pallipes*	Freshwater Crayfish	2012	River Dearne at Dearne Hall Road, Low Barugh
flowering plant	*Hyacinthoides non-scripta*	Bluebell	2005	Darton South-East area
insect - butterfly	*Coenonympha pamphilus*	Small Heath	2011	Wilthorpe Marsh
insect - butterfly	*Erynnis tages*	Dingy Skipper	2011	'BARNSLEY MBC'
insect - moth	*Tyria jacobaeae*	Cinnabar	2013	Mapplewell
terrestrial mammal	*Chiroptera*	Bats	2004	Barugh Green
terrestrial mammal	*Erinaceus europaeus*	Hedgehog	2013	Barugh Green
terrestrial mammal	*Micromys minutus*	Harvest Mouse	2012	Barugh Green
terrestrial mammal	*Pipistrellus pipistrellus 45kHz*	45 Khz Pipistrelle	2013	Barugh Bridge
terrestrial mammal	*Pipistrellus pipistrellus 55kHz*	55 Khz Pipistrelle	2007	Spark Lane

Appendix EDP 4
Land at Staincross, Barnsley - Botanical Survey Map - 2018

Land at Staincross, Barnsley: Botanical Survey (July 2018)



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Appendix EDP 5
NVC Community Descriptions and Floristic Tables for Fields 1 to 6

Field 1

A5.1 Community 1 stands out from the rest of Field 1 primarily due to populations of sheep's sorrel (*Rumex acetosella*) and sheep's fescue (*Festuca ovina*); however, this is a poor example of the **U4b** *Festuca ovina-Agrostis capilalris-Galium saxatile* grassland *Holcus lanatus-Trifolium repens* sub-community as it lacks many of the associated species typical of U4b but is the best approximation to an NVC community/sub-community. This community occupies three small and low parallel ridges in the west of the field which converge into a single ridge in the centre of Field 3.

A5.2 Community 2 occupies the majority of Field 1 and is a good example of an **MG5a** *Cynosurus cristatus-Centaurea nigra* grassland *Lathyrus pratensis* sub-community.

A5.3 Community 3 is scattered throughout the eastern and north-western parts of the field in damper areas and is a moderately good approximation to the **MG10a** *Holcus lanatus-Juncus effusus* rush-pasture. Typical sub-community although the abundance of greater bird's-foot trefoil (*Lotus uliginosus*) here is atypical.

A5.4 Community 4 is present in small discrete areas in the south-west of this field and also straddles the field boundary into Field 3. Sampled across both Fields 1 and 3 this approximates to the **MG5c** *Cynosurus cristatus-Centaurea nigra* grassland *Danthonia decumbens* sub-community.

A5.5 Community 5 is a small area of highly scuffed ground on the western edge of this field and adjacent to the stables. It has a strong resemblance to the **OV21c** *Poa annua-Plantago major* community *Poylgonum aviculare-Ranunculus repens* sub-community.

Table EDP A5.1: Field 1 Community 1

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*	9	5	7	6	6	V (5-9)
Early hair-grass	*Aira praecox*		2				I (2)
Meadow foxtail	*Alopecurus pratensis*		2	1		1	III (1-2)
Crested dog's-tail	*Cynosurus cristatus*		2	1			II (1-2)
Sheep's fescue	*Festuca ovina*	1				3	II (1-3)
Yorkshire fog	*Holcus lanatus*	5	5	4	3	6	V (3-6)
Creeping soft-grass	*Holcus mollis*				2		I (2)
Perennial rye-grass	*Lolium perenne*	2	2		6		III (2-6)
Annual meadow-grass	*Poa annua*	3	2	1		2	IV (1-3)
Black knapweed	*Centaurea nigra*		1	1		1	III (I)
Common mouse-ear	*Cerastium fontanum*	1	1		2		III (1-2)
Beaked hawksbeard	*Crepis capillaris*			1	2		II (1-2)
Common cat's-ear	*Hypochaeris radicata*	1	1		3	2	IV (1-3)

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Bitter vetchling	*Lathyrus linifolius*					5	I (5)
Lesser hawkbit	*Leontodon saxatilis*		2		2	1	III (1-2)
Common bird's-foot trefoil	*Lotus corniculatus*	1	3	5	1	6	V (1-6)
Ribwort	*Plantago lanceolata*		1	5	3	2	IV (1-5)
Greater plantain	*Plantago major*			4	2	2	III (2-4)
Creeping cinquefoil	*Potentilla reptans*		2			2	II (2)
Meadow buttercup	*Ranunculus acris*	2	1	2			III (1-2)
Creeping buttercup	*Ranunculus repens*	2	2	3		5	IV (2-5)
Sheep's sorrel	*Rumex acetosella*	1			2		II (1-2)
Common ragwort	*Senecio jacobaea*				1		I (1)
Lesser trefoil	*Trifolium dubium*					2	I (2)
White clover	*Trifolium repens*	4	5	5	6	3	V (3-6)

Table EDP A5.2: Field 1 Community 2

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*	5	6	3	9	4	V (3-9)
Meadow foxtail	*Alopecurus pratensis*	2	2		1	3	IV (1-3)
Sweet vernal grass	*Anthoxanthum odoratum*	4	6	6	4	3	V (3-6)
Red fescue	*Festuca rubra*	4	5	3	1	6	V (1-6)
Yorkshire fog	*Holcus lanatus*	9	8	9	7	4	V (4-9)
Perennial rye-grass	*Lolium perenne*	3	3	2	5	5	V (2-5)
Rough meadow-grass	*Poa trivialis*	3		4	4	5	IV (3-5)
Daisy	*Bellis perennis*	2		2	3	3	IV (2-3)
Black knapweed	*Centaurea nigra*		4	3	2	5	IV (3-5)
Common mouse-ear	*Cerastium fontanum*	2		1	1		III (1-2)
Common cat's-ear	*Hypochaeris radicata*				1	1	II (1)
Meadow vetchling	*Lathyrus pratensis*	1	3		2		III (1-3)
Common bird's-foot trefoil	*Lotus corniculatus*	6	2	5	6	5	V (2-6)
Ribwort	*Plantago lanceolata*	2	5	1	5	7	V (1-7)
Creeping cinquefoil	*Potentilla reptans*		2			2	II (2)
Meadow buttercup	*Ranunculus acris*	3	1	2			III (1-3)
Creeping buttercup	*Ranunculus repens*		2	3	4	3	IV (2-4)
Sorrel	*Rumex acetosa*	1				1	II (1)
Common ragwort	*Senecio jacobaea*		2	2			II (2)
Lesser stitchwort	*Stellaria graminea*			1		1	II (1)
Red clover	*Trifolium pratense*	7	1		3	5	IV (1-7)
White clover	*Trifolium repens*	2			4	4	III (2-4)

Table EDP A5.3: Field 1 Community 3

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*	5	2	3	4	4	V (2-4)
Creeping bent	*Agrostis stolonifera*		2	4	2		III (2-4)
Marsh foxtail	*Alopecurus geniculatus*		2	2		1	III (1-2)
Meadow foxtail	*Alopecurus pratensis*	4	3		2	3	IV (2-4)
Sweet vernal grass	*Anthoxanthum odoratum*		3	3	2	5	IV (2-5)

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Crested dogs tail	*Cynosurus cristatus*	2	6	5	4	6	V (2-6)
Cock's-foot	*Dactylis glomerata*	1			1		II (1)
Tufted hair-grass	*Deschampsia caespitosa*			2	1		II (1-2)
Meadow fescue	*Festuca pratensis*	4			3	2	III (2-4)
Red fescue	*Festuca rubra*	3	3		2	3	IV (2-3)
Small sweet-grass	*Glyceria declinata*			2		5	II (2-5)
Yorkshire fog	*Holcus lanatus*	5	4	7	7	8	V (4-8)
Perennial rye-grass	*Lolium perenne*	2	4	4	3	2	V (2-4)
Timothy	*Phleum pratense*		2	1		1	III (1-2)
Rough meadow-grass	*Poa trivialis*	4	2	5	6	5	V (2-6)
Hairy sedge	*Carex hirta*				4		I (4)
Oval sedge	*Carex leporina*	1	2		2	4	IV (1-4)
Jointed rush	*Juncus articulatus*	1	2	3	2	3	V (1-3)
Compact rush	*Juncus conglomeratus*	1	2		3	2	VI (1-3)
Soft rush	*Juncus effusus*	2	2			4	III (2-4)
Daisy	*Bellis perennis*			1	2		II (1-2)
Black knapweed	*Centaurea nigra*	2		1	2	4	IV (1-4)
Common mouse-ear	*Cerastium fontanum*	1	1				II (1)
Hoary willowherb	*Epilobium parviflorum*			3		1	II (1-3)
Short-fruited willowherb	*Epilobium obscurum*			1			I (1)
Meadow vetchling	*Lathyrus pratensis*	2	2	5		3	IV (2-5)
Greater birds-foot trefoil	*Lotus uliginosus*	5	7	7	6	7	V (5-7)
Ribwort	*Plantago lanceolata*	3	4	5	3	3	V (3-5)
Greater plantain	*Plantago major*				2	2	II (2)
Silverweed	*Potentilla anserina*			5		2	II (2-5)
Meadow buttercup	*Ranunculus acris*	3		2	2	1	IV (1-3)
Creeping buttercup	*Ranunculus repens*	7	7	8	4	8	V (4-8)
Clustered dock	*Rumex conglomeratus*			2		2	II (2)
Broad-leaved dock	*Rumex obtusifolius*		2				I (2)
Bog stitchwort	*Stellaria graminea*					2	I (2)
Red clover	*Trifolium pratense*	3		3		2	III (2-3)
White clover	*Trifolium repens*	2	2				II (2)

Table EDP 5.4: Field 1 Community 4/Field 3 Community 3

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*	6	2	5	4	4	V (4-9)
Meadow foxtail	*Alopecurus pratensis*		1				I (1)
Sweet vernal grass	*Anthoxanthum odoratum*	6	6	4	2	4	V (2-6)
Meadow fescue	*Festuca pratensis*		1			1	II (1)
Red fescue	*Festuca rubra*	2		5	5	5	IV (2-5)
Yorkshire fog	*Holcus lanatus*	7	4	6	8	6	V (4-8)
Perennial rye-grass	*Lolium perenne*	3	4	1	2	4	V (1-4)
Rough meadow-grass	*Poa trivialis*	2	3	4	2	5	V (2-5)
Glaucous sedge	*Carex flacca*		2			1	II (1-2)
Daisy	*Bellis perennis*	3	3	2	4	1	V (1-4)
Black knapweed	*Centaurea nigra*	5	3	1	5	4	V (1-5)
Common centaury	*Centaurium erythrea*			2			I (2)

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common mouse-ear	*Cerastium fontanum*		1	1		2	III (1-2)
Common cat's-ear	*Hypochaeris radicata*	1		2	1		III (1-2)
Bitter vetch	*Lathyrus linifolius*		2				I (2)
Meadow vetchling	*Lathyrus pratensis*	2		2	1	2	VI (1-2)
Common bird's-foot trefoil	*Lotus corniculatus*	6	7	7	5	5	V (5-7)
Ribwort	*Plantago lanceolata*	2	7	4	5	4	V (2-7)
Creeping cinquefoil	*Potentilla reptans*		2	1		2	III (1-2)
Meadow buttercup	*Ranunculus acris*	2	1	2	3	1	V (1-3)
Creeping buttercup	*Ranunculus repens*		3		2	2	III (2-3)
Sorrel	*Rumex acetosa*	1			1	1	III (1)
Common ragwort	*Senecio jacobaea*			1	1		II (1)
Betony	*Stachys officinalis*				2		I (2)
Lesser stitchwort	*Stellaria graminea*			3	2		II (2-3)
Zigzag clover	*Trifolium medium*				2		I (2)
Red clover	*Trifolium pratense*	5		7	7	6	IV (5-7)
White clover	*Trifolium repens*	4	2	3	4	5	IV (2-5)

Table EDP A5.5: Field 1 Community 5

Common Name	Scientific Name	Quadrats		DOMIN
		1	2	
Common bent	*Agrostis capillaris*	2	4	IV (2-4)
Sweet vernal grass	*Anthoxanthum odoratum*	2		I (2)
Crested dog's-tail	*Cynosurus cristatus*	1	1	III (1)
Cocksfoot	*Dactylis glomerata*		1	I (1)
Red fescue	*Festuca rubra*	2	1	II (1-2)
Perennial rye-grass	*Lolium perenne*	3		II (3)
Annual meadow-grass	*Poa annua*	6	3	V (3-6)
Field horsetail	*Equisetum arvense*	2		II (2)
Daisy	*Bellis perennis*	1	2	III (1-2)
Common mouse-ear	*Cerastium fontanum*		2	II (2)
Fat hen	*Chenopodium album*	4		I (4)
Beaked hawksbeard	*Crepis capillaris*	1	1	II (1)
Common bird's-foot trefoil	*Lotus corniculatus*		2	I (2)
Ribwort	*Plantago lanceolata*	5	5	IV (5)
Greater plantain	*Plantago major*	6	2	V (2-6)
Common knotgrass	*Polygonum aviculare*	2	2	IV (2)
Creeping cinquefoil	*Potentilla reptans*		1	I (1)
Meadow buttercup	*Ranunculus acris*	2		II (2)
Creeping buttercup	*Ranunculus repens*	1	3	IV (1-3)
Common chickweed	*Stellaria media*	1		I (1)
Dandelion	*Taraxacum officinale agg.*	2	2	III (2)
Lesser trefoil	*Trifolium dubium*		1	I (1)
Red clover	*Trifolium pratense*	3		II (3)
White clover	*Trifolium repens*	2	4	III (2-4)
Thyme-leaved speedwell	*Veronica serpyllifolia*		2	I (2)
Bare ground		5	7	V (5-7)

Field 2

A5.6 This small abandoned paddock has a coarse plant community dominated by false oat-grass (*Arrhenatherum elatius*) and includes much bramble (*Rubus fruticosus* agg). The areas where a grassland community predominates are a good approximation to the **MG1e** *Arrhenatherum elatius grassland Centaurea nigra* sub-community. Where bramble predominates, the vegetation shows affinities to the **W24b** *Rubus fruticosus-Holcus lanatus* underscrub community *Arrhenatherum elatius-Heracleum sphondylium* sub-community.

Table EDP A5.6: Field 2 Community 1

Common Name	Scientific Name	NVC Quadrats		DOMIN
		1	2	
Common bent	*Agrostis capillaris*	3	4	IV (3-4)
False oat-grass	*Arrhenatherum elatius*	8	6	V (6-8)
Cocks-foot	*Dactylis glomerata*	3	3	IV (3)
Tufted hair-grass	*Deschampsia caespitosa*		2	II (2)
Red fescue	*Festuca rubra*	1	2	III (2)
Yorkshire fog	*Holcus lanatus*	5	4	V (4-5)
Timothy	*Phleum pratense*		3	III (3)
Black knapweed	*Centaurea nigra*	3		II (3)
Creeping thistle	*Cirsium arvense*	3	6	III (3-6)
Great willowherb	*Epilobium hirsutum*	1	1	II (1)
Hogweed	*Heracleum sphondylium*	4	4	III (4)
Greater bird's-foot trefoil	*Lotus uliginosus*		1	II (1)
Ribwort	*Plantago lanceolata*		2	II (2)
Creeping buttercup	*Ranunculus repens*	6	4	V (4-6)
Bramble	*Rubus fruticosus agg.*	5		II (5)
Sorrel	*Rumex acetosa*	2	2	III (2)
Broad-leaved dock	*Rumex obtusifolius*	1	2	III (1-2)
Hedge woundwort	*Stachys sylvatica*	2		I (2)
Nettle	*Urtica dioica*	2	1	III (1-2)

Table EDP A5.7: Field 2 Community 2

Common Name	Scientific Name	NVC Quadrats		DOMIN
		1	2	
False oat-grass	*Arrhenatherum elatius*	3	4	IV (3-4)
Cocks-foot	*Dactylis glomerata*	4	2	III (2-4)
Yorkshire fog	*Holcus lanatus*	6	2	IV (2-6)
Timothy	*Phleum pratense*	5		III (5)
Black knapweed	*Centaurea nigra*		2	II (2)
Creeping thistle	*Cirsium arvense*	3	3	III (3)
Great willowherb	*Epilobium hirsutum*		2	I (2)
Hogweed	*Heracleum sphondylium*	5	5	IV (5)
Greater bird's-foot trefoil	*Lotus uliginosus*		2	II (2)
Ribwort	*Plantago lanceolata*		1	II (1)
Creeping buttercup	*Ranunculus repens*	3	1	III (1-3)
Bramble	*Rubus fruticosus agg.*	10	8	V (8-10)
Broad-leaved dock	*Rumex obtusifolius*	1	3	II (1-3)

Common Name	Scientific Name	NVC Quadrats		DOMIN
		1	2	
Nettle	*Urtica dioica*	3	1	II (1-3)

Field 3

A5.7 Community 1, covering most of this field subdivided by fencing into nine small units is a moderate approximation to the **MG5a** sub-community although an affinity to the **MG6b** *Lolium perenne-Cynosurus cristatus* grassland *Anthoxanthum odoratum* sub-community could also be argued as this sward is not especially herb-rich.

A5.8 Community 2 comprises two areas of horse latrine where tall ruderal and tall herb vegetation predominates; some neutral grassland herbs show well here too. This is a good approximation to the **OV25b** *Urtica dioica-Cirsium arvense* community *Rumex obtusifolius-Artemesia vulgaruis* sub-community.

A5.9 Community 3 comprises small areas of more species-rich vegetation and these are very similar to similar vegetation in adjacent areas of Field 1, Community 4. Occasional specimens of zigzag clover (*Trifolium medium*), betony (*Stachys officinalis*) and common centaury (*Centaurium erythrea*) are found here and the sward approximates to the **MG5c** *Cynosurus cristatus-Centaurea nigra* grassland *Danthonia decumbens* sub-community.

A5.10 Community 4 is a small area of the **U4b** sub-community which extends down from Field 1.

A5.11 Community 5 comprises a small area of marshy grassland in the south-east of the southernmost paddock and is a fair approximation to the **MG10a** typical sub-community.

A5.12 Community 6 consists of two small paddocks of degraded (pounded and heavily grazed) sward adjacent to the stables. This has most resemblance to an **MG6a** *Lolium perenne-Cynosurus cristatus* grassland Typical sub-community. There are many small areas of bare ground here and some small areas of **OV21c** sub-community.

Table EDP A5.8: Field 3 Community 1

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*	4	6	5	4	4	V (4-6)
Sweet vernal-grass	*Anthoxanthum odoratum*	4	3		3	5	IV (3-5)
Crested dog's-tail	*Cynosurus cristatus*	3	1	2	4	1	IV (1-4)
Red fescue	*Festuca rubra*	2		3	4	3	IV (2-4)
Yorkshire fog	*Holcus lanatus*	2	5		5	2	IV (2-5)
Perennial rye-grass	*Lolium perenne*	4	4	6	5	5	V (4-6)
Annual meadow-grass	*Poa annua*		2	3		2	III (2-3)
Rough meadow-grass	*Poa trivialis*	3		3	5	2	IV (2-5)
Spiked sedge	*Carex spicata*			2		1	II (1-2)
Daisy	*Bellis perennis*		2		2	3	III (2-3)
Black knapweed	*Centaurea nigra*	1	5	4	3	4	V (1-5)
Common centaury	*Centaurium erythrea*		1			1	II (1)

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Creeping thistle	*Cirsium arvense*			1		1	II I1)
Spear thistle	*Cirsium vulgare*				1		I (1)
Beaked hawksbeard	*Crepis capillaris*	2			1	2	III (1-2)
Hogweed	*Heracleum sphondylium*		1			1	II (1)
Ox-eye daisy	*Leucanthemum vulgare*			2	1		II (1-2)
Common bird's-foot trefoil	*Lotus corniculatus*	5	5	3	4	5	V (3-5)
Ribwort	*Plantago lanceolata*	3	2	5	5	5	V (2-5)
Greater plantain	*Plantago major*		1	2	1	1	IV (1-2)
Creeping cinquefoil	*Potentilla reptans*	2		2	3		III (2-3)
Selfheal	*Prunella vulgaris*	1	2	2		3	IV (1-3)
Meadow buttercup	*Ranunculus acris*	4	1	2	1	2	V (1-4)
Creeping buttercup	*Ranunculus repens*	3	3	5	7	7	V (3-7)
Broad-leaved dock	*Rumex obtusifolius*		2			1	II (1-2)
Common ragwort	*Senecio jacobaea*	2		1			II (1-2)
Lesser stitchwort	*Stellaria graminea*		2		2	2	III (2)
Dandelion	*Taraxacum officinale agg.*	1	2		1		III (1-2)
Red clover	*Trifolium pratense*		6	5	1	1	IV (1-6)
White clover	*Trifolium repens*	7	5	8	7	5	V (5-8)

Table EDP A5.9: Field 3 Community 2

Common Name	Scientific Name	Quadrats		DOMIN
		1	2	
Common bent	*Agrostis capillaris*	4	1	III (1-4)
False oat-grass	*Arrhenatherum elatius*	3		II (3)
Crested dog's-tail	*Cynosurus cristatus*		2	II (2)
Cocks-foot	*Dactylis glomerata*	5	1	III (1-5)
Yorkshire fog	*Holcus lanatus*	2	4	IV (2-4)
Perennial rye-grass	*Lolium perenne*	1	6	V (1-6)
Annual meadow-grass	*Poa annua*	3	2	V (2-3)
Rough meadow-grass	*Poa trivialis*	4	4	IV (4)
Yarrow	*Achillea millefoilum*		2	II (2)
Daisy	*Bellis perennis*	2		II (2)
Black knapweed	*Centaurea nigra*	3	4	IV (3-4)
Common mouse-ear	*Cerastium fontanum*		3	II (3)
Fat hen	*Chenopodium album*	1	2	III (1-2)
Creeping thistle	*Cirsium arvense*	4	1	III (1-4)
Spear thistle	*Cirsium vulgare*		1	I (1)
Beaked hawksbeard	*Crepis capillaris*	2	2	III (2)
Hogweed	*Heracleum sphondylium*		2	II (2)
Ox-eye daisy	*Leucanthemum vulgare*	2	2	III (2)
Common bird's-foot trefoil	*Lotus corniculatus*	5	1	IV (1-5)
Redleg	*Persicaria maculosa*		1	I (1)
Ribwort	*Plantago lanceolata*	*4*	*4*	*V (4)*
Greater plantain	*Plantago major*	3		II (3)
Common knotgrass	*Polygonum aviculare*	5		I (5)
Creeping cinquefoil	*Potentilla reptans*	6	5	V (5-6)
Selfheal	*Prunella vulgaris*	2		I (2)
Meadow buttercup	*Ranunculus acris*	2	3	IV (2-3)

Common Name	Scientific Name	Quadrats		DOMIN
		1	2	
Creeping buttercup	*Ranunculus repens*	7	3	V (3-7)
Sorrel	*Rumex acetosa*		3	II (3)
Clustered dock	*Rumex conglomeratus*	1	2	II (1-2)
Broad-leaved dock	*Rumex obtusifolius*	8	9	V (8-9)
Common ragwort	*Senecio jacobaea*		2	II (2)
Common chickweed	*Stellaria media*	2	1	IV (1-2)
Dandelion	*Taraxacum officinale agg.*		4	II (4)
Red clover	*Trifolium pratense*	3	2	IV (2-3)
White clover	*Trifolium repens*	4	4	V (4)
Nettle	*Urtica dioica*		2	I (2)

Table EDP A5.10: Field 3 Community 3/Field 1 Community 4

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*	6	2	5	4	4	V (4-9)
Meadow foxtail	*Alopecurus pratensis*		1				I (1)
Sweet vernal grass	*Anthoxanthum odoratum*	6	6	4	2	4	V (2-6)
Meadow fescue	*Festuca pratensis*		1			1	II (1)
Red fescue	*Festuca rubra*	2		5	5	5	IV (2-5)
Yorkshire fog	*Holcus lanatus*	7	4	6	8	6	V (4-8)
Perennial rye-grass	*Lolium perenne*	3	4	1	2	4	V (1-4)
Rough meadow-grass	*Poa trivialis*	2	3	4	2	5	V (2-5)
Glaucous sedge	*Carex flacca*		2			1	II (1-2)
Daisy	*Bellis perennis*	3	3		2	3	IV (2-3)
Black knapweed	*Centaurea nigra*	5	3	1	5	4	V (1-5)
Common centaury	*Centaurium erythrea*			2			I (2)
Common mouse-ear	*Cerastium fontanum*		1	1		2	III (1-2)
Common cat's-ear	*Hypochaeris radicata*	1		2	1		III (1-2)
Bitter vetch	*Lathyrus linifolius*		2				I (2)
Meadow vetchling	*Lathyrus pratensis*	2		2	1	2	VI (1-2)
Common bird's-foot trefoil	*Lotus corniculatus*	6	7	7	5	5	V (5-7)
Ribwort	*Plantago lanceolata*	2	7	4	5	4	V (2-7)
Creeping cinquefoil	*Potentilla reptans*		2	1		2	III (1-2)
Meadow buttercup	*Ranunculus acris*	2	1	2	3	1	V (1-3)
Creeping buttercup	*Ranunculus repens*		3		2	2	III (2-3)
Sorrel	*Rumex acetosa*	1			1	1	III (1)
Common ragwort	*Senecio jacobaea*			1	1		II (1)
Betony	*Stachys officinalis*				2		I (2)
Lesser stitchwort	*Stellaria graminea*			3	2		II (2-3)
Zigzag clover	*Trifolium medium*				2		I (2)
Red clover	*Trifolium pratense*	5		7	7	6	IV (5-7)
White clover	*Trifolium repens*	4	2	3	4	5	IV (2-5)

Table EDP A5.11: Field 3 Community 4/Field 1 Community 1

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*	9	5	7	6	6	V (5-9)
Early hair-grass	*Aira praecox*		2				I (2)

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Meadow foxtail	*Alopecurus pratensis*		2	1		1	III (1-2)
Crested dog's-tail	*Cynosurus cristatus*		2	1			II (1-2)
Sheep's fescue	*Festuca ovina*	1				3	II (1-3)
Yorkshire fog	*Holcus lanatus*	5	5	4	3	6	V (3-6)
Creeping soft-grass	*Holcus mollis*				2		I (2)
Perennial rye-grass	*Lolium perenne*	2	2		6		III (2-6)
Annual meadow-grass	*Poa annua*	3	2	1		2	IV (1-3)
Black knapweed	*Centaurea nigra*		1	1		1	III (I)
Common mouse-ear	*Cerastium fontanum*	1	1		2		III (1-2)
Beaked hawksbeard	*Crepis capillaris*			1	2		II (1-2)
Common cat's-ear	*Hypochaeris radicata*	1	1		3	2	IV (1-3)
Bitter vetchling	*Lathyrus linifolius*					5	I (5)
Lesser hawkbit	*Leontodon saxatilis*		2		2	1	III (1-2)
Common bird's-foot trefoil	*Lotus corniculatus*	1	3	5	1	6	V (1-6)
Ribwort	*Plantago lanceolata*		1	5	3	2	IV (1-5)
Greater plantain	*Plantago major*			4	2	2	III (2-4)
Creeping cinquefoil	*Potentilla reptans*		2			2	II (2)
Meadow buttercup	*Ranunculus acris*	2	1	2			III (1-2)
Creeping buttercup	*Ranunculus repens*	2	2	3		5	IV (2-5)
Sheep's sorrel	*Rumex acetosella*	1			2		II (1-2)
Common ragwort	*Senecio jacobaea*				1		I (1)
Lesser trefoil	*Trifolium dubium*					2	I (2)
White clover	*Trifolium repens*	4	5	5	6	3	V (3-6)

Table EDP A5.12: Field 3 Community 5/Field F1 Community 3

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*	5	2	3	4	4	V (2-4)
Creeping bent	*Agrostis stolonifera*		2	4	2		III (2-4)
Marsh foxtail	*Alopecurus geniculatus*		2	2		1	III (1-2)
Meadow foxtail	*Alopecurus pratensis*	4	3		2	3	IV (2-4)
Sweet vernal grass	*Anthoxanthum odoratum*		3	3	2	5	IV (2-5)
Crested dogs tail	*Cynosurus cristatus*	2	6	5	4	6	V (2-6)
Cock's-foot	*Dactylis glomerata*	1			1		II (1)
Tufted hair-grass	*Deschampsia caespitosa*			2	1		II (1-2)
Meadow fescue	*Festuca pratensis*	4			3	2	III (2-4)
Red fescue	*Festuca rubra*	3	3		2	3	IV (2-3)
Small sweet-grass	*Glyceria declinata*			2		5	II (2-5)
Yorkshire fog	*Holcus lanatus*	5	4	7	7	8	V (4-8)
Perennial rye-grass	*Lolium perenne*	2	4	4	3	2	V (2-4)
Timothy	*Phleum pratense*		2	1		1	III (1-2)
Rough meadow-grass	*Poa trivialis*	4	2	5	6	5	V (2-6)
Hairy sedge	*Carex hirta*				4		I (4)
Oval sedge	*Carex leporina*	1	2		2	4	IV (1-4)
Jointed rush	*Juncus articulatus*	1	2	3	2	3	V (1-3)
Compact rush	*Juncus conglomeratus*	1	2		3	2	VI (1-3)
Soft rush	*Juncus effusus*	2	2			4	III (2-4)
Daisy	*Bellis perennis*			1	2		II (1-2)

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Black knapweed	*Centaurea nigra*	2		1	2	4	IV (1-4)
Common mouse-ear	*Cerastium fontanum*	1	1				II (1)
Hoary willowherb	*Epilobium parviflorum*			3		1	II (1-3)
Short-fruited willowherb	*Epilobium obscurum*			1			I (1)
Meadow vetchling	*Lathyrus pratensis*	2	2	5		3	IV (2-5)
Greater birds-foot trefoil	*Lotus uliginosus*	5	7	7	6	7	V (5-7)
Ribwort	*Plantago lanceolata*	3	4	5	3	3	V (3-5)
Greater plantain	*Plantago major*				2	2	II (2)
Silverweed	*Potentilla anserina*			5		2	II (2-5)
Meadow buttercup	*Ranunculus acris*	3		2	2	1	IV (1-3)
Creeping buttercup	*Ranunculus repens*	7	7	8	4	8	V (4-8)
Clustered dock	*Rumex conglomeratus*			2		2	II (2)
Broad-leaved dock	*Rumex obtusifolius*		2				I (2)
Bog stitchwort	*Stellaria graminea*					2	I (2)
Red clover	*Trifolium pratense*	3		3		2	III (2-3)
White clover	*Trifolium repens*	2	2				II (2)

Table EDP A5.13: Field 3 Community 6

Common name	Scientific name	Quadrats			DOMIN
		1	2	3	
Common bent	*Agrostis capillaris*	4	6	6	V (4-6)
Sweet vernal grass	*Anthoxanthum odoratum*		2	2	II (2)
Crested dog's-tail	*Cynosurus cristatus*	5	2	4	V (2-5)
Cocks-foot	*Dactylis glomerata*		2	2	III (2)
Red fescue	*Festuca rubra*	6	2	4	V (2-6)
Yorkshire fog	*Holcus lanatus*	3	6	5	V (3-6)
Perennial rye-grass	*Lolium perenne*	4	5	2	V (2-5)
Annual meadow-grass	*Poa annua*	3	3	2	V (2-3)
Rough meadow-grass	*Poa trivialis*			2	I (2)
Yarrow	*Achillea millefoilum*			1	I (1)
Daisy	*Bellis perennis*	3		3	III (3)
Black knapweed	*Centaurea nigra*	1	4	3	IV (1-4)
Creeping thistle	*Cirsium arvense*	2			I (2)
Beaked hawksbeard	*Crepis capillaris*		2	1	II (1-2)
Common catsear	*Hypochaeris radicata*		2		II (2)
Ox-eye daisy	*Leucanthemum vulgare*			2	II (2)
Common bird's-foot trefoil	*Lotus corniculatus*		3	4	III (3-4)
Ribwort	*Plantago lanceolata*	3		4	III (3-4)
Greater plantain	*Plantago major*	4	2	5	IV (2-5)
Common knotgrass	*Polygonum aviculare*	4	4	6	IV (4-6)
Creeping cinquefoil	*Potentilla reptans*	4		1	II (1-4)
Selfheal	*Prunella vulgaris*		3	4	III (3-4)
Meadow buttercup	*Ranunculus acris*	4	4	4	V (4)
Creeping buttercup	*Ranunculus repens*	6	7	4	V (4-7)
Broad-leaved dock	*Rumex obtusifolius*	3			II (3)
Common ragwort	*Senecio jacobaea*	2		1	III (1-2)
Common chickweed	*Stellaria media*	3			I (3)
Dandelion	*Taraxacum officinale agg*		2	2	III (2)

Common name	Scientific name	Quadrats			DOMIN
		1	2	3	
Lesser trefoil	*Trifolium dubium*			3	I (3)
Red clover	*Trifolium pratense*	2	2		II (2)
White clover	*Trifolium repens*		2	2	III (2)
Thyme-leaved speedwell	*Veronica sepryllifolia*	3	1		III (1-3)
Bare ground		3	2	5	IV (2-5)

Field 4

A5.13 As this area was unsafe to enter, only vegetation visible from outside the area's fences was recorded. Great willowherb (*Epilobium hirsutum*) was overwhelmingly dominant and greater reed-mace (*Typha latifolia*) was frequent but scattered. This tall herb vegetation equates to an **OV26** *Epilobium hirsutum* community.

A5.14 An area of mature scrub on the eastern side of this field resembles the **W21a** *Crataegus monogyna-Hedera helix* scrub *Hedera helix-Urtica dioica* sub-community. It is species-poor and merges into the OV26.

A5.15 There is also a narrow band of unmanaged grassland in the north of this field which appeared to have a good approximation to the **MG1e** *Arrhenatherum elatius* grassland *Centaurea nigra* sub-community.

Table EDP A5.14: Field 4 DAFOR score

Common Name	Scientific Name	DAFOR
False oat-grass	*Arrhenatherum elatius*	O
Creeping thistle	*Cirsium arvense*	R
Hemlock	*Conium maculatum*	R
Tufted hair-grass	*Deschampsia caespitosa*	O
Great willowherb	*Epilobium hirsutum*	D
Horsetail species	*Equisetum sp.*	F
Goosegrass	*Galium aparine*	F
Hogweed	*Heracleum sphondylium*	R
Soft rush	*Juncus effusus*	R
Greater bird's-foot trefoil	*Lotus uliginosus*	O / LF
Creeping buttercup	*Ranunculus repens*	O / LF
Clustered dock	*Rumex conglomeratus*	R
Broad-leaved dock	*Rumex obtusifolius*	O
Common ragwort	*Senecio jacobaea*	O
Common reed-mace	*Typha latifolia*	O / LF
Nettle	*Urtica dioica*	O

Field 5

A5.16 Community 1 occupies the bulk of this very tightly grazed field and is an **MG6b** sub-community of limited botanical interest.

A5.17 Community 2 comprises several large areas of horse latrines throughout the field and which are dominated by tall ruderal species. This is closest to the **OV25b** sub-community.

A5.18 Community 3 is located in east of the field where there are heavily poached areas with a sparse sward; this is typical of the **OV21c** sub-community.

A5.19 Community 4 is also situated in the east of the field and is an ephemeral/short perennial community with much bare ground. This is the **OV21b** *Poa annua-Plantago major* community *Lolium perenne* sub-community.

Table EDP A5.15: Field 5 Community 1

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*	6	2	6	6	5	V (2-6)
Meadow foxtail	*Alopecurus pratensis*			2		1	II (1-2)
Sweet vernal grass	*Anthoxanthum odoratum*	1	1		4	3	VI (1-4)
False oat-grass	*Arrhenatherum elatius*			2	1		II (1-2)
Soft brome	*Bromus hordaceus*	3					I (3)
Crested dog's-tail	*Cynosurus cristatus*	2	6	5		3	V (2-6)
Cocks-foot	*Dactylis glomerata*			2	3	3	III (2-3)
Tall fescue	*Festuca arundinacea*			3			I (3)
Red fescue	*Festuca rubra*	4	2	2	3		IV (2-4)
Yorkshire fog	*Holcus lanatus*	6	8	4	7	4	V (4-8)
Perennial rye-grass	*Lolium perenne*	1	1	4	3	2	V (1-4)
Small catstail	*Phleum bertolonii*					2	I (2)
Annual meadow-grass	*Poa annua*	4	4	1	5	4	V (1-5)
Smooth meadow-grass	*Poa pratensis*		2				I (2)
Rough meadow-grass	*Poa trivialis*	5	3		3	4	IV (3-5)
Yarrow	*Achillea millefoilum*			1	1	2	III (1-2)
Daisy	*Bellis perennis*		2		2		II (2)
Black knapweed	*Centaurea nigra*	3	1	4	2	2	V (1-4)
Common mouse-ear	*Cerastium fontanum*				2	2	II (2)
Creeping thistle	*Cirsium arvense*			2	2		II (2)
Hogweed	*Heracleum sphondylium*			1		1	II (1)
Common catsear	*Hypochaeris radicata*		1		2	3	III (1-3)
Ox-eye daisy	*Leucanthemum vulgare*	1			3		II (1-3)
Common bird's-foot trefoil	*Lotus corniculatus*	4	5		2	5	IV (2-5)
Ribwort	*Plantago lanceolata*	8	5	7	2	4	V (2-8)
Greater plantain	*Plantago major*	1		2	5	3	IV (1-5)
Common knotgrass	*Polygonum aviculare*	2				2	II (2)
Creeping cinquefoil	*Potentilla reptans*		2		4	4	III (2-4)
Selfheal	*Prunella vulgaris*		4	5	3	3	IV (3-5)
Meadow buttercup	*Ranunculus acris*		4		1	1	III (1-4)
Creeping buttercup	*Ranunculus repens*	2	6	7	5	6	V (2-7)
Sorrel	*Rumex acetosa*	1			1	1	III (1)
Broad-leaved dock	*Rumex obtusifolius*	3			2		II (2)
Common ragwort	*Senecio jacobaea*	2	2	2			III (2)
Common chickweed	*Stellaria media*						II (1)
Dandelion	*Taraxacum officinale agg*		2	5	2		III (2-5)

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Lesser trefoil	*Trifolium dubium*	3			1	1	III (1-3)
Red clover	*Trifolium pratense*						IV (1-5)
White clover	*Trifolium repens*	3	6	3	4	4	V (3-6)
Thyme-leaved speedwell	*Veronica sepryllifolia*				2	2	II (2)

Table EDP A5.16: Field 5 Community 2

Common Name	Scientific Name	Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*	3			2	3	III (2-3)
False oat-grass	*Arrhenatherum elatius*	3	3		2		III (2-3)
Crested dog's-tail	*Cynosurus cristatus*	1	2	2		2	IV (1-2)
Cocks-foot	*Dactylis glomerata*		2	3	3	1	IV (1-3)
Yorkshire fog	*Holcus lanatus*	3	7	2	6	5	V (2-7)
Perennial rye-grass	*Lolium perenne*	4		2	6		III (2-6)
Annual meadow-grass	*Poa annua*	1	2			2	III (1-2)
Rough meadow-grass	*Poa trivialis*	5	6	2	5	3	V (2-6)
Yarrow	*Achillea millefoilum*	2	3		3	3	IV (3)
Mugwort	*Artemesia vulgaris*				2		I (2)
Daisy	*Bellis perennis*		2				I (2)
Black knapweed	*Centaurea nigra*	3		1	3	2	IV (1-3)
Common mouse-ear	*Cerastium fontanum*		2		1	1	III (1-2)
Fat hen	*Chenopodium album*		2	1			II (1-2)
Creeping thistle	*Cirsium arvense*	5	4	2		5	IV (2-5)
Spear thistle	*Cirsium vulgare*	2	3				II (2-3)
Beaked hawksbeard	*Crepis capillaris*			1	1	1	III (1)
Hogweed	*Heracleum sphondylium*	2		1	2	3	IV (1-2)
Ox-eye daisy	*Leucanthemum vulgare*		3		2		II (2-3)
Common bird's-foot trefoil	*Lotus corniculatus*	4			4	4	III (4)
Redleg	*Persicaria maculosa*	1	1	1			III (1)
Ribwort	*Plantago lanceolata*	4	3		5	5	IV (3-5)
Greater plantain	*Plantago major*	1	2	2	3		IV (1-3)
Common knotgrass	*Polygonum aviculare*				3	2	II (2-3)
Creeping cinquefoil	*Potentilla reptans*	4	7	6	2	2	V (2-7)
Selfheal	*Prunella vulgaris*		3	5	2	3	IV (2-5)
Meadow buttercup	*Ranunculus acris*	2	1	2	1	2	V (1-2)
Creeping buttercup	*Ranunculus repens*	4	3	5	5	5	V (3-5)
Sorrel	*Rumex acetosa*	2	1		2		III (1-2)
Clustered dock	*Rumex conglomeratus*	4	2			4	III (2-4)
Curled dock	*Rumex crispus*		2			2	II (2)
Broad-leaved dock	*Rumex obtusifolius*	7	5	8	4	9	V (4-9)
Common ragwort	*Senecio jacobaea*	3		4	4	3	IV (3-4)
Common chickweed	*Stellaria media*	2	2	1	3	1	V (1-3)
Dandelion	*Taraxacum officinale agg.*	1		3	4	2	IV (1-4)
Lesser trefoil	*Trifolium dubium*				2	1	II (1-2)
Red clover	*Trifolium pratense*			2	3	2	III (2-3)
White clover	*Trifolium repens*	6	7	3	1	6	V (1-7)
Nettle	*Urtica dioica*	5		4	4	3	IV (3-5)

Table EDP A5.17: Field 5 Community 3/Field 6 Community 2

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*	3					I (3)
Sweet vernal grass	*Anthoxanthum odoratum*		2		1		II (1-2)
Crested dog's-tail	*Cynosurus cristatus*				2	1	II (1-2)
Perennial rye-grass	*Lolium perenne*	4	3	3	4	3	V (3-4)
Annual meadow-grass	*Poa annua*	5	1	4	5		IV (1-5)
Smooth meadow-grass	*Poa pratensis*		3		3	3	III (3)
Rough meadow-grass	*Poa trivialis*	5			4	2	III (2-5)
Yarrow	*Achillea millefoilum*		3	3			II (3)
Daisy	*Bellis perennis*				3	5	II (3-5)
Black knapweed	*Centaurea nigra*	2					I (2)
Common mouse-ear	*Cerastium fontanum*	1				1	II (1)
Beaked hawksbeard	*Crepis capillaris*		2			3	II (2-3)
Ox-eye daisy	*Leucanthemum vulgare*				2	2	II (2)
Common bird's-foot trefoil	*Lotus corniculatus*					2	I (2)
Ribwort	*Plantago lanceolata*			2		5	II (2-5)
Greater plantain	*Plantago major*	8	4	7	8	6	V (4-8)
Common knotgrass	*Polygonum aviculare*	4			3	3	III (3-4)
Creeping cinquefoil	*Potentilla reptans*	1	1	5	7	5	V (1-7)
Selfheal	*Prunella vulgaris*	6			3		II (3-6)
Meadow buttercup	*Ranunculus acris*	2	4	3	4	2	V (2-4)
Creeping buttercup	*Ranunculus repens*	2	6	4	2	3	V (2-6)
Clustered dock	*Rumex conglomeratus*		2			2	II (2)
Procumbent pearlwort	*Sagina procumbens*		2				I (2)
Common ragwort	*Senecio jacobaea*	1	1				II (1)
Common chickweed	*Stellaria media*	1		1		2	III (1-2)
Dandelion	*Taraxacum officinale agg.*		1	1	2	1	IV (1-2)
Lesser trefoil	*Trifolium dubium*					1	I (1)
Red clover	*Trifolium pratense*				2		I (2)
White clover	*Trifolium repens*	6	7	4	7	2	V (2-7)
Thyme-leaved speedwell	*Veronica serpyllifolia*		2			2	II (1-2)
Bare ground		6	8	5	4	6	V (4-8)

Table EDP A5.18: Field 5 Community 4

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*					2	I (2)
Perennial rye-grass	*Lolium perenne*		3	3	2	2	IV (2-3)
Annual meadow-grass	*Poa annua*	5	7	3	5	5	V (3-7)
Smooth meadow-grass	*Poa pratensis*			4	2		II (2-4)
Rough meadow-grass	*Poa trivialis*	2	2			1	III (1-2)
Yarrow	*Achillea millefoilum*					1	I (1)
Daisy	*Bellis perennis*				2		I (2)
Shepherd's purse	*Capsella bursa-pastoralis*	1		2	1	1	IV (1-2)
Common mouse-ear	*Cerastium fontanum*	2		2	1	1	IV (1-2)
Fat hen	*Chenopodium album*		2		1	2	III (1-2)
Redleg	*Persicaria maculosa*			1		1	II (1)
Ribwort	*Plantago lanceolata*	2					I (2)

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Greater plantain	*Plantago major*	4	6	5	7	4	V (4-7)
Common knotgrass	*Polygonum aviculare*	7	4	5	8	6	V (4-8)
Creeping cinquefoil	*Potentilla reptans*			3	4		II (3-4)
Selfheal	*Prunella vulgaris*		1				I (1)
Creeping buttercup	*Ranunculus repens*	3	2	3	4	4	V (2-4)
Clustered dock	*Rumex conglomeratus*	1					I (1)
Broad-leaved dock	*Rumex obtusifolius*		3		2	2	III (2-3)
Procumbent pearlwort	*Sagina procumbens*			1	1		II (1)
Common ragwort	*Senecio jacobaea*				2	1	II (1-2)
Common chickweed	*Stellaria media*	2	2				II (2)
Dandelion	*Taraxacum officinale agg.*	1	2		2		II (1-2)
Lesser trefoil	*Trifolium dubium*			1			I (1)
White clover	*Trifolium repens*	3				2	II (2-3)
Thyme-leaved speedwell	*Veronica serpyllifolia*			2	2	2	III (2)
Bare ground		7	7	5	6	8	V (5-8)

Field 6

A5.20 This is the most complex of the fields subject to survey and is also very heavily grazed with significant areas of bare and heavily poached ground. Scrub dominated by hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*) and elder (*Sambucus nigra*) is frequent in the northern half of the field in both dense and scattered forms.

A5.21 Community 1 forms the majority of the intact grassland sward in this field and is a moderately species-diverse semi-improved neutral grassland sward that is fairly typical of the **MG6b** sub-community. However, there is much bare ground and a significant proportion of tall ruderal species here due to overgrazing and pounding by horses.

A5.22 Community 2 comprises the heavily pounded areas around the south-western part of the field and is a good approximation to the **OV21c** sub-community.

A5.23 Community 3 comprises a large part of the south-western corner of this field and is dominated by tall ruderal vegetation but also supports ephemeral/short perennial vegetation and has much bare ground. This is a difficult community to assign but seems to be closest to the **OV25b** sub-community.

A5.24 Community 4 is a relatively species-rich grassland but restricted to a very narrow band in the north of the field. It is a relatively good approximation to the **MG5a** sub-community.

A5.25 Community 5 is the narrow strip of vegetation around the edges of the two pools and was too fragmentary to be subject to an NVC survey but a DAFOR survey demonstrated that it has an affinity to the **OV32** *Myosotis scorpioides-Ranunculus scleratus* community although a heavily degraded and impoverished version of it.

A5.26 There is also an area in the north-east of the field where transitional habitat is present that incorporates elements of semi-improved neutral grassland (**MG6**) and an undetermined tall herb community (too fragmentary to undertake quadrat survey), to scattered scrub. Hemlock (*Conium maculatum*) is locally common here.

A5.27 The north-eastern fringe of the field also supports a very species-poor area of dense scrub that approximates to the **W21a** sub-community.

A5.28 Along the western half of the field's northern boundary there is a very narrow band (1-1.5m wide) of **MG6** vegetation dominated by creeping cinquefoil (*Potentilla reptans*) with small quantities of common bird's-foot trefoil (*Lotus corniculatus*), lesser trefoil (*Trifolium dubium*), meadow vetchling (*Lathyrus pratensis*), germander speedwell (*Veronica chamaedrys*), and bush vetch (*Vicia sepium*). This area was too small and too atypical to be subject to NVC survey.

Table EDP A5.19: Field 6 Community 1

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*	3	1	2	5		IV (1-5)
Sweet vernal grass	*Anthoxanthum odoratum*	2	3		2	2	IV (2-3)
Crested dog's-tail	*Cynosurus cristatus*		3	3			II (3)
Cocks-foot	*Dactylis glomerata*					1	I (1)
Red fescue	*Festuca rubra*	1	1	3			III (1-3)
Yorkshire fog	*Holcus lanatus*	2		3	2	2	IV (2-3)
Perennial rye-grass	*Lolium perenne*	4	1	1	2	1	V (1-4)
Annual meadow-grass	*Poa annua*		3	4	1	2	IV 1-4)
Rough meadow-grass	*Poa trivialis*				2	1	II (1-2)
Yarrow	*Achillea millefoilum*		2	1		2	III (1-2)
Lesser burdock	*Arctium minus*		2	2			II (2)
Daisy	*Bellis perennis*	3	2	1	3	3	V (1-3)
Black knapweed	*Centaurea nigra*		2	1		1	III (1-2)
Common mouse-ear	*Cerastium fontanum*	1	1				II (1)
Creeping thistle	*Cirsium arvense*	1	4	4		2	IV (1-4)
Spear thistle	*Cirsium vulgare*	2		1	1		III (1-2)
Common teasel	*Dispacus fullonum*		1			2	II (1-2)
Lady's bedstraw	*Galium verum*				2		I (2)
Hogweed	*Heracleum sphondylium*			2	1	1	III (1-2)
Meadow vetchling	*Lathyrus pratensis*	1		4			II (1-4)
Ox-eye daisy	*Leucanthemum vulgare*			2	1	2	III (1-2)
Common bird's-foot trefoil	*Lotus corniculatus*	3			2	1	III (2-3)
Ribwort	*Plantago lanceolata*	1	1	4	2	4	V (1-4)
Greater plantain	*Plantago major*		4		2	2	III (2-4)
Common knotgrass	*Polygonum aviculare*		3	3			II (3)
Creeping cinquefoil	*Potentilla reptans*	7	3	7	5	8	V (3-8)
Selfheal	*Prunella vulgaris*			1	1	1	III (1)
Meadow buttercup	*Ranunculus acris*	1		3	1	1	IV (1-3)
Creeping buttercup	*Ranunculus repens*	6	6	3	4	7	V (3-7)
Sorrel	*Rumex acetosa*			2		2	II (2)
Curled dock	*Rumex crispus*		4		2		II (2-4)

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Broad-leaved dock	*Rumex obtusifolius*	3	1	2	3	1	V (1-3)
Common ragwort	*Senecio jacobaea*	3	3	2	1	1	V (1-3)
Common chickweed	*Stellaria media*	2			2	1	III (1-2)
Dandelion	*Taraxacum officinale agg.*		2	2	2	4	IV (2-4)
Lesser trefoil	*Trifolium dubium*	2			2	1	III (1-2)
White clover	*Trifolium repens*	6	2	4	3	3	V (2-6)
Nettle	*Urtica dioica*		2		1	3	III (1-3)
Germander speedwell	*Veronica chamaedrys*	2					I (2)
Bush vetch	*Vicia sepium*			1		2	II (1-2)
Bare ground		2	5	2	4	4	V (2-5)

Table EDP A5.20: Field 6 Community 2/Field 5 Community 3

Common Name	Scientific Name	NVC Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*	3					I (3)
Sweet vernal grass	*Anthoxanthum odoratum*		2		1		II (1-2)
Crested dog's-tail	*Cynosurus cristatus*				2	1	II (1-2)
Yorkshire fog	*Holcus lanatus*		2	2			II (2)
Perennial rye-grass	*Lolium perenne*	4	3	3	4	3	V (3-4)
Annual meadow-grass	*Poa annua*	5	1	4	5		IV (1-5)
Smooth meadow-grass	*Poa pratensis*		3		3	3	III (3)
Rough meadow-grass	*Poa trivialis*	5			4	2	III (2-5)
Yarrow	*Achillea millefoilum*		3	3			II (3)
Daisy	*Bellis perennis*				3	5	II (3-5)
Black knapweed	*Centaurea nigra*	2					I (2)
Common mouse-ear	*Cerastium fontanum*	1				1	II (1)
Beaked hawksbeard	*Crepis capillaris*		2			3	II (2-3)
Common teasel	*Dispacus fullonum*			2	2		II (2)
Ox-eye daisy	*Leucanthemum vulgare*				2	2	II (2)
Common bird's-foot trefoil	*Lotus corniculatus*					2	I (2)
Ribwort	*Plantago lanceolata*			2		5	II (2-5)
Greater plantain	*Plantago major*	8	4	7	8	6	V (4-8)
Common knotgrass	*Polygonum aviculare*	4			3	3	III (3-4)
Creeping cinquefoil	*Potentilla reptans*	1	1	5	7	5	V (1-7)
Selfheal	*Prunella vulgaris*	6			3		II (3-6)
Meadow buttercup	*Ranunculus acris*	2	4	3	4	2	V (2-4)
Creeping buttercup	*Ranunculus repens*	2	6	4	2	3	V (2-6)
Clustered dock	*Rumex conglomeratus*		2			2	II (2)
Procumbent pearlwort	*Sagina procumbens*		2				I (2)
Common ragwort	*Senecio jacobaea*	1	1				II (1)
Common chickweed	*Stellaria media*	1		1		2	III (1-2)
Dandelion	*Taraxacum officinale agg.*		1	1	2	1	IV (1-2)
Lesser trefoil	*Trifolium dubium*					1	I (1)
Red clover	*Trifolium pratense*				2		I (2)
White clover	*Trifolium repens*	6	7	4	7	2	V (2-7)
Thyme-leaved speedwell	*Veronica serpyllifolia*		2			2	II (1-2)
Bare ground		6	8	5	4	6	V (4-8)

Table EDP A5.21: Field 6 Community 3

Common Name	Scientific Name	Quadrats					DOMIN
		1	2	3	4	5	
Common bent	*Agrostis capillaris*		2	3	4	3	IV (2-4)
False oat-grass	*Arrhenatherum elatius*		1		1		II (1)
Crested dog's-tail	*Cynosurus cristatus*	3	2	4	3		IV (2-4)
Cocks-foot	*Dactylis glomerata*	2				2	II (2)
Yorkshire fog	*Holcus lanatus*			2	4	3	III (2-4)
Perennial rye-grass	*Lolium perenne*	1	1	3	1	2	V (1-3)
Annual meadow-grass	*Poa annua*		3	4	3	4	IV (3-4)
Rough meadow-grass	*Poa trivialis*	4		3	4		III (3-4)
Yarrow	*Achillea millefoilum*	2		2	1		IIII (1-2)
Cow parsley	*Anthriscus sylvestris*			1	1		II (1)
Lesser burdock	*Arctium minus*	4	5		2		III (2-5)
Mugwort	*Artemesia vulgaris*		1			1	II (1)
Daisy	*Bellis perennis*	2	2				II (2)
Black knapweed	*Centaurea nigra*		3		2	3	III (2-3)
Common mouse-ear	*Cerastium fontanum*		1	1		1	III (1)
Fat hen	*Chenopodium album*	2					I (2)
Creeping thistle	*Cirsium arvense*	4	3		3	1	IV (1-4)
Spear thistle	*Cirsium vulgare*	1	1	1		3	V (1-3)
Beaked hawksbeard	*Crepis capillaris*		2	1		2	III (1-2)
Common teasel	*Dipsacus fullonum*				2	1	II (1-2)
Cut-leaved cranesbill	*Geranium dissectum*		1		1	1	III (1)
Hogweed	*Heracleum sphondylium*		2	2	3	1	IV (1-3)
Common bird's-foot trefoil	*Lotus corniculatus*			3		3	I (3)
Redleg	*Persicaria maculosa*	2		2	1	1	IV (1-2)
Ribwort	*Plantago lanceolata*	2		3	1	4	IV (1-4)
Greater plantain	*Plantago major*	4	6	4	4	3	V (1-6)
Common knotgrass	*Polygonum aviculare*	2	5	4	2	5	V (2-5)
Creeping cinquefoil	*Potentilla reptans*	8	3	5	3	2	V (2-8)
Selfheal	*Prunella vulgaris*			2		2	II (2)
Meadow buttercup	*Ranunculus acris*		1	2	2	1	IV (1-2)
Creeping buttercup	*Ranunculus repens*	6		3	1	2	IV (1-6)
Weld	*Reseda luteola*	1			1		II (1)
Clustered dock	*Rumex conglomeratus*	4		2			II (2-4)
Curled dock	*Rumex crispus*	3	3	4	5	3	V (3-5)
Broad-leaved dock	*Rumex obtusifolius*	5	3	3	4	5	IV (3-5)
Common ragwort	*Senecio jacobaea*	2	5	4	2	3	V (2-5)
Hedge mustard	*Sisymbrium officinale*	1			2		II (1-2)
Common chickweed	*Stellaria media*		1	1	1	1	IV (1)
Dandelion	*Taraxacum officinale agg.*		2	1	1	1	IV (1-2)
White clover	*Trifolium repens*	3	7	2	3		IV (2-7)
Nettle	*Urtica dioica*			3		2	II (2-3)
Thyme-leaved speedwell	*Veronica sepryllifoila*		1			1	II (1)
Bare ground		3	4	2	4	5	V (2-5)

Table EDP A5.22: Field 6 Community 4

Common Name	Scientific Name	Quadrats		DOMIN
		1	2	
Common bent	*Agrostis capillaris*	3	4	V (3-4)
Sweet vernal grass	*Anthoxanthum odoratum*	3	3	IV (3)
Crested dog's-tail	*Cynosurus cristatus*	2	2	IV (2)
Cocksfoot	*Dactylis glomerata*	1		II (1)
Red fescue	*Festuca rubra*	3	1	V (1-3)
Yorkshire fog	*Holcus lanatus*	4	3	V (3-4)
Perennial rye-grass	*Lolium perenne*	2	1	III (1-2)
Annual meadow-grass	*Poa annua*	3	1	IV (1-3)
Rough meadow-grass	*Poa trivialis*		2	II (2)
Yarrow	*Achillea millefolium*	3	1	II (1-3)
Daisy	*Bellis perennis*		2	II (2)
Black knapweed	*Centaurea nigra*	4	4	IV (4)
Common centaury	*Centaurium erythrea*	1		I (1)
Common mouse-ear	*Cerastium fontanum*	2	1	III (1-2)
Wild carrot	*Daucus carota*	2		II (2)
Lady's bedstraw	*Galium verum*		3	II (3)
Cut-leaved cranesbill	*Geranium dissectum*	2	1	II (1-2)
Common cat's-ear	*Hypochaeris radicata*		2	II (2)
Meadow vetchling	*Lathyrus pratensis*	3	1	III (1-3)
Ox-eye daisy	*Leucanthemum vulgare*	2	2	IV (2)
Common bird's-foot trefoil	*Lotus corniculatus*	5	5	IV (5)
Ribwort	*Plantago lanceolata*	3	6	V (3-6)
Greater plantain	*Plantago major*	2	3	IV (2-3)
Creeping cinquefoil	*Potentilla reptans*	4	3	V (3-4)
Selfheal	*Prunella vulgaris*	3	1	III (1-3)
Meadow buttercup	*Ranunculus acris*	2	2	VI (2)
Creeping buttercup	*Ranunculus repens*	5	4	V (4-5)
Common ragwort	*Senecio jacobaea*	1	2	III (1-2)
Lesser trefoil	*Trifolium dubium*		1	I (1)
Red clover	*Trifolium pratense*	4	2	V (2-4)
White clover	*Trifolium repens*	5	2	IV (2-5)
Common vetch	*Vicia sativa*	2		II (2)
Bush vetch	*Vicia sepium*	1		I (2)

Table EDP A5.23: Field 6 Community 5

Common Name	Scientific Name	DAFOR
Marsh foxtail	*Alopecurus geniculatus*	R
Toad rush	*Juncus bufonius*	F
Compact rush	*Juncus conglomeratus*	O
Redleg	*Persicaria maculosa*	O
Greater plantain	*Plantago major*	R
Creeping buttercup	*Ranunculus repens*	F
Celery-leaved buttercup	*Ranunculus scleratus*	F
Watercress	*Rorippa nasturtium-aquaticum*	R
Marsh yellowcress	*Rorippa palustris*	R
Curled dock	*Rumex crispus*	O
Clustered dock	*Rumex conglomeratus*	F

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Appendix EDP 6
Great Crested Newt eDNA Survey Results

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SureScreen Scientifics

Technical Report
Confidential

Folio No: D2072
Report No: 1
Client: EDP
Order No: 3487
Attn: Vicky Nall

Date: 14th July 2016

TECHNICAL REPORT

EXAMINATION OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS

T. Wood

Forensic Scientists and Consultant Engineers
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SureScreen Scientifics

Technical Report
Confidential

SUMMARY

When Great Crested Newts (GCN) inhabit a pond, they deposit traces of their DNA in the water as evidence of their presence. By sampling the water, we can analyse these small environmental DNA (e-DNA) traces to confirm GCN inhabitation, or prove absence of presence.

The following samples were submitted for e-DNA analysis to the protocol stated in DEFRA WC1067 (Latest Amendments). Details on the sample submission form were used as the unique sample identity.

Date received at Laboratory: 4th July 2016
Date DNA extracted started: 4th July 2016
Date of analysis: 7th July 2016
Matters Affecting Results: None

RESULTS

Laboratory Reference	Sample Detail	Co-Ordinates	Inhibition Check	Sample integrity	Result / Score
eDNA23298	**3487-4**	**-**	Acceptable	Acceptable	**Negative 0/12**
eDNA23299	**3487-2**	**-**	Acceptable	Acceptable	**Negative 0/12**
eDNA23300	**3487-3**	**-**	Acceptable	Acceptable	**Negative 0/12**
eDNA23301	**3487-1**	**-**	Acceptable	Acceptable	**Negative 0/12**

METHODS AND INFORMATION.

In the above table, **NEGATIVE** means that GCN DNA was not detected or is below the threshold detection level and the test result should be considered as no evidence of GCN presence.

POSITIVE means that GCN DNA was found at or above the threshold level and the presence of GCN at this location at the time of sampling or in the recent past is confirmed.

Inhibition check refers to a laboratory evaluation of the sample tested by adding a known amount of an artificial gene to the sample and running the qPCR analysis in duplicate. Variation in the point at which qPCR amplification starts indicates inhibition, which requires the sample to be diluted and retested.

Sample integrity refers to quality of packaging, absence of tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to results errors. PCR inhibitors can cause false results. Every effort is made to clean the sample pre-analysis however some inhibitors cannot be extracted. An unacceptable inhibition check will

cause an indeterminate sample and must be sampled again. In that case the result will be reported as inconclusive.

To generate the results all of the tubes from each pond are combined to produce one e-DNA extract. Then twelve separate analyses are undertaken. If one or more of these analyses are positive the pond is declared positive for the presence of GCN. It may be assumed that small fractions of positive analyses suggest low level presence but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive.

A positive result may be a true positive but there is also a possibility that it is due to contamination of the sample from another pond, or improper sampling technique. Please ensure traditional surveys are performed on positive ponds and care is taken to avoid spreading GCN DNA from one site to another. The optimum accuracy of the method depends on careful sampling methodology alongside our forensic standards of laboratory analysis.

We provide training sheets and can offer formalised training in collection, even though certified training of collectors is not currently a Natural England requirement when sampling for GCN.

Kits are manufactured by Scientifics to strict quality procedures adopting best practice from WC1067 and WC1067 Appendix 5. Kits contain a 'spiked' DNA marker used as a quality control tracer (SureScreen patent pending) to ensure any DNA contained in the sampled water has not deteriorated in transit.

LABORATORY ANALYSIS

The laboratory testing adheres to strict guidelines laid down in WC1067 Analytical and Methodological Development for Improved Surveillance of The Great Crested Newt, Version 1.1

The analysis. is conducted in two phases. The sample first goes through an extraction process where all six tubes are pooled together to acquire as much eDNA as possible. The pooled sample is then tested via real time PCR (also called q-PCR). This process amplifies select part of DNA allowing it to be detected and measured in 'real time'.

qPCR combines PCR amplification and detection into a single step. This eliminates the need to detect products using gel electrophoresis. With qPCR, fluorescent dyes specific to the target sequence are used to label PCR products during thermal cycling. The accumulation of fluorescent signals during the exponential phase of the reaction is measured for fast and objective data analysis. The point at which amplification begins (the Ct value) is an indicator of the quality of the sample. True positive controls, negatives and blanks are included in every analysis and these have to be correct before any result is declared so they act as additional quality control measures.

The primers used in this process are specific to a part of mitochondrial DNA only found in GCN ensuring no DNA from other species present in the water is amplified. The unique sequence appropriate for GCN analysis is quoted in DEFRA WC 1067 as follows:

Primer	**Sequence**	**Fragment**	**Gene**
TCCBL	CGTAAACTACGGCTGACTAGTACGAA	81	Cyt-b
TCCBR	CCGATGTGTATGTAGATGCAAACA	81	Cyt-b
Probe			
TCCB	CATCCACGCTAACGGAGCCTCGC	81	Cyt-b

Using this protocol, there should be no detection of closely related species. In the case of the great crested newt in the UK, the risk is mainly of detecting the Italian crested newt (*Triturus carnifex*) which is present at a few locations. The primers and probe were also tested on tissue samples of marbled newt (*Triturus marmoratus*). None of these samples were amplified, confirming the suitability of the primer pair and probe for the great crested newt. The primers and probe also did not bind with the DNA of other UK native newts (smooth and palmate newt) which are in the genus *Lissotriton*.

Reported By: **Sam Humphrey**

Analysed By: **Thomas Wood**

Verified by: **Derry Hickman**

SureScreen Scientifics

Folio No: E2371
Report No:
Order No: edp 3487
Client: EDP LTD
Contact: Vicky Nall
Contact Details: vickyn@edp-uk.co.uk
Date: 02/05/2018

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS

Date sample received at Laboratory: 24/04/2018
Date Reported: 02/05/2018
Matters Affecting Results:

RESULTS

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
0605	Darton Yorks P1	-	Pass	Pass	Pass	Negative	0
0606	Darton Yorks P2	-	Pass	Pass	Pass	Negative	0
0607	Darton Yorks P3	-	Pass	Pass	Pass	Negative	0

SUMMARY

When Great Crested Newts (GCN); Triturus cristatus inhabit a pond, they deposit traces of their DNA in the water as evidence of their presence. By sampling the water, we can analyse these small environmental DNA (eDNA) traces to confirm GCN habitation, or establish GCN absence.

The water samples detailed below were submitted for eDNA analysis to the protocol stated in DEFRA WC1067 (Latest Amendments). Details on the sample submission form were used as the

unique sample identity.

RESULTS INTERPRETATION

Lab Sample No.- When a kit is made it is given a unique sample number. When the pond samples have been taken and the kit has been received back in to the laboratory, this sample number is tracked throughout the laboratory.

Site Name- Information on the pond.

O/S Reference – Location/co-ordinates of pond.

SIC- Sample Integrity Check. Refers to quality of packaging, absence of tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to results errors. Inspection upon receipt of sample at the laboratory. To check if the Sample is of adequate integrity when received. Pass or Fail.

DC- Degradation Check. Analysis of the spiked DNA marker to see if there has been degradation of the kit since made in the laboratory to sampling to analysis. Pass or Fail.

IC- Inhibition Check- PCR inhibitors can cause false results. Inhibitors are analysed to check the quality of the result. Every effort is made to clean the sample pre-analysis however some inhibitors cannot be extracted. An unacceptable inhibition check will cause an indeterminate sample and must be sampled again.

Result- NEGATIVE means that GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as no evidence of GCN presence. POSITIVE means that GCN eDNA was found at or above the threshold level and the presence of GCN at this location at the time of sampling or in the recent past is confirmed. Positive or Negative.

Positive Replicates- To generate the results all of the tubes from each pond are combined to produce one eDNA extract. Then twelve separate analyses are undertaken. If one or more of these analyses are positive the pond is declared positive for the presence of GCN. It may be assumed that small fractions of positive analyses suggest low level presence but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive.

METHODOLOGY

The laboratory testing adheres to strict guidelines laid down in WC1067 Analytical and Methodological Development for Improved Surveillance of The Great Crested Newt, Version 1.1

The analysis is conducted in two phases. The sample first goes through an extraction process where all six tubes are pooled together to acquire as much eDNA as possible. The pooled sample is then tested via real time PCR (also called q-PCR). This process amplifies select part of DNA allowing it to be detected and measured in ‘real time’ as the analytical process develops. qPCR combines PCR amplification and detection into a single step. This eliminates the need to detect products using gel electrophoresis. With qPCR, fluorescent dyes specific to the target sequence are used to label PCR products during thermal cycling. The accumulation of fluorescent signals during the exponential phase of the reaction is measured for fast and objective data analysis. The point at which amplification begins (the Ct value) is an indicator of the quality of the sample. True positive controls, negatives and blanks as well as spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared so they act as additional quality control measures.

The primers used in this process are specific to a part of mitochondrial DNA only found in GCN ensuring no DNA from other species present in the water is amplified. The unique sequence appropriate for GCN analysis is quoted in DEFRA WC 1067 and means there should be no detection of closely related species. We have tested our system exhaustively to ensure this is the case in

our laboratory. We can offer eDNA analysis for most other species including other newts.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. Kits are manufactured by SureScreen Scientifics to strict quality procedures in a separate building and with separate staff, adopting best practice from WC1067 and WC1067 Appendix 5. Kits contain a 'spiked' DNA marker used as a quality control tracer (SureScreen patent pending) to ensure any DNA contained in the sampled water has not deteriorated in transit. Stages of the DNA analysis are also conducted in different buildings at our premises for added

SureScreen Scientifics Ltd also participate in Natural England's proficiency testing scheme and we also carry out inter-laboratory checks on accuracy of results as part of our quality procedures.

Reported by: Derry Hickman **Approved by:** Sam Humphrey

End Of Report

Appendix EDP 7
Outline Ecology Management Plan
edp3487_r004

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Land South of Darton Lane, Darton, Staincross

Outline Ecology Management Plan (Grassland and SuDS)

Prepared by:
The Environmental Dimension Partnership Ltd

On behalf of:
Church Commissioners for England

February 2021
Report Reference
edp3847_r004b

Contents

Section 1 Introduction, Aims and Objectives.....1

Section 2 Establishment, Maintenance and Monitoring.....3

Section 3 Timetable of Works and Conclusions.....7

Appendices

Appendix EDP 1 Proposed Site Layout
(Edward Architecture, 0708-SK10 C, 23.06.20)

Appendix EDP 2 Reptile Hibernacula Specification

Plan

Plan EDP 1 Extended Phase 1 Habitat Plan
(edp3487_d002c 12 August 2020 CR/VN)

This version is intended for electronic viewing only

	Report Ref: edp3487_r004			
	Author	**Formatted**	**Peer Review**	**Proofed by/Date**
r004_DRAFT	VF	AV	JG	-
r004a	VF	-	-	JM 110820
r004b	VF	-	-	CL 040221

Section 1
Introduction, Aims and Objectives

Site and Planning Context

1.1 This Outline Ecology Management Plan (EMP) has been prepared by The Environmental Dimension Partnership Ltd (EDP) on behalf of the Church Commissioners for England (hereafter referred to as 'the Applicant'). It provides the ecological management principles for the retained grassland and created sustainable drainage scheme (SuDS) feature as requested by Barnsley Metropolitan Borough Council (BMBC) for a proposed development at Land South of Darton Lane, Darton, Staincross in South Yorkshire (hereafter referred to as 'the Site').

1.2 This document should be read in conjunction with the Ecological Appraisal for the Site, also produced by EDP (reference: edp3487_r003).

1.3 The Ecological Appraisal identified an area of grassland, approximately 1.9 hectares (ha), of botanical interest in the west of the Site and recommended that it be retained where possible. The grassland of interest is the species-rich semi-improved grassland shown in orange on **Plan EDP 1**. It qualifies as a Lowland Meadow Priority Habitat[1] and is considered to be of Local value. Further details on its extent within the Site and its floristic communities can be found in the Ecological Appraisal.

1.4 The Applicant has been in consultation with BMBC regarding the Site. Following this consultation, it was agreed that whilst some of the high quality grassland would be lost, an area would be retained and a request for an outline EMP for the retained grassland and any created SuDS features was made by Senior Planning Officer, Hannah Andrew, in order to progress the outline planning application.

Aims

1.5 This document is written to provide a broad framework for grassland management and SuDS habitat creation and management to provide and maintain high quality habitat within the Site. It is recommended that specific measures for habitat creation and management across all green space on the Site, following the broad measures set out below, will be provided within a Landscape and Ecological Management Plan (LEMP), secured through an appropriately worded condition attached to any outline consent.

[1] UK Biodiversity Action Plan Priority Habitat Descriptions, Lowland Meadows From: UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008.

1.6 The overall aim of the management proposals is to provide high quality habitat within the Site to compensate for the reduction in grassland area resulting from the proposed development. The objectives devised to achieve this aim are:

- **Objective 1** – Improve the condition of the retained lowland meadow grassland on Site to 'good' and enable the maintenance of this condition in the long term through appropriate management to ensure it retains its biodiversity value despite some loss to the total area; and

- **Objective 2** – Establish new high-quality lowland meadow and scrub within the proposed SuDS basin area and a wildlife friendly pond.

Delivery Mechanisms and Timescales

1.7 The grassland and other existing features to be retained will be protected during the construction phase through the adoption of an Ecological Construction Method Statement (ECMS), including mitigation designed to avoid significant ecological effects on key ecological features including the grassland.

1.8 Enhancement of the existing grassland and creation of new habitats within the SuDS will be implemented after the construction period, following the principles set out in this outline EMP, within a LEMP secured by a suitably worded condition attached to any outline consent.

1.9 Throughout the operational phase of the development, the ongoing habitat management at the site will be in line with this outline EMP/the LEMP and the responsibility will be passed on to the purchaser/developer and their chosen contracted management company.

Section 2
Establishment, Maintenance and Monitoring

2.1 This section outlines the establishment and management principles which should be undertaken for the retained grassland and newly created ecological habitat within the SuDS basin. Full details on management prescriptions and the length of the management periods will be provided within the LEMP secured by a suitably worded condition attached to any outline consent.

Semi-improved Neutral Grassland (MG5 sub-communities)

2.2 The area of grassland to be retained is 0.63ha plus an additional 0.12 ha area of slightly less value (shown in **Appendix EDP 1**) and both areas should be managed as one, like a traditional hay meadow, following these principles:

- The grassland will be allowed to grow uncut from March until July/early August;
- It will then be cut to ground level and arisings left to dry before removing from site. To aid with drying and seed-fall, arisings will be regularly turned before removal; and
- Thereafter, a second cut should be taken in late autumn and the cuttings removed from site.

2.3 There will be no public access to the retained grassland to avoid damage and disturbance and nutrient enrichment from dog faeces.

2.4 Access suitable for the delivery of mowing machinery must be provided.

2.5 The fence surrounding the retained grassland should be installed prior to any site clearance or enabling works.

2.6 Undesirable weeds including, but not restricted to, ragwort (*Senecio jacobaea*), thistle (*Cirsium* sp.) and dock (*Rumex* sp.) except *Rumex acetosa* will be spot treated with an approved herbicide.

2.7 There will be no application of artificial fertilizer, fungicide or insecticide at any time. Herbicide will only be used to control injurious weeds.

2.8 Any dumped garden waste and litter will be removed from site prior to the summer hay cut.

Monitoring

2.9 An National Vegetation Classification (NVC) survey of the grassland will be undertaken every three years within the plant growth season (May to June) to assess if the grassland continues to retain its diversity and continues to match the two MG5 sub-communities that

are currently present. During this survey, the extent of injurious weeds and other undesirable species would also be recorded.

2.10 As well as it's affinity to the MG5 NVC community, the grassland will also be monitored for the abundance of key indicator species such as Crested dog's-tail (*Cynosurus cristatus*), Sheep's fescue (*Festuca ovina*), Black knapweed (*Centaurea nigra*) and Common bird's-foot trefoil (*Lotus corniculatus*).

Review of Procedures Following Monitoring

2.11 Following the NVC survey work, if the condition of the grassland does not improve and/or the diversity is shown to be decreasing such that the grassland no longer matches the MG5 sub-communities shown to be currently present, then the adopted management plan will be reviewed and amended in consultation with BMBC. Appropriate action may include adjusting the cutting regime and/or over-seeding with green hay/wildflower seed.

SuDS Basin

2.12 The SuDS basin is to be managed in such a way as to provide biodiversity value. The aim for this habitat is to establish robust, healthy and vigorous growth of planting within and surrounding the drainage attenuation pond. This planting will provide a diversity of habitat and an enriched level of species for ecological benefit and landscape amenity.

Pond Edge Mixture

2.13 The basin is designed to hold permanent water. Whilst the open water area will be allowed to colonise naturally, the edges of the basin at the water line, will be seeded with an appropriate pond edge mixture. The mixture will be Emorsgate Seeds EP1, or similar; the composition is given in **Table EDP 2.1** below.

Table EDP 2.1. The Composition of the Recommended Pond Edge Mixture for the SuDS basin

%	Latin name	Common name
Wildflowers (20%)		
0.5	*Achillea ptarmica*	Sneezewort
2	*Angelica sylvestris*	Wild angelica
0.2	*Caltha palustris*	Marsh marigold
1.5	*Centaurea nigra*	Common knapweed
1	*Eupatorium cannabinum*	Hemp agrimony
3	*Filipendula ulmaria*	Meadowsweet
0.5	*Geum rivale*	Water avens
0.5	*Hypericum tetrapterum*	Square-stalked St John's wort
4	*Iris pseudacorus*	Yellow iris
1	*Lotus pedunculatus*	Greater birdsfoot trefoil
0.8	*Lycopus europaeus*	Gypsywort
0.6	*Lythrum salicaria*	Purple loosestrife
0.1	*Mentha aquatica*	Water mint
0.1	*Pulicaria dysenterica*	Common fleabane
2	*Ranunculus acris*	Meadow buttercup
0.6	*Sanguisorba officinalis*	Great burnet

%	Latin name	Common name
0.8	*Silene flos-cuculi - (Lychnis flos-cuculi)*	Ragged robin
0.5	*Succisa pratensis*	Devil's-bit scabious
0.3	*Vicia cracca*	Tufted vetch
Grasses (80%)		
10	*Agrostis capillaris*	Common bent
3	*Alopecurus pratensis*	Meadow foxtail (w)
3	*Anthoxanthum odoratum*	Sweet vernal-grass (w)
3	*Briza media*	Quaking grass (w)
24	*Cynosurus cristatus*	Crested dogstail
2	*Deschampsia cespitosa*	Tufted hair-grass (w)
32	*Festuca rubra*	Slender-creeping red-fescue
3	*Hordeum secalinum*	Meadow barley (w)

Wildflower Grassland

2.14 The remaining high area around the SuDS pond will be sown with a bespoke seed mix to match the MG5 sub-communities of the retained grassland. Whilst the SuDS pond is situated within the area of existing MG5 grassland, it is likely that the grassland will be damaged by the digging of the pond and thus will require re-instating. Such bespoke mixes are available from naturescape.co.uk.

Sowing

2.15 The sowing of pond edge mixture and the bespoke seed mixture will be undertaken as per the recommendations of the seed supplier and at an appropriate time of year to ensure the successful establishment of the grassland.

First Year Management

2.16 In the first year, the grassland will not be subject to a hay cut but annual weed growth may be cut back to encourage the development of a good perennial ground cover.

Management from Year 2 Onwards

2.17 Following establishment, management of the surrounding grassland will continue to follow the prescriptions set out in paragraph 2.2.

Scrub Planting

2.18 A small area of hawthorn (*Crataegus monogyna*) and blackthorn (*Prunus spinosa*) scrub will be created in the eastern corner of the attenuation area to provide further structural and species diversity to this area as well as some cover and protection for the hibernacula (see below). This will link to the scrub adjacent to the Site on the dismantled railway and provide continuity of habitat. This area of scrub will be planted as per best practice and once planted will be allowed to grow to its full height and spread. Management of the scrub will be as per the following paragraphs.

2.19 Inspections of new scrub planting will be carried out annually for a period of five years from the first spring following planting to: ensure the adequate establishment of all plants; identify the presence of any disease; and determine whether remedial action is required.

2.20 The condition of all stakes, ties and guards will be checked by the Developer and all broken items will be replaced and items regularly adjusted to accommodate plant growth and prevent rubbing. Any bark damage will be cut back neatly with a sharp knife. All plants will be straightened and the ground at the base to be firmed up. All shelters will be hand weeded.

2.21 Areas where plants have failed to thrive will be identified by the Developer and plants will be removed and replaced with equivalent species to match the size of adjacent nearby plants in the next appropriate planting season as frequent as necessary.

2.22 The requirement for selective thinning of all newly planted trees/shrubs will be assessed every three years and undertaken as necessary to ensure that overcrowding is reduced with increasing species maturity; and that diseased and dying plants are removed. Thinning is to be undertaken between October and March inclusive to avoid the main bird breeding season.

2.23 From year five after planting, or once plants are established, all stakes, ties, supports and shelters can be removed and disposed of off-site.

Hibernacula

2.24 Reptiles are known to be present on the dismantled railway line to the south of the Site and reptiles have been seen occasionally within the Site, but suitable habitat for reptiles is currently limited. Therefore, to provide habitat for reptiles within the Site and improve the ecological value of the SuDS area further, a reptile and amphibian hibernacula will be installed in the newly created scrub area in the eastern corner the SuDS area and will follow the specifications in **Appendix EDP 2**.

2.25 This should be inspected annually, and repairs conducted as necessary outside of the reptile and amphibian hibernation period (repairs can be conducted between April and September).

Section 3
Timetable of Works and Conclusions

Timetable of Works

3.1 **Table EDP 3.1** provides a summary of the optimal timings of the actions required for creating new habitat and **Table EDP 3.2** provides the optimal timings for the monitoring and maintenance tasks for the newly created and retained habitats.

Conclusions

3.2 It is considered that the management and maintenance measures outlined within this outline EMP are sufficient to protect and conserve the retained MG5 grassland and created ecological features of the SuDS area.

Table EDP 3.1: Optimal Timings for the New Habitat Creation

Operation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
MG5 Grassland												
Install boundary fence with mowing machinery access												
SuDS pond												
SuDS creation												
Seeding: wet grassland/bespoke seed grassland												
Scrub planting												
Hibernacula installation												

Table EDP 3.2: Optimal Timings for Monitoring and Maintenance

Task	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
MG5 Grassland													
Survey	Every three years												
Species-rich grassland hay cutting	Annually												
SuDS Basin													
Survey	Every three years with grassland												
Inspection of scrub	Annually												
Inspection/repair of hibernacula	Annually												

Appendix EDP 1
Proposed Site Layout
(Edward Architecture, 0708-SK10 C, 23.06.20)

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Proposed Site Layout

Approximate number of proposed units- 68 (excluding 13 in the adjacent allocated site)
Total Site Area (red line only) = 3.64 Ha

Scale- 1:1250 @ A2

Project Number : 0708
Project Name : Church Commissioners Darton
Drawing Number: 0708-SK10 C
Date : 23/06/20

edward architecture

Appendix EDP 2
Reptile Hibernacula Specification

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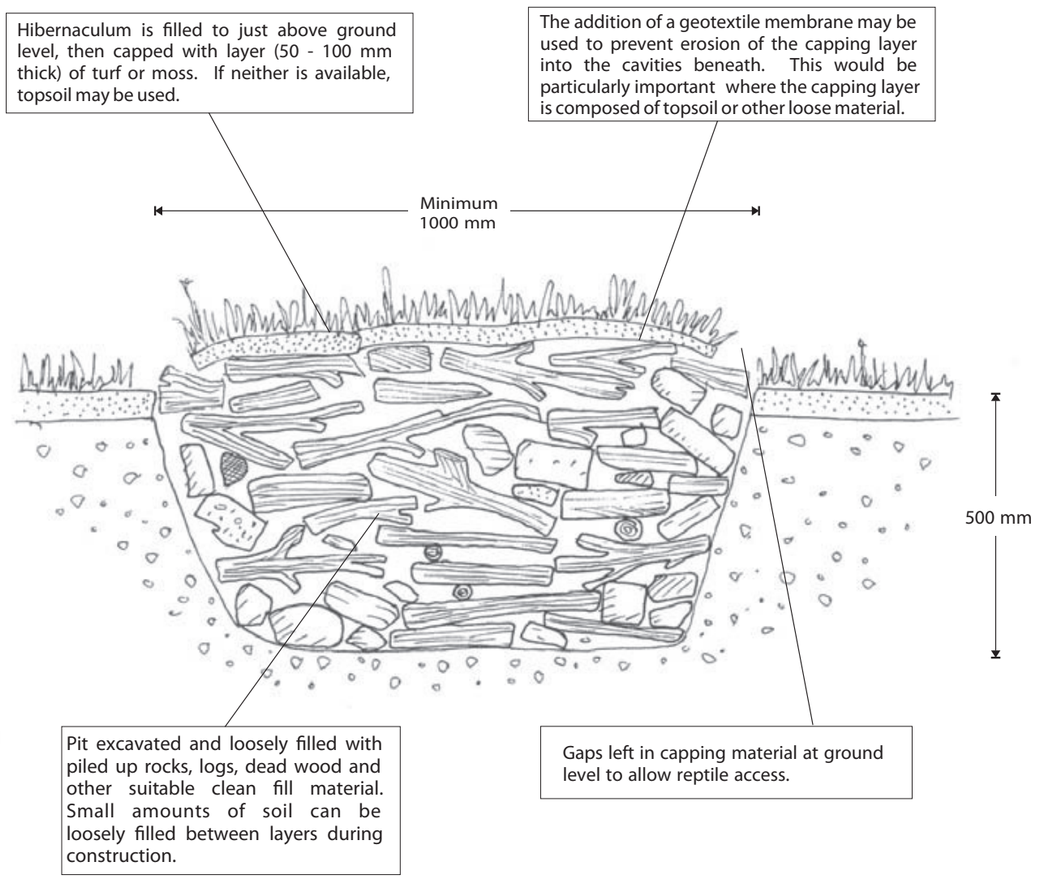
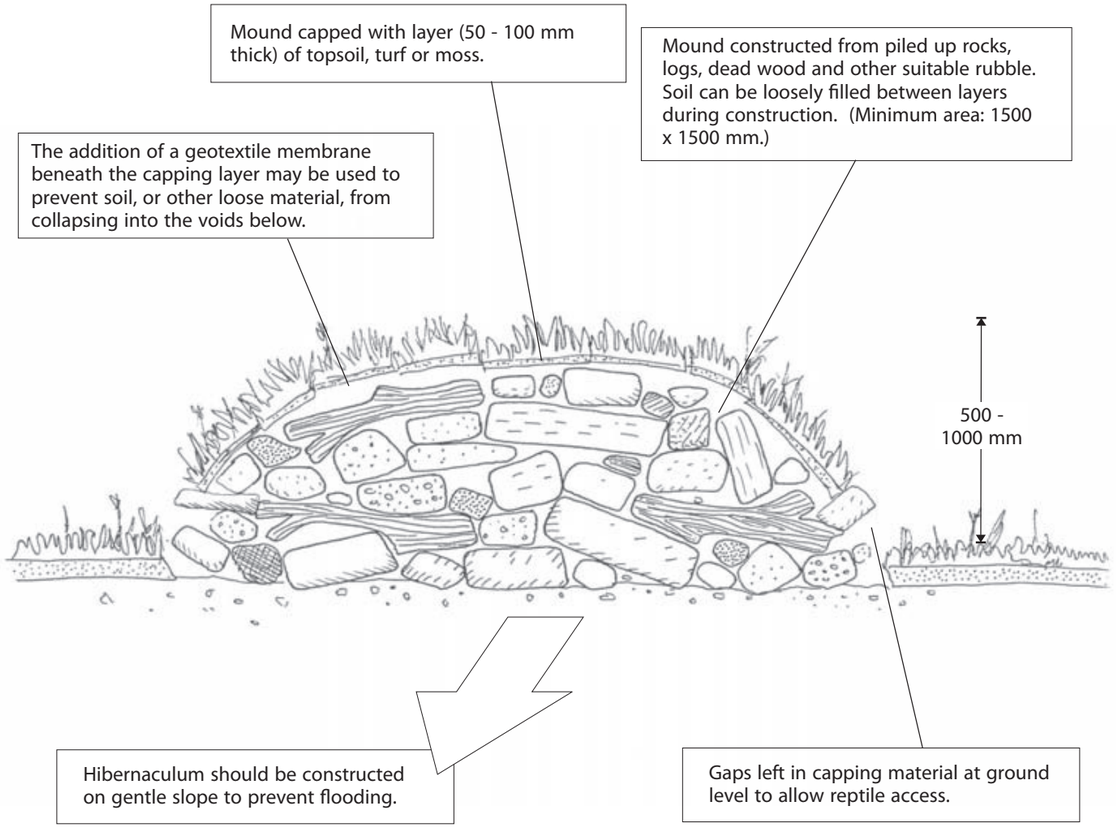
Hibernaculum on free-draining ground

Where ground conditions allow, the hibernaculum should be incorporated into a shallow pit. This design is more likely to remain frost-free, and will be less obtrusive and thus unlikely to be subject to interference.



Hibernaculum on impermeable ground

Where ground conditions are impermeable, then an 'above-ground' or mounded design should be utilised in order to prevent the hibernaculum from flooding. This design should also be used if it is not possible to excavate a pit for any other reason.



Plan

Plan EDP 1	Extended Phase 1 Habitat Plan (edp3487_d002c 12 August 2020 CR/VN)

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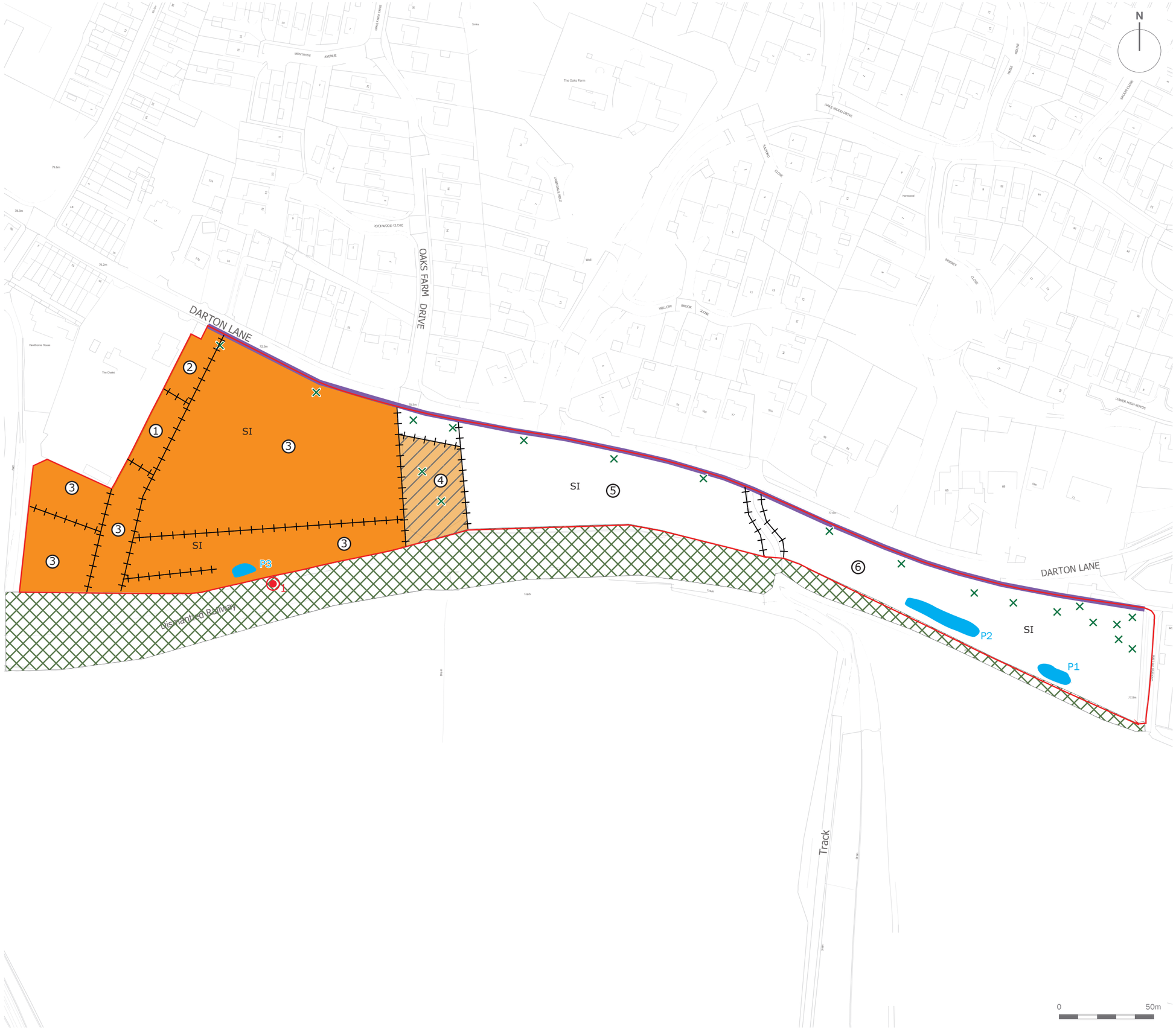

Site Boundary

Dense Continuous Scrub

Marshy Grassland

SI Species-poor Semi-improved Grassland

SI Species-rich Semi-improved Grassland

Pond

Fence

Wall

Scattered Scrub

1 Target Note

1 Field Number

P3 Pond Number

client
Church Commissioners for England

project title
Land South of Darton Lane, Darton, Staincross

drawing title
Extended Phase 1 Habitat Plan

date	**12 AUGUST 2020**	drawn by	**CR**
drawing number	**edp3487_d002c**	checked	**VN**
scale	**Refer to scale bar @ A3**	QA	**RB**

the environmental dimension partnership

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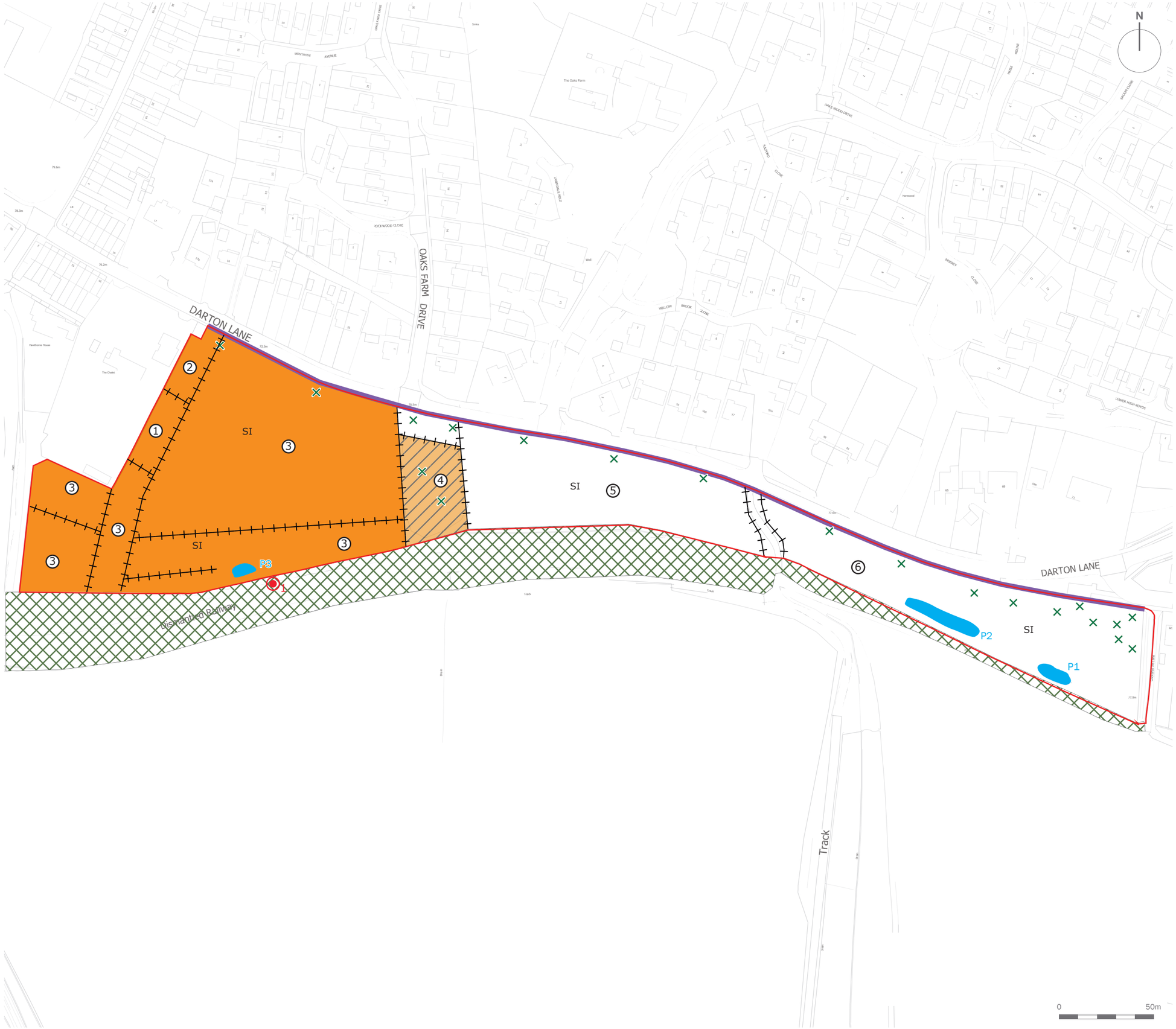

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