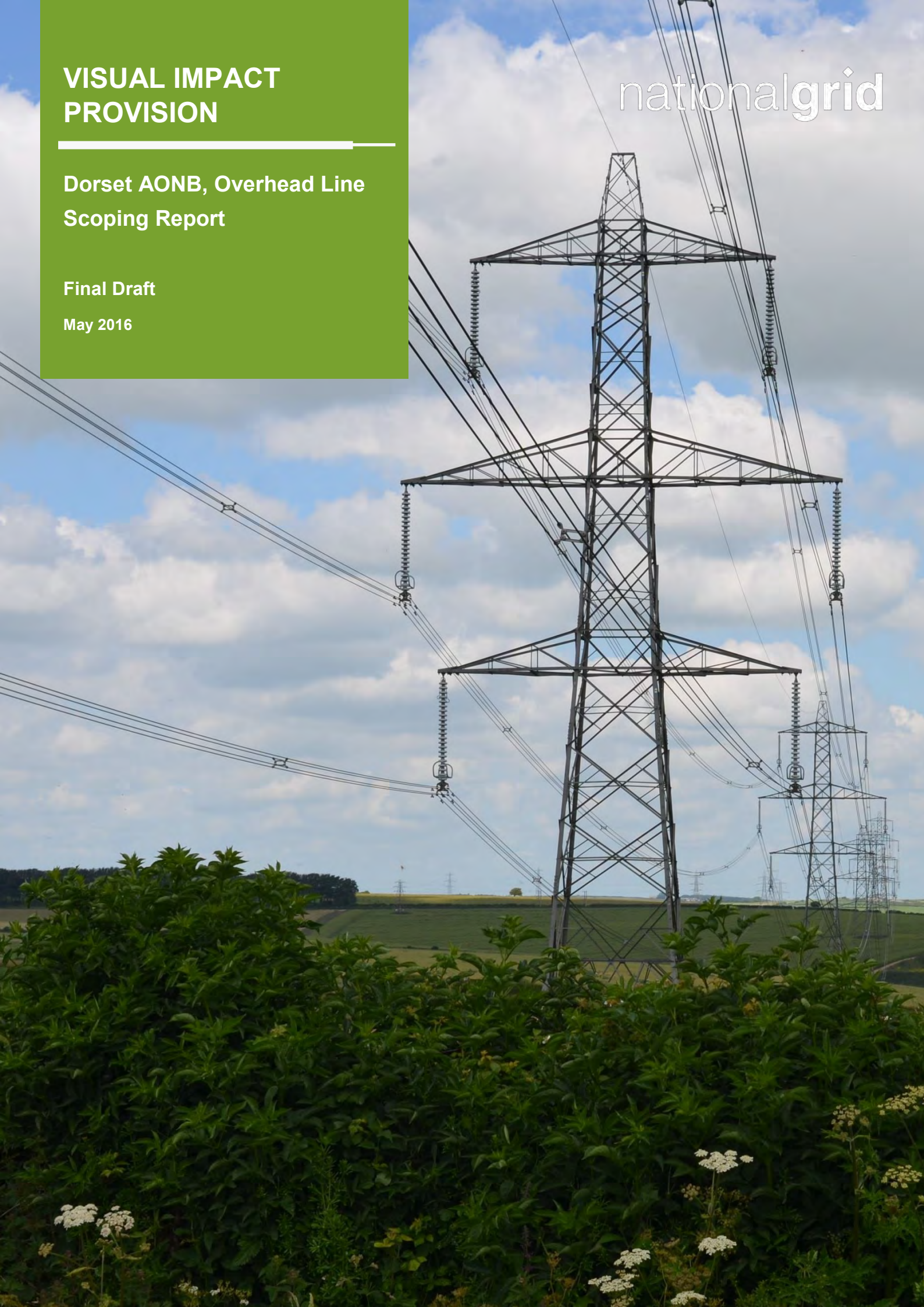
VISUAL IMPACT PROVISION

Dorset AONB, Overhead Line Scoping Report

Final Draft

May 2016



Front Cover: 4YA overhead transmission line, near Winterbourne Abbas, Dorset AONB

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1 Introduction

Proposed Scheme Overview

1.1 National Grid is seeking a Scoping Opinion from West Dorset District Council to underground a section of the existing 4YA overhead line (OHL) (hereafter referred to as the 'Visual Impact Provision (VIP) subsection') within the Dorset Area of Outstanding Natural Beauty (AONB).

1.2 The undergrounding of the VIP subsection includes the following main elements that comprise the 'proposed scheme' (details are presented in Chapter 2):

- Construction of two new sealing end compounds (SECs) and associated replacement terminal pylons including permanent access, required to connect the new underground cables to the remaining existing OHL;
- Underground cabling of approximately 7km (depending on location of SECs and route of cable alignment); and
- Removal of the existing VIP subsection including approximately 18 pylons and 7km of OHL (depending on location of SEC).

1.3 This stakeholder driven proposed scheme forms part of the wider VIP project. Ofgem and National Grid have agreed a new set of price controls and incentives for the period from April 2013 to March 2021. This includes a provision of £500 million for electricity transmission owners to mitigate the visual impact of existing electricity infrastructure in nationally protected landscapes in Great Britain. For National Grid, which is the transmission owner in England and Wales, this means considering the effects of existing infrastructure on the visual amenity and landscapes of National Parks and AONBs.

1.4 Following the results of a landscape and visual impact assessment in 2014, covering all 571km of OHL within the scope of the VIP project, those sections of OHL which had the greatest visual impact on the surrounding landscape were identified. In September 2015, a Stakeholder Advisory Group (consisting of stakeholders with national remits for England and Wales) decided that four sections of OHL should be prioritised for detailed assessment.

1.5 The locations chosen are Dorset 4YA, New Forest 4YB, Peak District 4ZO and Snowdonia 4ZC. All sections were proposed as underground solutions, with Snowdonia having the potential for a cable tunnel if no direct bury option exists.

VIP Subsection and Overview of Area

1.6 The existing 4YA route is part of the 400kV OHL route connecting Axminster, Chickerell and Exeter 400kV substations. The OHL was constructed between 1965 and 1969 and is of standard lattice pylon design with quad conductor bundles and has fibre optic wrapped earth wire. The location of the National Grid 4YA OHL and the VIP subsection in relation to the Dorset AONB boundary are shown in **Figure 1.1**.

1.7 The focus of the VIP project is on the mitigation of landscape and visual impacts, and the assessment of these impacts is set out in the landscape and visual impact assessment Technical Report (National Grid, 2014). The OHL in this area is judged to have:

- **landscape impacts of high importance** particularly where it crosses through a small valley close to Winterbourne Abbas. This and other small valleys in the downland are more susceptible to the impacts of the OHL, while the open nature of the downland means that the impact extends across a large geographical area;
- **visual impacts of high importance** affecting users of the National Cycle Route and South Dorset Ridgeway, users of local footpaths and access land, and visitors to the landmark Hardy Monument. The OHL passes close to Winterbourne Abbas and is prominent above the settlement. Two steel pylon distributor OHLs flank the transmission OHL south of Winterbourne Abbas, and the smaller size of these pylons emphasise the height of the transmission pylons in views. There is a high scale of impact where the OHL crosses over the National Cycle Route.

1.8 The VIP subsection runs from a point north-west of Winterbourne Abbas, cutting across the A35 and south of Winterbourne Abbas in a south-easterly direction. It then turns slightly south, across the upper slopes of Corton Down on the South Dorset Escarpment, to lower ground south of Friar Waddon Hill. The VIP subsection is approximately 7km in length.

1.9 The 'search area for permanent development' (hereafter referred to as the 'search area') broadly follows the alignment of the VIP subsection as shown in the site identification drawing (see **Figure 1.2**). Based on current knowledge, this overall search area has been drawn sufficiently wide enough to take account of potential route alignment options, a preferred option which will be confirmed following further site visits, engineering and environmental studies and discussions with stakeholders.

NATIONAL GRID
DORSET
VIP PROJECT

Dorset AONB
VIP subsection
4YA overhead line

Figure 1.1: 4YA Overhead Line and VIP Subsection within the Dorset AONB

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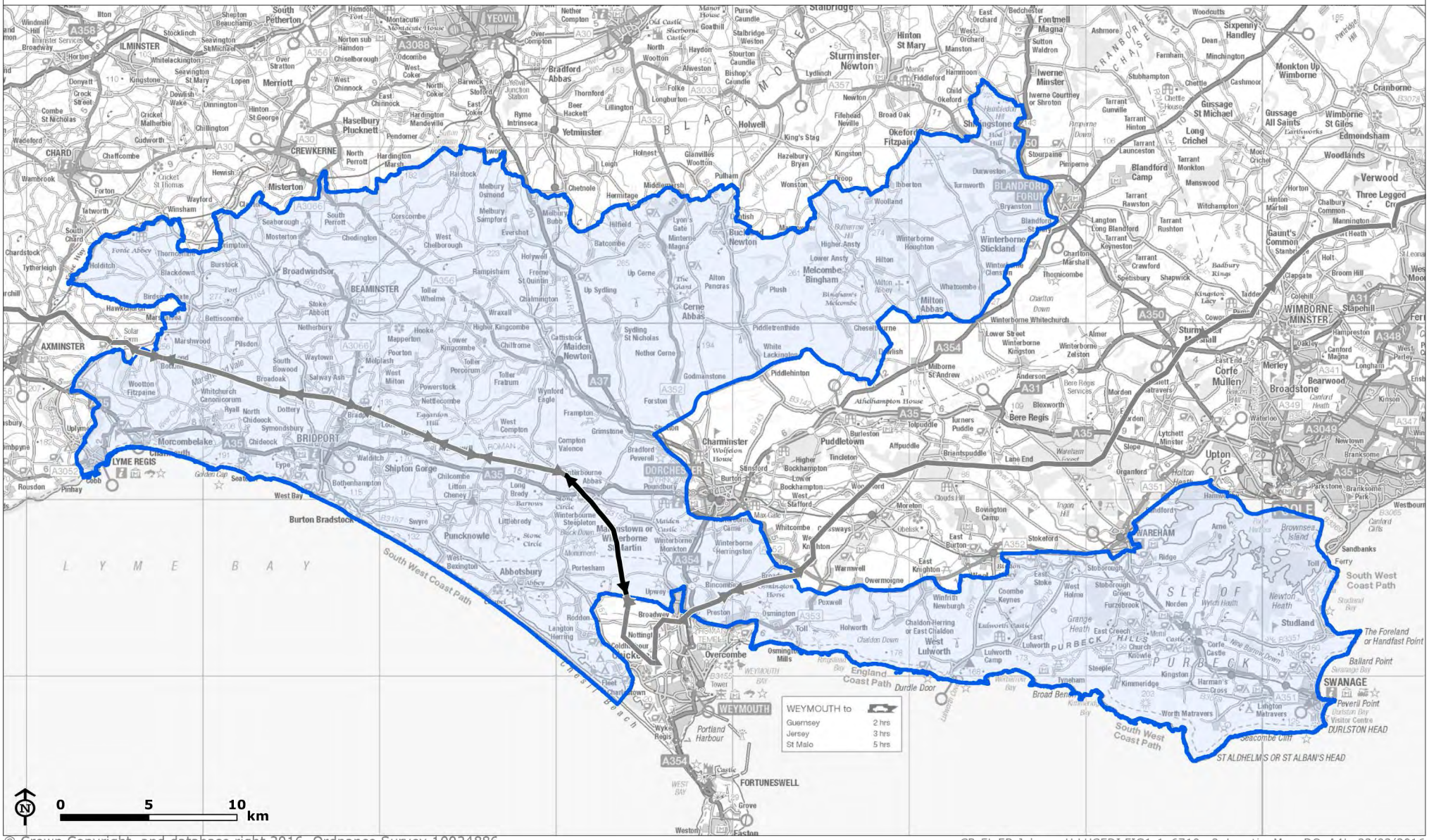
Source: Natural England, National Grid



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Visual Impact Provision Project

Dorset AONB
4YA OHL

Search Area for
Permanent Development

Figure 1.2

Legend

- 4YA Pylon Locations
- VIP Subsection
- 4YA Overhead Line
- Distribution Network Operator Overhead Line
- Search Area for Permanent Development
- Sealing End Compound Search Area

Scale	Set up size	
1:15,000	A3	Bruton Knowles

0 250 500 750 1,000 m

N
W E
S

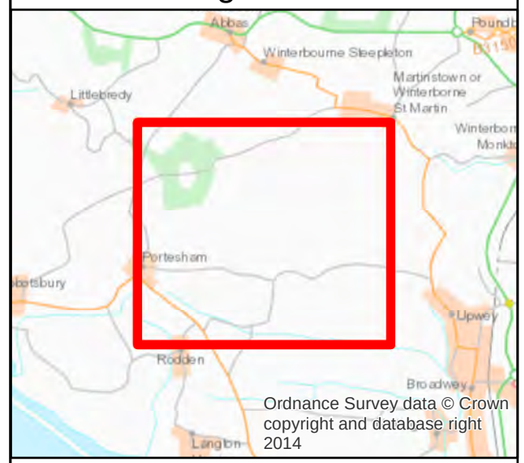
nationalgrid

Visual Impact Provision Project

Dorset AONB
4YA OHL

Search Area for
Permanent Development

Figure 1.2



Legend

- 4YA Pylon Locations
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Scale	Set up size	
1:15,000	A3	BK Bruton Knowles

0 250 500 750 1,000 m

Legislative Framework

Planning Application

1.10 A planning application would be submitted for all elements of the proposed scheme under the Town and Country Planning Act 1990.

Screening and Scoping

1.11 A screening opinion has been received from West Dorset District Council stating that the proposed scheme would be subject to Environmental Impact Assessment (EIA) under the Town and Country Planning (Environmental Impacts Assessment) Regulations 2011 (as amended 2015), the 'EIA Regulations'.

1.12 As part of the EIA, a scoping study has been undertaken in order to identify the potential impacts and issues relating to the proposed scheme.

1.13 This document is the report of the scoping study and:

- Summarises the assessment work already undertaken and ongoing;
- Outlines the proposed scheme;
- Describes the baseline conditions where they are known;
- Identifies issues and concerns;
- Sets out the assessment approach including proposed methodology, mitigation, cumulative effects;
- Consideration of alternatives; and
- Issues to be scoped out.

1.14 The purpose of this Scoping Study is to provide West Dorset District Council with the opportunity to comment on the assessment scope covering the entire proposed scheme which will subsequently be reported in a single Environmental Statement (ES). The ES would be submitted to accompany a planning application for the proposed scheme.

1.15 This document, therefore, constitutes a formal request for a Scoping Opinion under Regulation 13 of the EIA Regulations, and a response within EIA timescales is encouraged in order to be able to undertake the required surveys (notably ecology) within the programme/appropriate seasons.

Habitats Regulations Assessment

1.16 The UK is bound by the terms of the EC Habitats Directive, the EC Birds Directive and the Ramsar Convention. The aim of the Habitats Directive is to conserve natural habitats and wild species across Europe by establishing a network of sites known as Natura 2000 sites. Under Article 6 (3) of the Habitats Directive, an appropriate assessment is required if the 'plan or project' is likely to have a significant effect on a European site, either alone or in combination with other projects.

1.17 There are no Natura 2000 sites within 2km of the search area (see Chapter 6) so no significant effect is anticipated to arise from the proposed scheme, either alone or in combination with other plans or projects on these designated sites. An appropriate assessment is therefore not envisaged.

General Assessment Methodology

Determination of Scope

1.18 The establishment of the scope for the environmental assessment process is an important stage in the assessment process and this section outlines, in general terms, the proposed temporal scope (covering construction, operation and decommissioning stages), the proposed spatial scope (the physical area over which changes to the environment are likely to occur) and the proposed technical scope (the environmental topics to be addressed in the assessment).

1.19 The temporal and spatial scope will vary between environmental topics. Where this is the case, topic-specific temporal and spatial definitions are provided in the technical chapters of this Scoping Report and will be clearly defined in the ES.

Temporal Scope

1.20 Potential significant effects will be assessed for all phases of the development (construction, operation and decommissioning).

1.21 The main construction phase is anticipated to start once all necessary approvals have been obtained (currently estimated to be spring / summer 2018) and continue for a period of approximately two and a half to three years. Construction and decommissioning effects will often be temporary, short term effects.

1.22 With regard to landscape, the assessment of impacts extends to 15 years after operation starts to take account of growth in planting where this is provided by the proposed scheme (see also Chapter 5).

1.23 Operation is anticipated to last at least 40 years, in line with the design life of the electricity infrastructure.

Spatial Scope

1.24 The spatial scope of the assessment is the physical area over which changes to the environment are likely to occur as a result of the proposed scheme (the study area).

1.25 The spatial scope is a function of:

- The physical extent of the proposed scheme taking into account temporary and permanent land requirements; and
- The nature of the baseline environment and the manner in which potential impacts are propagated.

1.26 The extent of the study area may vary between environmental topics and, where necessary is defined in the technical chapters of this Scoping Report and will be clearly defined in the ES, justifying the study areas and any flexibility required.

Technical Scope

1.27 The range of topics addressed in this report are referred to as the technical scope. Within each of these topics, those aspects of the environment that are considered to not give rise to, or experience, significant effects (either wholly or partially) are proposed to be scoped out.

Predicting and Assessing Significance of Effects

1.28 There is no statutory definition of what constitutes a ‘significant’ effect within the EIA Regulations. The determination of the significance of the effects is crucial to informing the decision-making process. The process typically involves consideration of two aspects of a potential effect, namely the sensitivity or value of the receptor or resource, and the magnitude of the impact that is occurring. The following are examples of the

criteria that will be used (where appropriate to the issue being addressed) to inform the assessment of the significance of an effect:

- Aspects relating to the receptor or resource:
    - The value of the resource, based upon both empirical and intrinsic factors, and taking into account any legal or policy protection afforded, which is indicative of its value nationally or locally; and
    - The sensitivity of the receptor or resource to change, for example is the receptor likely to acclimatise to the change, or return once the project is decommissioned, or will it be irretrievably affected or lost. This will take into account legal and policy thresholds which are indicative of the ability of the resource to absorb change.
- Aspects relating to the magnitude of impact:
    - The physical/geographical scale of the impact, though this will be relative to the scale of the receptor or resource.
    - The duration of the impact – will it be temporary, lasting for a few days or weeks, or long term, lasting many years?
    - The frequency of the impact – will it be permanent, or will it occur daily, monthly or annually?
    - The reversibility of the impact – can it be reversed after construction or following decommissioning?
    - Effectiveness of mitigation – is the mitigation proven to be effective?
    - Is the impact direct or indirect? Although unlikely to affect significance, it is sometimes important to differentiate between direct impacts (e.g. loss of habitat under the footprint of a new tourist attraction) or indirect impacts (damage to habitat caused by additional visitors to the attraction, though outside the development footprint).

1.29 A combination of the magnitude of the impact under consideration and the sensitivity or value of the receiving environment / receptor can be used in considering the overall significance of an effect. The general approach adopted for classifying effects is outlined in **Table 1.1**.

1.30 Further explanation of these significance levels is provided in **Table 1.2**.

1.31 For the purposes of this environmental assessment, moderate and major effects are considered to be significant, unless otherwise stated in the technical assessment methodology.

1.32 Each discipline has further refined the above typical criteria for assessing significance based on relevant standards / guidelines for the particular discipline. An explanation of the specific criteria used for the assessment of individual discipline are set out in the technical assessment methodologies (where appropriate).

Table 1.1 Classification of Effects

Sensitivity / value of receptor	Magnitude of impact			
	High	**Medium**	**Low**	**Very low**
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very low	Minor	Negligible	Negligible	Negligible

Table 1.2 Significance Category Descriptions

Significance Category	Typical description
Major	A large and detrimental change to a valuable/sensitive receptor; likely or apparent exceeding of accepted (often legal) threshold. A large and beneficial change, whereby the improvements to the baseline whereby previously poor conditions are replaced by new legal compliance or a major contribution is made to national targets. These effects may represent key factors in the decision making process. Potentially associated with sites and features of national importance or likely to be important considerations at a regional or district scale. Major effects may relate to resources or features which are unique and which, if lost, cannot be replaced or relocated
Moderate	A medium scale change which, although not beyond an accepted threshold, is still considered to be generally unacceptable, unless balanced out by other significant positive benefits of a project. Likely to be in breach of planning policy, rather than legal statute. These effects, if adverse, are likely to be important at a local scale and on their own could have a material influence on decision making. A positive moderate effect is a medium scale change that is significant in that the baseline conditions are improved to the extent that guideline targets (e.g. UK BAP targets) are contributed to.
Minor	A small change that, whilst adverse, does not exceed legal or guideline standards. Unlikely to breach of planning policy. A small positive change, but not one that is likely to be a key factor in the overall balance of issues. These effects may be raised as local issues and may be of relevance in the detailed design of the project, but are unlikely to be critical in the decision making process.
Negligible	A very small change that is so small and unimportant that it is considered acceptable to disregard. Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error, these effects are unlikely to influence decision making, irrespective of other effects.

Residual Effects

1.33 Residual effects are the effects of the proposed scheme on the environment which remain having taken account of committed mitigation measures.

Cumulative Effects

1.34 There are a number of types of cumulative effects including synergistic, combined, interrelated effects etc. For the purpose of this environmental assessment, they have been defined under the two categories identified in the IEMA 2011 Special Report on 'The State of Environmental Impact Assessment in the UK' (IEMA, 2011). These are inter-project effects and intra-project effects. These two types of cumulative effects are explained below.

- **Inter-Project Effects**: The combined effects of the proposed scheme with other relevant schemes which may, on an individual basis be insignificant but, together (i.e. cumulatively), have a significant effect. An example would be surface water runoff likely to be generated by the construction of a proposed supermarket in the area, which would need to be added to the predicted surface water runoff figures for the proposed scheme, in order to understand the true potential effects as a result of the combined schemes.
- **Intra-Project Effects**: The combined effects arising as a result of the proposed scheme, for example upon a single receptor or resource. An example would be where a local resident is affected by dust, noise and a loss of visual amenity during the construction of a scheme, with the result being a greater nuisance than each individual effect alone.

Construction Environmental Management Plan

1.35 A Construction Environmental Management Plan (CEMP) would be prepared to support the application, at the EIA stage. This would present the general approach and application of environmental management and mitigation for the construction of the proposed scheme. The CEMP aims to ensure that adverse effects from the construction phase on the environment and local communities, are minimised.

Assessment of Alternatives

1.36 Schedule 4 of the EIA Regulations requires that the ES includes an outline of the main alternatives considered and provides an indication of the main reasons for the applicant's choice, taking into account the environmental effects.

1.37 In accordance with the EIA Regulations the following will be considered and described in the ES:

- Alternative sites – a summary of alternative routeing options and alternative SEC locations considered for the proposed scheme.

1.38 It is not considered necessary to assess the "do-nothing" option so it is proposed to scope this out of the ES. The purpose of the VIP project is to counter the existing negative effects of existing infrastructure on the visual amenity and landscapes of the Dorset AONB.

Mitigation

1.39 Mitigation measures that would be considered in the ES typically fall into one of three categories as follows:

- Primary or 'embedded' mitigation measures developed through the iterative design process and have become integrated mainstream components of the design of the proposed scheme;
- Standard construction practices for avoiding and minimising environmental effects. For example, National Grid would compile a Code of Construction

Practice (CoCP) and/or a Construction and Environmental Management Plan (CEMP) as part of its application; and

- Secondary mitigation measures which are designed to address any significant adverse effects remaining after primary measures and standard construction practices have been applied to the proposed scheme.

Compliance with Legislation, Standards and Guidance

1.40 There is a broad range of legislation covering the different aspects of environmental protection. These are supported by additional statutory guidance; 'standards', such as British Standards (BS) or International Standards (ISO); and other 'best practice' guidance, including industry codes of practice. These will be adhered to during the construction of the proposed scheme and will be kept under review and updated as required as a result of new or amended legislation, and standards and guidance by National Grid and their contractors.

Proposed Structure of the ES

1.41 The ES would comprise the following set of documents:

- ES Non-Technical Summary (NTS) – comprising a summary of the principal issues and findings of the EIA
- ES Volume 1: Main Text – comprising the full text of the EIA with the proposed chapter headings as follows:
  - Introduction: including general background information, the legislative requirements of EIA, description of the site and surroundings;
  - Approach to EIA: detailing the methodologies employed as part of the EIA and any issues agreed to be scoped out;
  - The Proposed Scheme;
  - Alternatives;
  - Planning Policy;
  - Consultation;
  - Technical Chapters (as listed in the Scoping Report)
- ES Volume 2: Figures – comprising the figures in A3 format
- ES Volume 3: Technical Appendices – providing supplementary details of the environmental studies conducted during the EIA

2 Scheme Description

Construction, Operation and Decommissioning

2.1 The search area for the permanent development (the search area) is shown in **Figure 1.2**. This search area represents the current boundaries for any permanent development relating to the proposed scheme, i.e. National Grid will, in consultation with stakeholders, identify options for an underground cable alignment and sealing end compounds (SECs) within this boundary. SEC search areas are defined at both northern and southern ends of the search area. Environmental baseline data will extend outside this search area, where necessary.

2.2 The search area does not include the spatial extent of any temporary works (e.g. temporary laydown areas and access roads, temporary OHL diversions which may be required during construction) as, at this stage, it is not possible to identify the extent of these. However, these would be located as close as possible to the main works wherever possible.

2.3 The following paragraphs give further details of the scheme components and an overview of construction, operation and decommissioning methods. For the purposes of the assessment process construction and decommissioning include the following elements:

- Construction: the proposed scheme, i.e. 12 new underground cables; two new SECs and associated terminal pylons; removal of existing VIP subsection (pylons, conductors);
- Decommissioning: Removal of the proposed scheme, i.e. underground cable (see paragraph 2.15), SECs and terminal pylons.

Construction

Cable

2.4 Direct burial of an underground cable would require a construction corridor typically 60m wide along the length of the cable route. This width is to accommodate the cable trenches, haul road, storage areas for stripped topsoil and sub soil from the cable trench excavation and inclusion of any temporary and permanent land drainage requirements. This is based on the assumption that direct burial is using twelve cables to maintain circuit capacity. Following completion of the cable installation, the ground would be returned to its previous use. Hedgerows and other field boundaries would be reinstated. Trees felled would not be replanted over the buried cable but would be replaced locally elsewhere at a ratio of at least 4:1 in accordance with National Grid policy. **Figure 2.1** shows a typical cross section for underground cable construction. Direct burial is the standard method used for undergrounding cables. In exceptional circumstances, trenchless technologies (see below) may be employed.

2.5 The construction haul road would be in place for the full duration of the construction period and, where possible, would be used for the dismantling of the existing VIP subsection. Use of the haul road is essential to allow construction and would reduce vehicle movements on public roads. Additionally, the underground cable route would be completed as a rolling programme of sections, with only part of the route being subject to open trenching at any one time. Likewise, dependent on programme requirements, other temporary construction areas, for example laydown areas, may be reinstated ahead of final construction completion.

2.6 Trenchless technologies such as horizontal directional drilling (HDD) can be used to negotiate steep topography and sensitive terrain. The directional drilling provides a bore beneath the sensitive /difficult area that the cable is then sleeved into using a biodegradable lubricant. The HDD bore is typically 18 inches with a 355mm HDPE duct.

2.7 An available alternative to HDD is a tunnelling system, such as a micro-tunnelling boring machine (TBM), with a typical bore range of 375m-2000m. Micro-tunnelling is simply defined as a remotely controlled, guided, pipe jacking operation for remotely-operated, small-diameter tunnelling, that provides continuous support to the excavation face by applying mechanical or fluid pressure to balance groundwater and earth pressures. It is commonly used where a high accuracy on line and level product pipe are required.

2.8 The maximum length that can be achieved with trenchless techniques will be determined by the length of suitably rated cable that can be delivered to site on a single cable drum, but is typically between 300m and 800m. The depth of the buried cables will depend on the cable rating, and the deeper the cables are buried the wider the spacing's between cables needs to be. The wider spacing's are required due to reduced heat dissipation from the ground, cables need to be far enough away from each other so not to allow heat to transfer from one cable phase to the other or from one circuit to another.

Figure 2.1 Typical underground cable construction swathe drawing

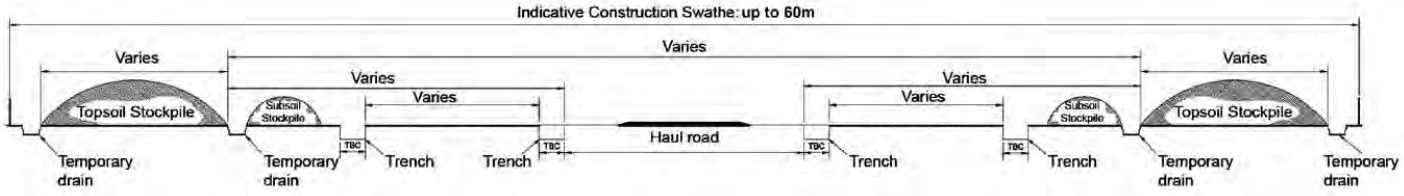


Figure 2.1 - Indicative Construction Swathe for Typical Land Cross Section for 400kV Cabling Works

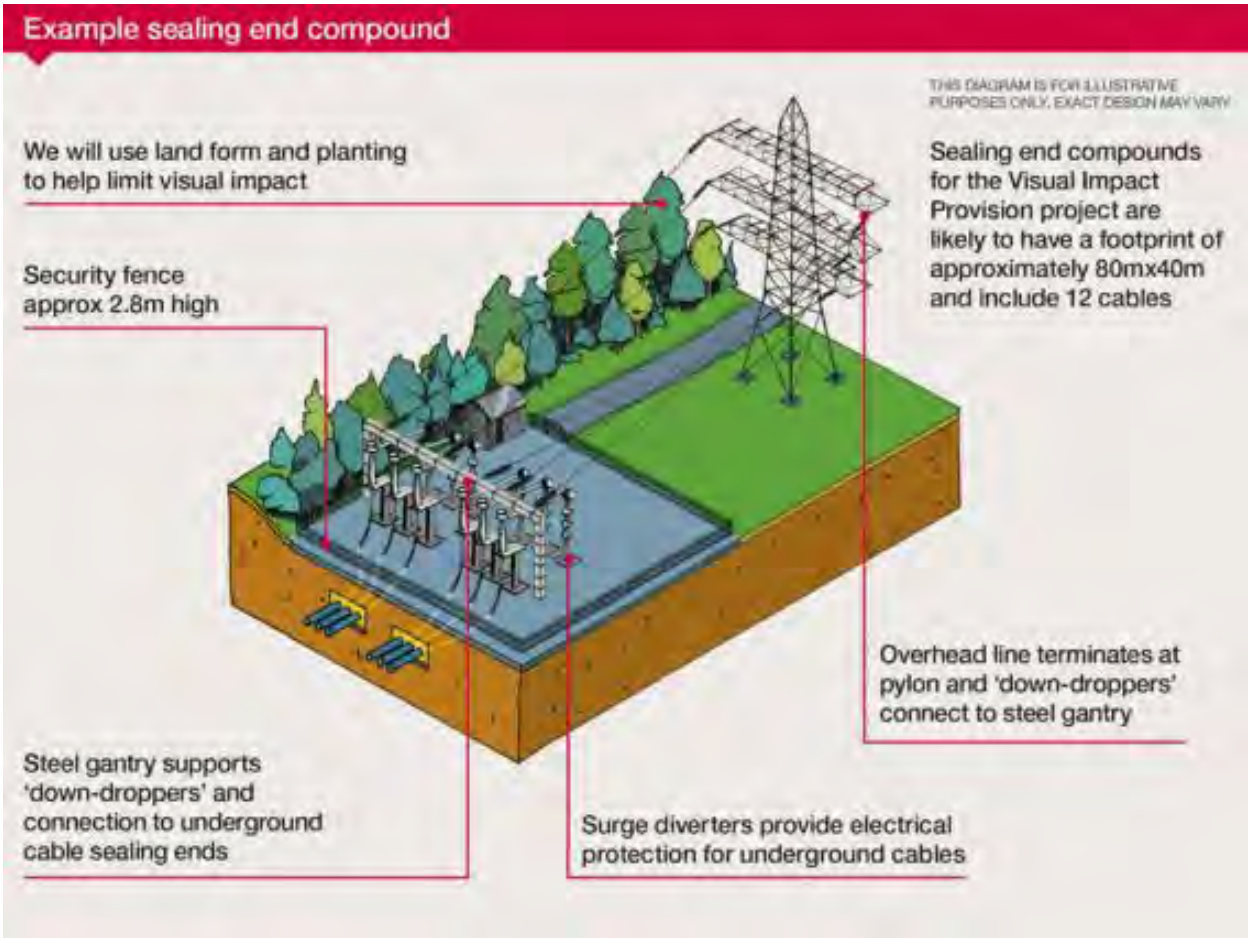
Drawing Not To Scale

Sealing End Compounds

2.9 The rationale for the SEC search areas is that, ideally, they would be located as close to the existing OHL as possible, thus eliminating the requirement for or minimising the extent of any new OHL required to connect the SECs with the existing 4YA OHL. The search areas identified in **Figure 1.2** are to the north-east of Winterbourne Abbas and at Friar Waddon Hill in the south.

2.10 A SEC would be located at each end of the cable route, to achieve the transition from an OHL to an underground cable. A terminal pylon forms the end of the 400kV OHL, with a typical fenced compound approximately 80m by 40m. A diagram of a typical SEC is shown in **Figure 2.2**. Both cable SECs would require permanent road access. Where access roads already exist, these may need to be upgraded. It is important to note that although the designs for SECs do vary, and normally each compound is slightly different, the SEC is likely to be similar to the examples shown, and the pylon is often contained within the compound.

Figure 2.2 Diagram of a typical sealing end compound



Removal of Existing Infrastructure (VIP subsection)

2.11 Removal of the existing pylon infrastructure (the VIP subsection) would take place following installation and commission of the new cables and would involve many of the activities associated with the build phase, for example provision of access points and haul roads and associated traffic movements for the removal of equipment. Upon removal, much of the material would be taken for reuse or recycling.

2.12 Pylon fittings, such as dampers and spacers, would be removed from the conductors. The conductors would be cut into manageable lengths or would be winched onto drums. Each pylon may be dismantled by crane, with sections cut and lowered to the ground for further dismantling and removal from site. If space is particularly restricted, the pylon can act as the scaffold and be dismantled from the inside. Conversely, in large areas it may be possible to cut the pylon at the base and then pull the pylon to the ground using a tractor and then cut into sections.

2.13 Discussions with landowners and stakeholders regarding removal of pylon foundations would be undertaken and take account of land owner wishes (for example, removal of foundations to a typical depth of 1.2m to allow for ploughing) and environmental issues. Where applicable, for assessment purposes it is assumed that pylon foundations would be removed.

Temporary Works

2.14 Temporary works required for the proposed scheme would include: new access onto public highways; equipment laydown areas and site offices; the erection of temporary structures (pylons / masts and scaffolding for crossings) whilst cable sealing end and/or overhead line works are undertaken.

Operation

2.15 Maintenance of the proposed scheme will be required during its operational lifetime. Typical maintenance procedures are summarised in **Table 2.1**.

Table 2.1: Typical Maintenance Works during Operational Lifetime

Scheme Element	Typical Maintenance works	Frequency
Underground cable/ SEC	Underground cables have above ground kiosks or link boxes (where the cable sections join) that allow monitoring of HV underground cable systems. Monitoring is carried out via fibre optic cables installed with the underground cables. Monthly visual checks would be required of the underground cables, above ground kiosks and checks on the electrical equipment within the SEC. Work would involve enhanced visual inspections by use of an access platform, and cable testing at above ground link boxes (requiring mains volts or a portable generator to power the test set). This would require 2-3 persons / small vans over a two week period.	Monthly Every four years
Terminal Pylons	Infrequent visits for replacement of pylon fittings/ anti climbing devices (ACDs), pylon steelwork / bracing. Painting pylon steelwork. Vans would be used to carry workers in and out of site and trucks would be used to bring new materials and equipment to site and remove old equipment (using permanent SEC access road).	As required Every 10-15 years

Decommissioning

2.16 Underground cables have a life expectancy of approximately 40-50 years. After this time the cables would require replacing, assuming the connection is still required. If the old cables need to be removed then a similar method would be followed as during installation.

2.17 If the connection is no longer required, underground cables would be decommissioned. Unless there is a compelling need for removal of underground cables, they would remain buried in the ground. In the unlikely event that the underground cables were to be removed, similar methods and access would be required as outlined for installation.

2.18 The lifespan of a SEC is approximately 40-50 years. When the SECs useful life has expired the materials would be removed and taken for recycling. Unless there is a compelling need for removal of the foundations, these would be removed to

approximately 1m deep and subsoil and topsoil reinstated. If the foundations were to be removed, similar methods and access would be required as outlined for installation.

Programme

2.19 The current indicative programme is that, assuming planning consent, on site works would commence in spring / summer 2018 and take approximately two and a half to three years to complete.

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3 Planning Policy

Introduction

3.1 The application(s) for planning permission for the proposed scheme will be determined in accordance with the development plan, unless material considerations indicate otherwise, as required by Section 38(6) of the Planning and Compulsory Purchase Act 2004. In order to discuss the proposed scheme in this context, the ES will summarise the relevant national and Development Plan policy context within a planning policy chapter as follows:

- National Planning Policy Framework;
- Planning Practice Guidance;
- National Policy Statements;
- Local Development Plan Policy;
- Emerging Development Plan Policy;
- Other Local Planning Policy; and
- Other Local Policy.

3.2 The planning policy context chapter of the ES will include a general overview of the national and local planning policy framework of direct relevance to the proposed scheme.

3.3 Policies, relevant guidance and legislation relating to technical aspects of the environmental assessment will also be listed specifically within each technical chapter of the ES, where necessary. Each technical chapter will provide a description of these, to include setting out how the scope of the assessment has had regard to relevant planning policy in identifying relevant sensitive receptors and requirements for mitigation, as well as requirements for the assessment methodology. In addition, it may be appropriate for a technical chapter to note in its results factual information which can be used to support assessment of compliance with planning policy (e.g. recording a net loss of biodiversity); although it is not for the ES to draw conclusions on compliance with planning policy.

3.4 The planning policy context chapter of the ES will also provide a summary of how each technical chapter has considered planning policy, as set out above.

National Planning Policy

3.5 National planning policy in England comprises the National Planning Policy Framework. This document is supplemented by the National Planning Practice Guidance. Both resources should be taken into account in the preparation of development plans. They may be material to decisions on individual planning applications and will be taken into account by Ministers and Planning Inspectors in the determination of called-in planning applications and appeals.

National Planning Policy Framework

3.6 The National Planning Policy Framework (NPPF) (Department of Communities and Local Government (DCLG), 2012) sets out the Government's planning policies for England and how these are expected to be applied. It is a material consideration in the decision-making process afforded considerable weight. The NPPF will be reviewed and appropriate policies identified which may have a bearing on the decision making process.

National Planning Practice Guidance

3.7 On 6 March 2014, the Department for Communities and Local Government (DCLG) published its Planning Practice Guidance (PPG), on-line guidance resource to use alongside the NPPF. The PPG consolidated and revised a large number of practice guidance documents. Since its initial publication, the PPG has been the subject of a number of updates, and will continue to be updated. The PPG provides detailed planning advice on different subjects relating to the interpretation of planning policy and legislation and will be referred to as required in the assessment.

Local Planning Policy

3.8 The search area for permanent development (the search area) lies within the administrative boundary of West Dorset District Council who will determine the application for the proposed scheme. In determining the full planning application, the local planning authorities will take into account the development plan for West Dorset District Council. This includes policy on heritage and landscape, two key planning considerations for West Dorset.

3.9 The relevant development plan documents are identified below including adopted and emerging planning policy.

West Dorset District Council

- West Dorset, Weymouth and Portland Local Plan (West Dorset District Council and Weymouth & Portland Borough Council, 2015); and
- Design & Sustainable Development Guidelines; Supplementary Planning Document (West Dorset District Council, 2009).

3.10 In terms of emerging plans, West Dorset District Council are developing a Green Infrastructure Development Plan Document, due for adoption in 2016. It is currently being prepared for consultation. This will replace the existing local landscape designations.

3.11 In scoping the environmental assessment, policies in the above listed documents have been considered to identify relevant sensitive receptors and requirements for the assessment methodology.

4 Consultation

Introduction

4.1 This chapter outlines the stakeholder engagement activity undertaken on the Visual Impact Provision (VIP) project to date and sets out the intended consultation strategy during the EIA process with statutory and non-statutory consultees for the proposed scheme.

4.2 National Grid's VIP project has been stakeholder-driven from the outset. Both National Grid and Ofgem have always maintained that for the project to succeed, it is vital that stakeholders play an ongoing central role in helping to identify those areas and existing overhead lines (OHLs) which would benefit most (see also Chapter 1).

4.3 The Stakeholder Advisory Group is an independent group of stakeholder organisations, chaired by environmentalist, Chris Baines and comprising senior representation from 15 English and Welsh stakeholder bodies namely: Cadw, the Campaign for National Parks, CPRE, CPRW, Historic England, the Landscape Institute, the National Association for AONBs, National Parks England, National Parks Wales, the National Trust, Natural England, Natural Resources Wales, The Ramblers, Visit England and Visit Wales.

4.4 The members advise the project on key decisions and on the most effective ways to engage with local stakeholders outside the main Advisory Group. In the same way at a local level, an independent Stakeholder Reference Group (SRG) has been established in each priority area, including Dorset. The input of local people from local enthusiasts to residents and technical experts has been sought throughout the project.

Initial Engagement on the VIP Project

4.5 Following the first meeting of the VIP project's Stakeholder Advisory Group, it was agreed that National Grid's VIP team would visit main contacts at all 30 of the AONB Partnerships and National Park Authorities which were eligible for VIP.

Early Stakeholder Engagement – Post Short-listing for Potential Schemes

4.6 Having identified a shortlist of 12 subsections of OHL in eight designated areas using the landscape assessment methodology, the Stakeholder Advisory Group asked National Grid to carry out early stage engagement with stakeholders and the public at a local level.

4.7 In Dorset, the aim of this early engagement was to gather information and intelligence on the area to inform the options assessment and to gauge local attitudes and opinions to the work. It was also felt that involving local groups and individuals at the outset would not only help to identify any potential problems and challenges, but also to give the local community a sense of ownership. It should be a requirement of any scheme taken forward to major engineering work that it has the support and involvement of local people.

4.8 National Grid's intention was to work closely with the Dorset AONB Partnership and key stakeholders to present a collaborative, inclusive partnership approach to the local community.

4.9 An initial scoping meeting for this early engagement work was held between National Grid and the Dorset AONB and an overall approach to engagement discussed. As a result, an early engagement programme was developed that involved:

- A technical workshop in February 2015 for key representatives from the AONB and other key statutory bodies identified by the AONB. These included representatives from Dorset County Council, West Dorset District Council, Natural England, the South Dorset Ridgeway Partnership and Bournemouth University. This group formed a Stakeholder Reference Group (SRG) for the project.
- A public drop-in event was held in February 2015 at the Dorset County Council Colliton Club and attended by 41 people.
- Engagement with local MPs, Oliver Letwin, as well as those MPs with constituencies elsewhere in Dorset, along with the ward councillors and cabinet members of Dorset County Council and West Dorset District Council.
- Technical feedback from the Dorset SRG, along with the opinions of local people and other non-technical groups who attended the drop-in session was then fed into the Options Appraisal Report prepared for Dorset.
- A second meeting of SRG (technical stakeholders) took place in August 2015. Following the incorporation of further stakeholder feedback, the Options Appraisal report for Dorset was then presented to the Stakeholder Advisory Group in September 2015 and formed one of the main documents that informed the Group's decisions on which should be the priority schemes.

Ongoing Stakeholder Engagement

4.10 Following the September 2015 Stakeholder Advisory Group meeting, the section of OHL near Winterbourne Abbas in Dorset was selected as one of the four priority schemes for further investigation.

4.11 National Grid directly informed the AONB and the communications team at Dorset County Council and spread the word widely through media releases, social media and other AONB communications. Direct communication was also made with members of the SRG and those who had registered for updates via the VIP project website www.nationalgrid.com/VIP

4.12 MPs and elected members from county, district and parish councils were also written to and meetings offered on an individual basis. Since the announcement in October 2015, the VIP team, its appointed environmental consultants and consents team have been liaising with the AONB, key members of the SRG and other relevant technical organisations to explore potential options further.

4.13 A communications and engagement plan, which will be shared with the AONB team, has been developed by National Grid to cover the period until autumn 2016.

4.14 It is an ongoing engagement plan aimed at keeping stakeholders informed of the scheme's progress, activities planned during this period (e.g. surveys) and, ultimately further details on engineering options as the scheme progresses.

4.15 The communications plan contains the following elements:

- SRG meetings – scheduled for spring, summer 2016 (ahead of the public drop-ins) and autumn 2016 (after the drop-ins and before the eighth meeting of the VIP Stakeholder Advisory Group.

- Direct engagement – a comprehensive stakeholder database has been produced for the proposed scheme. Individuals and organisations are segmented into groups. As well as the SRG, individuals and groups will be engaged via a mix of one-to-one meetings (where appropriate), presentations to small groups, letters, email updates and phone conversations. National Grid will also respond to all incoming requests from stakeholders.
- Third party channels – National Grid will work with the communications teams of those stakeholders where we have an existing relationship to disseminate information through their established membership, social media and other channels. National Grid would also look to add to this network in the coming months.
- Media relations – there would be regular updates to the local media on proposed scheme milestones and to publicise the summer drop-in events.
- Drop-in events – these would be held in the summer but avoiding school holidays. They would be held at a convenient local venue (or venues), and to include one evening and potentially a weekend. The events would be attended by members of the VIP team together with relevant professional advisers who can speak on the more technical aspects of the proposed scheme. Printed and online feedback forms would be available at the events and visitors would be able to feedback via the website or freepost at a later date.
- Dorset VIP website – a dedicated website would be established with a focus on information specific to the proposed scheme, information on drop-in (and other) events and the chance to feedback comments and views.
- Other local events - where appropriate, the VIP project would have a presence (either directly or through partners) at relevant local events in Dorset.

Emerging Issues

4.16 A wide range of issues relating to the proposed scheme have emerged during engagement activity. These have either been addressed or form part of ongoing work by National Grid and the VIP team working in partnership with the stakeholders involved. Some of these issues are contained in the published Options Appraisal report for Dorset.

Wider Engagement

4.17 National Grid will undertake public engagement to inform the EIA. It will include reference to the early stage engagement work undertaken to date and ongoing during 2016.

4.18 Engagement to support the EIA would therefore be scheduled in line with the full programme to take place in the first half of 2017. Plans for engineering options/design, construction activities and likely restoration proposals and timeframes can be shared with the public in an advanced form, but allowing time for changes to be made prior to the submission of the planning application.

4.19 Consultation bodies will be drawn from the stakeholder database and are likely to include:

- Local Authority stakeholders / partners – the Dorset AONB Partnership and Dorset County Council
- Stakeholder Reference Group

- Other statutory consultees – e.g. Natural England, Environment Agency, Historic England, etc.
- Local groups represented nationally on VIP's Stakeholder Advisory Group (e.g. CPRE, Ramblers)
- Other interest groups locally (e.g. RSPB, Wildlife Trust, local access forums, British Horse Society, National Cycling Charity - CTC, etc.)
- Parish councils / representatives
- Politicians – ward members, lead members, MPs, etc
- Schools and education establishments
- Communities
- Immediate neighbours in properties / villages close to the proposed scheme
- Wider communities across the AONB and other neighbours

4.20 A chapter detailing engagement activity will be included as part of the Environmental Statement (ES). This will identify feedback from stakeholders and demonstrate the steps National Grid has taken to incorporate stakeholder input into its proposals. Appendices containing all feedback forms, examples of the exhibition materials and publicity materials used and resulting media coverage will be included with the ES.

5 Landscape and Visual

Introduction

5.1 Landscape and visual impact assessment (LVIA) is a tool used to identify and assess the likely significance of the effects of change resulting from development both on the landscape as an environmental resource in its own right and on peoples' views and visual amenity.

5.2 In accordance with the 'EIA Regulations', the LVIA will identify and appraise the potential effects on the landscape, views and visual amenity, resulting from undergrounding a section of existing 400kV overhead line (OHL) and associated works (the proposed scheme) as described in Chapter 1.

5.3 The LVIA will consider the likely effects during construction, operation and decommissioning. This will include the temporary effects relating to construction and longer term effects during which the beneficial effects of removing the existing section of 400kV OHL (the VIP subsection) become apparent and any proposed planting becomes established.

5.4 Building on previous work on National Grid's Visual Impact Provision (VIP) project (National Grid, 2014) and Options Appraisal Study (OAS) (National Grid, 2015), the LVIA will update the VIP LVIA and OAS baseline information for the VIP subsection, adding further new or updated information as required.

Scope and Definitions

5.5 For the purposes of the LVIA:

- Landscape effects mean impacts or effects on 'the landscape as a resource in its own right' (Landscape Institute and Institute of Environmental Management and Assessment (IEMA), 2013). It includes direct effects upon the fabric of the landscape (such as the addition, removal or alteration of structures, woodlands, trees or hedgerows), which may alter the character and perceived quality of the area, or more general effects on landscape character and designated areas of landscape arising from the introduction of new man-made features. In landscapes designated or valued for their scenic or landscape quality such as Dorset AONB, such changes can affect the purpose of the designation or perceived value of the landscape.
- Visual effects mean impacts or effects on 'specific views and on the general visual amenity experienced by people' (Landscape Institute and IEMA, 2013). These relate to specific changes in the composition of views and the effects of those changes on visual receptors and wider visual amenity[1]. In accordance with GLVIA[4], the assessment will focus on public views experienced by those groups of people who are likely to be most sensitive to the effects of the proposed scheme. This includes: local communities where views contribute to the landscape setting enjoyed by residents in the area, road users and people using recreational routes, features and attractions.
- Cumulative effects are the effects of the proposed scheme adding to the effects of other similar proposed developments. There are two main types of cumulative

[1] Meaning the overall pleasantness of the views people enjoy of their surroundings

effect. Intra-project cumulative effects are those effects which arise from different environmental factors affecting a single receptor (for example tree removal may affect both ecological and visual receptors). Cumulative effects which arise from the additional effects caused by the proposed scheme interacting with the effects of other similar developments in the locality are known as inter-project cumulative effects.

5.6 The term 'effects' will be used, as opposed to 'impacts', as this is the approach taken in GLVIA3.

Consultation

5.7 As set out in Chapter 4, consultation with Dorset AONB, local stakeholder and community groups was undertaken as part of the VIP LVIA and OAS. This information will inform preparation of this assessment.

5.8 Further consultation undertaken to date includes a formal EIA Screening Opinion received from West Dorset District Council and Weymouth and Portland Borough Council[2] which has helped inform this Scoping Report; relevant landscape and visual details are include below.

5.9 The screening opinion letter stated that 'the site is located within the Dorset AONB, a 'sensitive area' according to the EIA regulations'[3] and that the Council's Senior Landscape Officer and the Dorset AONB team were consulted on the proposed scheme. The Council's comments continued with:

'It was recognised that the proposed scheme will result in significant and beneficial effects upon the Dorset AONB resulting from the removal of the large electrical infrastructure. However, significant and adverse temporary effects would be apparent during construction operations. The trenching, haul road and storage areas constituting a corridor 30-50m wide along the 6.5km length would be visually dominant in the AONB landscape for the construction period of 2-3 years. Whilst the location and final design are not yet known, the SEC also have the potential to result in significant effects upon the AONB given their scale, access requirements and new pylons. The proposed development therefore could be considered as EIA development on landscape grounds.'[4]

5.10 Further consultation with local authorities, the AONB team, and other relevant stakeholders, will form part of the LVIA process, including agreement of methodology, study area, and assessment viewpoints.

Legislation and Policy

5.11 A desk-based review of relevant legislation and planning policy relating to electricity transmission and the landscape will be undertaken. This will include a review of:

- Department for Communities and Local Government (2012). National Planning Policy Framework;

[2] Letter from West Dorset District Council and Weymouth and Portland Borough Council dated 15th January 2016. The Town and Country Planning (Environmental Impact Assessment Regulations 2011: EIA Screening Opinion, Reference WD/D/15/002837: Dorset AONB Y4A Line, Martinstown.
[3] Letter from West Dorset District Council and Weymouth and Portland Borough Council dated 15th January 2016. The Town and Country Planning (Environmental Impact Assessment Regulations 2011: EIA Screening Opinion, Reference WD/D/15/002837: Dorset AONB Y4A Line, Martinstown.
[4] Screening response letter 15 January 2016, West Dorset District Council & Weymouth and Portland Borough Council. WD/D/15/002837: Dorset AONB YA4 Line, Martinstown.

- West Dorset, Weymouth and Portland District Councils (2015) Local Plan (2011-2031) (Adopted 2015);
- West Dorset District Council (2009). West Dorset Landscape Character Assessment;
- West Dorset District Council (2009). West Dorset Landscape Character: Management Guidance. Supporting guidance for the West Dorset Landscape Character Assessment;
- Dorset Area of Outstanding Natural Beauty Partnership (2014). Dorset AONB Management Plan 2014-2019;
- Dorset Area of Outstanding Natural Beauty Partnership (2008). Conserving Character - Landscape Character Assessment and Management Guidance for the Dorset AONB.

5.12 In addition, the following guidance will be referenced:

- The Holford Rules – Guideline for the Routeing of New High Voltage Overhead Transmission Lines;
- The Horlock Rules – Guidelines on the Siting and Design of National Grid Substations;
- Landscape Institute (2011). Photography and Photomontage in Landscape and Visual Impact Assessment: Advice Note 01/11;
- National Grid (2012). Our Approach to the Design and Routeing of New Electricity Transmission Lines;
- Natural England (2014). An Approach to Landscape Character Assessment.

Baseline Environment

5.13 This section will establish the baseline landscape and visual conditions which the proposed scheme will be assessed against, and form the basis for the identification and description of the changes that may result from the proposed scheme. This will include the existing 400kV OHL, which will be included in the baseline for the purpose of this assessment. The extent of the study area is defined as the distance of 5km as explained later in this chapter.

Landscape Baseline

5.14 The landscape baseline will review all the available information to establish an understanding of the landscapes of the study area, their constituent elements, character, condition, how it is experienced and any values attached to it. Sources of information will include:

- Aerial photography; and
- National Grid VIP LVIA Technical Report and Visual Impact Provision Dorset AONB Options Appraisal Study.

Visual Baseline

5.15 The area in which the proposed scheme may be seen will be established using digitally created zones of theoretical visibility (ZTVs), by analysing maps and aerial photography, and by undertaking site visits. Site visits will provide an opportunity to help identify and confirm groups of likely visual receptors who may experience changes to views or their visual amenity.

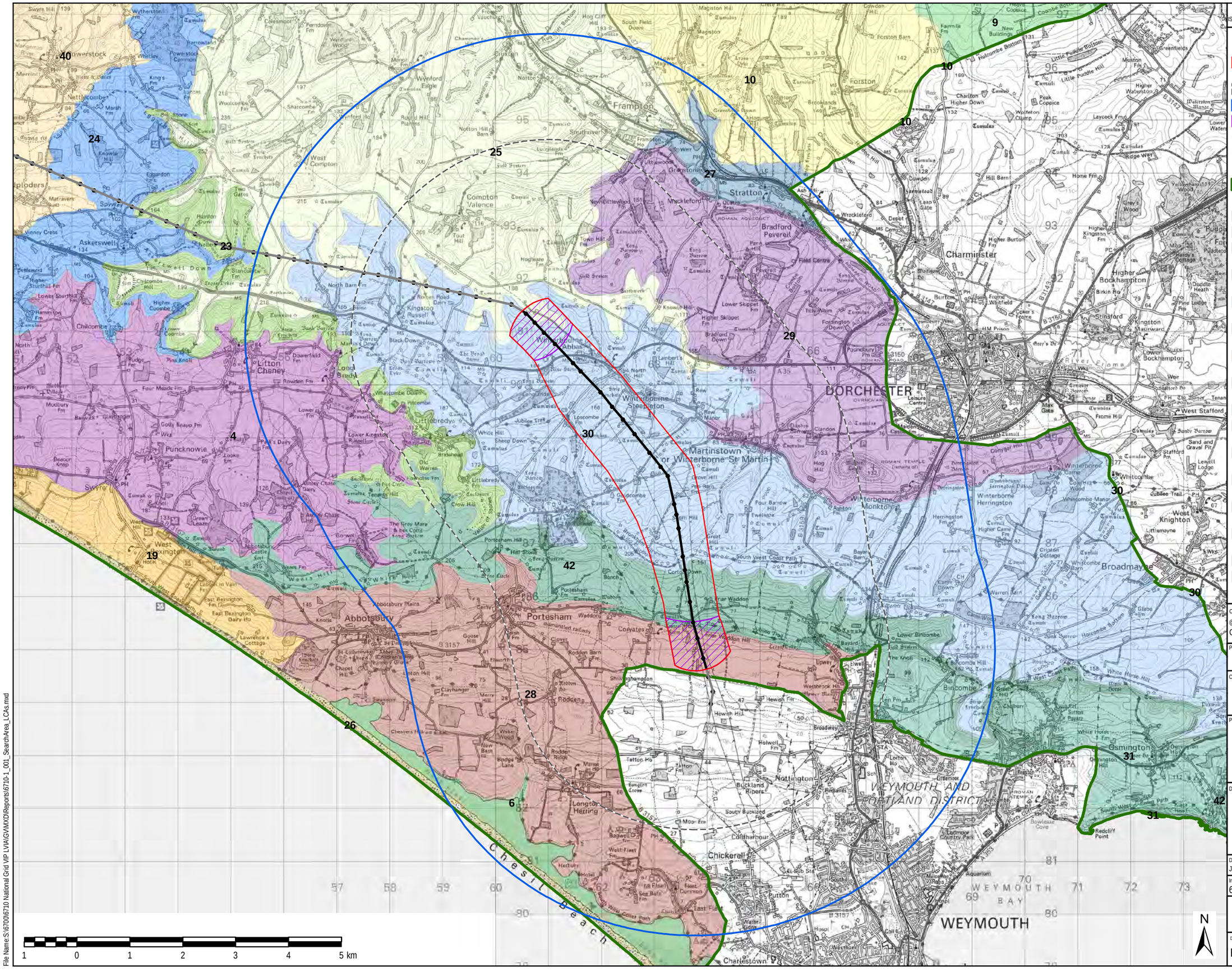
5.16 Sources of information will include:

- Nationally designated and regionally promoted walking routes, cycleways and bridleways, as well as public rights of way (PROW), Common Land and open access land (OAL);
- Tourist attractions, recreational sites and settlements identified from 1:25,000 OS maps or tourist literature;
- National Grid VIP LVIA Technical Report and Visual Impact Provision Dorset AONB Options Appraisal Study; and
- Advice provided by stakeholders on locally used recreational routes and visitor locations.

Overview of Landscape Character

5.17 Landscape Character Areas are illustrated on **Figure 5.1**.

5.18 The South Dorset Downs Landscape Character Area (LCA), which the existing 4YA OHL crosses, is an area of open downland with broad rolling hills. The areas convex slopes give way to small-scale valleys like at Winterbourne Abbas where the land cover consists of large or medium fields divided by low hedges with few trees or woodlands. There are patches of semi-natural chalk grassland within the farmed, rural landscape. The general lack of tree cover and little development, other than the 4YA OHL and adjacent, smaller Distribution Network Operator (DNO) OHLs, allows for open skylines which are a feature of this landscape. Hardy Monument, Bronkham Hill and numerous barrows are all prominent features within the landscape.



THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Search Area for Permanent Development
- 3km from search area
- LVIA Study Area (5km)
- Sealing End Compound Search Area
- VIP subsection
- 4YA overhead line
- Pylon
- Dorset AONB boundary

Dorset AONB landscape character areas

- 4 - Bride Valley - Clay Valley
- 6 - The Fleet - Water
- 9 - Upper Piddle Valley - Chalk Valley & Downland
- 10 - Cerne & Sydling Valleys - Chalk Valley & Downland
- 19 - Bexington Coast - Coastal Grassland
- 23 - West Dorset Escarpment - Chalk Ridge / Escarpment
- 24 - Powerstock Woods - Wooded Hills
- 25 - Upper Frome Valley - Chalk Valley & Downland
- 26 - Chesil Beach - Shingle beach
- 27 - Frome Valley Pasture - Valley Pasture
- 28 - South Dorset Ridge & Vale - Ridge & Vale
- 29 - Dorchester Downs - Open Chalk Downland
- 30 - South Dorset Downs - Open Chalk Downland
- 31 - Osmington Ridge & Vale - Ridge & Vale
- 40 - Powerstock Hills - Wooded Hills
- 42 - South Dorset Escarpment - Chalk Ridge / Escarpment

Purpose of Issue
SCOPING REPORT

Client
NATIONAL GRID

Project Title
VISUAL IMPACT PROVISION

Drawing Title
LVIA - LANDSCAPE CHARACTER AREAS. 4YA

Drawn	Checked	Approved	Date
JH	CG	AK	18/03/2016

Internal Project No.	Scale @ A3
60478116	1:65,000

nationalgrid LUC

Drawing Number	Rev
FIGURE 5.1	01

File Name:S:\6700\6710 National Grid VIP LVIA\GVIMXD\Reports\6710-1_001_SearchArea_LCAs.mxd

Description of the Existing Landscape in the Search Area for Permanent Development (the search area)

5.19 The northern SEC would be located to the north of the A35. From here, the existing VIP subsection runs in a south-east direction to the south-west of Winterbourne Abbas, where it can be seen on the horizon as it crosses over a small-scale valley. The landscape along the VIP subsection is typical of the area, a simple elevated large-scale downland with medium to large-scale arable fields bound by low hedges and few trees. There is little development in this landscape with dispersed isolated farms and linear settlements associated with the A35 and B3159. Tranquillity in the area is reduced locally around Winterbourne Abbas and along the A35 road corridor.

5.20 The existing VIP subsection crosses the open downs, dropping into a valley as it passes close to Winterbourne Abbas. The line approaches the South Dorset Escarpment from the north, and passes around 2km east of the Hardy Monument, a key landmark and popular viewpoint in the area. The existing VIP subsection has a high impact as it frequently appears on the large open skylines, which are a feature of the study area. The main recreational interest in this VIP subsection is focused on the escarpment and the South Dorset Ridgeway which follows it. Coastal views are available from the escarpment, as well as long inland views. The impact of the VIP subsection is increased where it is flanked by two smaller distribution lines and where the pylons can be seen stacked up together on low, open farmland ridges.

5.21 The southern SEC would be located below the South Dorset Escarpment, on the lower slopes south of the ridge.

Designated Landscapes

5.22 The majority of the study area falls within the Dorset AONB, recognised for the areas collection of fine landscapes, of outstanding scenic quality and a unique character.

5.23 Bridehead, located to the west of the VIP subsection, is listed as a Grade II on Historic England's Register of Parks and Gardens. This early 19th century park and garden, redrawn by JD Harding, is valued for its pleasure grounds with views over across the landscape, and features in a series of watercolour painting by Moule in 1884-6.

5.24 In addition, there are several areas of Ancient Woodland and frequent Scheduled Monuments within the study area.

Visual Amenity

5.25 This section identifies the visual amenity and availability of views as currently experienced by people (visual receptors). Visual receptors include local communities, visitors to the area, recreational users including users of the public rights of way, motorists on the local road network and people working within the area.

5.26 Visibility over the downlands is generally open and expansive especially from elevated locations, such as Hardy's Monument and the South Downs Ridgeway. Views from Winterbourne Abbas, in comparison, are foreshortened and contained by buildings within the settlement and the surrounding valley sides. Where the VIP subsection crosses the busy A35, NCN Route 2, Jubilee Trail, and other Rights of Way, receptors have opportunities to gain very near views of pylons resulting in a high-scale impact. This is emphasised by the smaller two steel pylon DNO OHLs which flank the VIP subsection south of Winterbourne Abbas. The South Dorset Ridgeway long distance footpath, and features including Hardy's Monument and the historic barrows are very popular with visitors to the area. From these locations views of the VIP subsection can be obtained, however from Hardy's Monument the scale of the impact is lower as it is further away.

5.27 People within the AONB who may experience these views include the communities of Winterbourne Abbas, Winterbourne Steepleton and Martinstown. Visitors to the area

who arrive to enjoy the scenery, open downland landscape and visit historical sites may also experience effects on their visual amenity. Motorists on main 'A' roads, local minor road network, and users of the local footpaths and OAL may experience changes to their visual resource.

5.28 The AONB's 'Statement of Significance' identifies the area as a beautiful countryside where the observer can gain 'uninterrupted panoramic views' (Dorset AONB Partnership, 2014). The AONB's Dorset AONB A Special Place explains this further; '*High chalk escarpment and ridge tops of west Dorset offer uninterrupted panoramic views across the complex pattern and textures of the surrounding landscape'* (Dorset AONB Partnership, 2016).

Potential Impacts

5.29 The assessment will consider the landscape and visual effects of constructing, operating and decommissioning the proposed scheme. The key information which will be used to inform the assessment includes the location and length of the section of 400kV OHL to be removed (the VIP subsection), the location and height of replacement terminal pylons, the location of the SECs, the location of temporary construction and storage areas, access roads and any other infrastructure required to facilitate the development.

Beneficial Effects of Removing the VIP Subsection

5.30 Removal of the existing VIP subsection will result in significant long term permanent beneficial landscape and visual effects as it is currently deemed to have landscape and visual impacts of 'high' importance (see Chapter 1). This benefit would be to both the character and special qualities of the AONB and the downland landscape as well as on visual receptors within the area, including visitors to the Hardy Monument and users of the South Downs Ridgeway.

5.31 These significant effects have to be balanced against any adverse effects of the new above ground infrastructure (operation of the underground cable across the downland would result in no long-term effects on the landscape or views as the land will be reinstated and the cable would not be visible).

Effects of Proposed Scheme

5.32 As explained in Chapter 2 of this Scoping Report, the proposed scheme would comprise of one SEC and replacement terminal pylon at either end of the underground cable (approximately 7km), and removal of the existing infrastructure in the VIP subsection (approximately 18 pylons). The following list sets out the potential adverse effects of the proposed scheme. These effects will typically be temporary and/or localised and the benefits of removing the VIP subsection are considered to significantly outweigh these potential adverse effects.

Construction Effects

5.33 Construction of the proposed scheme would result in potentially short term temporary adverse effects which are likely to include the following:

- Direct loss or fragmentation of distinctive landscape elements during removal of the existing 18 no. pylons and construction of new infrastructure e.g. vegetation clearance to allow for temporary work areas and temporary access tracks;
- Effects of the new infrastructure on the scale, quality and pattern of the existing landscape character and adjacent landscape character areas, including on the setting and special qualities of Dorset AONB and other designated sites; and

- Effects on views which will depend on the extent to which construction works (including all accesses, working areas, lighting and construction traffic using the wider road network) appear in views experienced by receptors such as residents, recreational users and others in the area including local workers.

Operation Effects

5.34 Operation of the proposed scheme would result in some long-term localised landscape and visual effects, which are likely to include the following:

- Very localised permanent vegetation loss around the new infrastructure;
- Effects of the new infrastructure on the scale, quality and pattern of the existing landscape character and adjacent landscape character areas, including on the setting and special qualities of Dorset AONB and other designated sites; and
- Effects on views which will depend on the extent to which the different components of the proposed scheme (including any permanent vehicles accesses) would appear in views experienced by receptors such as residents, recreational users and others in the area including local workers.

Decommissioning

5.35 Decommissioning of the proposed scheme would result in very similar potential adverse effects on landscape character and views as those identified for the construction phase (excluding the effects of removing the existing VIP subsection).

Duration and Reversibility

5.36 The duration of the likely effects is defined as follows:

- Short term – temporary during construction and decommissioning only (zero to three years);
- Medium term – declining after the end of construction due to the effect of mitigation measures, and no longer felt after 15 years; and
- Long term – effects still felt 15 years after construction, and no longer declining.

5.37 Reversibility is a judgement about whether the particular effect is reversible in the long term. In this case the operational effects of the proposed scheme would be long-term but potentially reversible since the proposed scheme has a limited life and could eventually be removed and the land reinstated. Reversibility is particularly relevant to construction effects as works will cease and land and most landscape features will be reinstated in the short term.

5.38 The short-term (and where relevant the long-term) landscape and visual effects arising during the construction of the proposed scheme between commencement on site and the opening year, and also during decommissioning will be considered.

5.39 The assessment year (or years) for construction effects on landscape and visual receptors is dependent on a number of factors - for example, the character of the landscape receptor, the geographical location of the visual receptor and the specific component(s) of the proposed scheme, which are considered to give rise to a landscape or visual effect(s). Effects on landscape and visual receptors also have the potential to arise for a part of the construction phase or the entirety of the construction phase.

5.40 It is considered appropriate to assess the significance of potential effects when such effects would be at their peak, for example, views of the proposed scheme on completion prior to establishment of mitigation planting. This complies with the general approach to the assessment of a realistic worst case scenario.

5.41 The opening year will be used as the basis of assessment of operation effects on the landscape and on views and visual amenity. The opening year for the proposed scheme is anticipated to be 2021. Landscape and visual effects of the proposed scheme will be considered during operation at the opening year and include any guaranteed mitigation planting.

5.42 The long-term residual landscape and visual effects of the proposed scheme will be considered 15 years after completion (to include the establishment of guaranteed mitigation planting).

5.43 For each receptor landscape and visual assessment tables will identify the sensitivity of the view, the nature of the change in the view (magnitude of effect) and the judgement of the overall significance of the visual effect.

Proposed Assessment Methodology

5.44 The LVIA methodology for undertaking the LVIA is based on principles set out by the Landscape Institute (LI) and Institute of Environmental Management and Assessment (IEMA) in the third edition of Guidelines for Landscape and Visual Assessment (GLVIA3). GLVIA3 is the established good practice guidance for landscape and visual impact assessment.

5.45 Photography and visualisations will be produced in accordance with Appendix 9 (Guidelines on photomontage and CAD) of the 'Guidelines for Landscape and Visual Impact Assessment' (Second Edition) 2002, as well as guidance contained in the Landscape Institute Advice Note 01/11 (Photography and Photomontage in Landscape and Visual Impact Assessment). Photomontage production will also have regard to guidance provided in Scottish Natural Heritage's (SNH's) 2014 document, 'Visual Representations of Windfarms: Good Practice Guidance Version 2.1', which the LI Advice Note 01/11 strongly advises members to follow where applicable in preference to any other guidance or methodology.

5.46 Photomontage viewpoints which are representative of views in the area will be based on the VIP LVIA viewpoints and other additional locations as discussed with statutory stakeholders, timing of photographic surveys will also be agreed.

Study Area for the LVIA

5.47 The LVIA will focus on those areas which are likely to experience significant effects. This accords with the EIA Regulations, which require the identification of the 'likely significant effects of the scheme on the environment' (Schedule 4 Part 1). The study area will include the site of the proposed scheme and the wider landscape around it which the proposed scheme may influence in a significant manner.

5.48 Field assessment work has determined that there are circumstances when a steel lattice 400kV pylon approximately 50m high can be discerned at distances up to 10km. However, in most instances it is likely to be barely perceptible beyond 3km and therefore unlikely to give rise to significant effects. This is because at 3km distance, when viewed at arm's length, a 50m tall pylon will appear to be approximately 1cm high in the landscape).

5.49 Field assessment has also determined that where visible at distances between 1 and 3km, a 50m high pylon can typically be seen in only a small proportion of views as it is often screened by trees, landform and vegetation. Where visible within 1km it is typically seen in a greater proportion of the view depending on filtering, screening or backgrounding which may reduce the extent visible.

5.50 Based on these observations, the suggested study area for the LVIA is defined as a 5km distance around the proposed scheme as this is the area which could be affected

to a significant degree by the terminal pylons required at the SECs. These are the tallest and therefore potentially the most widely visible component of the proposed scheme. Within the 5km study area, the focus of the assessment will be receptors lying within 3km of the proposed scheme unless the survey team considers that there are likely to be important effects between 3km and 5km. The 5km study area will continue to be monitored during preparation of the EIA. Should particular concerns be raised about any particularly sensitive receptors at (or beyond) 5km then these will be taken into account, although this is not anticipated due to the nature of the proposed scheme.

5.51 To support the assessment, Zone of Theoretical Visibility (ZTV) maps will be produced for the different components of the proposed scheme to a 10km distance. The reason the ZTVs will be prepared over a 10km distance is to demonstrate that the 5km study area is appropriate and to help identify any particularly sensitive receptors which may lie at or beyond 5km as noted above. This conservative approach is that typically adopted by National Grid when assessing the effects of new above ground infrastructure.

Viewpoints

5.52 The viewpoints for this report will be based on those visited as part of the VIP LVIA, as these locations were consulted on with officers of the AONB authority. For viewpoint names, location and reason for selection please refer to Table 5.1 below. These proposed viewpoints will be consulted on further with relevant stakeholders to ensure that all receptor groups are adequately represented.

Table 5.1 Proposed assessment viewpoints

Viewpoint number	Viewpoint name	Location	Reason for selection
VP01	Winterbourne Abbas	SY 62083 90419	Glimpsed views of pylons on high ground.
VP02	NCN Route 2	SY 63231 88365	Open view from NCN Route.
VP03	Hardy Monument	SY 61332 87607	Numerous pylons visible in panoramic view from Hardy Monument.
VP04	South Dorset Ridgeway, Bronkham Hill	SY 62692 86880	Pylons are closer and more apparent in the view than from the Hardy Monument, and this is also a highly valued view.

Assessing Effects

5.53 In accordance with GLVIA3, the EIA will identify and describe:

- 'Effects on the landscape as a resource (the landscape effects); and
- Effects on view and visual amenity as experienced by people (the visual effects)'.

5.54 The LVIA will consider the likely significant effects including direct, consequential or indirect effects for both the temporary (construction) and long-term (operational) effects on landscape character and visual amenity.

5.55 The assessment will establish the sensitivity of the receptors (with sensitivity made up of judgements about the value attached to the receptor the susceptibility of the receptor to the type of change proposed) and the magnitude of effects (made up of judgements

about the size/scale of predicted effect, the geographical extent of the area affected, the duration of the effect and its reversibility). Sensitivity and magnitude will be combined using professional judgement to determine the importance or significance of the overall effect.

5.56 The main objectives of the assessment are:

- To describe, classify and evaluate the existing landscape and visual resource likely to be affected by the different components of the proposed scheme within the study area during the construction and operational phases;
- To identify visual receptors with views of the proposed scheme; and
- To assess the significance of the effect on the landscape character and visual amenity, taking into account the measures proposed to mitigate any of the effects evaluated.

Determining Overall Significance of Landscape and Visual Effects

5.57 Landscape and visual effects can be either beneficial or adverse. Removal of the existing VIP subsection would have a significant permanent beneficial effect, whilst the effects of removing the pylons and construction and operation of the proposed scheme are likely to result in some adverse effects albeit that they are more likely to be localised and less significant.

5.58 To determine the overall significance of each landscape or visual effect, the separate judgements about the sensitivity of the receptor and the magnitude of effect are combined to allow a final judgement to be made about whether or not the effect is considered significant.

5.59 The relationship between receptors and effects is not generally a linear one and there are no hard or fast rules about what makes an effect significant. Judgements are therefore supported by qualitative text to draw out the key issues, describe the effects and explain the underlying rationale.

5.60 In terms of landscape effects, paragraph 5.56 of GLVIA3 (paragraph 5.56) notes that at opposite ends of the spectrum:

- *'Major loss or irreversible negative effects, over an extensive area, on elements and/or aesthetic and perceptual aspects that are key to the character of nationally valued landscapes are likely to be of the greatest significance; and*
- *Reversible negative effects of short duration, over a restricted area, on elements and/or aesthetic and perceptual aspect that contribute to but are not key characteristics of the character of landscapes of community value are likely to be of the least significance and may, depending on the circumstances, be judged as not significant.'*

5.61 In terms of visual effects, paragraph 6.44 of GLVIA3 notes that:

- *'Effects on people who are particularly sensitive to changes in views and visual amenity are more likely to be significant;*
- *Effects on people at recognised and important viewpoints or from recognised scenic routes are more likely to be significant; and*
- *Large scale changes which introduce new, non-characteristic or discordant or intrusive elements into the view are more likely to be significant than small changes or changes involving features already present in the view.'*

5.62 Paragraph 3.33 of GLVIA3 confirms that the EIA Regulations do not require thresholds of significance to be established, stating:

- *'It is not essential to establish a series of thresholds for different levels of significance of landscape and visual effects, provided that it is made clear whether or not they are considered significant. If however, more distinction between levels of significance is required a word scale for degrees of significance can be used (for example a four point scale of major/ moderate/ minor/ negligible).'*

5.63 For the purposes of this assessment, effects will be categorised as major, moderate, minor and negligible. Each of the four categories covers a broad range of effects and represents a continuum or sliding scale.

5.64 It is worth noting that effects which are judged to be major are those which should typically be given the greatest weight in decision making. They usually concern the immediate area around a site and close views from sensitive locations. Moderate levels of effect are of progressively reducing importance but are still considered significant. Effects judged to be minor are those which the decision maker should be aware of, as they constitute noticeable changes in views, but are unlikely to warrant as much weight in the decision making process.

Cumulative Effects

5.65 The landscape and visual assessment will also include potential cumulative effects of the proposed scheme and other developments of a similar scale or nature (other projects with large-scale land cover disturbance) proposed in the area. The assessment will broadly follow the approach for the LVIA set out above. A more detailed scope will be provided for agreement at a later stage when more information is known about projects to be scoped in/out of the cumulative assessment.

5.66 The LVIA will input into the assessment of two types of cumulative effects. These are inter-project effects and intra-project effects (see Chapter 1).

Reporting

5.67 The landscape, visual and associated cumulative assessment will be reported in the same chapter of the ES and will be supported by figures, photographs and photomontage views as appropriate. The chapter will summarise the likely effects and will refer to tables included in an appendix which will detail the information recorded for each individual receptor or representative receptor.

Proposed Mitigation Measures

5.68 Mitigation to address the adverse effects on landscape and views in relation to both below and above ground infrastructure will be considered in the assessment. These measures will include the design and micro-siting of infrastructure and temporary working areas, and on-site and off-site planting proposals to minimise landscape and visual effects. In addition, opportunities for landscape enhancement will be explored. Detailed mitigation proposals will be described in the ES and will be factored into the assessment. The assessment of the proposed scheme will be undertaken at the year of commission. Where differences are anticipated following the establishment of mitigation planting this will be reported as of Year 15.

5.69 The most effective mitigation measures are ones which are integral to the proposed scheme. A distinction is therefore made between landscape measures designed as an intrinsic part of the proposed scheme (primary or 'embedded' measures) and those which are intended to specifically counter any residual negative effects of the proposed scheme (secondary measures) (see Chapter 1).

5.70 Residual effects are those effects which remain after mitigation. The significance of these will be assessed using the methods outlined above.

Issues to be Scoped Out

5.71 The LVIA will not assess the effects of the proposed scheme on any landscape or visual receptors that are located outside the 5km study area unless they are particularly sensitive receptors, which have been highlighted either through the ZTVs or through discussion with stakeholders and interested parties.

5.72 The LVIA will not assess the effects of the proposed scheme on landscape or visual receptors that are located wholly outside the ZTV.

5.73 Effects on residential receptors outside of public spaces are not included because in law, private individuals do not have a right to a view (as established in the Lavender case[5]), and impacts on living conditions are usually dealt with through a separate residential visual amenity assessment, if required. In this case such an assessment is not considered to be required because the proposed scheme is not likely to be so overbearing or dominating as experienced from any individual property, to result in unacceptable living conditions.

[5] Lavender v Mackenzie Test (2009) (Enifer Downs & Langdon) Public Inquiry (APP/X2220/A/08/2071880)

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6 Ecology

Introduction

6.1 This chapter details the preliminary findings of a desk-based study and initial walkover surveys of the proposed scheme's search area for permanent development (the search area) / route corridor (see **Figure 1.2**). Where appropriate, reference is made to the initial findings of these studies in the baseline information presented. This information has been used to identify ecological receptors along the route corridor and refine the scope of the ecological surveys.

6.2 This chapter also details the methodology to be followed during the Ecological Impact Assessment (EcIA) that will be incorporated in to the Environmental Statement (ES).

6.3 The purpose of the EcIA will be to:

- identify and describe existing ecological receptors within and around the proposed locale of the scheme in a defined area (the zone of influence); and
- to assess the significance of the impacts of the scheme and associated infrastructure on these ecological features following the implementation of agreed mitigation measures.

6.4 Recommendations for avoidance, mitigation, compensation and enhancement measures will be proposed to minimise any adverse impacts on ecological receptors. Where necessary, the significance of any residual impacts will be assessed. Examples of potential mitigation measures are described in this chapter; however, formal mitigation proposals would be set out in the EcIA.

6.5 In accordance with the EIA Regulations, the assessment will identify and appraise the potential effects that may arise during the construction, operation and decommission phases.

Legislation and Policy

6.6 Legislation and planning policy relevant to the EcIA comprises:

- The Conservation of Habitats and Species Regulations 2010 (as amended);
- The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1979);
- EC Wild Birds Directive 1979 (European Directive 79/409/EEC on the conservation of wild birds);
- The Wildlife and Countryside Act 1981 (as amended);
- The Countryside and Rights of Way Act 2000;
- Hedgerow Regulations 1997;
- Natural Environment and Rural Communities Act 2006;
- Protection of Badgers Act 1992;

- Biodiversity 2020: A strategy for England's wildlife and ecosystem services (2011);
- National Planning Policy Framework (March 2012);
- Circular 06 / 2005 (Biodiversity and Geological Conservation);
- West Dorset, Weymouth and Portland Local Plan, Adopted October 2015; and
- Dorset AONB Management Plan (Revision 3 2014).

Consultation

6.7 Consultation on the scope of winter bird surveys was undertaken with the Natural Environment Team at Dorset County Council in order to agree an appropriate scope and survey effort to inform the proposed scheme. Further consultation regarding the scope of further surveys is ongoing.

Baseline Environment

6.8 Detailed ecological surveys and assessments commenced in October 2015. The following description of the baseline conditions is based upon a review of:

- Aerial photography;
- Historical records of protected and notable sites and habitats/species; and
- An Extended Phase 1 Habitat survey.

Desk-based Study

6.9 A variety of sources were reviewed or contacted to gain information of ecological receptors that could be affected by the proposed scheme; these are listed below. The information obtained from these sources to date is included within a Preliminary Ecological Appraisal (PEA), which is presented in **Appendix A**.

- Multi-Agency Geographic Information for the Countryside (MAGIC);
- Consultation with the Dorset County Council Ecologist;
- Aerial photography;
- Dorset Environmental Records Centre (DERC), which includes records from:
    - Dorset Bat Group;
    - Dorset Bird Club; and
    - Dorset Mammal Group.

6.10 The MAGIC website was consulted to determine whether any statutory designated sites were present within the search area or adjacent land. The website includes information on European designations (Special Area of Conservation (SAC), Special Protection Areas (SPA) and internationally designated wetlands (Ramsar)). Information on nationally designated sites (Site of Special Scientific Interest (SSSI)), along with other notable sites such as Ancient Woodland is also presented. A search radius of 2km from the existing overhead lines (OHL) was utilised for statutory designated sites.

6.11 An initial consultation with Dorset County Council was undertaken, regarding the scope of ecological work required over the winter period, particularly with regard to wintering birds.

6.12 Historical records of non-statutory designated sites and protected / notable species. Of particular interest were species listed on one or more of the following:

- Wildlife and Countryside Act 1981 (as amended): Schedules 1, 5, 8 or 9;
- Conservation of Habitats and Species Regulations 2010 (as amended): Schedule 2;
- Natural Environment and Rural Communities Act 2006: Section 41; and
- The Protection of Badgers Act 1992.

6.13 A search radius of 2 km from the OHL was utilised for non-statutory designated sites and protected/notable species.

Designated Sites

6.14 A consultation with the MAGIC database identified a number of Statutory Designated Sites within the search area; more details are provided below. No international designations were identified within 2km.

6.15 Five SSSI's were identified within 2km; however, three were cited for their geological interest (please see Chapter 9 for further details).

6.16 Pitcombe Down SSSI, located approximately 2km to the west, is an area of chalk downland. It is currently assessed as in excellent condition with swards that show some variety in species composition whilst retaining characteristics of chalk grassland in the southwest of England.

6.17 Blackdown (Hardy Monument) SSSI, situated 1km to the west, is principally cited for its geological interest; however, the plants communities that have developed on the acid podzolic soils provide additional interest.

6.18 The entire search area is situated within the Dorset Area of Outstanding Natural Beauty (AONB). As this site designation relates to visual amenity, it is not considered further here (please see Chapter 5 for further details).

6.19 The desk-based study also identified 22 non-statutory designated sites within 2km all of which are Sites of Nature Conservation Interest (SNCI). Of these, two are cited for geological reasons and are not considered further. Details of the remaining 20 sites are presented in Table 6.1.

Table 6.1: Non-statutory Designated Sites

Site name	Reason for designation	Relationship to Survey Area
Bronkham Hill SNCI	An area of acid grass and heath with dense gorse scrub.	Located directly within the ecological survey area.
Kit Hill Bottom SNCI	A series of unimproved chalk grassland on slopes of various aspects.	Located directly within the ecological survey area.
Waddon, Corton & Friar Waddon SNCI	Relicts of unimproved & semi-improved grassland on the South face of the limestone ridge.	Located directly within the ecological survey area.
Winterbourne Steepleton SNCI	Unimproved and semi-improved chalk grassland on NW facing slopes.	Located directly within the ecological survey area.

Site name	Reason for designation	Relationship to Survey Area
Loscombe Down SNCI	Two areas of calcareous grassland, mostly unimproved.	Located directly within the ecological survey area.
Windsbatch SNCI	An area of chalk grassland on south and northeast facing slopes.	Located directly within the ecological survey area.
Dairy House Coppice SNCI	A small ash/hazel coppice on a clay soil.	Approximately 0.25km to the south.
Grove Hill Bottom SNCI	Unimproved and semi-improved chalk grassland with areas of young plantation and scrub.	Approximately 0.5km to the east of the ecological survey area.
Compton Valence SNCI	Unimproved chalk grassland on steep slopes.	Approximately 0.75km to the north.
Hyde Coppice SNCI	Mainly ash/hazel woodland on a clay soil.	Approximately 1km to the south.
Winterbourne Poor Lot SNCI	Chalk grassland on ancient monuments with a good flora.	Approximately 1.25km to the west.
Broad Coppice SNCI	An oak/ash/hazel woodland over clay.	Approximately 1.5km to the south.
South Slip SNCI	A bank of chalk grassland supporting good butterfly populations.	Approximately 1.5km to the north.
Ashton SNCI	Unimproved chalk grassland with natural terracing.	Approximately 1.75km to the east.
Home Coppice SNCI	Deciduous woodland with a good ground flora.	Approximately 1.75km north
Tatton Coppice SNCI	A small ash/hazel coppice with an interesting ground flora.	Approximately 1.75km to the south.
Winter's Lane Fields, Portesham SNCI	Two field of unimproved calcareous and semi-improved neutral grassland.	Approximately 1.75km to the west.
Higher Ashton Farm Downland SNCI	A long narrow hillside field, with calcareous grassland and scrub.	Approximately 1.75km to the east.
Buckland Ripers Meadow SNCI	Neutral grassland.	Approximately 1.75km to the southeast.
Town Hill Farm SNCI	Unimproved & semi-improved calcareous grassland on north facing slope.	Approximately 1.75km to the north.

Habitats

6.20 A summary of data collected during the field survey are presented below. A wide range of habitat types were recorded within the survey area (existing OHL route plus a buffer of 2km) but not necessarily along the search area itself; these included:

- Cultivated / disturbed land – arable;
- Improved grassland;
- Hard standing;
- Broadleaved woodland – semi-natural;
- Buildings;
- Bracken – continuous;
- Scrub – continuous;
- Scrub – scattered;
- Hedgerows with trees – native species rich;
- Defunct hedgerow – species poor;
- Intact hedgerow – species rich;
- Intact hedgerow – species poor;
- Mixed woodland – semi natural;
- Broadleaved parkland / scattered trees;
- Broadleaved woodland – plantation;
- Cultivated / disturbed land – amenity grass;
- Acid grassland;
- Unimproved grassland;
- Calcareous grassland;
- Caravan site; and
- Standing water.

6.21 The habitat types with the greatest coverage by far were arable and improved grassland (pasture). Both habitat types were assessed to be of Negligible to Low ecological value.

6.22 A range of ecologically important habitats were identified within the ecological survey area. Species rich hedgerows and species rich hedgerows with trees were recorded throughout the ecological survey area; included within these hedgerows were a diverse range of woody species. Small pockets of this mixed deciduous woodland were spread throughout the ecological survey area. Scattered trees were also present throughout and may provide a resource for roosting bats. There is both running water and standing water present within the search area. Unimproved, acid and calcareous grassland were also present, albeit restricted to within the SNCI's (**see Table 6.2**).

6.23 Based on aerial photographs and the walkover, the highly modified habitats present were assessed as unlikely to support notable plant species; the obvious exceptions to this are the habitats situated within the SNCI's.

6.24 A watercourse to the north of the ecological survey area which ran adjacent to the A35 road through the village of Winterbourne Abbas. This watercourse was assessed to be of high ecological value.

6.25 Several freshwater ponds were present, which ostensibly appear to be suitable for supporting a range of amphibians.

Protected / Notable Species

6.26 A summary of the historic records of protected and notable species identified within the search area are presented below.

Table 6.2: Protected and notable species relevant or potentially relevant to the project

Species / Species Group	Legally Protected Species?	Species of Principal Importance?	Other notable Species?	Confirmed within survey area?	Possibly Present within the Survey Area?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
Protected flora	✓	✓	✓	✓	✓	✓	Historical records of Cornflower (*Centaurea cyanus*) and bluebell (*Hyacinthoides non-scripta*) were received; however, there is limited suitable habitat for these species along the existing route of the overhead cables.
Invasive non-native species			✓	✓	✓	✓	Historical records of Japanese knotweed (*Fallopia japonica*), rhododendron (*Rhododendron ponticum*), Himalayan balsam (*Impatiens glandulifera*), sika deer (*Cervus nippon*) and muntjac (*Muntiacus reevesi*) were received during the desk-based study.

Species / Species Group	Legally Protected Species?	Species of Principal Importance?	Other notable Species?	Confirmed within survey area?	Possibly Present within the Survey Area?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
Notable terrestrial invertebrates	✓	✓	✓		✓	✓	The following species of protected and/or notable species were identified during the desk-based study: dingy skipper (*Erynnis tages*), white-letter hairstreak (*Satyrium w-album*), small blue (*Cupido minimus*), chalk hill blue (*Polyommatus (Lysandra) coridon*), Adonis blue (*Polyommatus (Lysandra) bellargus*), wall (*Lasiommata megera*), small heath (*Coenonympha pamphilus*), shaded broad-bar (*Scotopteryx chenopodiata*), galium carpet moth (*Epirrhoe galiata*), small phoenix (*Ecliptopera silaceata*), white ermine (*Spilosoma lubricipeda*), buff ermine (*Spilosoma luteum*), cinnabar (*Tyria jacobaeae*), autumnal rustic (*Eugnorisma glareosa*), small square-spot (*Diarsia rubi*), broom moth (*Melanchra pisi*), shoulder striped wainscot (*Mythimna comma*), dusky brocade (*Apamea remissa*), rosy rustic and black-headed mason wasp (*Odynerus (Odynerus) melanocephalus*) were recorded.
White-clawed crayfish (*Austropotamobius pallipes)*	✓	✓	✓		✓	✓	There is potentially suitable habitat within the ecological survey area to support this species.

Species / Species Group	Legally Protected Species?	Species of Principal Importance?	Other notable Species?	Confirmed within survey area?	Possibly Present within the Survey Area?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
Amphibians	✓	✓	✓		✓	✓	There were a number of freshwater ponds within the ecological survey area and there is terrestrial habitat within the ecological survey area that was suitable to support a range of amphibian species.
Reptiles	✓	✓	✓		✓	✓	Habitats within the ecological survey area have limited potential to support these species due to the high levels of agricultural disturbance. Suitable habitats are present in the ecological study area including heathland and historical records of smooth snake. Historical records of adder (*Vipera berus*) and slow worm (*Anguis fragilis*) were also received.

Species / Species Group	Legally Protected Species?	Species of Principal Importance?	Other notable Species?	Confirmed within survey area?	Possibly Present within the Survey Area?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
Birds (breeding and wintering)	✓	✓	✓	✓	✓	✓	The ecological survey area included habitat capable of supporting a range of birds, both breeding and overwintering. Overwintering bird surveys are currently being undertaken and are due to finish in March 2016, therefore reporting the findings will be undertaken when the full suite of surveys have been completed. The pasture, amenity grassland and planted trees may be important habitats for these breeding and overwintering birds. A large number of records of Schedule 1 bird species were received including the barn owl (*Tyto alba*), kingfisher (*Alcedo atthis*) and firecrest (*Regulus ignicapilla)*.
Bats	✓	✓	✓		✓	✓	Both trees and buildings are present within the survey area, which may provide roosting opportunities. In addition, features such as hedgerows and woodland edge could provide suitable commuting and foraging routes. Historical records of bats were received.
Hedgehog (*Erinaceus europaeus*)		✓	✓		✓	✓	Historical records were received and suitable habitat for the species is present within the ecological survey area.

Species / Species Group	Legally Protected Species?	Species of Principal Importance?	Other notable Species?	Confirmed within survey area?	Possibly Present within the Survey Area?	Present / Potentially Present in Wider Zone of Influence?	Supporting Comments
Hazel dormouse (*Muscardius avellanarius*)							Historical records of dormice were received and suitable habitat (woodland and hedgerows) were recorded within the ecological survey area.
Brown hare (*Lepus europaeus*)		✓	✓		✓	✓	An abundance of suitable habitat for the species is present in the ecological survey area.
Water vole (*Arvicola amphibious*)	✓	✓	✓		✓	✓	Historical records for water vole were received and suitable habitat for the species is present within the ecological survey area.
Otter (*Lutra lutra*)	✓	✓	✓		✓	✓	Historical records for otter were received and suitable habitat for the species is present within the ecological survey area.
Badger (*Meles meles*)	✓	✓	✓		✓	✓	Badger were identified during the extended phase I habitat survey, including a main sett. Suitable habitat for the species is present within the ecological survey area

Key to symbols: ✓ = yes, see Supporting Comments for further rationale

Legally protected species are those listed under Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended); and, Schedules 2 and 4 of The Conservation of Habitat & Species Regulations 2010 (as amended).

Species of Principal Importance as those listed under Section 41 of the NERC Act 2006. Planning Authorities have a legal duty under Section 40 of the same Act to consider such species when determining planning applications.

Other notable species include native species of conservation concern listed in the LBAP (except species that are also of Principal Importance), those that are Nationally Rare, Scarce or Red Data List, and non-native controlled weed species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Potential Impacts

6.27 The EcIA will include assessment of potential impacts (both positive and negative) and the resulting effects on ecological receptors. Based on the information available at the time of this scoping exercise, examples of potential effects of the proposed works on ecology and nature conservation are presented in **Table 6.3**.

Table 6.3: Potential ecological impacts considered likely in connection with the Proposed Scheme

Construction
Effects resulting from potential impacts to European sites
Effects resulting from potential impacts that may occur on statutory and non-statutory wildlife sites
Undergrounding of cable can lead to habitat loss (temporary) and habitat disturbance which could lead to severance of important commuting and foraging routes, particularly for sensitive bat species such as lesser horseshoe bat
Sensitive aquatic habitats along the route corridor may be adversely impacted by run-off causing poor water quality during the construction phase
Areas of habitat would be lost due to land-take for the proposed SECs and also temporarily for storage of construction materials. This could include semi-improved grassland of unknown quality potentially supporting notable plants
Temporary habitat loss and disturbance to features such as hedgerows during construction and potential to reinstate features of a lower ecological value to those currently present
If suitable mitigation were not undertaken, there is a risk of impacts to legally protected species, including badgers, water vole, otter, reptiles, roosting as well as foraging and commuting bats, brown hare, breeding birds, wintering birds, common toad, hedgehog and polecat
Some disturbance to protected species might be expected through noise, vibration, air emissions (dust), air pollution through vehicle use and presence of construction workers. This could particularly impact on sensitive habitats, badger setts within 30m of any construction works, birds, bats, amphibians, reptiles, hedgehog, brown hare and polecat within and immediately adjacent to the proposed construction area
Cumulative impacts will also be considered as part of the EcIA
Operational
Potential reduction in collision impacts on bats and birds (particularly those with large wingspans, slow flying speeds and lack of flight agility such as swans)
Decommissioning
Decommissioning effects as construction

Proposed Assessment Methodology

6.28 The EcIA will be undertaken in accordance with the Guidelines for Ecological Impact Assessment in the UK and Ireland (Chartered Institute of Ecology and Environmental Management, 2016) and BS42020:2013 Biodiversity – Code of practice for planning and development (BSI, 2013).

6.29 Further surveys would be carried out as described below. Ecological features would be mapped and described. Potential effects to ecological receptors associated with the proposed works would be identified and impact assessment carried out. Mitigation measures to avoid or reduce likely effects would be provided and opportunities for enhancement measures identified.

Zone of Influence / Spatial Scope

6.30 To define the total extent of the area for ecological assessment, the proposed activities were reviewed to identify the spatial scale at which ecological features could potentially be affected. The zone of influence is the area encompassing all predicted ecological effects from the proposed scheme, including all ancillary, associated temporary and permanent works included in the proposed scheme, such as temporary access roads, both those which will occur by land-take and habitat loss, and those which will occur through disturbance such as noise. The extent of all surveys will account for the ancillary, temporary and permanent works such as temporary access roads in addition to the draft route corridor and include the appropriate buffers for each survey as required. The spatial scope of the surveys will take account of any changes of the proposed areas for the scheme as the assessment proceeds and be altered appropriately.

6.31 For the Extended Phase 1 survey, the existing OHL route corridor plus 500m either side is included within the survey area where access allows.

6.32 The zone of influence will be reviewed throughout the EcIA and revised as appropriate. It will be reviewed during further design development during the EIA process and amended if necessary.

Temporal Scope

6.33 To define the temporal scope for ecological assessment, the proposed activities were reviewed in order to establish when impacts could occur and over what duration. Impacts have been assessed in the context of the predicted baseline conditions within the zone of influence during the lifetime of the proposed scheme (i.e. the assessment accounts for how the existing conditions might change between the surveys and the start of construction and/or operation). Potential changes in existing conditions up to the beginning of construction will be considered in the ES.

Data Gathering

6.34 Establishment of baseline conditions will involve the collation of existing published data and an Extended Phase 1 habitat survey. Targeted surveys will be undertaken where appropriate.

Desk-based Study

6.35 A large amount of data has already been collated to inform this scoping report, as described above. Further data gathering with specialist recorders and groups will also be carried out, where appropriate to further inform the ecological assessment for the proposed scheme.

Extended Phase 1 Habitat Survey

6.36 A survey has been undertaken following the Extended Phase 1 methodology (JNCC, 2010), and Guidelines for Baseline Ecological Assessment (Institute of Environmental

Assessment, 1995). Phase 1 survey was modified to 'Extended' and followed the approach recommended in the Guidelines for Preliminary Ecological Appraisal (CIEEM, 2016) and conforms to the British Standard 42020:2013 Biodiversity – Code of practice for planning and development. This survey methodology assesses the potential for notable or protected fauna within the survey area. Habitats and features of importance or significant ecological value are individually target noted and identified for further survey.

6.37 The Phase 1 survey was undertaken during the sub-optimum time of year (October 2015). This has been reported as a constraint and further botanical surveys recommended where required to fully inform the ecological baseline. The route will be revisited during further protected species surveys and the Phase 1 will be updated to ensure that all habitats are adequately considered and impacts assessed during the EIA.

6.38 The Extended Phase 1 survey also involved preliminary investigations into the presence of legally protected species within the survey area in terms of searching and recording signs of the species or assessing the presence of suitable habitat. 'Suitable habitats' are those that are reasonably considered to support a protected or notable species. Within the Phase 1 survey, this included:

- Recording evidence of the presence of invasive weeds listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), including Japanese knotweed;
- Assessment of habitat potential for reptiles and amphibians, in particular great crested newts;
- Searching for signs of otters and water voles, including spraints, latrines, footprints and runs;
- Assessment of suitable habitat for nesting birds;
- Evaluation of habitats within the search area and its surrounds for their potential to support other protected species or groups, including terrestrial and aquatic invertebrates;
- Assessment of watercourses for their suitability to support white-clawed crayfish;
- Assessment of suitable habitats for dormouse;
- Searching for signs of badger activity including setts, tracks, snuffle holes and latrines; and
- A visual inspection of tree and buildings to assess their suitability for bat roosts.

Phase 2 Surveys

6.39 The following Phase 2 surveys would be undertaken based on a 'worse-case scenario' so that all engineering options can be investigated. This includes all sensitive receptors identified during the preliminary Ecological Appraisal.

6.40 **National Vegetation Classification** (NVC): Habitats of value were identified during the Phase 1 survey, principally within the SNCI, which could not be fully surveyed botanically due to the time of year. A full botanical survey would be undertaken on all habitats identified as of high value that potentially could be affected by the proposed works. Methods used would follow the NVC Users' Handbook (Rodwell, 2006).

6.41 **Hedgerow Surveys**: Hedgerows within the survey area would be surveyed following the 'hedgerow evaluation and grading system (HEGS), following methods set out in Clements & Toft (1992). This method requires surveying of the entire length of each hedgerow potentially affected by the works. Important features would be recorded, such as:

- Notable flora and fauna;
- Dimensions (height, length, width);
- Number of gaps;
- Whether they contain trees; and
- Other associated features (i.e. ditch).

6.42 Hedgerows categorised as 'important' under the Hedgerow Regulations Act 1997 would be recorded.

6.43 **Invasive plant survey**: Japanese knotweed was recorded during the Phase 1 Habitat survey. Due to the survey time, stands could have been missed and therefore a further survey should be undertaken in the summer months to ensure all invasive species that may be affected by the works are identified and an appropriate mitigation strategy informed. Surveys would be undertaken from May onwards when the plants are more conspicuous.

6.44 **White-clawed crayfish**: Watercourses were assessed for their suitability to support white-clawed crayfish during the Phase 1 Habitat survey by a licensed surveyor. Targeted surveys of areas potentially affected by the works would be undertaken between mid-July and mid-September in accordance with published guidance (Peay, 2003). A combination of hand searching and live trapping would be employed.

6.45 **Amphibians**: Suitable ponds and ditches for notable amphibians (including great crested newt) within 250m of the area potentially affected by the works would be identified using aerial photographs, OS maps and the results of the Phase 1 Habitat survey. Given the highly localised and mostly temporary nature of the works, a 250m buffer is assessed as sufficient.

6.46 Targeted great crested newt surveys would be undertaken, initially beginning with a Habitat Suitability Index (HSI) (Oldham *et al*., 2000). All suitable ponds and waterbodies (unless separated from the works by a physical barrier) would be surveyed for great crested newts using the standard methods (bottle trapping, torching, egg searching and netting) as set out in Natural England (2001). Other species, such a common toad, would also be recorded during the surveys. All surveys would be undertaken between March and June with the onus on mid-April to mid-May.

6.47 **Reptile Surveys**: Reptiles would be surveyed using a combination of Visual Encounter Survey and Artificial Refuge Survey. Suitable habitat potentially affected by the works (woodland edges, field margins, pond margins, grassland (but not amenity) and heathland would be surveyed on a minimum of seven occasions to establish presence (Froglife, 1999). Surveys would be undertaken during suitable environmental conditions and by suitably qualified, experienced and licensed ecologists. Surveys will not be undertaken in unsuitable areas for reptiles (in this instance arable or pasture land).

6.48 **Wintering birds**: To establish the wintering bird assemblage, a targeted survey (comprising one visit per month between October and March) was commenced in October 2015 following a scope agreed by the Dorset County Ecologist.

6.49 **Dormouse**: The desk-based study included records of hazel dormouse and suitable habitat, in the form of woodland and hedgerows have been identified. A dormouse survey would be undertaken of all suitable habitats potentially affected by the works in line with published guidance (Bright *et al*., 2006). This would comprise the deployment of nest tube and boxes and a search for chewed-hazel nuts where the species is present.

6.50 **Bat roost / activity**: Initially, all suitable buildings and mature trees potentially affected by the works would be assessed for their potential to support roosting bats. Where possible, the interiors of the buildings and other structures would be accessed to

search for signs of bats. Where evidence of bats is recorded or where the presence of bats cannot be confidently scoped out, emergence surveys will be undertaken, in accordance with published guidance (Bat Conservation Trust, 2016). Trees with suitable features for supporting bats would be accessed using ropes and fully inspected. As with the buildings, any features that cannot be fully inspected would be subject to further survey.

6.51 Bat activity surveys, again following published guidance (Bat conservation Trust, 2016), would cover all suitable habitats potentially affected by the works. Walked transects would be devised to incorporate linear features, foraging habitat and habitats of particular interest (i.e. waterbodies, woodland *etc*.). The walked transects would be supplemented using static detectors. Surveys would be completed between April and September.

6.52 **Riparian mammals**: The watercourse to the north was assessed as suitable habitat for water vole. All suitable watercourses and water bodies potentially affected by the works and within a 50m buffer would be surveyed for signs of water vole and a full habitat assessment undertaken. These surveys would be conducted between March and September when water vole are most active and would follow guidelines set out in the Water Vole Conservation Handbook, third edition, (Strachan *et al.*, 2011). Field signs recorded would include: faeces, latrines, feeding stations, burrows, nests, runways in vegetation and footprints.

6.53 Concurrently with the inspection for water voles, otter surveys of potentially affected areas will involve searches for field signs including the following: spraints sign heaps (e.g. twisted grass, silt heaps with spraints), footprints, otter holt /resting sites and feeding remains. Surveys can be carried out throughout the year; any evidence indicating presence of otters will be detailed and GPS recorded. The survey will follow a modified methodology of the standard methodology of Lenton, *et al.* (1980).

6.54 **Badger**: Evidence of badger was recorded during the Phase 1 survey; a full badger survey is proposed of any areas of suitable habitat potentially affected by the works to establish the level of activity and establish the status of setts and important foraging areas, in accordance with published guidance (Cresswell, Harris & Jeffries, 1989). Surveys can be undertaken all year but early spring, autumn and winter are considered the optimum due to the lack of tall vegetation.

EcIA Assessment Methodology

6.55 The recently updated 'Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater and Coastal' (CIEEM, 2nd edition January 2016) (the CIEEM Guidelines) provide guidance on the process of identifying the value of ecological receptors, characterising effects upon them and assessing whether these effects are significant. The EcIA will also be undertaken in accordance with BS42020:2013 Biodiversity – Code of practice for planning and development (BSI 2013).

6.56 This guidance follows a 'biodiversity' approach to impact assessment (rather than solely relying on the legal protection of a habitat or species to characterise ecological value other factors such as local abundance and rarity are also considered).

6.57 Although the new guidelines do not advocate a matrix style approach to assessment we have based this methodology on a hybrid approach which utilises matrices where they will be useful in providing certainty to the means by which valuation have been made. For a complex project, such as the proposed scheme, at this location this was judged to be the most appropriate approach. The assessment method uses a process of assigning ecological values to the identified ecological receptors, as presented in **Table 6.3**, predicting and characterising potential ecological impacts and mitigation measures and, through this process, determining the significance of residual effects on ecological receptors.

Assigning Ecological Value/Importance

6.58 The EcIA guidelines suggest that the value or importance of an ecological resource or feature should be defined in terms of a geographic scale. Therefore the value (or potential value) of ecological receptors on, and in the immediate vicinity of, the survey area has been considered at the following scales:

- International;
- National (i.e. England/Northern Ireland/Scotland/Wales);
- Regional (i.e. south of England);
- County (i.e. Dorset);
- District (west Dorset);
- Local (the survey area plus a 1km radius); and
- Site (i.e. Survey area).

6.59 Where the value is considered less than of site value it is considered 'negligible'.

Table 6.3: Resource/Receptor Evaluation Criteria

Value / Sensitivity of Resource / Receptor	Example Criteria
Very High (International)	An internationally designated site or candidate/proposed site (Special Protection Area (SPA), potential SPA, Special Area of Conservation (SAC), candidate SAC and/or Ramsar site). A sustainable area of a habitat listed in Annex I of the Habitats Directive or smaller areas of such habitat which are essential to maintain the viability of the larger whole. Sustainable population of an internationally important species or site supporting such a species (or supplying a critical element of their habitat requirement) i.e.: - IUCN Red List species that is listed as critically endangered, endangered or vulnerable; or - Species listed in Annex IV of the Habitats Directive; or - Sites that support 1% or more of a biogeographic population of a species; or - The species is at a critical phase of its life cycle.
High (National)	A nationally designated site (Site of Special Scientific Interest (SSSI), National Nature Reserve) or a discrete area which meets the selection criteria for national designation (e.g. SSSI selection criteria). An area formally selected by Defra as a Nature Improvement Area. A sustainable area of a priority habitat identified in the UK BAP or of smaller areas of such habitat, which are essential to maintain the viability of the whole. Sustainable population of a nationally important species or site supporting such a species (or supplying a critical element

Value / Sensitivity of Resource / Receptor	Example Criteria
	of their habitat requirement) i.e.: - Species listed on Schedules 5 and 8 of the WCA (1981); - UK Red Data Book species; - Other species listed as occurring in 15 or fewer 10 km squares in the UK; or - Sites supporting 1% or more of a national population.
Medium – High (Regional)	Sites/populations which exceed the County-level designations but fall short of SSSI selection guidelines, including the following: - Sustainable areas of key habitat identified in the Regional BAP or smaller areas of such habitat, which are essential to maintain the viability of the whole; - Population of a species listed as being nationally scarce which occurs in 16-100 10 km squares in the UK; - Population of a species listed in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation; or - Sites supporting 1% or more of a regional population.
Medium (County)	Some designated sites (including Sites of Importance for Nature Conservation, County Wildlife Sites, Sites of Metropolitan Importance). A viable area of habitat identified in the County BAP. Sustainable populations of the following species: - Species listed in a County/Metropolitan 'red data book' or BAP on account of its rarity/localisation in a county context; or, - Sites supporting 1% or more of a county population.
Local	- Very low importance and rarity, local scale: - Areas of habitat considered to appreciably enrich the habitat resource within the ecological study area itself. - A small population of a species of conservation concern i.e. listed in the Local BAP.

Nature of Impacts

6.60 Once the ecological receptors (designated site, habitat, assemblage or species) have been identified and their value defined, a judgment is made as to whether the proposed scheme is likely to result in impacts upon each of the identified receptors and, if appropriate, the nature of those impacts. Each potential ecological impact has a number of characteristics that need to be adequately described before effect

significance can be assessed. A number of factors have been considered when describing and assessing the nature of ecological impacts, including:

- Extent (area or distance);
- Magnitude (amount or level of effect);
- Duration (in time as short-term (0-5 years), medium-term (5-15 years), long-term (15-25 years) and permanent (greater than 25 years) or related to species' life-cycles);
- Timing and frequency (e.g. related to life cycles and breeding seasons); and
- Reversibility (whether the effect is permanent or temporary).

Significance of Effects and Geographic Scale

6.61 Once each of these factors has been considered, a judgment on the significance of the effect on a particular receptor is made. This significance depends on both the characteristics and magnitude of the impact and the value of the receptor. CIEEM states that: "*An ecologically significant effect is defined as an effect (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area."*

6.62 Impacts on ecological integrity of designated sites are described by the Government Circular: Biodiversity and Geological Conservation as: *"… the coherence of ecological structure and function … that enables it to sustain the habitat, complex of habitats and/or levels of populations or species for which it was classified."* (ODPM, 2005)

6.63 The EcIA guidelines also provide definitions for the conservation status of habitats and species:

- "For habitats, conservation status is determined by the sum of the influences acting on the habitat and its typical species, that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area"; and
- "For species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area."

6.64 Definitions for the levels of magnitude of impact are described below:

- High magnitude impacts include those where there is the potential to affect the integrity of a significant area by substantially changing in the long term its ecological features, structures and functions, across its whole area, that enable it to sustain the habitat, complex of habitats and/or population levels of species that makes it important;
- Medium magnitude impacts include those where the ecological integrity of the site is predicted to not be adversely affected in the long term, but where the project is likely to affect some, if not all, of the area's ecological features, structures and functions in the short or medium term. The site may be able to recover through natural regeneration and restoration; and
- Low magnitude impacts include those which have the potential to cause some minor impacts of limited extent to an ecological feature and/or its quality. This level of impact can include limited changes over the medium term, noticeable changes over the short term, or barely discernible changes for any length of time. Impacts at this level are often temporary in nature and the site can recover through natural regeneration.

6.65 Once an effect is identified, the geographic scale at which it will take effect is established. For example, an effect may not be significant at a national scale but may be significant at a county or local scale. All of these judgments are based, wherever possible, on quantitative evidence; however in some cases the professional judgment of an experienced ecologist may also be required.

6.66 Taking the value of the receptor (geographic scale) and the overall impact into account, an evaluation of the significance of an effect can be derived. This is indicated in **Table 6.4**.

Table 6.4: Significance Criteria Matrix

Geographic scale	Magnitude of impact		
	High	**Medium**	**Low**
Very High (International)	Major	Major	Major/Moderate
High (National)	Major	Major/Moderate	Major/Moderate
Medium – High (Regional)	Major/Moderate	Moderate	Moderate
Medium (County)	Major/Moderate	Moderate	Moderate/Minor
Low – Medium (District)	Moderate	Moderate/Minor	Minor
Low (Local)	Moderate/Minor	Minor	Minor/Negligible
Low (Survey Area)	Minor/Negligible	Minor/Negligible	Negligible

6.67 Effects on ecology and nature conservation are subsequently assessed under the CIEEM guidance as being:

- Not significant; or
- A significant positive or negative effect at the relevant geographical scale.

6.68 Further explanation is provided in **Table 6.5**.

Table 6.5: Ecological Impacts Significance Criteria in Accordance with CIEEM

Significance		Equivalent CIEEM Assessment
Significant	Major beneficial	Positive impact on ecological integrity or conservation status at regional, national or international level.
	Moderate beneficial	Positive impact on ecological integrity or conservation status at borough - county level.
Non-significant	Minor beneficial	Positive impact on ecological integrity or conservation status at zone of influence - local level.
Neutral	Negligible	No significant impact on ecological integrity or conservation status.
Non-significant	Minor adverse	Negative impact on ecological integrity or conservation status at zone of influence - local level.
Significant	Moderate adverse	Negative impact on ecological integrity or conservation status at borough - county level.
Significant	Major adverse	Negative impact on ecological integrity or conservation status at regional, national or international level.

Cumulative and Interactive Effects

6.69 The EcIA will consider the interaction of effects with other disciplines, such as surface water, archaeology and cultural heritage, landscape, air quality and noise. As relevant, the EcIA will also assess the cumulative effects in association with other proposed schemes in the vicinity of the search area.

Proposed Mitigation Measures

Ecological Design Input

6.70 Where possible, significant ecological effects will be avoided through careful design; for example, by:

- Re-aligning to avoid direct and indirect effects on locally designated sites;
- Sensitive micro-siting of the SECs, pylons and underground cables;
- Sensitive timing to avoid effects on important groups such as wintering birds or dormouse; and
- Incorporating appropriate mitigation measures in to the design and construction programme to avoid significant effects on legally protected species.

6.71 Where avoidance of effects is not possible, suitable mitigation will be implemented to ensure that the residual effects are not significant.

Potential Mitigation Measures

6.72 Mitigation measures will be incorporated in to the proposed scheme that will be taken forward with the construction and these will be taken in to account in the assessment of the impacts so that the residual assessment reflects the completed connection infrastructure. Monitoring requirements will be identified where appropriate.

6.73 For the purpose of this document, mitigation refers to measures that will be incorporated in to the design to reduce negative impacts. In addition, opportunities to provide nature conservation enhancements will be incorporated within the proposed scheme where possible. Enhancement refers to measures that improve biodiversity within land acquired for the proposed scheme but not specifically for the purposes of ecological mitigation.

6.74 In addition to determining the significance of an effect on any ecological features, the assessment will also identify the need for protected species licensing. As licenses are only awarded when Natural England are satisfied that there will be no long-term adverse effects on the species/population, all such mitigation strategies will be agreed ahead of their implementation.

General Mitigation

6.75 The following generic mitigation proposals would be supported and supervised by an Ecological Clerk of Works throughout the construction phase. A Construction Environmental Management Plan would be designed to ensure that methods of best practice are followed, that the integrity of features is maintained and they remain undamaged, and disturbance to protected species is avoided. All mitigation measures would be discussed and agreed with Natural England as appropriate.

Non-statutory Designated Sites

6.76 Where possible, locally designated sites will be avoided; where this is not possible, efforts will be made to reduce the impact either through timing, construction measures, pollution control and habitat reinstatement measures. All such measures would be agreed with the Dorset County Council Ecologist ahead of the implementation.

Notable Habitats

6.77 The Phase 1 Habitat survey and aerial photography indicate that most habitats of ecological value (acid, calcareous and unimproved grassland) are restricted to the non-statutory designated site. As such, mitigations measures presented in Section 6.76 will be sufficient to minimise impacts to these habitats. Important habitats outside of designated sites (woodland for instance) will as far as is feasible be avoided by the proposed route; where this is not possible, efforts will be made to reduce the impact either through timing, construction measures, pollution control and habitat reinstatement measures.

Notable Species / Groups

6.78 Where vegetation is removed, reinstatement programmes will use native species appropriate to the existing habitat type using seeds from local provenance. All restoration plans would be agreed with the Dorset County Council Ecologist prior to implementation.

6.79 Suitable mitigation measures would be implemented to minimise the impact on reptiles. Appropriate measures could include habitat manipulation, exclusion fencing or relocation (albeit as a last resort). A fingertip search ahead of vegetation clearance could also be undertaken.

6.80 Works will be carefully timed to avoid impacts to breeding birds during the removal of vegetation and construction phase. Where this isn't likely to be possible, deterrents will be implemented to minimise the risk of birds nesting in work areas. Prior to the removal of hedgerows, rank grassland or woodland (including single trees), an ecologist would inspect the area for active nests. Where nests are discovered, the area would be cordoned off using fencing until the young have fully fledged.

6.81 If any European Protected Species are likely to be adversely affected by the works, a European Protected Species Mitigation Licence (EPSML) would be required from Natural England. These licenses are only awarded where it can be clearly demonstrated that there will be no adverse effects on the favourable conservation status of the species in question. All mitigation contained within an EPSML would have been sanctioned by Natural England and would become legally binding if the licence was awarded.

6.82 To minimise the impact on bats during the construction phase, where possible works will be carried out during the day to avoid disturbance from lighting. Only the minimal level of night-time lighting will be implemented and these will be directed away from linear features that could be used by bats for navigation.

6.83 A 30m standoff will be retained from active badger setts and mitigation would be implemented to minimise disturbance. If it is necessary to exclude badgers from a sett, a licence will be required from Natural England. Trenches will be closed at night or have a means of egress fitted.

Opportunities for Enhancement

6.84 Any opportunities for habitat creation to improve the nature conservation value will also be explored within the framework of the Dorset Biodiversity Compensation Framework. It is not possible to provide detail on exact enhancement measures at this time until the baseline has been established and the impact assessment undertaken but may include the following measures:

- Gapping up of remnant hedgerows in the vicinity of the corridor;
- Planting of trees or additional hedge species in existing hedgerows to provide additional habitat (for example planting hazel/bramble to provide additional food sources for dormice);
- Creation of species rich grassland/arable mixes under consultation with landowners;

- Creation of winter cover to provide food sources for winter birds.

Issues to be Scoped Out

6.85 At the time of writing it is not considered that any ecological receptors or potential impacts can be scoped out of the EIA process.

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7 Archaeology and Cultural Heritage

Introduction

7.1 This chapter considers potential impacts to Cultural Heritage assets, comprising archaeology, built heritage and historic landscape, arising from the proposed scheme.

7.2 An initial desk-top appraisal has been undertaken in order to identify the principal cultural heritage issues associated with the proposed scheme, and to determine the scope of further assessment. The initial appraisal focusses primarily on heritage assets within the search area for permanent development (the search area); however, assets outside of this search area are referred where they may be relevant to the scheme, and to provide archaeological and historical context.

Legislation and Planning Policy

7.3 Legislation and planning policy relevant to the cultural heritage assessment comprises:

- Ancient Monuments and Archaeological Areas Act 1979;
- Planning (Listed Buildings and Conservation Areas) Act 1990;
- National Planning Policy Framework 2012;
- Hedgerow Regulations 1997;
- West Dorset, Weymouth and Portland Local Plan, Adopted October 2015; and
- Dorset AONB Management Plan (Revision 3) 2014.

Baseline Environment

7.4 The search area is located within a rich, multi-period archaeological landscape that has been settled since at least the Mesolithic period, with evidence of settlement from Purbeck, Portland and Weymouth on the coast and more extensive later settlement on the chalk downs. The search area passes through the South Dorset Ridgeway which contains a high density of archaeological monuments and historic landscape features, including Nine Stones which is a concentric stone circle located within the search area (1011986).

7.5 The large number of early prehistoric barrow monuments suggests a primarily funerary landscape with the potential for significant time depth, but the search area also contains evidence for later activity including a prominent series of lynchets (cultivation terraces), Roman settlement, medieval and post-medieval settlement, and WWII military remains, especially at Black Down to the south-west of the search area.

7.6 The South Dorset Ridgeway is one of the most impressive groups of barrows, stretching for over 21km from White Horse Hill, Osmington in the east to Chilcombe Hill in the west. The archaeology and historic landscape features of the area have been mapped as part of the South Dorset Ridgeway Mapping Project (Royall, 2011) and some of the barrows beyond the search area have been investigated as part of a survey of the South Dorset Ridgeway barrows in 2010.

7.7 During the latter prehistoric period (c.600-100 BC) many hillforts were built, including those on Giant's Hill near the village of Cerne Abbas to the north of the scheme. Other hillforts closer to the search area are located at Poundbury Camp on the north-west edge of Dorchester, and Maiden Castle which lies south-west of Dorchester. The visual prominence of hillforts within the landscape and their visual relationship with contemporary settlement areas often form an important component of their settings. Aerial photographs show a series of enclosures to the south-west of Winterbourne Steepleton and within the search area which may relate to late prehistoric settlement.

7.8 The Romans established a major base at Dorchester which developed into a substantial town with an amphitheatre, aqueducts and baths, town walls and houses. A Roman farmstead has been recorded at Poundbury Farm and the route of a Roman road leading from Poundbury to Town Hill is located 300m north-east of the search area.

7.9 Principal settlements in the area include Winterbourne Abbas and Winterbourne Steepleton, which are located within the search area, and Martinstown which is located approximately 700m east of the search area. Winterbourne Abbas is a designated conservation area and contains five listed buildings including its principal building the Church of St Mary which is Grade I listed. Winterbourne Steepleton is also a conservation area containing 14 listed buildings including the Church of St Michael which is Grade I listed, and Manor Farmhouse and Sherring Monument both of which are Grade II* listed.

7.10 There are further listed buildings beyond the principal settlement areas that are located within the search area including a complex of buildings containing four listed Grade II at Friar Waddon and three listed buildings at Corton including the Grade II* Chapel of St Bartholomew.

7.11 Bridehead Registered Park and Garden dates to the early 19th century and is located within the search area. The park is designated Grade II and also contains an early 19th century lodge building which is listed Grade II and is also located within the search area. Further listed buildings located within the park are concentrated around the settlement of Littlebredy which is beyond the search area. The principal access into the park is at its north-eastern edge, via the A35 carriageway, which is located within the search area.

7.12 In summary, the principal designated and non-designated heritage assets identified comprise:

- Scheduled funerary monuments along the South Dorset Ridgeway;
- Cultivation terraces and rectilinear prehistoric earthworks located within the search area to the south of Winterbourne Abbas;
- Nine stones prehistoric stone circle to the west of Winterbourne Abbas (1011986);
- Grade II Bridehead Registered Park and Garden and the Grade II lodge located at its principal entrance;
- Winterbourne Abbas Conservation Area and listed buildings including the Grade I listed Church of St Mary;
- Winterbourne Steepleton Conservation Area including the Grade I listed Church of St Michael and Grade II* listed Manor Farmhouse and Sherring;
- Listed buildings Friar Waddon and Corton including the Grade II* Chapel of St Bartholomew;
- Non-designated assets of regional or national importance within the search area; and

- Previously unknown heritage assets within the search area.

7.13 The location of designated heritage assets within and outside of the search area is illustrated on **Figure 7.1**. The Dorset Historic Environment Record will identify further non-designated heritage assets within the search area.

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Search area for permanent development
- Existing pylon location
- 4YA existing overhead line
- DNO existing overhead line

Listed building

- Grade I
- Grade II*
- Grade II
- Conservation area
- Registered parks and garden
- Scheduled monument

Purpose of Issue: FINAL

Client: NATIONAL GRID

Project Title: VISUAL IMPACT PROVISION

Drawing Title: LOCATION OF HERITAGE ASSETS DORSET AONB

Drawn	Checked	Approved	Date
FG	LC	AC	15/02/2016

AECOM Internal Project No.: 60478116
Scale @ A3: 1:30,000

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Drawing Number: FIGURE 7.1
Rev: 01

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Potential Impacts

7.14 The proposed scheme has the potential to result in permanent impacts to buried archaeological remains. Furthermore, the construction of two cable sealing end compounds (SECs) one at either end of the cable, along with the construction of two terminal pylons may result in impacts to the setting of some heritage assets during construction and operation. The removal of the existing overhead line (OHL) is likely to result in a permanent beneficial impact on the setting of heritage assets.

7.15 The most likely impacts on buried archaeological remains would be direct impacts arising from construction activities. Topsoil stripping and the creation of compounds, haul roads, cuttings, service trenches, and other excavations would normally result in irreversible damage to below ground remains.

7.16 At this stage the principal potential impacts to heritage assets comprise:

- Permanent physical impacts to designated archaeological assets associated with early prehistoric funerary practices;
- Permanent physical impacts to non-designated cultivation terraces to the south of Winterbourne Abbas;
- Permanent physical impacts to previously unidentified archaeological remains;
- Temporary impacts to the setting of heritage assets during construction;
- Permanent impacts to the setting of heritage assets during the operational scheme; and
- Beneficial impacts to the setting of heritage assets during the operation of the scheme arising from the removal of the existing OHL.

7.17 An assessment of cumulative effects will also be considered as part of a detailed impact assessment.

Proposed Assessment Methodology

Baseline Reporting

7.18 A cultural heritage baseline report will be produced which will identify all known heritage assets within a defined search area, and describe the significance of the assets, including the contribution to significance made by their setting, where appropriate.

7.19 The baseline study area for non-designated assets will include the search area for permanent development plus a 500m corridor. The study area for designated heritage assets, both statutory and non-statutory, will be set provisionally at 1km either side of the search area and will be refined following the completion of a detailed site walkover survey, the setting assessment, and reference to the scheme's Zones of Theoretical Visibility (ZTV).

7.20 The walkover survey will identify previously unrecorded heritage assets, areas of potential archaeological interest, and areas of ground disturbance to feed into the proposed scheme design. The survey will entail a systematic walkover of areas likely to be affected by the proposed scheme. Sites of potential archaeological interest will be plotted using a GPS, and a photographic and written record of the walkover will be maintained. A GIS shapefile of heritage assets that have been identified during the walkover survey will be provided to the Dorset County Council Historic Environment Team for inclusion to the Historic Environment Record, along with an asset description and JPEG images.

7.21 The setting of heritage assets assessment will entail visits to the sites of heritage assets in order to identify components of their setting that contribute to their heritage significance, including the extent of associative relationships and the importance of maintaining inter-visibility with other assets.

7.22 During the preparation of the baseline, consultation will be undertaken with the Senior Archaeologist for Dorset County Council, the local authority Conservation Officer and Historic England.

Data Sources

7.23 The following sources will be consulted during the preparation of the baseline report (the list is not exhaustive):

- National Record of the Historic Environment;
- National Heritage List for England;
- Dorset Historic Environment Record
- Dorset County Museum and History Centre;
- Data collected as part of the National Mapping Programme;
- Historic maps and aerial photographs;
- Defence of Britain database; and
- Grey literature including local histories, existing archaeological assessment and fieldwork reports including the South Dorset Ridgeway Project undertaken by Wessex Archaeology.

7.24 The baseline reporting, site walkover and assessment of setting will be undertaken in accordance with planning policy guidance, the published Standards and Guidance and Code of Conduct of the Chartered Institute for Archaeologists (CIfA), and the relevant good practice advice (GPA) guides published by Historic England. Key guidance comprises:

- National Planning Policy Guidance;
- Standard and Guidance for Historic Environment Desk-based Assessment (CIfA 2014);
- GPA 2 Managing Significance in Decision Taking (Historic England 2015a); and
- GPA 3: The Setting of Heritage Assets (Historic England 2015b).

Asset Sensitivity/ Significance

7.25 The sensitivity of a heritage asset is referred to as its level of 'significance' in heritage policy. The level of heritage significance is determined by professional judgement, and guided by statutory and non-statutory designations, national and local policies, and archaeological research agendas.

7.26 Annex 2 of the NPPF defines heritage significance as the "value of an asset to this and future generations because of its heritage interest. This interest may be archaeological, architectural, artistic or historic interest". Paragraph 132 of the NPPF recognises that heritage assets with the highest level of heritage significance comprise Scheduled Monuments, Registered Battlefields, Grade I and II* Listed Buildings, Registered Parks and Gardens and World Heritage Sites.

7.27 Taking the criteria set out in the NPPF into account, each heritage asset can be assigned a level of heritage significance in accordance with a four-point scale as set out in **Table 7.1** below.

Table 7.1: Criteria for determining heritage significance

Significance	Criteria
High	Assets of inscribed international importance i.e.: World Heritage Sites; Grade I and II* listed buildings; Grade I and II* Registered Historic Parks and Gardens; Registered Battlefields; Scheduled Monuments; Conservation Areas containing historic buildings of the highest significance; Non-designated archaeological assets of schedulable quality and importance; Well preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factor(s).
Medium	Grade II listed buildings; Grade II listed Registered Historic Parks and Gardens, Conservation Areas; Non-designated heritage assets of a regional resource value as identified through consultation; Non-designated historic landscapes with reasonable coherence, time-depth or other critical factor that would justify special historic landscape designation, landscapes of regional value.
Low	Non-designated heritage assets of a local resource value as identified through consultation; Historic landscapes of importance to local interest groups or whose value is limited by poor preservation and/or poor survival of contextual associations.
Very low	Non-designated heritage assets of limited resource value or whose heritage values are compromised by poor preservation or damaged so that too little remains to justify inclusion into a higher grade; Landscapes with little or no significant historical interest.

7.29 Following the assessment of significance, the magnitude of impact is assessed which reflects the level of change that may occur to a heritage asset, including its setting, as a result of a proposed scheme (**Table 7.2**). Impacts may arise during construction, operation or decommissioning and may be temporary or permanent.

Table 7.2: Criteria for assessing the magnitude of impact

Magnitude of Impact	Description
High	Change such that key heritage values are totally altered or destroyed. Comprehensive change to setting resulting in a serious loss to heritage value affecting our ability to understand and appreciate the asset.
Medium	Change such that the heritage values of the asset are affected. Noticeably different change to setting affecting heritage value, resulting in erosion in our ability to understand and appreciate the asset.
Low	Change such that the heritage values of the asset are slightly affected. Slight change to setting affecting heritage value resulting in a change in our ability to understand and appreciate the asset.
Very Low	Changes to the asset that hardly affect heritage values. Minimal change to the setting of an asset that have little effect on heritage value resulting in no real change in our ability to understand and appreciate the asset.
No Impact	No change to the heritage asset or its setting.

7.30 The resulting classification of effect is determined by combining the heritage significance of the asset and the magnitude of impact (**Table 7.3**). This takes into account embedded impact mitigation measures that have been incorporated into the proposed scheme as part of the design development process in order to reduce potentially significant effects.

Table 7.3 Criteria for determining the classification of effect

Significance (heritage value)	Magnitude of impact			
	High	**Medium**	**Low**	**Very Low**
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

7.31 For the purposes of the EIA process, moderate and major effects are considered to be significant. Additional mitigation can be used to avoid, reduce, compensate or, where appropriate, offset significant effects. Measures to mitigate impacts to heritage assets would normally consist of preservation in situ where possible, or where this is not feasible, investigation and recording before and/ or during construction. Re-assessing the level of effect following the implementation of a suitable mitigation strategy allows the residual impact of a proposed scheme to be determined (refer to **Table 7.4**). Potential mitigation options are discussed below.

Table 7.4: Level of residual effect after mitigation

Residual effect	Definition
Major Adverse	Negative residual effect that would be an important consideration at a national level.
Moderate Adverse	Negative residual effect that would be an important consideration at a regional or county level.
Minor Adverse	Negative residual effect that would be a relevant consideration in a local context.
Negligible	Residual effect that is nil or imperceptible.
Minor Beneficial	Positive residual effect that would be a relevant consideration in a local context.
Moderate Beneficial	Positive residual effect that would be an important consideration at a regional or county level.
Major Beneficial	Positive residual effect that would be an important consideration at a national level.

7.32 An assessment of cumulative effects will also be considered.

Proposed Mitigation Measures

7.33 Mitigation measures will be proposed if the impact assessment process identifies potentially significant effects arising from the proposed scheme.

7.34 Mitigation measures to avoid or reduce proposed scheme impacts can be embedded within the design; for example, the avoidance of known heritage assets will be a consideration during the design of the underground cable alignment, and there is the potential to divert the route or to use HDD techniques to avoid significant assets. The emerging design will also take into account the setting of heritage assets and will seek to avoid impacts to views of historic and archaeological significance.

7.35 Avoidance of impact is the primary aim; however, if an impact is unavoidable and results in a significant effect, a programme of archaeological recording and reporting will be designed in consultation with the Senior Archaeologist for Dorset County Council, and carried out in accordance with an approved Written Scheme of Investigation.

Issues to be Scoped Out

7.36 There are no cultural heritage issues to be scoped out of the assessment at this stage.

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8 Water Resources

Introduction

8.1 This chapter of the ES will address the potential effects on water quality and water resources that may arise during the construction, operation and decommissioning of the proposed scheme, including discharges, dewatering of excavations, surface runoff of silts and potential for contamination of the local water environment. This chapter will also address flood risk, hydromorphological risk and consider implications of the EU Water Framework Directive (WFD).

8.2 The scoping of water quality and water resources risks has been undertaken in line with the guidance set out in the following documents:

- Environmental Impact Assessment (EIA): A handbook for scoping projects. (Environment Agency, 2002);
- Web-based Transport Analysis Guidance (WebTAG); specifically, 'Impacts on the Water Environment' TAG unit A3 (DfT, 2015);
- Groundwater Protection: Policy and Practice (GP3) (Environment Agency, 2013);
- Overarching National Policy Statement for Energy (EN-1). Planning for new energy infrastructure; and
- National Planning Policy Framework (NPPF) (DCLG, 2012) and accompanying Planning Practice Guidance (DCLG, 2016).

8.3 The Environment Agency has provided some preliminary comments to inform the scoping report. Comments received from other stakeholders have been taken into account where relevant to the water environment.

8.4 **Figure 8.1** shows the search area for permanent development (the search area) in relation to the Environment Agency's 'risk of flooding from rivers and the sea' dataset to provide a context for this chapter. It should be noted that, whilst the flood extents are broadly the same, the alternative 'flood map for planning' will dictate the formal flood zones and inform the requirement for Flood Risk Assessment from the Local Planning Authority.

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

Search Area for Permanent Development

Risk of Flooding from Rivers and Sea

- High (chance of flooding greater than 1 in 30)
- Medium (chance of flooding between 1 in 30 and 1 in 100)
- Low (chance of flooding between 1 in 100 and 1 in 1000)
- Very Low (chance of flooding less than 1 in 1000)

Source: Environment Agency 'Risk of flooding from rivers and the sea' data. Available from: http://www.geostore.com/environment-agency

Purpose of Issue: FINAL

Client: NATIONAL GRID

Project Title: VISUAL IMPACT PROVISION

Drawing Title: DORSET VIP RISK OF FLOODING MAP

Drawn	Checked	Approved	Date
DH	AH	CB	26/02/2016

AECOM Internal Project No.	Scale @ A3
60478116	1:40,000

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FIGURE 8.1	00

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Legislation and Policy

8.5 Legislation and policy relevant to control and protection of water resources and provision of flood risk management comprises:

- The EU Water Framework Directive (WFD) (2000/60/EC);
- The EU Floods Directive (2007/60/EC);
- The Water Resources Act 1991 (as amended);
- The Water Act 2003, and 2014;
- The Environment Act 1995;
- The Environmental Protection Act 1990;
- The Land Drainage Act 1991;
- The Flood and Water Management Act 2010; and
- The Flood Risk.

8.6 A number of specific regulations have been made to implement the statutory European and national legislation into law as set out above. These regulations include:

- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003;
- The Flood Risk Regulations 2009;
- The Anti-Pollution Works Regulations 1999;
- The Control of Pollution (Oil Storage) (England) Regulations 2001;
- The Groundwater Regulations (England and Wales) 2009;
- The Environmental Damage Regulations 2009;
- The Water Resources Act (Amendment) (England and Wales) Regulations 2009;
- The Environmental Permitting (England and Wales) Regulations 2010; and
- Water Supply (Water Quality) Regulations 2010.

8.7 In terms of planning policy, The National Planning Policy Framework (NPPF) outlines the Government's national planning policies for England, and is supported by the National Planning Policy Guidance (NPPG).

Baseline Environment

8.8 At the northern extent of the VIP subsection, near Winterbourne Abbas, the existing route crosses the South Winterbourne Spring and Stream, which flows within the Winterbourne Valley. The southern section of the VIP subsection, within the search area also crosses a tributary of the River Wey, classified as an ordinary watercourse.

8.9 The search area crosses a small area of Flood Zone 2 & 3 near Winterbourne Abbas as shown on the Environment Agency's Flood Map (Environment Agency, 2016a) associated with the South Winterbourne watercourse. Flood Zone 3 is an area at high flood risk with a 1 in 100 (or greater) annual probability of fluvial flooding; Flood Zone 2 is an area at medium flood risk with between a 1 in 100 and a 1 in 1000 annual probability of fluvial flooding; and, Flood Zone 1 is an area at low flood risk with a greater than 1 in 1000 annual probability of fluvial flooding.

8.10 In accordance with the relevant planning guidance, the proposed scheme should be located outside areas of floodplain wherever possible. However, where it is a necessity, attention should be given to the potential impact that mobile temporary works may have on important flow routes such that any adverse effects can be assessed.

8.11 The search area extends across areas subject to the South West River Basin Management Plan (RBMP) (Environment Agency, 2009). The RBMP provides a classification of the current status of each water body in the district as required under the Water Framework Directive (WFD). The South Winterbourne watercourse is currently classified at Good Status in the 2009 RBMP. The River Wey is also currently at Good Status. The Upper Dorset Stour Chalk Groundwater body, which underlies the route has Poor Current Quantitative Quality.

8.12 At the time of compiling this scoping chapter, the Cycle 2 2015 RBMPs had not been published, however, recent data published on the Environment Agency's Catchment Data Explorer (Environment Agency, 2016b) gives an overall status of Moderate to the South Winterbourne watercourse and Moderate to the River Wey. For the Environmental Statement, the confirmed Cycle 2 Status will be included from the published 2015 RBMP.

8.13 A review of the British Geological Survey (BGS) 'Geology of Britain' viewer (BGS, 2016) indicates that the site is underlain mostly by Chalk through the VIP subsection with the southern extent underlain by a combination of Purbeck Group limestones and mudstones, with Portland Group limestones and Kimmeridge Clay.

8.14 The Aquifer Designation maps, which are available on the Environment Agency's website (Environment Agency, 2016c) indicate that most of the proposed scheme overlies a 'Principal' Bedrock aquifer. This aquifer designation is defined by the Environment Agency as:

> *"Principal Aquifer: These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer"*

8.15 The RBMP states that in Dorset "Groundwaters are of vital importance in this catchment and they must be protected, as they support a significant proportion of the abstraction for public water supply and other uses, for example aquaculture"

8.16 A review of licensed water abstractions as recorded by the Environment Agency (Environment Agency, 2016d) has identified a medium surface water abstraction and small groundwater abstraction point at Winterbourne Steepleton and a number of other small groundwater abstractions in the vicinity of the VIP subsection.

8.17 The Environment Agency use Source Protection Zones (SPZ) to apply a level of protection to drinking water sources. SPZs are used to identify those areas close to drinking water sources where the risk associated with groundwater contamination is greatest and are an important tool for identifying highly sensitive groundwater areas. These zones are used in conjunction with groundwater protection policy to set up pollution prevention measures.

8.18 SPZs are of particular importance when considering siting of certain above ground and underground infrastructure, particularly during the construction phase of the proposed scheme. They are defined as;

- Inner zone (SPZ 1) is defined as 'the 50 day travel time from any point below the water table to the source';

- Outer zone (SPZ 2) is defined by ‘a 400 day travel time from a point below the water table with a minimum radius of 250 or 500 metres around the source depending on the size of the abstraction’
- Total Catchment (SPZ 3) Defined as ‘the area around a source within which all groundwater recharge is presumed to be discharged at the source’.

8.19 A large part of the VIP subsection passes through an SPZ1 and SPZ2. Below ground excavations or Horizontal Directional Drilling (HDD) within SPZ1 could represent a high risk to this water source. Any works within SPZ 2 could represent a medium risk to this water source.

8.20 A number of designated Sites of Special Scientific Interest (SSSI) have been identified in the vicinity of the subsection, although none are considered specifically water dependant, Corton Cuttings SSSI and Blackdown (Hardy Monument) SSSI are sites of important geological interest.

Potential Impacts

8.21 It is anticipated that impacts from decommissioning works will be no greater than those associated with the construction works. As such, the assessment of impacts generated by construction works will be applicable to both the construction and decommission phases of the proposed scheme. Any reference in the following text to ‘construction’ should therefore also be taken to mean decommissioning.

8.22 Based on the proximity of hydrological receptors and flood risk sources, the scoping process has identified a number of potentially significant impacts in relation to water quality, flood risk and hydromorphology.

8.23 The following potential impacts, which might arise during the construction phase are scoped into the assessment:

- Impact on surface water and groundwater quality from ground disturbance due to construction vehicle movements, activities within temporary construction compounds and excavation activities, and storage of potentially damaging materials and substances, leading to potential WFD status effects for waterbodies;
- Impact on surface water quality from the construction of temporary access tracks, with the potential to cause minor erosion of soils along the route. During heavy rainfall soil material may be washed into watercourses by surface water runoff;
- Impact on groundwater quality through encountering the water table whilst excavating trenches or carrying out Horizontal Directional Drilling (HDD); providing a direct pathway for pollutants;
- Where shallow groundwater levels are encountered, excavations would need to be dewatered and the pumped water discharged elsewhere with possible impacts on the quality of the receptor. This could also impact local groundwater levels which may support water dependant designated sites or public water supply provision.
- The use of vehicles for construction and access also poses the risk of spillage of contaminants, such as oil and hydraulic fluid, potentially impacting on surface water and groundwater quality;
- Impact on the hydrology and flow conveyance of watercourses due to temporary bridge crossings (associated with access), which might increase the risk of blockage or constriction to flows or the use of HDD under watercourses, which

may affect groundwater to surface water interaction, resulting in increased flood risk and hydromorphological effects; and

- The use of temporary construction compounds and access tracks have the potential to increase surface water runoff and result in increased flood risk.

8.24 The following potential operational impacts are scoped into the assessment:

- Impact on flood risk both to the proposed scheme and elsewhere due to the potential for underground cabling routes to interrupt groundwater flow pathways and the potential for construction of SEC to increase localised surface water runoff at each SEC site.
- Impact on water quality through potential interaction with the water table whilst carrying out maintenance works to underground cabling.

Proposed Assessment Methodology

8.25 The assessment methodology will be agreed through consultation with the Environment Agency, Dorset AONB partnership and Dorset County Council (DCC).

8.26 The identification of potential effects on flood risk and hydrology will be undertaken using the development of a conceptual Source-Pathway-Receptor model (hydrogeology is scoped in further detail in chapter 9: Geology, soils and contaminated land). The model will identify the potential sources or 'causes' of impact as well as the receptors that could potentially be affected (e.g. surface and ground water resources).

8.27 The presence of a potential impact source and a potential receptor does not automatically infer that an impact will occur as there needs to be an impact pathway or 'mechanism' via which the source can affect the receptor.

8.28 An assessment of the significance of effect will be undertaken using the methodology provided in the WebTAG; specifically, the Water Environment Sub-Objective within TAG Unit A3 (DfT, 2015). The methodology set out in this WebTAG Unit provides an appraisal framework for taking the outputs of the EIA process and analysing the key information of relevance to the water environment. The guidance provides a method by which the significance of a potential effect can be appraised consistently by decision makers. It is based on guidance prepared by the Environment Agency and builds on the water assessment methodology in the Design Manual for Roads and Bridges (DMRB) 11:3:10 (Highways Agency, 2009).

8.29 The methodology enables the classification of a potential effect by firstly considering how important or how sensitive the receptor is and secondly, by considering the likely magnitude or extent of the impact on the receptor. By combining these two elements, the classification of the potential effect can be derived. If significant adverse effects are identified, mitigation measures will be proposed to prevent, reduce or where possible offset them.

8.30 It is anticipated that a Flood Risk Assessment (FRA) would be undertaken to determine any flood risks to or from the proposed scheme and any mitigation which may be required. The assessment would be compliant with the NPPF (DCLG, 2012) and Planning Practice Guidance (DCLG, 2016).

8.31 If potential impacts are identified that could lead to the deterioration of a water body from its current status, or prevent a water body from achieving 'Good Status' (or potential) in the future in relation to hydro-morphology or water quality, it is likely that a separate Water Framework Directive Assessment (WFDa) would be required. This would be confirmed in agreement with the Environment Agency as the regulatory body. It has already been identified by the Environment Agency that laying cable beneath

watercourses could coincide with mitigation works to the river where there are opportunities to improve trout spawning habitat or provide wetland scrapes.

8.32 The FRA (and WFDa if required) would be submitted as a technical appendix to the ES. They will be referred to in the ES Water Resources chapter to determine the significance of any source of flooding on the proposed scheme and whether the scheme has potential to increase flood risk in the area or impact the ecological status of waterbodies. Where potential impacts are identified, the classification of effect will be derived based upon the predicted magnitude of change and the sensitivity (or vulnerability) of the affected receptors.

Proposed Mitigation Measures

8.33 The majority of the potential effects of the proposed scheme are associated with the construction and decommission phases. Surface water and groundwater quality risks could potentially be mitigated during the construction and decommission phases by:

- Using an appropriate geotextile in the immediate vicinity of watercourse crossings to minimise damage to the surrounding ground and vegetation and minimise erosion;
- Monitoring of groundwater levels prior to construction, use of infiltration control measures, and implementing a spill control and response plan;
- Implementing regular maintenance of machinery and vehicles to reduce the possibility of pollutant leakages;
- Disposing of waste material in accordance with relevant waste management plans and waste disposal regulations to prevent pollution; and
- Restoring the areas impacted by temporary access to their former state once the construction is complete.

8.34 Potential increases in flood risk could potentially be mitigated by:

- Careful siting of SECs;
- Ensuring that any construction compounds and storage areas are situated outside of recognised Flood Zones or other identified flood risk areas;
- Ensuring that temporary construction access routes and watercourse crossings are constructed with consideration of potential effects on local flows; and
- Undertaking construction activities outside of the winter period where practicable.

Issues to be Scoped Out

8.35 Based on the proximity of hydrological receptors and flood risk sources, currently no potential impacts have been scoped out of having the potential to lead to significant effects on water resources at this stage.

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9 Geology, Soils and Contaminated Land

Introduction

9.1 This chapter of the ES will address the issues relating to existing geo-environmental conditions for the vicinity of the proposed scheme, including geology, soils and contaminated land, and ensure that suitable and safe conditions are achieved for the proposed end use. A range of potential impacts associated with the construction, operation and decommission phases of the proposed scheme is considered, particularly concerning geotechnical conditions and contamination. Should significant adverse impacts be identified, suitable mitigation measures will be proposed.

9.2 The following data and information has been sourced from the British Geological Society (BGS), including the BGS GeoIndex, the Coal Authority (Coal Authority Interactive Map viewer), the Environment Agency (What's in your backyard online viewer), the UK Soil Observatory and the MAGIC interactive natural environment map viewer website.

Legislation and Policy

9.3 The key legislative drivers for dealing with risks to human health and the environment from historical land contamination include:

- Part 2A of the Environmental Protection Act 1990 (EPA) (the Contaminated Land Regime);
- The Environment Act, 1995;
- The Water Resources Act, 1991 (as amended);
- The Water Act 2003 and 2014; and
- The Town and Country Planning Act, 1990 and The Building Act, 1984

9.4 The Acts of Parliament are implemented by specific regulations that apply to the regulation and assessment of land contamination related issues. These regulations include, but are not limited to:

- The Contaminated Land (England) Regulations, 2006 and The Contaminated Land (England) (Amendment) Regulations, 2012
- The Environmental Damage (Prevention and Remediation) Regulations, 2009
- The Environmental Permitting (England and Wales) Regulations, 2010
- The Anti-Pollution Works Regulations, 1999
- EC Water Framework Directive (WFD) (2000/60/EC), implemented in river basin districts within England and Wales through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (SI2003/3242)
- The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009.
- The Water Resources (Control of Pollution) (Oil Storage) (Wales) Regulations 2016 (coming into Force 15/03/16);
- The Building Regulations, 2000.

9.5 Planning related policies include the National Planning Policy Framework (NPPF), 2012 and the West Dorset, Weymouth and Portland adopted Local Plan, including Chapter 2 Environment and Climate Change, particularly ENV1 (Landscape, Seascape And Sites

Of Geological Interest), ENV9 (Pollution and Contaminated Land) and ENV16 (Amenity).

Other Relevant Policy and Guidance

9.6 The Part 2A principles of risk-based assessment and suitability for use have been widely adopted for the management of land contamination under other UK regulatory regimes. This approach has been codified by Environment Agency (EA) / Defra Contaminated Land Report 11, Model Procedures for the Management of Land Contamination, 2004 (CLR11), the EA's Guiding Principles for Land Contamination (GPLC, 2010) and the joint National House-Building Council (NHBC) / EA / Chartered Institute of Environmental Health Guidance (CIEHG) for the safe development of housing on land affected by contamination.

9.7 Other relevant policy and guidance include the EA's Guiding Principles for Land Contamination (2010), Groundwater Protection: Principles and Practice (GP3) and relevant Pollution Prevention Guidance Notes; Construction Industry Research and Information Association (CIRIA) Guidance documents C532 'Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors' and C665 'Assessing Risks Posed by Hazardous Ground Gases to Buildings'.

Planning Policy

9.8 The National Planning Policy Framework (NPPF) (2012) encourages the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value.

9.9 Land contamination, and its risk to health, is a material consideration under planning and development control, and this policy applies to the intended use of the site. It states that where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

9.10 Paragraph 109 of the NPPF states that:

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

Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and

Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate."

9.11 In Paragraph 121, the NPPF also states that planning policies and decisions should also ensure that:

"The site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation";

"After remediation, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990"; and

"Adequate site investigation information is prepared by a competent person."

Groundwater Protection: Principles and Practice (GP3)

9.12 The Environment Agency's GP3 guidance sets out their proposed approach for implementing legislation and policy relevant for the protection of groundwater resources. The document is organised into three sections, presenting the principles of

groundwater protection, Environment Agency (EA) position statements, relevant legislation and supporting technical information.

Relevant Pollution Prevention Guidelines (Environment Agency Pollution Prevention Guidance Notes)

9.13 The Environment Agency has prepared a series of Pollution Prevention guidelines to assist developers in the prevention of pollution.

Baseline Environment

9.14 Dorset has an extremely rich geodiversity. The bedrock underlying most of the search area for permanent development (the search area) comprises Cretaceous White Chalk, which is described as chalk with flints, with discrete marl seams, nodular chalk, sponge-rich and flint seams throughout. A combination of Purbeck Group limestones and mudstones, Portland Group limestones and Kimmeridge Clay extends to the south of the search area.

9.15 Soils comprise free draining slightly acid loamy soils to the north of the VIP subsection with the majority of the soil type recorded as shallow lime-rich soils with a narrow band of slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils to the south. Corton Cuttings SSSI and Blackdown (Hardy Monument) SSSI are sites of important geological interest for the presence of Tertiary Period geology and evidence of sediment deposition on a *"braided river"* environment at Blackdown. Corton Cuttings is of interest because of the presence of Portland Sand Formation of Late Jurassic age.

Solid (Bedrock) Geology

9.16 The following information has been obtained from the BGS.

9.17 The bedrock beneath the northern section of the search area comprises chalk of the Seaford Chalk Formation, described as firm white chalk with conspicuous semi-continuous nodular and tabular flint seams. Hardgrounds and thin marls are known from the lowest beds and some flint nodules are large to very large.

9.18 The central section is mainly defined by the Lewes Nodular Chalk Formation, which is generally composed of hard to very hard nodular chalks and hardgrounds with interbedded soft to medium hard chalks and marls. Small bands of the New Pit Chalk Formation, the Holywell Nodular Chalk Formation and the Zig Zag Chalk Formation are located between Winterbourne Steepleton and Winterbourne Abbas. These chalks are principally blocky, white chalk with numerous marls or paired marl seams. The Hollywell Nodular Chalk Formation is reported to contain shell fragments.

9.19 The chalk bedrock below the southern section is of the Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated). This is generally described as being chalk with flints, with discrete marl seams, nodular chalk, sponge-rich with flint seams throughout.

9.20 To the far south, the bedrock comprises a combination of Purbeck Group limestones and mudstones, with Portland Group sandstones and limestones, and Kimmeridge Clay Formation.

9.21 The Kimmeridge Clay Formation comprises mudstones (calcareous or kerogen-rich), thin siltstone and cementstone beds, with sands and silts found locally. The Portland Group is recorded to comprise mixed siliclastic and carbonate sediments, including bioturbated clay-rich siltstones, fine-grained sandstones and silty mudstones, with variable amounts of calcite and dolomite. Some beds are shell rich. The upper part of the formation comprises purer carbonate lithologies, including finely crystalline and bioturbated dolomite.

9.22 An inferred normal fault runs from east to west across the area of Corton Down. A further two inferred faults run west and south-west from Winterbourne Abbas and one runs eastwards from Martinstown, all of these faults cross the search area.

Drift (Superficial) Geology

9.23 The following information has been obtained from the BGS.

9.24 The presence of superficial deposits is sparse over much of the search area. Superficial deposits which are recorded as present are described as head or polymict deposits, comprising gravel, sand, silt and clay, depending on upslope source and distance from source. They comprise poorly sorted and poorly stratified deposits formed mostly by solifluction and/or hillwash and soil creep. Essentially comprises sand and gravel, locally with lenses of silt, clay or peat and organic material.

9.25 None of the available information assessed indicates the presence of made ground. However, localised made ground may be present, associated with the historic development and use of the sites along the route, (the search area generally comprises undeveloped agricultural land).

Soils

9.26 The following information has been obtained from the UK Soil Observatory's (UKSO) online maps.

9.27 Soils comprise free draining slightly alkaline loamy soils to the north of search area, with the majority of the soil type recorded as shallow lime-rich soils with a narrow band of slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils to the south. These lime rich soils are associated with the underlying chalk bedrock.

9.28 South of Corton Farm and Friar Waddon Hill (i.e. south of the chalk outcrop area), the search area extends over slowly permeable, wet, slightly acid but base-rich loamy and clayey soils. These soils are associated with claystone and mudstone bedrock material (Kimmeridge Clay).

Peat

9.29 No areas of peat have been identified within the search area.

Groundwater and Surface Water

9.30 The chalk bedrock beneath the search area and surrounding areas is recorded by the EA as a Principal Aquifer. Based on the information sourced from the Environment Agency website, the section of the search area north of Corton Down is located on the Upper Dorset Stour Chalk aquifer. The quantitative and chemical quality of groundwater within this waterbody is classed as 'poor'. To the south of Corton Down, the groundwater body is of the Lower Dorset Stour Chalk and Hampshire Avon. The quantitative and chemical quality of this waterbody is classed as 'good'.

9.31 The search area between Winterbourne Steepleton and Corton Down is underlain by a Source Protection Zone (SPZ) Outer Zone 2, with a section underlain by SPZ Zone 1 adjacent to Winterbourne Steepleton. From Corton Down southwards, the existing overhead line (OHL) route and search area is underlain by SPZ Zone 1. These are zones established to protect strategically important water abstractions from impacts of potential contamination in the vicinity.

9.32 There are a number of groundwater and surface water abstractions in the vicinity, for uses including potable (domestic and public water supply) and agricultural. There may be unlicensed private water supplies that are not recorded on the Environment Agency public registers; details of these may be held by the Local Authority, who would be consulted as part of any EIA.

9.33 There are a number of dry valleys, spring lines and areas interpreted as groundwater discharge areas visible on the Ordnance Survey (OS) mapping[6]. These are generally associated with changes in gradient, such as valleys, and typically indicate the interface between geological units including between chalk units and between the chalk and underlying geological units. There are also a number of small pond features along the route, which may indicate similar geological boundaries. Towards the far southern end of the route, in the vicinity of Corton Hill, there are a number of springs which flow southwards towards permanent (year round flow) watercourses.

Contamination

9.34 A search of the Environment Agency website indicates one recorded incident of significant impact to water, of organic chemicals/product at Friar Waddon in 2013, with a further significant impact to water of agricultural materials and waste reported at Winterbourne Steepleton in 2004.

9.35 Based on the records held by the Environment Agency, no current or historical landfill sites are recorded within the search area.

9.36 Due to the designation of the surrounding area as an Area of Outstanding Natural Beauty (AONB), and the current use as Greenfield, the potential for significant contamination is considered low.

9.37 Strata within the Kimmeridge Clay formation include areas of organic rich material, with naturally occurring hydrocarbons.

Preliminary Ground Stability Review

9.38 Excavations and trenches may become unstable due to groundwater ingress if the groundwater level is high. Such problems could occur in underground trenches and joint bays and would be a particular issue where the proposed scheme crosses zones of groundwater discharge from the chalk. These areas are typically marked by the presence of natural spring lines. As well as having a potential detrimental effect on excavation stability, additional temporary and permanent groundwater control measures are likely to be required for these locations.

9.39 Chalk bedrock is susceptible to dissolution and the formation of solution cavities, which may introduce ground stability impacts, these can include subsidence, surface collapse and below ground voids.

Mineral Exploitation Sites

9.40 BGS' GeoIndex records Corton Shale Pits located southwest of Corton Farm, which is at the far southern extents of the search area.

9.41 The search area is not shown as an area likely to be impacted by shallow or deep coal mining activities.

9.42 Towards the southern end of the route in the vicinity of Corton Down, the underlying geological units progress from chalk to the Porton Group and Purbeck Group. In this area, the OS mapping shows a number of 'Shake Holes', 'Earthworks' and "Pit (dis)" along the Bronkham Hill ridgeline. The "Pit (dis)" is shown very close to the existing route. These features are interpreted as possible former quarries / mineral works and may have been locally backfilled with made ground.

Designated Sites for Geological Protection

9.43 A review of MAGIC Maps indicates that there are two designated sites for geological protection close to the search area:

[6] Ordnance Survey, Explorer Map Sheet OL15, 1:25,000

- Corton Cuttings Site of Special Scientific Interest (SSSI), located in the south of the search area;
- Blackdown (Hardy Monument) SSSI, circa 1km to the west of the search area.

9.44 Both Corton Cuttings SSSI and Blackdown (Hardy Monument) SSSI are sites of important geological interest for the presence of Tertiary Period geology. Blackdown has evidence of sediment deposition on a “braided river” environment, whilst Corton Cuttings is of interest because of the presence of the Portland Sand Formation of Late Jurassic age.

Potential Impacts

9.45 An assessment of the potential impacts of the proposed scheme on the underlying geology and soils, and from potential contaminated land, will be undertaken. This assessment will be undertaken largely by means of a desk study, utilising information from published mapping and preliminary assessment to identify geo-hazards such as superficial deposits and bedrock geology, aquifer and groundwater conditions, former mining, made ground, former surface mineral sites (which may contain non-engineered fill, wastes, etc.), peat, compressible ground, running (sand) conditions, shrink swell clays and landslip.

9.46 The potential impacts of the proposed scheme on geology and soils, and from contaminated land, will largely occur during the construction and decommission phases and will be temporary and of short duration. Potential issues to be addressed as part of the EIA include:

- Disturbance of underlying geology;
- Presence of potential geo-engineering hazards, as presented in **Table 9.1** below;
- Disturbance of, and damage to, soils;
- The potential presence of mineral reserves and the potential for their sterilisation as a result of the proposed scheme (although this may not be significant if the route is based on a parallel alignment to the existing route;
- Possible presence and mobilisation of localised areas of contaminated ground;
- Potential impacts on designated geological sites;
- Disturbance / pollution risk to the chalk Principal Aquifer, including:
    - potential impacts to groundwater and surface water resources (including ecological receptors which may be present, such as in Chalk fed streams) from construction activities (e.g. fuel storage / plant maintenance) and operational activities.
    - risk to licensed groundwater and surface water sources of potable water supply (including public supply) and unlicensed private water supplies.
- Potential for shallow groundwater to impact on construction works including excavations intercepting spring lines;
- Development of appropriate management methods to protect site neighbours, the environment and site workers during construction and decommission works in terms of health and safety and pollution prevention.
- Possibility of encountering natural hydrocarbon contamination associated with the Kimmeridge Clay – may impact on excavation design, materials handling and waste disposal.

Table 9.1: Potential Geo-engineering Hazards

Hazard	Comment
Unforeseen Ground Conditions	Soft/loose ground. Temporary works and settlement issues.
Soft ground deposits	Foundation, bearing and settlement issues.
Shallow / deep mine workings solution cavities	Potential for ground instability. Take least risk route in these areas once mining information is obtained.
Shallow bedrock.	Possible hard/difficult rock excavation. Implications for tunnelling.
Groundwater / surface water	Excavation stability, temporary works, buoyancy and flotation issues, strong spring flows, potential contamination of ground and surface water resources.
Contaminated Land	Contamination associated with development of the area (farming, residential, roads) may be present. Re-use of spoil and waste disposal issues.

Proposed Assessment Methodology

9.47 The following activities will be undertaken as part of the EIA:

- Liaison with the Local Authority, West Dorset District Council, Dorset County Council, Natural England, the Environment Agency, and other relevant organisations (British Geological Survey, etc.) to obtain available information in respect of contamination and ground conditions;
- A check will be made of the Dorset County's Minerals Plans, and liaison with the Councils' Minerals Teams, to ensure the accurate identification of mineral reserves. (Information from this assessment will also be used within the socio-economic assessment);
- Combine the above information with historical maps, detailed site walkovers and reviews of environmental data bases, and further desk-based information (maps, reports, etc.) to assess sensitivity and risk, and
- Liaison with DEFRA with regard to Soil Classifications.

Desk Study

9.48 A review will be undertaken of topographical, geological and soil maps. It will also draw from information obtained from other studies, such as the ecological, cultural heritage and hydrological/hydrogeological assessments. Historical maps will be reviewed in order to assess the potential for contamination.

Initial Walkover

9.49 Site walkovers will be undertaken of the search area and will verify the desk study information and record any natural or man-made topographical, hydrological, and hydrogeological features, type of vegetation cover and any other relevant features. This information will be used to inform the Desk Study report and requirement for, and siting of, site investigation activities.

Site Investigation (Intrusive Works)

9.50 Intrusive site investigations may be required at selected locations prior to commencement of construction activities, in order to obtain geotechnical and geo-environmental information in support of engineering and construction feasibility studies. This information will be reviewed to inform the EIA.

Proposed Mitigation Measures

9.51 Mitigation measures will be proposed if the impact assessment process identifies potentially significant effects arising from the proposed scheme.

9.52 Mitigation measures to avoid or reduce scheme impacts will be embedded within the design.

Issues to be Scoped Out

9.53 There are no issues to be scoped out at present.

10 Agriculture and Land Use

Introduction

10.1 This chapter of the Scoping Report outlines the proposed scope of impacts of the proposed scheme on agriculture and land use that will be assessed as part of the EIA, including potential for land sterilisation and land take, as well as the potential for impacts on soils, biosecurity and on the ability of farmers and landowners to achieve their commitments made under the agri-environmental schemes. This chapter also provides an outline to the baseline environment, the proposed assessment methodology, as well as possible mitigation measures.

Legislation and Policy

10.2 Legislation and policy which is relevant to Land Use and Agriculture principally comprises:

- The Countryside and Rights of Way (CRoW) Act 2000;
- The Wildlife and Countryside Act 1981 (as amended);
- National Planning Policy Framework (2012); and
- West Dorset District Council and Weymouth & Portland Borough Council, (2015); West Dorset, Weymouth and Portland Local Plan 2011-2031.

Baseline Environment

Land Use

10.3 The majority of the search area for permanent development (the search area) comprises rural cultivated farmland, understood to be arable and pastoral, and associated farm buildings and a few scattered, small pockets of broad-leaved woodland. The villages of Winterbourne Abbas, Winterbourne Steepleton and Friar Waddon are within the search area. There are also a number of Public Rights of Way (PRoW) that dissect the search area, including South Dorset Ridgeway and the Jubilee Trail.

10.4 There are no applicable land allocations, as included in the West Dorset, Weymouth and Portland Local Plan within the search area.

Soils

10.5 The majority of the search area is located on loamy soils, which are either classified as shallow lime-rich or slightly acid. There is a small section towards the centre of the route that is a sandy, partly loamy soil which is very acidic.

10.6 The northern Sealing End Compound (SEC) is largely located on loamy partially clayey soils, which are slightly acidic; while the southern SEC is largely located in loamy clay soils that are slightly acid, with remaining areas consist of loamy, shallow lime-rich soils.

Agricultural Land Classification

10.7 From an initial review of Agricultural Land Classification (ALC) map of the South West Region (Natural England, 2010) (Scale 1:250 000), the majority of the search area is located on Grade 3 agricultural land (no distinction is made here between Grade 3a and 3b), with pockets of Grade 4 land around Winterbourne Abbas and Winterbourne Steepleton to the north of the existing route, and Shorn Hill to the centre; and a pocket of Grade 5 land around Bronkham Hill towards the south.

10.8 The northern SEC search area is located fully on Grade 3 land, while the southern SEC search area is mostly Grade 3, but has a strip of Grade 5 land going across it located along Friar Waddon Hill.

10.9 Agricultural land classified as Grade 1, 2 or 3a, represent the 'best and most versatile' (BMV) land, according to Annex 2 of the National Planning Policy Framework (NPPF) (DCLG, 2012)[7]. It is not possible to determine if the search area contains BMV land, as no distinction is made between 3a and 3b agricultural land in the ALC map for the South West Region. This will be explored further in the EIA.

Agri-Environmental Schemes

10.10 From an initial review of MAGIC for agri-environmental schemes, the majority of land in the northern section of the search area consists of land denoted as being a part of agri-environmental schemes, including Entry Level Stewardship (ELS), and larger sections of Organic Entry Level Stewardship (OELS) and OELS combined with Higher Level Stewardship (HLS).

10.11 The majority of land in the southern section of the search area consists of land not denoted as being a part of an agri-environmental scheme. However, areas of around the periphery of the search area consist of ELS, OELS and OELS combined with HLS.

10.12 The northern SEC search area is located on ELS land, while the southern SEC search area is located within ELS land and a small section of OELS land.

Potential Impacts

10.13 The assessment will consider the construction, operational and decommissioning effects of the proposed scheme on land use and agriculture.

Construction and Decommissioning

Land Take

10.14 Temporary land take is required during construction (including removal of existing pylons and OHL) and eventual decommission phase of the VIP infrastructure. Land take would include the working area for trenching or drilling, in addition to areas for access, storage, and contractor compounds. Short term temporary impacts would include a reduction in agricultural land area that can be farmed.

10.15 In addition, permanent loss of land at the two SECs will result in the reduction in agricultural land area that can be farmed and potentially a loss of BMV land.

Agri-Environmental Schemes

10.16 Where the proposed scheme occurs on land subject to an agri-environmental schemes (e.g. Countryside Stewardship (CS) and Environmental Stewardship) it may potentially result in temporary or permanent impacts on the ability of the farmer/landowner to

[7] The ALC system classifies land into five grades, with Grade 3 subdivided into Subgrades 3a and 3b. The best and most versatile (BMV) land is defined as Grades 1, 2 and 3a by policy guidance (see Annex 2 of NPPF, 2012). This is the land is the most flexible, productive and efficient in response to inputs and which can best deliver food and non food crops for future generations (Paragraph 26, Planning Practice Guidance (DCLG, 2014)).

achieve their commitments made under the agri-environmental schemes, resulting in both loss of land areas or features, subject to the agri-environmental scheme, as well as the landowner's/farmer's payment for this. The impact will be dependent on each individual agri-environmental scheme applicant's details.

10.17 There are also secondary impacts on biodiversity, however these are not land use or agriculture impacts and, hence, are discussed in Chapter 6 Ecology.

Soils

10.18 During the construction and decommission phase there is the potential to impact on the quality of the soils, to include reduced biological activity, porosity and permeability, compaction, lack of workability, soil mixing, inverted profiles and poor drainage. This has the potential to come about due to poor storage of topsoil, use of heavy machinery, removal of vegetation, and severance of field drains.

Farming Practices

10.19 During the construction and decommission phase there could be temporary impacts on farming practices, including:

- Temporary loss of crop production / grazing areas within the working corridor and for contractor compounds/storage areas. This would be during construction and for short period following reinstatement;
- Temporary separation of livestock from water supplies;
- Disruption to daily farming practices, such as movement of livestock and agricultural machinery or harvesting efficiency;
- Temporary effects on agricultural accesses;
- Temporary removal of field boundaries; and
- Temporary disruption to field drainage and water supplies.

Biosecurity

10.20 The nature of linear construction across multiple farm holdings and fields brings potential risks to biosecurity, including:

- Spread of plant and animal diseases, for example Bovine Tuberculosis;
- Spread of invasive and injurious weeds, for example ragwort, on wheels of construction and maintenance vehicles; and
- Potential for contamination of organically farmed land, either from contamination with non-organic adjacent farmland or the use of unauthorised chemicals such as pesticides, fertilisers or other non-organically approved compounds.

10.21 Risks to biosecurity have potential long term impacts to farm viability.

Operational

Impacts on Development Land

10.22 There will be potential for permanent impacts, for the lifetime of the proposed scheme, which could limit land use practices and development above the cable due to cable easement.

10.23 A cable easement will need to be maintained, and certain activities will be prohibited, including the placement of permanent or temporary buildings or structures, modifications to ground levels, crossing with heavy plant etc. This is important to ensure the integrity of the cable; however, many farming practices will be able to continue.

Proposed Assessment Methodology

Baseline Data Collection

10.24 A qualitative desk-based survey will be undertaken, utilising information from the following sources:

- Survey of landowners/farmers affected by the proposed scheme (incl. farming type, farming practices, agri-environmental schemes etc…);
- MAGIC Website to ascertain information on agri-environmental schemes (Magic, 2016);
- Consultation with Natural England to ascertain information on agri-environmental schemes;
- Planning allocations in the West Dorset, Weymouth and Portland Local Plan (West Dorset District Council & Weymouth and Portland Borough Council, 2015);
- Review of West Dorset District Council Planning Registers to identify relevant development proposals currently under consideration by the councils;
- Review of National Infrastructure Planning registers to identify Nationally Significant Infrastructure projects (Planning Inspectorate, 2016);
- Published Agricultural Land Classification details for the area (1:250 000 scale) (Natural England, 2010);
- Review of Land Information System Soilscapes database (Cranfield Soil and AgriFood Institute, 2016); and
- Ordnance Survey mapping and aerial photography to establish land use and settlement patterns.

Assessment Guidelines

10.25 There is no existing guidance directly applicable to the assessment of cable infrastructure on land use and agriculture; however there are a number of other guidance documents which are of relevance. The following document have been used to inform the methodology:

- Design Manual for Roads and Bridges (DMRB), Volume 11, Section 2, Part 5: Assessment and Management of Environmental Effects (Highways England, 2008); and
- DMRB, Volume 11, Section 3, Part 6: Land Use (Highways England, 2001).

10.26 In assessing the significance of potential effects of the Scheme two factors will be taken into account:

- The sensitivity of the receiving environment; and
- The magnitude of the potential impact.

Sensitivity of receptor

10.27 The sensitivity of the receptor takes into account the sensitivity or importance of land use and agriculture and the activities or functions it supports. Example criteria for describing the sensitivity are summarised in **Table 10.1**.

Table 10.1: Sensitivity of Receptor Criteria

Sensitivity of receptor	Description	Examples
High	Very high agricultural and land use value, quality or rarity on a national scale.	National land use allocations; Grade 1 Agricultural Land; Higher Tier Countryside Stewardship (CS)/ Higher Level Stewardship (HLS) land; Soils with a very low resilience to structural damage (e.g. clayey soil); Pastoral Farms.
Medium	High agricultural and land use value, quality or rarity on a national scale.	Regional land use allocations; Grade 2 and 3a Agricultural Land; Soils with a moderate resilience to structural damage (e.g. loamy soils); Mixed farms.
Low	Medium agricultural and land use value, quality or rarity on a regional scale.	Local land use allocations; Grade 3b Agricultural Land; Soils with a low resilience to structural damage (e.g. sandy soils); Organic arable farms.
Very Low	Low or negligible agricultural and land use value, quality or rarity on a local scale.	Grade 4 and 5 Agricultural Land; Individual planning applications; Capital Grants Countryside Stewardship (CS)/ Entry Level Stewardship (ELS) land; Other soil types (e.g. Made ground); Non-organic arable farms.

Magnitude of Impact

10.28 The magnitude of an impact considers the physical and geographical scale of the predicated change to baseline conditions resulting from a given potential impact and takes into account the duration of impact for example whether it is temporary or permanent, direct or indirect, as well as reversibility of the effect. Impacts can also be classified as adverse or beneficial. Criteria for describing the magnitude are described in **Table 10.2**.

Table 10.2: Magnitude of Impact Criteria

Magnitude of Impact	Description	Examples
High	Results in total loss or substantial change to key features or attributes of the resource, or its key characteristics, features or elements, such that post development character/composition will be fundamentally changed, affecting its integrity or viability.	Permanent, full displacement of intended land uses; Current farm practice is seriously affected and that impacts on farm profitability, and lead to viability issues or likely to have a major financial impact.
Medium	Results in partial loss or alteration to key features or attributes of the resource, or its key characteristics, features or elements, such that post development character/composition will be materially changed, affecting its integrity or viability.	Permanent, moderate displacement of intended land uses; Current farm practice is affected and that impacts on farm profitability, but unlikely to affect viability or likely to have a moderate financial impact.
Low	Results in a measurable, but not material change, to key features or attributes of the resource, or its key characteristics, features or elements, such that post development character/composition will be similar to the pre-development situation.	Permanent loss of peripheral land for intended land use or temporary loss of large-moderate area; Current farm practice is marginally affected, with small impacts on farm profitability, but unlikely to affect viability or only minor financial impact.
Very Low	Results in a little or no change to key features or attributes of the resource, or its key characteristics, features or elements, such that change is barely distinguishable.	Permanent loss of minor land, such that existing and intended land use can continue or temporary loss of minor area; No noticeable changes in farm practices, or no discernible financial loss as losses are compensated for.

Classification of Effects

10.29 A combination of the magnitude of impact under consideration and the sensitivity of the receptor determines the significance of effect. A classification of effects table is provided in **Table 10.3**.

10.30 The assessment method is largely qualitative and requires a degree of professional judgement to be applied, so may require deviation to what is shown in **Tables 10.1** to **Table 10.3** where necessary.

10.31 Effects are classified as significant when major or moderate; minor and negligible effects are classified as not significant.

Table 10.3: Classification of Effects

Sensitivity of Receptor	Magnitude of Impact			
	High	Medium	Low	Very Low
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

Basis of Assessment

Impacts on Development Land

10.32 This will identify land use allocations in planning policy as well as developments proposed by way of the submission of a planning application, permitted/with a resolution to grant permission or under construction (including Nationally Significant Infrastructure Projects). The level of allocation will determine the sensitivity of the land, while the magnitude will take regard to the degree of change the proposed scheme would have on future development outlined in the allocation/application.

Permanent Land Take

10.33 This will assess permanent land take in terms of quality (sensitivity of receptor) and future viability of individual farms (magnitude of impact). Sensitivity of the receptor will be assessed in terms of the Agricultural Land Classification (ALC) of the land. Magnitude of impact will be assessed in terms of the future viability of individual farms; for example, a high magnitude represents a serious effect on farm practice that impacts on farm profitability, and would lead to viability issues, while a very low magnitude represents no noticeable changes in farm practices, or no discernible financial loss as losses are compensated for. Consultation will need to be undertaken with landowners/farmers to ascertain the magnitude of impact.

Temporary Land Take

10.34 Due to the temporary nature of land take during construction, a qualitative assessment will be undertaken, that will review how much Grades 1, 2 and 3a agricultural land, which represent the 'best and most versatile' (BMV) land, will be temporarily utilised for the Scheme, and how this impacts on the wider BMV land resource in the region.

Agri-Environmental Schemes

10.35 Details of agri- environmental schemes that may be affected by the proposed scheme will be identified as part of the EIA, through review of available data from MAGIC and Natural England, as well as in consultation with landowners/farmers. The effect of the proposed scheme on these agri-environmental schemes will be qualitatively assessed for each section of the route, with sensitivity based on the tier and quantity of schemes in the search area, with areas of Higher Level Stewardship (HLS) land and Higher Tier Countryside Stewardship (CS) land given greater sensitivity than Entry Level Stewardship (ELS) land and Capital Grants CS land. The magnitude of impact is based on degree of loss or change to key features or attributes of the agri-environmental scheme and degree of financial impact on the farmer/landowner.

Farming Practices

10.36 The effect of the proposed scheme on farming practices will be assessed through a qualitative assessment, principally in consultation with farmers, to ascertain how the construction and decommission phase will affect their farming practices, as it is recognised this may differ between farms.

10.37 Sensitivity of the receptor will be assessed in terms of the farming type for example pastoral, mixed, or arable; while the magnitude of impact will be assessed in terms of the future viability of individual farms; for example, a high magnitude represents a serious effect on farm practice that impacts on farm profitability, and would lead to viability issues, while a very low magnitude represents no noticeable changes in farm practices, or no discernible financial loss as losses are compensated for.

Soils

10.38 The effect of the proposed scheme on soils will be based on the workability of soils and their suitability for reinstatement. Dominant soil types along each section of the route will be gained from the Landis Soilscapes database, and supplemented by information gleaned from discussion with the landowner/farmer. Sensitivity is based on the soil's resilience to structural damage when being handled, with clayey soils less resilient and more sensitive than sandy soils that are more resilient and therefore less sensitive. Magnitude of impact will be based on the predicted degree of change to the soil.

Biosecurity

10.39 The effect of the proposed scheme on biosecurity will be based on the farming type (sensitivity) and the likely magnitude of impact based on how much an effect a biosecurity breach will have on farm practices and the likely financial impact. Biosecurity will be assessed qualitatively across each section of the route, largely through discussions with the landowner/farmer. Farm types most sensitive to biosecurity will be pastoral, followed by mixed farming and least sensitively arable farming. Organic farming of is also considered more sensitive than non-organic farming, and shall be included in the sensitivity.

Proposed Mitigation Measures

10.40 Detailed routeing and design will seek to minimise impacts and mitigate effects in the construction and decommission phase. Mitigation measures are also likely to include:

- DEFRA guidance 'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites' (DEFRA, 2009) and MAFF guidance 'Good Practice Guide for Handling Soil' (MAFF, 2000);
- Micro-siting of features of the proposed scheme, including for example cable route, compounds and access tracks across farmland land;
- Micro-management during the construction and decommission phase to minimise impacts on farming practices;
- Biosecurity mitigation measures such as wheel and shoe wash facilities;
- Re-instatement of land following construction (e.g. hedges and fences replaced; field drains re-built or diverted);
- Re-instatement of all areas subject to agri-environmental scheme agreements and if necessary implementation of a special management plan to regain the agri-environmental scheme status; and
- Reasonable compensation for loss of agri-environmental scheme payments and loss of earnings.

National Grid will work with landowners and farmers on the implementation of the above mitigation, thereby reducing temporary impacts associated with the construction and decommission phase as far as possible.

Issues to be Scoped Out

10.41 It is proposed to scope out the following topic:

- Potential economic effects that the proposed scheme will have on individual landowners and farmers; and

Economic Effects

10.42 Economic effects of the proposed scheme are dealt with in Chapter 14: Socio-Economics / Tourism and Recreation, and are therefore not replicated here. Furthermore, any financial consequences on individual landowners and farmers due to the proposed scheme will be temporary, as the land will be reinstated after the construction and decommission phase, moreover, farmers will be reasonably compensated for loss of earnings as a direct result of the proposed scheme.

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11 Air Quality

Introduction

11.1 This chapter will establish the scope of the assessment of likely significant effects on local air quality during the construction and decommissioning phases of the proposed scheme. Potential effects on air quality sensitive receptors, from the operation of the proposed scheme have been scoped out (see 'Issues to be scoped out' at end of chapter).

11.2 During the construction phase, there is the potential for particulate matter and oxides of nitrogen to be emitted by the activities being undertaken. During the operational phase there is limited potential for emissions of air pollutants to be generated by the proposed scheme. This chapter considers the likelihood for the proposed activities to generate emissions of sufficient magnitude to adversely affect sensitive receptors and identifies relevant technical assessment guidance.

Legislation and policy

National Legislation

11.3 Directive 2008/50/EC (Council of European Communities, 2008) is currently transcribed into UK legislation by the Air Quality Standards Regulations 2010 (H.M. Government, 2010), which came into force on 11th June 2010. These limit values are binding on the UK and have been set with the aim of avoiding, preventing or reducing harmful effects on human health and on the environment as a whole.

National Planning Policy

National Planning Policy Framework (2012)

11.4 The National Planning Policy Framework (NPPF) was published in March 2012 (Department of Communities and Local Government, 2012), paragraph 109 of which states:

> *"The planning system should contribute to and enhance the natural and local environment by: preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability…"*

11.5 Annex 2 of the NPPF defines 'Pollution' as:

> *"Anything that affects the quality of land, air, water or soils, which might lead to an adverse impact on human health, the natural environment or general amenity. Pollution can arise from a range of emissions, including smoke, fumes, gases, dust, steam, odour, noise and light".*

11.6 There are both national and local policies for the control of air pollution and local action plans for the management of local air quality within the SCC area. The effect of the Proposed Development on the achievement of such policies and plans are matters that may be a material consideration by planning authorities when making decisions for individual planning applications. Paragraph 124 of the NPPF states:

> *"Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air*

Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan."

11.7 The National Planning Practice Guidance (NPPG) (Department of Communities and Local Government, 2014), provides a summary of the air quality issues set out in the NPPF and goes on to note that the assessment should include the following information:

- The existing air quality in the study area (existing baseline)
- The future air quality without the development in place (future baseline), and
- The future air quality with the development in place (with mitigation).

11.8 The guidance then advises that the application should proceed to decision with appropriate planning conditions or planning obligation, if the proposed development (including mitigation) would not lead to an unacceptable risk from air pollution, prevent sustained compliance with EU limit values or fail to comply with the requirements of the Habitats Regulations.

National Air Quality Strategy

11.9 The UK National Air Quality Strategy (Defra, 2000) was initially published in 2000, under the requirements of the Environment Act 1995 (H.M. Government, 1995). The most recent revision of the strategy (Defra, 2007) sets objective values for key pollutants as a tool to help Local Authorities manage local air quality improvements in accordance with the EU Air Quality Framework Directive. Some of these objective values have been laid out within the Air Quality (England) Regulations 2000 (H.M. Government, 2000) and later amendments (H.M. Government, 2002).

11.10 The air quality objective values referred to above have been set down in regulation for the purposes of local air quality management. Under the local air quality management regime SCC and BMBC has a duty to carry out regular assessments of air quality against the objective values and if it is unlikely that the objective values will be met in the given timescale, they must designate an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) with the aim of achieving the objective values. The boundary of an AQMA is set by the governing local authority to define the geographical area that is to be subject to the management measures to be set out in a subsequent action plan. Consequently, it is not unusual for the boundary of an AQMA to include within it relevant locations where air quality is not at risk of exceeding an air quality objective. The UK's national air quality objective values for the pollutants of relevance to this assessment are displayed in **Table 11.1**.

Table 11.1: Air Quality Objective Values for England

Pollutant	Averaging Period	Objective Value ($\mu g/m^3$)	Max Permitted Exceedances	Target Date
Nitrogen Dioxide (NO_2)	Annual Mean	40	None	31/12/05
	Hourly Mean	200	18 times per year	31/12/05
Particulate Matter (PM_{10})	Annual Mean	40	None	31/12/04
	24-hour	50	35 times per year	31/12/04
Fine Particulate Matter ($PM_{2.5}$)	Annual Mean	25	None	2020

Local Air Quality Management

West Dorset District Council

11.11 Under the requirements of Part IV of the Environment Act (1995) (H.M. Government, 1995), West Dorset District Council (WDDC) has carried out a phased review and assessment of local air quality within the city (WDDC, 2013).

11.12 WDDC has declared two Air Quality Management Areas (AQMAs) within their administrative boundary, one in Dorchester and another in Chideock, both for exceedances of the nitrogen dioxide objective value. Outside of the AQMAs, WDDC has identified one other location, Bridport, with elevated levels of nitrogen dioxide. There are no current plans to declare an AQMA in Bridport. These AQMAs are remote from the search area for permanent development and there is no potential for emissions to air from the proposed scheme to affect local air pollutant concentrations within the AQMAs.

Local Planning Policy

11.13 West Dorset District Council and Weymouth and Portland Borough Council adopted a joint local plan in October 2015 (WDDC, 2015). This plan include policies relating to development within both councils administrative areas, however there is no specific reference to air quality. There are however policies relating to pollution, environment and impacts on amenity.

11.14 These policies are:

"ENV1. LANDSCAPE, SEASCAPE AND SITES OF GEOLOGICAL INTEREST…

iii) Appropriate measures will be required to moderate the adverse effects of development on the landscape and seascape."

"ENV16. AMENITY

i) Proposals for development should be designed to minimize their impact on the amenity and quiet enjoyment of both existing residents and future residents within the development and close to it. As such, development proposals will only be permitted provided:

• They do not generate unacceptable pollution, vibration or detrimental emissions unless it can be demonstrated that the effects on amenity and living conditions, health and the natural environment can be mitigated to the appropriate standard."

Baseline Environment

11.15 The search area for permanent development (the search area) is predominantly rural, with a number of small towns and villages spread out, along with isolated farm houses. The land is mostly used for agricultural purposes, with some small woodlands. The main source of air pollution in the vicinity of the search area is the A35 main road between Dorchester and Bridport. Other roads in the vicinity are smaller B roads, such as the B3159, and small rural roads.

11.16 National projections of air pollutant concentrations within the rural locations within the search area for permanent development demonstrate that baseline air quality is of a very good standard (Defra, 2015). WDDC only consider it necessary to undertake monitoring as part of their local air quality review and assessment duties within the districts urban areas.

11.17 Annual mean concentrations of nitrogen dioxide have been recorded in urban areas of Dorchester, Chideock and Bridport of more than 40µg/m^3. Away from major roads and localised areas of congested flow on the urban road network, background concentrations are less than half of the objective value. WDDC has not identified any location within its administrative area that is likely to be above an objective value for any other pollutant.

11.18 WDDC has not declared any Air Quality Management Area (AQMA) within or near to the air quality study area.

11.19 The nearest designated ecological site is located approximately 1.5km from the search area, details of which are presented in **Chapter 6: Ecology**.

Potential Impacts

11.20 Potential impacts on air quality in the vicinity of the search area are limited to the construction and decommission phases as during the operation phase activities will be limited to a small number of vehicles (typically less than 1 trips per day) associated with inspection and maintenance purposes.

11.21 During the construction phase, there is the potential to change traffic flows on the local road network as roads may be closed or flows restricted due to traffic management methods. This would be discussed and agreed in advance with Highways England. There are a number of residential properties and farm buildings located alongside roads that may be affected by the proposed scheme construction works. The main roads with the potential to be affected are the A35 to the west of Winterbourne Abbas, and Coombe Road to the south of Winterbourne Abbas. Other roads in the area are B roads and rural roads. Disruption along these smaller roads is expected to be minimal.

11.22 The construction phase will also see an increase in emissions due to vehicles accessing the site/s and plant operating onsite. Vehicles accessing the site/s will do so using the local road network, and have the potential to increase local emissions. The proposed scheme will only require limited numbers of Non Road Mobile Machinery (NRMM), such as cranes or excavators. The NRMM will be not be used at any one location for extended periods of time – except perhaps at the SECs – as the works will generally progress along the development corridor and therefore have limited potential

to adversely affect long term (annual mean) concentrations of pollutants emitted from the exhaust systems of NRMM.

11.23 There is also the potential for dust to be generated due to earthworks, vehicle movements on unpaved haul roads, and trackout of soils onto the road network, if appropriate standard construction practices were not applied. Sensitive receptors include human receptors (such as residential units or commercial operations sensitive to dust deposition) within 350m of the works, ecological sites within 50m of the works, and any sensitive receptor within 50m of roads extending up to 500m from the site entrance could be impacted by fugitive dust emissions. There are very few (less than 10) air quality sensitive receptors that are within 100m of the existing overhead line (OHL). There are residential and commercial properties located along the A35 to the west of Winterbourne Abbas, along Valley Cottages, Butt Farm Close and Coombe Road, and four properties along the National Cycle Route 2. There are also a number of farm buildings located along smaller roads.

Proposed Assessment Methodology

11.24 The Design Manual for Roads and Bridges (DMRB) includes advice on levels of additional road traffic movements above which there is the potential for adverse effects on local air quality to occur, dependent upon local conditions (Highways Agency, 2007). DMRB adopts a change in two way total traffic flows of 1000 AADT (Annual Average Daily Traffic) or a change in heavy duty vehicles (HDV) of 200 AADT, as screening criteria. It is likely that a scheme of this size would give rise to changes in traffic flows that are much smaller in magnitude than the DMRB criteria and it is considered highly unlikely that such traffic flows would be capable of generating sufficient emissions to adverse effect local air quality. The emissions from road traffic movements do not require further assessment.

11.25 NRMM will be maintained and operated in line with the requirements of National Grid Code of Construction Practice. Given the short term use of NRMM at any given location within the construction period, it is not considered necessary to quantify the impact of emissions to air from NRMM to conclude that a significant adverse effect is unlikely to occur.

11.26 Short term impacts due to emissions from construction dust generated onsite have the potential to effect amenity or local air quality, without appropriate standard construction practices. With standard construction practices, such as those set out in the Institute of Air Quality Management (IAQM) guidance on the assessment of construction dust (IAQM, 2014) for low risk sites, the impacts from the proposed scheme would not be significant.

Proposed Mitigation Measures

11.27 Dust management measures will be included in the Construction Environmental Management Plan for the proposed scheme, in line with the requirements of National Grid Code of Construction Practice. The CEMP will be provided to WDDC for their agreement. As the application of the measures in the CEMP will minimise the generation of emissions at source, construction phase activities are unlikely to give rise to significant adverse effects on amenity or air quality at any receptor.

11.28 No mitigation is required to minimise emissions to air from road vehicles.

Issues to be Scoped Out

11.29 The following impacts are issues that can be scoped out on the grounds that there is unlikely to be a significant effect on local air quality sensitive receptor or the sustained achievement of the air quality limit values.

- Construction phase emissions of particulate matter (dust, PM10 or PM2.5) from site works;
- Construction phase emissions from on road traffic;
- Construction phase emissions from Non Road Mobile Machinery; and
- Operational impacts on air quality.

12 Electric and Magnetic Fields

Introduction

12.1 All equipment that generates, distributes or uses electricity produces Electric and Magnetic Field (EMFs). The UK power frequency is 50Hz which is therefore the principal frequency of the EMFs produced, which are also known as Extremely Low Frequency (ELF) EMFs.

12.2 Electric fields depend on the operating voltage of the equipment producing them and are measured in V/m (volts per metre). The voltage applied to equipment is a relatively constant value. Magnetic fields depend on the electrical currents flowing, which vary according to the electrical power requirements at any given time and are measured in μT (microteslas). Both fields diminish rapidly with distance from the source and are present in all areas where electricity is in use (e.g. office and homes), arising from electric cabling and equipment in the area.

12.3 Substations and sealing end compounds (SECs) do not produce significant EMFs outside their boundaries. In EMF terms, therefore, the principal effect of this proposed scheme is to replace a length of overhead line (the VIP subsection) with a length of underground cable. Unlike OHLs, underground cables produce no external electric fields, but they do produce magnetic fields. Overhead lines and underground cables both produce their highest magnetic fields on, or close to, the route centreline. Which produces the higher magnetic field out of the OHL and the underground cable depends on the details of the design, which have not been finalised yet. However, in both cases, the fields comply with the relevant exposure limits (see next paragraph). The magnetic fields from both the OHL and the underground cables fall rapidly with distance to the side of the route. The field from the underground cable falls more rapidly, falling to the levels found in UK homes in general in perhaps 20m compared to perhaps 100m for an OHL, though both these values depend on the specifics of the design.

12.4 This means that, in general, the underground cable produces lower exposures to people, but, because all fields from both OHLs and underground cables comply with the relevant exposure limits, no particular significance attaches to this fact.

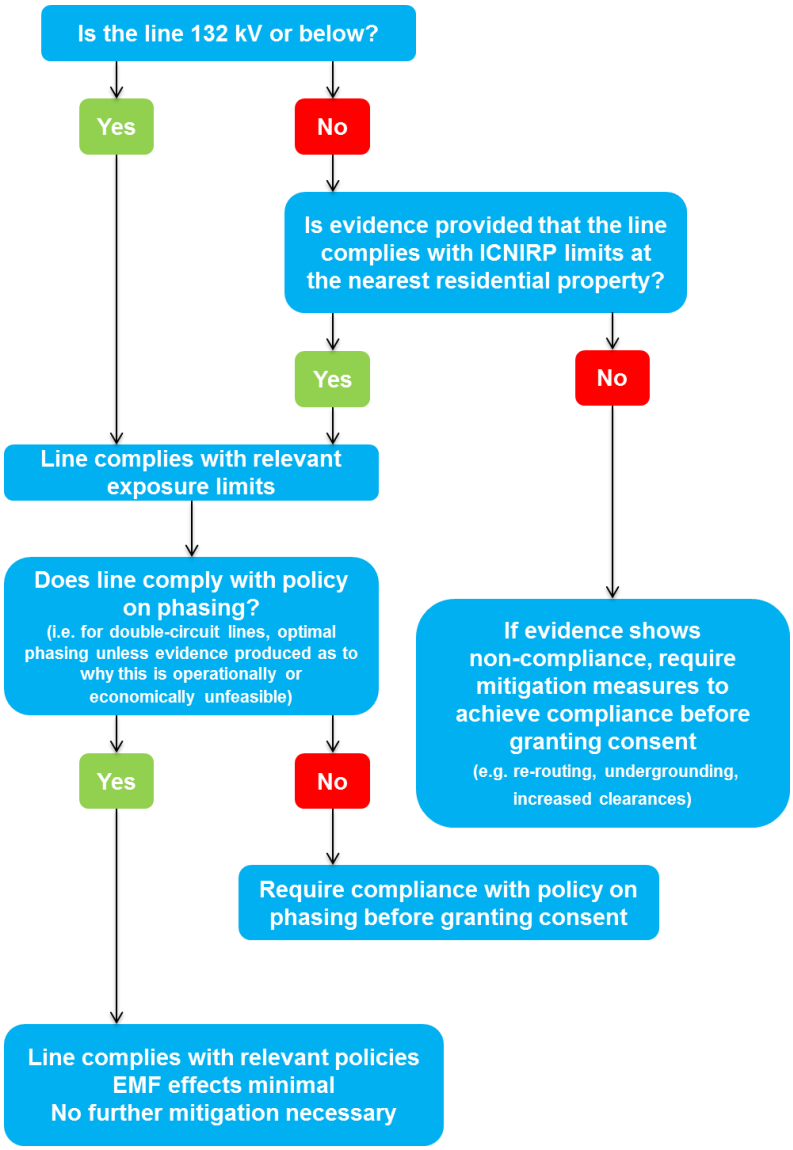
Legislation and Policy

12.5 Whilst there are no statutory regulations in the UK that limit the exposure of the public to power-frequency electric or magnetic fields, responsibility for implementing appropriate measures for the protection of the public from EMFs lies with the UK Government. In 2004, the Government adopted guidelines published in 1998 (ICNIRP, 1998) by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) in the terms of the 1999 EU recommendation (European Council, 1999) on public exposure to EMFs. This policy of compliance with guidelines was reaffirmed in 2009, when one additional precautionary policy relating to high-voltage power lines, optimum phasing, was introduced. The National Policy Statement for Electricity Network Infrastructure EN-5 (NPS EN-5) (DECC, 2011a) also repeats these two policies and the Department of Energy and Climate Change (DECC) has published three Codes of Practice (DECC, 2012 a, b and 2013) which have been agreed between the Energy Network Association and the Government, which specify how compliance with these exposure guidelines and with the policy on optimum phasing will be determined.

12.6 There is some scientific evidence concerning the possibility that magnetic fields, at levels below the exposure guidelines that are in place, may be associated with higher rates of certain diseases, specifically childhood leukaemia. This evidence is taken into account by the relevant authorities in setting the exposure guidelines. Specifically, ICNIRP review the evidence, but conclude "*the currently existing scientific evidence that prolonged exposure to low frequency magnetic fields is causally related with an increased risk of childhood leukaemia is too weak to form the basis for exposure guidelines*." Thus, the measures for the protection of the public that are in place in the UK, outlined in the previous paragraph, already take account of this scientific evidence.

12.7 It is National Grid's policy as set out in its Public Position Statement (National Grid, 2014) on the subject to *"…as a minimum comply with EMF regulations, guidelines and practices in force in which we operate*". This policy will be applied to this proposed scheme, and all the equipment installed will comply with the guidelines.

12.8 When the EMFs resulting from electrical equipment comply with the relevant exposure guidelines as specified by Government and with the additional precautionary policies, no significant effects from EMFs are expected. This is set out in paragraph 2.10.15 of NPS EN-5 - *"…where it can be shown that the line will comply with the current public exposure guidelines and the policy on phasing, no further mitigation should be necessary*" (DECC, 2011b) and the simplified route map for dealing with EMFs in EN-5 which is reproduced below:



Potential Impacts and Conclusion

12.9 Given that no significant effects from EMFs from the proposed scheme are expected, it is, therefore, proposed that the assessment of EMFs is scoped out of the Environmental Statement (ES), which, in accordance with the EIA Regulations, is required to describe the “likely significant effects of the development”.

12.10 National Grid, however, recognises public concern regarding EMFs and therefore wishes, despite scoping EMFs out of the ES, to provide all the relevant information on EMFs as part of the application. Comprehensive information on EMFs as they relate to the proposed scheme will be provided in a separate document which will be submitted alongside the ES. The ES will include relevant information from this document as appropriate. The information provided will include evaluations of the EMFs that will be produced as well as background information on EMFs and the scientific evidence relating to them. The evaluations will be performed according to the provisions of the DECC Code of Practice ‘Power Lines: Demonstrating Compliance with Public Exposure Guidelines’ (DECC, 2012a).

Electromagnetic Compatibility (EMC)

12.11 In 2009 the European Council Directive on electromagnetic compatibility, 89/336/EEC (European Council, 1989) and its amendments (the EMC Directive) was enacted into UK law. The main objective of the EMC Directive is to guarantee the free movement of electrical and electronic appliances and to create an acceptable electromagnetic environment within the European Union.

12.12 Fixed apparatus and large networks of the type owned and operated by National Grid are also included in the EMC Directive. The requirements of the EMC Directive are that the electromagnetic disturbance that the apparatus generates should not exceed a level allowing radio and telecommunication equipment and other apparatus to operate as intended; and the apparatus has an adequate level of intrinsic immunity to electromagnetic disturbance to enable it to operate as intended.

Potential Impacts and Conclusion

12.13 The main source of interference from transmission systems arises from radio frequency (RF) emissions caused by corona discharge. Where this occurs at all, it is from live conductors in the open air, e.g. OHLs and substations. Underground cables are not expected to produce such emissions. Radio frequency emissions and corona levels are limited and tested by design in National Grid’s technical specification in accordance with BS5049-3 (British Standards Institute (BSI), 1994), along with other equipment specific standards where applicable (BSI, 1998).

12.14 National Grid’s Transmission System, as a whole, has met the essential requirements detailed in Article 4 of the EMC Directive. This was achieved by creating a Technical Construction File (TCF) as per article 10.2 of the EMC Directive. The TCF is based on a combination of extensive on-site testing (OHLs and substations) and the examination of National Grid’s technical specifications, policies and standards to ensure that radio noise and corona are adequately addressed. The on-site surveys showed that there were no significant emission problems to address; and equipment technical specifications and policies ensured equipment was designed in accordance with British Standards to limit radio frequency noise and corona. Using the rationale of the TCF it was, therefore, determined that the National Grid system meets the essential requirements of the EMC Directive. A Certificate of Conformity was issued and is provided at **Appendix B**.

12.15 Underground cables were acknowledged in the TCF assessment but it was not considered necessary to perform measurements on these. While electric fields from these cables are screened by the metallic sheath, power frequency magnetic fields are always present. Power frequency magnetic fields reduce very quickly with distance and are not a source of radio frequency emissions themselves.

12.16 Given this and that the EMC performance of the existing system has been certificated as compliant with Directive 89/336/EEC (European Council, 1989) by a Competent Body following appropriate onsite testing, it is considered that the proposed scheme will also present no issues with TV or radio interference under normal operating conditions and will be compliant with the EMC Directive.

12.17 No significant effects are therefore anticipated and it is, therefore, also proposed to scope out EMC from the full ES.

13 Traffic and Transport

Introduction

13.1 The Traffic and Transport chapter of the ES will identify the key issues and potential effects in transport terms on the local highway network resulting from the proposed scheme.

13.2 The search area for permanent development (the search area) starts to the north-west of Winterbourne Abbas and the A35, which provides access between Dorchester to the east and Bridport and Honiton to the west. The search area crosses the A35 and Coombe Road continuing south with the B3159 and the villages of Winterbourne Steepleton and Martinstown to the east, where three minor roads branch from the B3159 and pass through the search area. The search area ends south of Friar Waddon Road. A number of Public Rights of Way (PRoW) also pass through the search area, including footpaths and bridleways.

13.3 A review of the current baseline conditions with respect to all transport modes which will be included within the environmental assessment is set out below.

13.4 The scope of the ES Traffic and Transport chapter has been discussed with officers from Dorset County Council (DCC) and Highways England.

Legislation and Policy

National Planning Policy

National Planning Policy Framework (March 2012)

13.5 The National Planning Policy Framework (NPPF) published in March 2012 sets out the Government planning policies for England and how these are expected to be applied. In terms of transport, the document has the following two objectives:

- To facilitate economic growth by taking a positive approach to planning for development
- To support reductions in greenhouse gas emissions and congestion, and promote accessibility through planning for the location and mix of development

13.6 Additionally, the document states that planning policies and decisions should consider whether:

- Improvements can be undertaken within the transport network that limits the significant impacts of the development in a cost-effective manner. Subject to those considerations, development should not be prevented or refused on transport grounds unless the residual impacts of development are severe.

Local Planning Policy

West Dorset, Weymouth and Portland Local Plan (October 2015)

13.7 The Local Plan for West Dorset, Weymouth and Portland which extends to 2031 is the main basis for making decisions on planning applications in the region. Policy COM7 'Creating a Safe and Efficient Transport Network' outlines a series of Local Plan policies relating to transport, including:

- Development will not be permitted where the residual cumulative impacts on the efficiency of the transport network are likely to be severe;

- Development will not be permitted unless it can be demonstrated that it would not have a severe detrimental effect on road safety, or measures can be introduced to reasonably mitigate potentially dangerous conditions; and

- Development should not result in the severance or degradation of existing or proposed cycle and public rights of way routes. Where development degrades the attractiveness of a route, compensatory enhancements will be sought such that there is a net improvement to the public right of way network.

Local Transport Plan (April 2011)

13.8 The Local Transport Plan (LTP3) is a fifteen year strategy from 2011-2026, prepared jointly by the authorities of Bournemouth, Poole and Dorset. It sets out the long term vision, goals and policies that will guide transport improvements.

13.9 Relevant policies include policy LTP C-3, which states that 'the authorities will ensure that works undertaken on the local network by third parties such as utility companies or developers are co-ordinated with other works, are completed to the highest standard within agreed timescales, and that the robustness of such works are monitored, with the third parties being required to take corrective action as necessary'.

13.10 Policy LTP D-6 states that 'for all decisions affecting Dorset's rural highways, the Dorset Rural Roads Protocol shall apply to ensure the conservation and enhancement of the outstanding quality of its landscape and settlements, while delivering a safe and convenient network for all modes of transport'.

Baseline Environment

13.11 Within the search area there is a network of roads including the A35 Bridport to Dorchester road which passes under the VIP subsection at Winterbourne Abbas. Within the search area the B3159 connects the villages of Winterbourne Abbas with Winterbourne Steepleton and Martinstown. Three minor roads branch from this route to pass under the overhead line (OHL).

Access and Recreation

13.12 The South Dorset Ridgeway, part of the South West Coast Path national trail, approaches the Hardy Monument from the south-west, then follows the ridge of Bronckham Hill to pass under VIP subsection before continuing eastward across Ridge Hill. The Jubilee Trail approaches from the north-east, running broadly parallel to the 400kV OHL from Loscombe to Bronckham Hill where it crosses over the South Dorset Ridgeway. It then runs through Hell Bottom to Corton Hill and Friar Waddon Hill where it passes under the VIP subsection. National Cycle Network (NCN) Route 2 crosses the study area along a minor road, from the Hardy Monument to Martinstown. In addition, there is a network of PRoWs including footpaths and bridleways within the search area.

Potential Impacts

13.13 Potentially significant environmental effects include those which are likely to take place during construction and decommissioning, as a result of the movement of heavy goods vehicles (HGVs) travelling to and from the proposed scheme, for example for removing spoil or transporting materials and/or equipment.

13.14 Occasional trips will also be made to and from the site by cars and light goods vehicles (LGVs) once the proposed scheme becomes operational (see Table 2.1). This will be mainly for inspection/ maintenance purposes. Any vehicle movements required during the operational phase would have a negligible impact on traffic levels in the area and therefore the assessment of impacts as a result of additional traffic will be principally associated with the construction phase.

13.15 The Traffic and Transport ES chapter will also consider the potential effects of decommissioning, as a result of the movement of HGVs to and from the proposed scheme, transporting spoil or materials.

13.16 In addition to the environmental effects of construction traffic, temporary road closures (none currently anticipated) or new access points to haul roads could also be required to facilitate construction. There are also a number of PRoWs, national paths/trails and a national cycle route which pass through the search area which may be impacted by the proposed scheme. Any temporary road closures and impacts to PRoWs will be considered as part of the Traffic and Transport ES chapter.

13.17 Construction phase activities which are expected to take two and a half to three years are set out below. These will be considered in the assessment of traffic and transport related environmental impacts:

- Two new SECs and replacement terminal pylons required to connect the new underground cables to the remaining existing OHL;
- Underground cabling of approximately 7km (depending on location of SECs and cable alignment);
- Removal of the existing OHL section, which is approximately 18 pylons (depending on location of SECs).

13.18 The search areas identified for the SECs are to the north-east of Winterbourne Abbas and in the south of the search area at Friar Waddon Hill. SECs require permanent road access and therefore the potential impacts of this will need to be considered, dependent on the chosen cable alignment.

13.19 The preferred solution for the installation of underground cabling is direct burial which will require a construction corridor of typically 60m wide along the length of the cable and which will accommodate the cable trenches, haul road and storage areas. Connections from haul roads to the local road network will need to be considered dependent on the agreed cable alignment.

13.20 Removal of the existing VIP subsection will require the provision of temporary access points and haul roads, and associated traffic movements, including a crane to dismantle the pylons and vehicles to remove pylon sections. The routing of these HGV movements and potential impacts of temporary access points will also be considered.

13.21 Taking the above into account, the traffic and transport assessment will focus on:

- Permanent effects associated with:
  - Creation of new accesses to serve the SECs during operation and forecast servicing and maintenance traffic associated with these sites once they become operational;
  - Any permanent changes to the road network or rights of way routes (none are currently anticipated);

- Temporary effects associated with:
  - Construction traffic using the highway network; and
  - Temporary changes to the highway network or rights of way routes (i.e. closures and/or diversions) during construction.

Proposed Assessment Methodology

13.22 Guidance for the assessment of the environmental effects of traffic is provided in the Institute of Environmental Assessment's (IEA, 1993)[8] 'Guidelines for the Environmental Assessment of Road Traffic' (hereafter known as the IEMA Guidelines). This indicates that from a quantitative perspective, highway links subject to traffic flow increases of more than 30%, or 10% if affecting a sensitive area, need to be assessed.

13.23 Sensitive areas may be defined as locations close to more vulnerable road user groups, such as school children or the elderly, or as links with high pedestrian flows, areas at or near capacity or areas with a high number of accidents.

13.24 These industry accepted guidelines will provide a consistent method of assessment for the proposed scheme.

13.25 In accordance with the IEMA Guidelines, the following criteria will be considered in this assessment:

- Severance;
- Driver delay;
- Pedestrian and cycle delay;
- Pedestrian and cycle amenity;
- Fear and intimidation;
- Road safety; and
- Hazardous loads.

Severance

13.26 According to the IEMA Guidelines, severance is described as the perceived division that can occur between communities when it becomes separated by a major traffic artery. It may also result from the difficulty of crossing a heavily trafficked road or physical barrier created by the road itself.

13.27 The Traffic and Transport ES chapter will consider the impact on severance in the context of any temporary road closures (none currently anticipated) or impact on any PRoW.

Driver Delay

13.28 Driver delay as a result of a change in volume and composition of traffic will be considered within the Traffic and Transport ES chapter.

Pedestrian and Cycle Delay

13.29 The IEMA Guidelines outline pedestrian and cycle delay as a result of a change in volume, composition or speed of traffic which may affect the ability of pedestrians to cross roads.

13.30 Any impacts on pedestrian and cycle delay will be considered within the Traffic and Transport ES chapter, however it is anticipated that due to the rural nature of the area, there will only be limited interaction between pedestrians and vehicles.

Pedestrian and Cycle Amenity

13.31 The IEMA Guidelines suggest that pedestrian amenity can be broadly defined as the 'relative pleasantness of a journey', and is considered to be affected by traffic flow, traffic composition and pavement width / separation from traffic.

[8] Now the Institute of Environmental Management and Assessment (IEMA)

13.32 The Traffic and Transport ES chapter will analyse the facilities available for pedestrians and cyclists in the vicinity of the search area, including PRoWs and cycle paths and how these may be impacted by the proposed scheme.

Fear and Intimidation

13.33 Traffic may impact on pedestrians through fear and intimidation. This is dependent on the volume of traffic, its HGV composition, its proximity to people or lack of protection caused by factors such as narrow pavement widths. As discussed in the IEMA Guidelines, there are no commonly agreed thresholds for estimating levels of danger, or fear and intimidation, from known traffic and physical conditions; therefore, there is a need for professional judgement to be exercised.

Hazardous Loads

13.34 The assessment would consider the potential effects of potential hazardous loads (i.e. abnormal loads or large vehicles) along the routes to the relevant construction sites.

13.35 Any proposed hazardous loads (and proposed routes) would be discussed and agreed with relevant parties, including the police and local and strategic highways authorities, to ensure the movements can be managed appropriately.

Proposed Mitigation Measures

13.36 Management and mitigation measures to limit the impact on the local highway network will be developed as appropriate within the Traffic and Transport ES chapter, dependent on the agreed cable alignment and location of site works. Mitigation will be included in a Traffic Management Plan that will form part of the Construction Environmental Management Plan (CEMP). It is anticipated that measures may include but are not limited to:

- Recommended routes to/from the site for HGVs
- Vehicle movements distributed throughout the day
- Temporary signage schemes providing warnings of site traffic / site accesses
- Traffic marshalling
- Vehicle ‘muck’ control to ensure the cleanliness of the public highway

13.37 Measures will also be proposed to manage any impact on the public footpaths, national trails and national cycle route which may be affected by the proposed scheme.

Issues to be Scoped Out

13.38 It is not envisaged that traffic surveys or the collation of personal injury accident data will be undertaken as part of the assessment.

13.39 An assessment of parking will also not be undertaken due to the nature of the proposed scheme.

13.40 Other environmental effects that are related to the traffic and transport element of the proposed scheme will be assessed within their relevant technical chapters. These could relate to:

- The provision of new access junctions/haul roads through existing hedge/fence lines;
- The upgrading of existing informal accesses/creation of a temporary PRoW diversion which may require the removal/coppicing of trees;

- Air pollution / dust and dirt; and
- Noise and vibration.

14 Socio-Economics and Tourism

Introduction

14.1 The Socio-Economics and Tourism chapter of the ES will assess the likely significant effects on socio-economic features as a result of the proposed scheme during the construction, operation (including maintenance) and decommission phases of the proposed scheme. In this context 'social impacts' refer to the consequences to human populations of any public or private actions that relate to the ways in which people live, work and play. The term 'economic impacts' includes issues such as employment, and direct and indirect spending associated with the proposed scheme.

14.2 The socio-economic issues that will be considered as part of the assessment include:

- Tourism: visitors to the area that may stay or visit areas in proximity to the proposed scheme;
- Access: residential properties and traffic issues, Public Rights of Way (PROW) and recreation activities;
- Landscape and visual issues: the effect of landscape and visual impact from a socio-economic perspective;
- Impact on forestry / land take: potential effects on economic crops / farmland;
- Employment generation: direct and indirect; and
- Supply chain impacts: on a local and national basis.

14.3 The effect on best and most versatile (BMV) agricultural land will be considered within the Agriculture and Land Use chapter (see Chapter 10 of this Scoping Report).

Policy and Legislation

14.4 Legislation and planning policy relevant to the socio-economic assessment comprises:

- National Planning Policy Framework (NPPF) (2012);
- Dorset Local Enterprise Partnership (LEP) Strategic Economic Plan (SEP) (2014) and
- West Dorset, Weymouth and Portland Local Plan (2015).

Baseline Environment

14.5 Baseline data collection has been undertaken to understand the context of the socio-economic issues which might be associated with the proposed scheme. The study area for the socio-economic assessment has been placed within the context of the search area for permanent development (the search area) and the zone of influence which can be defined as the wider corridor within which socio-economic receptors or resources could be affected by the proposed scheme.

14.6 The proposed scheme has been placed within the context of the relevant Lower Super Output Areas (LSOAs)[9] and these areas have been used as the basis for the baseline context for this Scoping Report as they provide the most specific reporting of the local area statistics. The LSOAs under consideration are:

- England, West Dorset Unitary Authority: West Dorset 011D and 012A.

14.7 Baseline data presented in this section has been obtained from the following sources:

- Index of Multiple Deprivation (Department of Communities and Local Government (DCLG), 2015);
- MAGIC Mapping (Department for Environment, Food and Rural Affairs (DEFRA), 2016);
- 2001 Census (Office for National Statistics (ONS), 2001);
- 2011 Census (ONS, 2011);
- Annual Population Survey (Jan 2014 – Dec 2014) (ONS, 2014);
- Business Register and Employment Survey (ONS, 2014);
- Annual Survey of Hours and Earnings (ONS, 2015); and
- Top 10 English Tourist Destinations - Visit Britain (Visit Britain website 2012).

Population

14.8 The main centres of population within the vicinity of the search area for permanent development (the search area) include:

- Winterbourne Abbas;
- Winterbourne Steepleton;
- Martinstown; and
- Coryates.

14.9 In terms of population within the LSOAs the 2011 census recorded 4,189 usual residents.

14.10 Population density provides a measure of the number of people living in an area. It is higher in urban areas, and lower in rural areas. The proposed scheme is located in a rural area with generally low population densities, avoiding the majority of centres of population. The average persons per hectare for the LSOAs are 0.4 (average population density is 4.1 for England) highlighting the rural location of the search area.

14.11 Based on the results of the 2011 Census there are no LSOAs within the vicinity of the proposed scheme which are within the top 10% of the most deprived in England.

14.12 The age structure of a population indicates both the current and strategic (future) requirements of an area. A younger population, for example, may require additional access to schools, safe recreation play facilities and the development of future employment opportunities, while aging populations are likely to require a greater focus on health care, living support, accessibility and social networks. The age data for the LSOAs highlights a decline in the percentage of young people and young adults with the most significant percentage of the population in the mid-40 to mid-70 age bracket with a significant increase in those aged 60 to 74 (over the period 2001 to 2011).

[9] Lower Super Output Areas (LSOA) are the smallest geography available for the reporting of small area statistics in England and Wales. There is an LSOA for each postcode in England and Wales.

Education, Skills and Training

14.13 Education is an important socio-economic factor and influences a range of issues such as lifestyle, coping skills, employment prospects, income, quality of housing and healthcare. The LSOAs show a slightly higher average qualification attainment compared to both the regional and national averages with 18.6% on average with no qualifications, compared to 20.7% within the South West and 22.5% in England as a whole.

14.14 The identified LSOAs also have a slighter greater proportion of residents with 31.5% of residents holding a degree, compared to 27.4% within both the South West and England as a whole).

Employment and Income

14.15 Between January 2015 and December 2015 in West Dorset the average employment rate for ages 16-64 was 79.0% while 5.0% were unemployed.

14.16 The greatest percentage of jobs in West Dorset are within the health sector (17.3%), whilst accommodation and food services, retail and manufacturing also account for a high proportion of jobs within West Dorset (10.3%, 10.1% and 9.7% respectively).

14.17 Average income for residents in West Dorset is below the national average at £500.30 gross weekly pay, compared to £532.60 in England. Average workplace earnings within West Dorset are also below the national average (£479.10 and £532.40 respectively).

Tourism

14.18 Attractions within the search area include the Nine Stones, an English Heritage site just off the A35 west of Winterbourne Abbas. The Hardy Monument on Black Down is also located within the zone of influence of the proposed scheme and is a key visitor location, offering broad views of the VIP subsection and the start point for scenic walks.

14.19 There are no 'top 10' attractions in England[10] within the search area.

14.20 Identified regional level attractions include:

- The Hardy Monument (National Trust) which is located approximately 1km west of the search area;
- Maiden Castle, approximately 3km east of the search area, located to the south of Dorchester;
- The Tourist Town of Dorchester (numerous attractions including the Keep Military Museum, Shire Hall and the Maumbury Rings); and
- The historic village of Abbotsbury (numerous attractions including Kingston Russell Stone Circle, Abbotsbury Subtropical Gardens and Abbotsbury Swannery).

14.21 Identified local level attractions include:

- The Nine Stones (historical landmark) located within the search area to the west of Winterbourne Abbas.

Recreation Resources

14.22 The existing OHL is crossed by National Cycle Route 2 of the National Cycle Network. There is one Registered Parks and Gardens within the search area; the Bridehead Estate, which lies within 0.5km of the proposed scheme.

14.23 The search area crosses a number of other recreational resource features, including the following:

[10] As defined by Visit Britain (2012)

- National Trails – the search area includes one National Trail: the South West Coast Path (which passes under the existing 4YA OHL);
- Public Rights of Way – numerous PRoW within the search area including footpaths, bridleways and byways open to all traffic;
- Long Distance Paths / County Trails - within the search area; and
- Caravan Parks – there are two identified caravan and/or camping sites within the search area. The closest park is Westfield Farm which is situated adjacent to the OHL in Winterbourne Abbas, whilst Newhaven Camping and Caravanning Site is also located within the search area.

14.24 The search area contains a number of additional recreation resource features, including the following:

- Registered Parks and Gardens – the Bridehead Estate is located within the search area.

Business

14.25 The Dorset AONB has approximately 70,000 people living within it, with the majority of the AONB area under private ownership and actively farmed. Commercial properties in the search area are mainly agricultural.

14.26 Tourism is a key part of the local economy, with numerous businesses benefiting from visitors to the area. Local businesses in the vicinity of the proposed scheme include the tourism and recreation resources identified in the previous section as well as a number of public houses, shops and visitor accommodation businesses within the key settlements of Winterbourne Abbas, Winterbourne Steepleton and Martinstown.

Housing

14.27 Within the identified LSOAs there are a significantly higher proportion of detached houses and bungalows compared to the national average, at approximately 42.9%, compared to the England average of approximately 22.3%.

Potential Impacts

14.28 The proposed scheme will mitigate the visual impact of the existing VIP subsection in a nationally protected landscape. The potential issues to be considered as part of the environmental assessment include:

- Construction phase: Land take and associated impact on land-based economic operations;
- Construction phase: Temporary severance or restricted access to resources and receptors;
- Construction phase: Demand for temporary accommodation, e.g. hotels, Bed and Breakfasts (B&Bs), caravan pitches and self-catering accommodation and the impact this has on the tourism industry in the region;
- Construction phase: Potential effects on crime and fear, e.g. associated with construction site compounds;
- Operation phase: Permanent land take and impacts on land holdings;
- Operation phase: Permanent severance of access to and from or along resources and receptors; for example, the permanent diversion of a PRoW;
- Decommission phase: Effects during the decommission phase are likely to be similar to those identified in the construction phase;

- All phases: Employment generation and spending impacts through the supply chain;
- All phases: Amenity impacts (linked to results of other technical chapters including noise, visual and traffic) of the proposed scheme on the well-being of, and enjoyment of the area by, the local community and tourists;
- All phases: Potential effects on relevant local authority allocations, e.g. for employment, housing and mineral exploitation. Allocated areas have the potential to create economic value and inward investment into the area;
- All phases: Potential cumulative impacts when considered with relevant other proposed and consented developments;
- All phases: Potential perceived effects on the quality of recreational use of roads, PRoW, common land and other public trails and footpaths;
- All phases: Potential effects on other community and recreational facilities, such as country parks, golf courses, other public open space, health, education and community gathering locations (e.g. halls, churches, etc.); and
- All phases: Potential effects on existing infrastructure.

Proposed Assessment Methodology

14.29 The following activities would be undertaken as part of the socio-economic assessment for the EIA:

- Description of the existing socio-economic baseline conditions, including population and demography, business and industry, community resources and community values (expanding on the baseline information presented in this scoping report);
- Identification and assessment of potential community impacts or changes to the existing baseline conditions, including desk-based research, consultation with key stakeholders / surveys and evaluating likely significance of impacts;
- The impact on employment would be explored within both the local and regional populations. This would include a review of local economic development / regeneration strategies, a review of Local Development Plan (LDP)/Local Development Framework (LDF) proposals and policies (to be considered as part of the assessment of planning and policy) and consultation with economic development officers;
- Information on the following would also be sought:
    - Construction: Likely materials required (depending on detailed design taken forward), likely number (and source) of employees during construction; likely timeline for construction; type of skills required for manufacture and construction; potential sourcing of materials; estimation of local employees;
    - Operation / maintenance: Lifetime of materials used in structures; regularity of maintenance work (painting / replacement of parts); and
    - Decommission: Likely number (and source) of employees for decommissioning; likely timescale for decommissioning activities.
- Further identification and assessment of community facilities and recreational receptors within the zone of influence of the proposed scheme, including schools,

health care facilities, churches and other faith buildings, festivals, access land and registered common land, and the potential effects on these;

- Review of current land use within the search area, specifically focusing on areas where above ground permanent infrastructure is proposed and understanding temporary working areas and access routes during the construction phase. The assessment would appraise the impact of infrastructure on land use, calculating net loss during both construction and operation, where not addressed within the Agriculture and Land Use chapter, while also considering access arrangements / agreements for essential maintenance;
- Interrogation of information on businesses within the zone of influence of the proposed scheme to identify the nature and potential sensitivity of the business, the extents of non-agricultural land interest, and potential future requirements and aspirations;
- Identification of measures to avoid, manage or mitigate potential impacts;
- Assessment of potential inter and intra project cumulative effects (see Chapter 1); and
- Assessment of residual effects of the proposed scheme.

Spatial Scope

14.30 In the socio-economic context receptors are individuals, organisations or groups who are users or beneficiaries of socio-economic resources (community facilities, businesses, accommodation, etc.). Therefore, defining the spatial scope can be complex because of the need to consider individuals and structures at a variety of distances from the proposed scheme that may be affected because of a number of potential effects such as economic impacts (which are difficult to define categorically) and issues like visual impact (that will be coordinated with those completing the landscape assessment). In addition, there are a range of spatial levels (e.g. LSOAs, ward profiles and local authority administrative boundaries) over which socio-economic information is available.

14.31 Socio-economic effects will occur both as a result of direct interaction with socio-economic features, such as severance of a PRoW during construction / decommissioning and also in terms of the economic activity in an area, such as construction / decommissioning job generation, affecting a much wider spatial area. Therefore, the assessment will consider an area of influence that focuses on lower super-output areas which encompass the proposed scheme.

14.32 The assessment will be co-ordinated with the landscape assessment work to see if there are any additional locations at a greater distance that may need to be considered from a socio-economic perspective. Where possible, the socio-economic assessment will report in a consistent manner within these areas of influence and at an appropriate scale (e.g. scheme wide).

Temporal Scope

14.33 The socio-economic assessment will consider the effects across the construction, operational and decommission phases and, in accordance with good practice, it will consider the following temporal elements:

- Temporary impacts – This will reflect impacts that will occur primarily during the construction and decommissioning phases; and
- Permanent impacts – This will reflect impacts that will occur during the operational period of the proposed scheme once construction is completed.

Assessment of Impacts

14.34 The assessment of impacts will be used to determine: the sensitivity of receptors; the magnitude of impacts and the consequent significance of effects. The significance of an effect is determined by assessing the magnitude of the impact (physical change) and the sensitivity of the receptor (the beneficiary, user, occupier or owner). The magnitude of impacts will be assessed as high, medium, low and negligible. The sensitivity of a receptor(s) will be assessed as high, medium or low.

14.35 Assessment will be made by considering findings from a range of sources including survey work, site visits, the use of Geographical Information Systems (GIS), background research and professional judgement. Magnitude includes an assessment of what type of effects there would be on baseline conditions and the functioning of that resource. The following questions are considered when assessing magnitude:

- How will the impact affect the operation of the resource?
- To what extent will the resource be able to adapt to the change?
- For combined amenity impacts: do other relevant assessment topics conclude a significant effect?
- How long will the impact last? (Is it temporary or permanent?)
- How regularly does it occur? At what times of day?

14.36 In considering the sensitivity of receptors to an impact the following types of questions would be considered:

- What is the scarcity of the affected resource and what is the availability of alternatives?
- Are there alternatives within the relevant catchment area? Do they have spare capacity?
- How easy would it be to replace /relocate the resource? How likely is re-provision?
- How accessible are the alternatives to the users of the impacted resource?
- What is the capacity of the receptors to accommodate the impact?
- Who are the users? What is the catchment area? Does it provide a specialist facility / service? Are users from vulnerable or protected groups (e.g. elderly, disabled, ethnic minorities, etc.)?
- How many people are likely to be affected (including as a proportion of total people in the relevant community or user group)?

14.37 Significance is determined by assessing magnitude and sensitivity for each impact. Taken together these determine whether the effect is considered to be ‘significant’ or ‘not significant’. Effects are classified as significant when major or moderate; minor and negligible effects are classified as not significant. Effects can be either beneficial or adverse.

Table 14.1: Classification of Effects

Sensitivity of Receptor	Magnitude of Impact			
	High	Medium	Low	Very Low
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

Proposed Mitigation Measures

14.38 The assessment will seek to identify suitable mitigation to reduce, remove or compensate significant negative impacts and to enhance identified positive impacts. Potential mitigation measures might include: temporary/permanent replacement of community / recreational facilities impacted by the proposed scheme, provision of a worker accommodation strategy and staging of appropriate construction activities to avoid peak holiday seasons or local festivities.

Issues to be Scoped Out

14.39 Currently no potential issues that may lead to significant effects can be scoped out.

15 Noise and Vibration

Introduction

15.1 This chapter considers the scope of assessment required for noise and vibration from the construction, operation and decommissioning phases of the proposed scheme.

15.2 As the methods of assessment, criteria and noise indices used, standards referred to and receptor sub-sets are different for construction/decommissioning and operational noise and vibration, this chapter has been divided into the following three parts:

- Part 1 - Construction and Decommissioning Noise and Vibration;
- Part 2 – Operational Noise and Vibration; and
- Part 3 - Summary and conclusion of Noise & Vibration effects.

Legislation and Policy

15.3 The National Planning Policy Framework (NPPF), paragraph 123, aims to ensure that significant adverse impacts on health and quality of life as a result of noise from new development should be avoided; other adverse impacts on health and quality of life arising from noise from new development should be mitigated and reduced to a minimum.

15.4 The Noise Policy Statement for England (NPSE) aims to “avoid significant adverse effects from noise, minimise adverse effects and where possible contribute to the improvement of health and quality of life”

15.5 Both the National Policy Statement for Energy (EN-1) (DECC, 2011a) and the National Policy Statement for Electricity Networks Infrastructure (EN-5) (DECC, 2011b)provide guidance to planning authorities including those considering planning applications submitted under the Town and Country Planning Act 1990 (as amended). EN-1 includes generic guidance on noise and vibration during both construction and operational phases, while EN-5 in particular provides guidance on operational noise from high voltage transmission lines.

15.6 Construction noise and vibration impacts and operational noise and vibration impacts are not covered directly by legislation, however, the Control of Pollution Act (1974) (CoPA, 1974) and Part III of the Environmental Protection Act (1990) (EPA, 1990i) contain sections which can be applied to construction noise and vibration.

15.7 Under Section 60 of the CoPA a Local Authority can serve a notice on a contractor in order to control construction works. Under Section 61 of the CoPA a contractor can apply for ‘prior consent’ to carry out construction works, in order to agree in advance with the Local Authority the details of the works and the methods to be employed to minimise noise.

15.8 Under the EPA a Local Authority can serve an abatement notice on a contractor if they consider noise or vibration from construction works to amount to a statutory nuisance. In addition, individuals can also pursue private action under the EPA.

15.9 The EPA can also be used by the Local Authority, or a member of the public, to take action against industrial or commercial sources of noise, including electricity transmission infrastructure, affecting residential properties.

15.10 British Standard 5228:2009+A1:2014, (Code of practice for noise and vibration control on construction and open sites), consists of two parts which provide guidance on the prediction, assessment and control of noise and vibration from construction works (BSI, (2009a and b).

15.11 British Standard 4142:2014, (Methods for rating and assessing industrial and commercial sound), provides guidance on the prediction and assessment of industrial noise sources and describes methods which use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident (BSI, 2014).

Baseline Environment

15.12 Baseline noise measurements will be undertaken as part of the assessment where necessary. However, it is likely that baseline noise levels will be low in the area of the proposed scheme given its rural nature.

15.13 Existing sources of noise will include road traffic on major roads such as the A35, local road traffic and noise from local sources such as farming activities, birdsong, etc. Dependent on climatic conditions, there is also potential for corona discharge noise from the existing 4YA overhead line (OHL).

15.14 The search area for permanent development (search area) largely covers rural areas with few noise and vibration sensitive receptors. However, there are some isolated receptors within, and close to, the search area which may be affected by noise from construction and decommissioning works dependent on the final selected cable route and Sealing End Compound (SEC) locations.

15.15 As the existing 4YA OHL passes close to a number of isolated residential properties and some conurbations (including Winterbourne Abbas), there could be potential noise impacts at these properties from the removal of the existing VIP subsection (pylons, conductors and associated components). Depending on the final selected route and access requirements, it is also likely that the selected route for the underground cable and associated construction access routes may pass close to some noise and vibration sensitive receptors.

Part 1 - Construction and Decommissioning Noise and Vibration

Potential Impacts (Part 1)

15.16 The construction phase includes two new terminal pylons and SECs together with associated access infrastructure, the installation (by direct burial or other means) of new underground cabling, and the removal of the existing VIP subsection.

15.17 During the construction phase, the main noise sources will be use of heavy earth moving plant, foundation works for the new terminal pylons and SECs (which may include the need for piling works), and movement of construction related vehicles on specific haul roads and the local road infrastructure.

15.18 Most of the proposed works are unlikely to result in significant levels of vibration, with the exception of any piling works which may be required for foundations of the new terminal pylons. The requirement for these works is likely to be dependent on the ground conditions at the selected location, and any vibration impacts would be temporary, intermittent and localised in the vicinity of the pylon and dependent on the type of piling undertaken.

15.19 Noise and vibration sensitive receptors affected by the construction and decommissioning works may include residential properties close to the works, schools, places of worship and other community facilities, and ecological receptors.

15.20 Any construction and decommissioning noise and vibration effects would be temporary and limited to the duration of the nearby phases of works.

15.21 The precise locations of terminal pylons and SECs are subject to environmental and engineering input. However, the search areas identified indicate that there could be noise and vibration sensitive receptors (particularly residential properties) close to these, or close to access routes required during construction and decommissioning.

15.22 Similarly, the route of the buried cable may result in construction activities close to sensitive receptors, or temporary access routes bringing construction traffic past sensitive receptors.

15.23 During the removal of the VIP subsection, the major sources of noise will be construction traffic and plant. A decision as to whether the existing pylon foundations would be left in the ground would be made at such time in the future and would also take account of land owner preferences and environmental issues. However, for the purposes of the assessment it is assumed that they would be removed down to a suitable depth for ploughing (where applicable). Hence, where pylon foundations are to be removed, significant temporary noise is likely to be generated by any concrete breaking activities.

15.24 Noise and vibration impacts from the decommission phase will be similar to those during the construction phase, although more limited in extent, as it is likely that the underground cable would not be removed, and hence impacts would be limited to the vicinity of terminal pylons and SECs.

Proposed Assessment Methodology (Part 1)

15.25 A full list of potentially affected noise and vibration sensitive receptors will be developed from local knowledge, review of local mapping and liaison with the local planning authority. In addition, these will be reviewed in conjunction with the ecology assessment to ensure that relevant ecological receptors are considered.

15.26 Where necessary, a baseline sound survey would be undertaken to ascertain typical existing sound levels. The requirement for and locations used in this survey will be dependent on the selected route for the proposed scheme.

15.27 Given the rural nature of the search area, it is likely that the construction noise and vibration impacts from much of the proposed scheme will be minimal due to the distance between the works and any sensitive receptors. However, dependent on the final alignment and requirements for access routes, significant effects may be experienced.

15.28 Levels of construction noise will be predicted in accordance with the methodology set out in BS 5228 Part 1 (British Standards Institute, 2014), and assessed in accordance with this standard to identify any significant effects due to construction noise. This assessment requires details of proposed construction methodologies, plant to be used, operating times, etc. Where these detailed data are not available, an outline assessment will be completed based on expected construction methods.

15.29 If any piling works are likely to be required, impacts from piling vibration will be assessed using data and methodology from BS 5228 Part 2 (British Standards Institute, 2014).

Proposed Mitigation Measures (Part 1)

15.30 Construction noise mitigation will be by means of the application of best practice, as set out in BS 5228. This can be formalised within a Construction Environmental Management Plan (CEMP). This is likely to include agreement of working days and hours, working methods, plant and techniques, and potential permitted noise levels which construction works should comply with.

15.31 If piling works are required, and predicted to result in significant vibration impacts on nearby receptors, consideration should be given to alternative piling methods, where possible, to mitigate these impacts.

Issues to be Scoped Out (Part 1)

15.32 If detailed construction design determines that no piling works are required for the construction of the SECs or new terminal pylons, then vibration due to construction works can be scoped out of this assessment, as no other significant sources of vibration are expected to be associated with the construction or decommission works.

Part 2 - Operational Noise

Introduction (Part 2)

15.33 This section considers the potential operational noise impacts of the proposed scheme due to the operation of:

- Underground cabling of approximately 7km (depending on location of SECs and cable alignment);
- Two new SECs; and
- Two replacement terminal pylons.

Operational Noise and Vibration from Proposed New Infrastructure (Part 2)

Underground Cables

15.34 Underground high voltage cables do not vibrate or make noise when in operation. It is therefore proposed to scope out underground cables from the operational noise and vibration section of this chapter.

Sealing End Compounds (SECs)

15.35 The SECs form the transition between the cables as they emerge from underground and the OHL wires (conductors). SECs do not vibrate or make noise when in operation. It therefore proposed to scope out SECs from the operational noise and vibration section of this chapter.

Terminal Pylons

15.36 The construction of a terminal pylon, either adjacent to or within the SEC, will be required to divert the OHL wires, via ‘down droppers’ onto the steel gantry within the

SEC (see **Figure 2.2**). It is likely that each new terminal pylon will be located close to the locations of removed suspension pylons.

15.37 The OHL wires on the existing 4YA are formed of a bundle of four 'Zebra' conductors commonly referred to as 'quad Zebra'.

15.38 Terminal pylons and their associated fixtures and fittings do not vibrate in operation and hence it is proposed to scope out operation vibration from terminal pylons.

15.39 Due to the very low electrical stresses associated with quad Zebra this conductor system design is the quietest that National Grid operates. The principal source of noise from most OHLs is a phenomenon known as 'corona discharge'. Corona discharge is a function of conductor surface electrical stress. For this design of OHL the level of electrical stress is so low the wires are regarded as being 'practically quiet' in operation.

15.40 It is therefore proposed to scope out operational noise from the wires and down droppers associated with the terminal pylons and SECs.

15.41 The noise characteristic of the existing OHL is most likely to be associated with the fixtures and fittings – principally the insulators which hold the wires to the cross arms of the pylons. This noise is most likely to be heard during damp or wet weather as a 'crackle' or a 'buzz'.

15.42 The noise characteristic of the new terminal pylons will be the same as the existing pylon as the fixtures and fittings will be of the same type and design.

15.43 Pylon fittings, such as insulators, dampers, spacers and clamps are designed and procured in accordance with a series of National Grid Technical Specifications. The technical specifications define National Grid functional and performance requirements for new equipment associated with electricity transmission.

15.44 To be approved for use on the National Grid high voltage electricity transmission network, each design must be Type Registered. Type Registration comprises a series of tests on the fitting in question to ensure compliance with the relevant technical specification. These tests include performance requirements to test for the absence of corona and audible noise on all fittings along with wind tunnel testing of insulators for the absence of audible tones generated by Aeolian mechanisms.

15.45 Once a piece of equipment has been type registered and approved for use, a number of further tests are carried out post-manufacture in the form of Sample Testing. This ensures the fitting conforms to the specification in the type registration documentation.

15.46 The Technical Specification and Type Registration processes include tests for the absence of corona discharge and audible noise and reduce the potential for audible noise and tones to occur from all types of fittings, including insulators. Where noise does occur it is likely to be localised and of short duration. If due to a fault appropriate actions can usually be taken to retrospectively remedy or mitigate the noise, usually through cleaning or replacement of the relevant fitting.

15.47 It is therefore proposed to scope out operational noise from terminal pylon insulators, fixtures and fittings.

Proposed Mitigation Measures (Part 2)

15.48 Mitigation measures for operational noise and vibration are not proposed since there are no predicted adverse effects due to this proposed scheme.

Issues to be Scoped Out (Part 2)

15.49 It is proposed to scope out operational noise and vibration from the underground cables, SECs and terminal pylons, including fixtures and fittings, for this proposed scheme.

Part 3 - Summary and Conclusions

Construction and Decommissioning

15.50 Potential construction noise impacts affecting sensitive receptors in the vicinity of the proposed construction and decommissioning works have been identified. These would be assessed in accordance with relevant British Standards once the proposed alignment and location of SECs have been defined. Construction vibration would be assessed where any piling works are required close to sensitive receptors; otherwise construction vibration can be scoped out of this assessment, as no other significant sources of vibration are expected to be associated with the construction or decommissioning works.

15.51 Construction noise mitigation will be by means of the Construction Environmental Management Plan (CEMP). This will include the parameters which construction works should comply with.

15.52 If piling works are required, and predicted to result in significant vibration impacts on nearby receptors, consideration should be given to alternative piling methods, where possible, to mitigate these impacts.

15.53 If detailed construction design determines that no piling works are required for the construction of the SECs or new terminal pylons, then vibration due to construction works can be scoped out of this assessment, as no other significant sources of vibration are expected to be associated with the construction or decommission works.

Operation

15.54 As there are no sources of operational noise and vibration likely to result in an adverse effect at any location within the search area for permanent development, it is proposed that operational noise and vibration is scoped out the Environmental Statement.

15.55 Overall, the proposed scheme would result in a net reduction in operational noise due to the removal of the VIP subsection.

16 Climate Change

Introduction

16.1 UKCP09 is the name given to the *UK Climate Projections.* These projections suggest that the UK will experience hotter, drier summers and warmer, wetter winters by the end of the century with regional variations of an average increase in summer temperatures of between 2.5°C and 4.5°C.

16.2 The Dorset Climate Change Risk Assessment states that:

> '*According to the UKCP09 projections, by 2050 Dorset will experience hotter summers with an increase in average summer temperature of between 1.3 - 4.6 °C on the current average summer temperature. The hottest summer days could rise by as much as 7°C although it is more likely to be around 4°C. Average winter temperatures are also set to rise with an expected increase of between 1.1 - 3.6 °C on that which is currently experienced today. In terms of precipitation, the total annual rainfall is unlikely to change, however, the patterns of rainfall could shift with total summer rainfall likely to decrease by around 20% and winter rainfall predicted to rise by a similar amount'*. (Dorset County Council and Dorset Districts and Borough Councils', 2010).

16.3 The document then goes on to present a range of maps showing how the county's climate (temperature, precipitation, humidity and sea level) will have changed by 2050, as well as comparisons between the 2020's, 2050's and the 2080's. Climate change adaptation is also considered in section 4 of the NPS EN-1 (DECC, 2011).

16.4 The ES will address the potential climate change effects associated with the construction, operation and decommissioning phases of the proposed scheme, to include associated mitigation measures as appropriate.

16.5 Climate change effects that would be considered include flood risk and changes to ground conditions (e.g. shrinkage / land slips) and would be addressed within the technical chapters, where appropriate.

Potential Impacts

16.6 There is the potential for contributions to localised flooding to occur both during and after the construction phase through the introduction of hard surfaces (e.g. SEC), or from changes to soils structure/ permeability (e.g., locations of underground cabling/ haul roads).

16.7 There are also potential operational and maintenance issues associated with extreme weather conditions, although this is less likely to be an issue with underground cabling than the existing OHL.

16.8 Similarly, earth movement or subsidence caused by flooding and drought can be a concern for underground cables and this would be informed by geological, hydrological and hydrogeological studies.

Proposed Assessment Methodology

16.9 The ES will consider the effects of a changing climate on the proposed scheme and the likely effects of the proposed scheme on an environment that is adapting to climate change. It will set out to what extent the proposed scheme is expected to be vulnerable and resilient to the following factors:

- Flooding – This will be informed by the assessment carried out for Chapter 8, Water Resources
- Earth movement or subsidence caused by flooding and drought (for underground cables)

Proposed Mitigation Measures

16.10 Any adaptation measures would be based on the latest set of UK Climate Projections (DECC and DEFRA, 2009), relevant risk assessments for the locality and discussions with the relevant authorities, e.g. the Environment Agency.

Issues to be Scoped Out

16.11 Issues proposed to be scoped out include:

- Operational and maintenance issues associated with the underground cable elements

17 Sustainability

17.1 Sustainability will be considered throughout the EIA and addressed within each technical chapter, rather than as an individual chapter.

17.2 National Grids commitment to sustainability is set out in '*Our Contribution: A framework for environmental sustainability in National Grid'* which defines the company's environmental sustainability ambition and sets out specific and measurable targets to achieve this ambition (National Grid, 2013). Focus is on three areas:

- **Climate positive** - Facilitating the transition to a low-carbon energy economy and reducing our own carbon footprint;
- **Positive about resources** - Removing waste and inefficiency from everything we do, minimising our impact on the environment; and
- **Enhancing ecosystems** - Using our land and our natural assets for good, benefiting biodiversity, ecosystems and communities.

17.3 The section on enhancing ecosystems is most pertinent to this proposed scheme:

- Our assets, operations and infrastructure have an impact on the natural environment. Regulations require us to mitigate this impact but through innovative approaches we have a real opportunity to create something special for our business, communities and society as a whole – the Natural Grid.
- As a landowner, we will work and partner with others to use our land and our natural assets for good, benefiting biodiversity, ecosystems and communities. We will engage with communities and our people to make sure we respect and preserve what we all value, and enhance what we have for future generations.
- Our aim is to provide a natural grid of better and bigger habitats, connecting them to create wildlife corridors and biodiversity stepping stones alongside our network of energy assets. The Natural Grid adds ecological value, connects habitats, species and ecosystems and makes our contribution to the preservation, restoration and enhancement of the natural environment.

17.4 Sustainability assessment in the EIA will also include appropriate consideration of National Grid's seven themes for delivering their Environmental and Responsible Business commitments:

- Water conservation
- Air quality
- Greenhouse gas and climate change
- Contaminated land
- Waste, resources and energy efficiency
- Compliance and environmental management systems

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18 Glossary / Abbreviations

Glossary

	Description
Above Ground Infrastructure	These are structures, buildings and other that are above the ground.
Abstraction	Removal of water from surface water or groundwater, usually by pumping.
Abstraction Licence	Permission to abstract surface water or groundwater, subject to conditions laid down in the licence, issued by the relevant environmental regulator.
Adverse	Having a negative/harmful effect on something.
Agri-environmental Scheme	Agricultural and environmental schemes that provide funding to farmers and other land managers to deliver effective agricultural and environmental management on their land.
Alluvium	Material transported by rivers and deposited along its course.
Air Quality Management Area (AQMA)	An area where pollutant monitoring or modelling indicates that the national air quality objectives will not be met
Aquifer	A body of permeable rock that is capable of storing significant quantities of water; is undertaken by impermeable material, and through which groundwater moves.
Area of Search	The term given to a wide area within which the route corridors are identified.
Areas of Archaeological Interest	An area of archaeological interest often identified by a Local Plan.
Areas of Outstanding Natural Beauty	Areas designated by the Countryside Commission under the National Parks and Access to Countryside Act 1949 for their particularly attractive landscape and unspoilt character, which should be protected and enhanced as part of the national heritage.
Baseline	The conditions against which potential effects arising from the Scheme are identified and evaluated.

	Description
Beneficial	Conferring benefit; advantageous; helpful.
Biodiversity	The variety of life. The term embraces the full range of habitats, species, and the variation found within species (including genetic variation).
Catchment	The area from which water or runoff drains to a specified point (eg to a reservoir, river, lake, borehole).
Characteristics	The process of identifying areas of similar landscape character, classifying and mapping them and describing their character.
Compensation	Measures that offset the damage caused by a development, e.g. creation of new habitat.
Conservation Area	Designated by local authorities on account of its special architectural or historic interest, the character and appearance of which it is intended to preserve and enhance.
Corridor	Search area used to provide a degree of flexibility in which to develop a route proposal.
Cumulative Effects	The effects on a receptor when effects from all sources are considered together.
Designated Landscape	Areas of landscape identified as being of importance at international, national or local levels, either defined by statute or identified in development plans or other documents.
Dewatering	The removal of groundwater/surface water to lower the water table or to empty an area, such as an excavation, of water.
Direct Effect	An effect that is directly attributable to the proposed development.
Directional drilling	The pipeline is bored under a crossing to emerge at a target point on the opposite side.
Distribution	The geographical area within which a species can be found, or the arrangement or spatial pattern of a species over its habitat.
Dust	all particulate matter up to 75 µm in diameter and comprising both suspended and deposited dust
Ecology	The study of interactions between organisms and their environment.
Element	A component part of the landscape for example, trees, hedges and buildings.
Emergence (in relation to bat surveys)	A bat exiting its roosting site at dusk.
Enhancement	Measures that can increase and improve habitats for plants and animals.

	Description
Environment Agency Flood Zone 1	Flood Zone 1 - land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%).
Environment Agency Flood Zone 2	Flood Zone 2 - land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% - 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% - 0.1%) in any year.
Environment Agency Flood Zone 3	Flood Zone 3 - land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.
Environmental Impact Assessment	The process by which the impacts of a proposed development upon all aspects of the receiving environment are identified and analysed.
Environmental Statement	Document that reports the findings of an Environmental Impact Assessment.
Feature (landscape)	Particularly prominent or eye-catching elements in the landscape, such as tree clumps, church towers or wooded skylines or a particular aspect of the project proposal.
Flood Risk Assessment (FRA)	An assessment of flood risk from all sources to a development and the mitigation of that risk
Fluvial flooding	Fluvial flooding occurs when rivers overflow and burst their banks, due to high or intense rainfall which flows into them.
Funerary	Relating to a funeral or burial
Geology	The scientific study of the origin, history, and structure of the earth.
Groundwater	Defined by the EC groundwater Directive (80/68/EEC) as "all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil".
Habitat	A type of landscape (e.g. wet woodland, lowland heathland) characterised by particular communities of vegetation and animals.
Heritage Asset	Heritage asset is defined in the NPPF as "A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage asset includes designated heritage assets and assets identified by the local planning authority (including local listing)."
Historical	The English Heritage Register of Historic Battlefields identifies

	Description
Battlefields	forty-three important English battlefields. Its purpose is to offer them protection and to promote a better understanding of their significance.
Hydraulic fluid	The medium by which power is transferred in hydraulic machinery.
Hydrogeology	The branch of geology that deals with water below the ground surface.
Iterative design process	The process by which project design is amended and improved by successive stages of refinement which respond to growing understanding of environmental issues.
Land cover	The surface cover of the land, usually expressed in terms of vegetation cover or lack of it.
Land Drainage	Artifical installation of land drainage to remove surplus water enabling farmers to cultivate and farm the land over a wider time period.
Landform	The shape and form of the land surface which has resulted from a combination of geology, geomorphology, slope, elevation and physical processes.
Landscape	An area, as perceived by people, the character of which is the result of the action and interaction of natural and/or human factors.
Landscape and Visual Impact Assessment	A tool used to identify and assess the likely significance of the effects of change resulting from development both on the landscape as an environmental resource in its own right and on people's views and visual amenity.
Landscape Character Areas	Areas of the landscape defined by their physical and cultural elements.
Landscape receptors	Defined aspects of the landscape resource that have the potential to be affected by a proposal.
Landscape value	The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons.
Listed Buildings	Grade I buildings are of exceptional interest, sometimes considered to be internationally important. Grade II* buildings are particularly important buildings of more than special interest. Grade II buildings are nationally important and of special interest.
Micro-tunnelling	A trenchless construction method for installing pipelines.
Mitigation (in relation to ecology)	Measures that reduce and/or minimise effects on habitats or species.

	Description
National Nature Reserve	Designated areas by Natural England that represent many of the finest wildlife and geological sites in the country.
Nature Conservation	The conservation of habitats and species. Usually includes the protection through legislation or designation of species, habitats and sites of nature conservation importance.
Nature Conservation Value	Measure of the nature conservation of a particular site/feature/species.
Ordinary Watercourses	Ordinary watercourses are those watercourses which do not form part of a main river. A lead local authority has permissive powers to carry out flood defence works for ordinary watercourses at their discretion.
Pathway	The route by which potential contaminants may reach receptors.
Phase 1 Habitat Survey	A nationally recognised system for allocating land into broad habitat types.
PM_{10} (particulate matter)	mass fraction of airborne particles of diameter of 10 µm or less.
Pollution Prevention Guidelines	Best practice guidelines set out by the Environment Agency to advise industry and public on legal responsibilities and good environmental practice.
Population	Any group of individuals, usually of a single species, occupying a given area at the same time.
Proximity Distance	The distance the pipeline can be located to property, structures and populated areas.
Ramsar site	A site as set out in the Ramsar Convention (Convention on Wetlands of International Importance, especially as Waterfowl Habitats) (1971).
Receptor	Any defined feature that is sensitive to or has the potential to be subject to an effect.
Registered Parks and Gardens	The Register of Parks and Gardens of special historic interest in England contains nearly 1450 sites and is maintained by, English Heritage.
Residual Effects	Environmental effects remaining after mitigation measures have been implemented.
Riparian	Terrestrial habitat associated with a watercourse (river or stream).
River Basin Management Plan	Documents that outline measures and targets to improve the quality of rivers, estuaries, coasts and aquifers.

	Description
Route Corridor	Search area used to provide a degree of flexibility in which to develop a route proposal.
Route Corridor Study	An appraisal of the high-level planning and environmental constraints to identify potential route corridor options within a defined Area of Search.
Runoff	The water from rain, snowmelt or irrigation that flows over the land surface and is not absorbed into the ground, but which instead flows into streams or other surface waters of land depressions.
Scheduled Monuments	An archaeological site of national importance, which is included on a schedule compiled by the Secretary of State for National Heritage under the terms of the Ancient Monuments and Archaeological Areas act 1979 (as amended by the National Heritage Act 1983).
Site of Importance for Nature Conservation (SINC)	Non-statutory sites of local or district importance for nature conservation, identified by local councils and wildlife trusts.
Sites of Special Scientific Interest (SSSI)	An area of land of special interest by reason of its flora, fauna, geology or physiographical features notified under section 28 of the Wildlife and Countryside Act 1981.
Source	The activity or process producing a hazardous substance or contaminant that may adversely impact a receptor via a pathway.
Source Protection Zone	Designated protection area around drinking water supplies.
Special Area for Conservation (SAC)	Special Area for Conservation (SAC), designated as European Sites (Natura 2000) under the Habitats Directive. The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds).
Special Protection Area (SPA)	Areas selected by the national government on the advice of English Nature, designated for the protection of particularly sensitive bird species, or for regularly migrating birds.
Species	A taxonomic group into which a genus is divided, the members of which are capable of interbreeding.
Strata	A layer of rock or soil.
Surface Water	Water that appears on the land surface that has not seeped into the ground, i.e. lakes, rivers, streams, standing water, ponds, precipitation.

	Description
Topography	The physical features or configuration of a land surface.
Traffic Management Plan	It sets out how traffic will be managed at all stages during a construction project.
Tranquillity	A state of calm and quietude associated with peace, considered to be a significant asset of landscape.
Transect	A set path used to count and record occurrences of a particular species (e.g. bats). It is standardised so that it is repeatable.
Tree Preservation Order	Tree Preservation Orders are made under the Town and Country Planning Act 1990 to protect trees.
Vibration	Vibration is used to describe the transmission of energy through solid media by oscillation.
Visibility	The state or fact of being visible.
Visual Amenity	The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating, visiting or travelling through an area.
Visual Receptors	People with views of the development or associated activities. These are located within the zone of theoretical visibility and are typically residents, motorists, pedestrians, recreational users in residential areas on publicly accessible roads, footpaths and open spaces.
Workability	This ease with which soils can be worked; and effects upon the restoration process over the working width. It is related to soil drainage status, soil texture, local climate and, therefore, to the safe working period and is closely associated with the trafficability considerations.
World Heritage Site	Places of 'outstanding universal value' selected by the United Nations Educational, Scientific and Cultural Organisation (UNESCO). Sites can be selected because they contain important cultural or natural features.
Zone of Influence	The area/resources that may be affected by the biophysical changes caused by activities associated with a project.
Zone of Theoretical Visibility	A map, usually digitally produced, showing areas of land within which a development is theoretically visible.

Acronyms

Acronym	Meaning
ALC	Agricultural Land Classification
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AAVT	Annual Average Daily Traffic
ACD	Anti-Climb Device
AONB	Area of Outstanding Natural Beauty
BMV	Best and Most Versatile
BAP	Biodiversity Action Plan
BGS	British Geological Survey
BSI	British Standards Institution
CPRE	Campaign for Rural England
CIFA	Chartered Institute of Archaeology
CIEEM	Chartered Institute of Ecology and Environmental Management
c.	Circa / approximately
CoCP	Code of Construction Practice
CEMP	Construction Environment Management Plan
CIRIA	Construction Industry Research and Information Association
CoPA	Control of Pollution Act 1974
CLR	Contaminated Land Report
CRoW	Countryside and Rights of Way Act 2000
CS	Countryside Stewardship
DCLG	Department for Communities and Local Government
DECC	Department for Energy & Climate Change

Acronym	Meaning
DEFRA	Department for Environment Fisheries and Rural Affairs
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DNO	Distribution Network Operator
DCC	Dorset County Council
DERC	Dorset Environmental Records Centre
EcIA	Ecological Impact Assessment
EMF	Electronic Magnetic Fields
ELS	Entry Level Stewardship
EA	Environment Agency
EIA	Environmental Impact Assessment
ES	Environmental Statement
EC	European Commission
ELC	European Landscape Convention
EPSML	European Protected Species Mitigation Licence
ELF	Extremely Low frequency
FRA	Flood Risk Assessment
GIS	Geographic Information System
GPA	Good Practice Advice
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GPLC	Guiding Principles for Land Contamination
HIS	Habitat Suitability Index
HGV	Heavy Goods Vehicle
ha	Hectare
HEGS	Hedgerow Evaluation and Grading System
HDPE	High Density Polyethylene
HLS	Higher Level Stewardship

Acronym	Meaning
HA	Highways Agency
HE	Historic England
HDD	Horizontal Directional Drill
IEMA	Institute of Environmental Management & Assessment
ISO	International Organization for Standardization
JNCC	Joint Nature Conservation Committee
km	Kilometres
kV	Kilovolts
LVIA	Landscape and Visual Impact Assessment
LCA	Landscape Character Areas
LCT	Landscape Character Types
LGVs	Light Goods Vehicles
LBAP	Local Biodiversity Action Plans
LDF	Local Development Framework
LDP	Local Development Plan
LTP	Local Transport Plan
LWS	Local Wildlife Site
LSOA	Lower Super Output Area
m	Metre
µg/m^3	micrograms (millionths of a gram) of air pollutant per cubic metre of air
mm	Millimetres
MAFF	Ministry of Agriculture, Food and Fisheries
MAGIC	Multi-Agency Geographic Information for the Countryside
NCA	National Character Areas
NNR	National Nature Reserve
NPPF	National Planning Policy Framework

Acronym	Meaning
NPS	National Policy Statement
NVC	National Vegetation Classification
NE	Natural England
NERC	Natural Environment and Rural Communities
NPSE	Noise Policy Statement for England
NRMM	Non Road Mobile Machinery
NTS	Non Technical Summary
No.	Number
Ofgem	Office of Gas and Electricity Markets
ONS	Office of National Statistics
OAS	Open Access Land
OPS	Options Appraisal Study
OD	Ordnance Datum
OS	Ordnance Survey
NGR	Ordnance Survey National Grid Reference
OELS	Organic Entry Level Stewardship
EN-1	Overarching National Planning Statement for Energy
OHL	Overhead Line
PPG	Planning Policy Guidance
PPS	Planning Policy Statement
PPG	Pollution Prevention Guidelines
PRoW	Public Rights of Way
PEA	Preliminary Ecological Appraisal
RSPB	Royal Society for the Protection of Birds
SEC	Sealing End Compound
SINC	Site of Importance for Nature Conservation
SSSI	Site of Special Scientific Interest

Acronym	Meaning
SNCI	Sites of Nature Conservation Importance
SPZs	Source Protection Zones
SAC	Special Area of Conservation
SPA	Special Protection Area
SRG	Stakeholder Reference Group
km^2	Square kilometre
LI	The Landscape Institute
TMP	Traffic Management Plan
TA	Transport Assessment
TBM	Tunnel Boring Machine
UXB	Unexploded Bomb
UXO	Unexploded Ordnance
UK	United Kingdom
UKSO	United Kingdom Soil Observatory
VIP	Visual Impact Provision
WFD	Water Framework Directive
WFDa	Water Framework Directive Assessment
WebTAG	Web-based Transport Analysis Guidance
WDDC	West Dorset District Council
ZTV	Zone of Theoretical Visibility

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Appendices

Appendix A: Preliminary Ecological Appraisal (PEA)

Appendix B: Certificate of Conformity to the EC Directive 89/336

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Appendix A: Preliminary Ecological Appraisal (PEA)

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Ecology

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Visual Impact Provision

Preliminary Ecological Appraisal

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Revision schedule					
Rev	Date	Details	Prepared by	Reviewed by	Approved by
0	20/11/2015	First Draft	Charlie Bellamy Ecologist Melanie Pritchard Ecologist	Paul Gregory Principal Ecologist	Kevin Webb Associate Director Ian Roach Associate Director
1	12/01/2016	Updated Draft	Charlie Bellamy Ecologist	Paul Gregory Principal Ecologist	Kevin Webb Associate Director Ian Roach Associate Director
2	12/02/2016	Second Issue to Client to incorporate comments	Melanie Pritchard Ecologist	Kevin Webb Associate Director	Kevin Webb Associate Director

This PEA has been prepared and provided in accordance with the Code of Professional Conduct of the Chartered Institute of Ecology and Environmental Management. We confirm that the opinions expressed are our professional bona fide opinions.

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The methodology adopted and the sources of information used by AECOM in providing its services are outlined in this Report. The work described in this Report was undertaken in October 2015, and is based on the conditions encountered and the information available during that period. The scope of this Report and the services are accordingly factually and therefore may be limited by these circumstances as detailed in Section 3.2.3.

Where assessments of works or costs identified in this Report are made, such assessments are based upon the information available at the time and where appropriate are subject to further investigations or information which may become available.

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Certain statements made in the Report that are not historical facts may constitute estimates, projections or other forward-looking statements and even though they are based on reasonable assumptions as of the date of the Report, such forward-looking statements by their nature involve risks and uncertainties that could cause actual results to differ materially from the results predicted. AECOM specifically does not guarantee or warrant any estimate or projections contained in this Report.

Where field investigations are carried out, these have been restricted to a level of detail required to meet the stated objectives of the services. The results of any measurements taken may vary spatially or with time and further confirmatory measurements should be made after any significant delay in issuing this Report.

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Executive Summary

AECOM Infrastructure and Environment UK Limited was instructed by National Grid (NG) to carry out a Preliminary Ecological Appraisal (PEA) of land between Winterbourne Abbas and Friar Waddon, to the west of Dorchester, Dorset. The PEA was undertaken in relation to the proposed removal of electrical pylons and the impacts associated with the Dorset AONB Visual Impact Provision (VIP) Project.

Habitats within and surrounding the proposed development site have the potential to support protected or notable species.

A suite of Phase 2 ecological surveys have been recommended including; badger surveys, bat surveys (activity and roosts), breeding bird watching brief, dormouse survey, great crested newt surveys, otter surveys, brown hare surveys, water vole surveys, wintering bird surveys and white clawed crayfish surveys. However, the requirement and scope of these surveys is dependent upon the construction methodology employed and the land take required for such work.

The results of the protected species surveys will inform the mitigation and management plans for the proposed development. Provided the proposed mitigation plans, based on the results of these surveys, are followed and, any restrictions adhered to, the development should not result in the net loss of, or negative impact upon levels of biodiversity within the range of the works, or within the local area.

1 Introduction

AECOM was instructed by National Grid (NG) to carry out a Preliminary Ecological Appraisal (PEA) of land between Winterbourne Abbas and Friar Waddon, to the west of Dorchester, Dorset (hereafter referred to as 'the Site') in connection with the Dorset Area of Outstanding Natural Beauty (AONB) Visual Impact Provision (VIP) Project.

The Dorset AONB was designated in 1959. It covers nearly all of the Dorset coast and significant areas inland. The geology is strongly expressed along the Jurassic Coast, and is a World Heritage Site. It gives rise to a varied landscape of downland, ridges and vales.

Two of NG's electricity transmission lines run through the Dorset AONB. The independent landscape assessment concluded that three sections of these lines have landscape and visual impacts of very high importance. One of these sections runs from Winterbourne Abbas south-east to the edge of the South Dorset Escarpment at Bronkham Hill. This section is the one being considered within the VIP project.

This report was commissioned to identify whether there are known or potential ecological features (receptors) that may be impacted by the development.

The aim of the PEA was to:

- identify habitats on the site and any areas outside the site where there may be potential for direct or indirect effects;
- carry out an appraisal of the potential of the habitats present to support protected or notable species of fauna and flora; and
- to advise of potential opportunities and constraints for development.

Recommendations are provided to address the implications of the ecological receptors.

1.1 Scope

The PEA consisted of a desk study and an extended Phase 1 Habitat Survey of the proposed development area. The survey was undertaken to identify ecological features within the site and its environs. Additional details are provided in the Methods section.

Three frames of geographical reference, as shown on Figure 1.1 were used during the completion of the PEA:

- Ecological Study Area - This comprises of a radius of 2 km (statutory sites and non-statutory sites and protected and notable species records) from the ecological survey area; and
- Ecological Survey Area –an area of land encompassing the scheme's proposed search area for permanent development and up to a 250 m buffer (unless physical barriers exist) to account for protected species and habitats in the wider zone of influence. This is the land which was subject to the Extended Phase 1 Habitat Survey; and
- Search Area for Permanent Development – comprises the area within which the underground cabling and the sealing end compound may occur as defined by the EIA screening request. Based on current knowledge, this search area has been drawn sufficiently wide enough to take account of potential route alignment options.

The potential zone of influence applied was defined with reference to the proposed scheme description and professional guidance for PEA. The areas seek to consider the potential distance of sites, habitats or species that may be affected by from the proposed scheme e.g. the terrestrial habitats within which great crested newt may disperse from a breeding pond.

1.2 Structure of Report

The ecological survey area (as shown on Figure 1.1) is described briefly in section 1.4 below.

Section 2 briefly summarises planning policy and wildlife legislation relevant to the PEA, with additional information in Appendix C and D.

Section 3 shows the methods used in the desk study and field survey, including the reasons for the extent of the coverage of each and any limitations of the surveys and the implications for this appraisal.

Section 4 shows the results of the desk study and field survey together and includes information on the legal protection and conservation status of habitats and species relevant to the potential development. Supporting information from the desk study is provided in Appendix A. Detailed notes from the habitat survey are provided in Appendix B. Figure 1.2 shows the habitats surveyed.

Section 5 is an appraisal of the potential ecological constraints and opportunities, which are recommended for consideration during the development of the design of the scheme. It identifies any further surveys or any other works that are recommended prior to construction.

Section 6 provides a conclusion with the key points and recommendations.

1.3 Ecological Survey Area Description

The ecological survey area is located west of the town of Dorchester and runs to the north and south of the A35. The approximate centre is Ordnance Survey Grid Reference (OSGR) SY 62894 88159.

The majority of the ecological survey area comprises rural cultivated farmland (arable and pastoral) and hedgerows with associated farm buildings and a few scattered, small pockets of broad-leaved woodland. The villages of Winterbourne Abbas and Friar Waddon are within the survey boundary and the South Winterbourne River runs to the east. Dorchester lies approximately 5.5 km to the east of the ecological suvrey area.

2 Wildlife Legislation and Planning Policy

2.1 Wildlife Legislation

The following wildlife legislation is potentially relevant to the proposed projectt:

- The Conservation of Habitats & Species Regulations 2010 (as amended);
- The Wildlife and Countryside Act (WCA) 1981 (as amended);
- The Countryside and Rights of Way (CRoW) Act 2000;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- The Protection of Badgers Act 1992; and
- The Hedgerow Regulations 1997.

The above legislation has been considered when planning and undertaking this PEA. Including the methods described in section 3, when identifying potential constraints to the proposed development, and when making recommendations for further survey, design options and mitigation, as discussed in section 5. Compliance with legislation may require the attainment of relevant protected species licences prior to the implementation of the proposed development.

Further information on the requirements of the above legislation is provided as Appendix D.

2.2 National Planning Policy

The National Planning Policy Framework (NPPF) was published on 27 March 2012 and details the Government's planning policies for England and how these are expected to be applied.

The NPPF states the commitment of the UK Government to minimising impacts on biodiversity and providing net gains for biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity. It specifies the obligations that the Local Authorities and the UK Government have regarding statutory designated sites and protected species under UK and international legislation and how this it to be delivered in the planning system. Protected or notable habitats and species can be a material consideration in planning decisions and may therefore make some sites unsuitable for particular types of development, or if development is permitted, mitigation measures may be required to avoid or minimise impacts on certain habitats and species, or where impact is unavoidable, compensation may be required.

Further information on the relevant parts of the NPPF is provided as Appendix C.

Biodiversity 2020: A strategy for England's wildlife and ecosystems services (DEFRA, 2011) set out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea.

In July 2012 the UK Post -2010 Biodiversity Framework was published. This covers the period 2011 - 2020 and forms the UK Government's response to the UN convention on Biological Diversity held in Nagoya in 2010. This contained 5 strategic goals ("Aichi" Goals). The Framework recognised that the Biodiversity Action Plan should now be delivered through strategies for each of the four countries comprising United Kingdom and Northern Ireland. In England this is embodied in Biodiversity 2020: A strategy for England's wildlife and ecosystems services (DEFRA, 2011) set out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea. These country strategies replace the UK Biodiversity Action Plan (BAP).

2.3 Local Planning Policy

Relevant local planning policies for Dorset County Council are detailed in the following documents:

- Dorset Biodiversity Strategy 2003 – Dorset Biodiversity Partnership; and
- Dorset Biodiversity Strategy – Mid Term Review 2010 – Dorset Biodiversity Partnership.

Table 2.1 provides a summary of relevant local planning policies. For the precise wording of each specific policy please refer back to the source document. This planning policy has been considered when assessing potential ecological constraints and opportunities identified by the desk study and field surveys; and, when assessing requirements for further survey, design options and ecological mitigation, as described in section 5.

Table 2.1: Summary of Local Planning Policy

Document	Planning Policy	Purpose
Dorset Biodiversity Strategy 2003 *A strategic framework for the delivery of action to reverse the decline in biodiversity in the county*	**2.2.1 Lowland Mixed Deciduous Woodland**	Maintain the extent and quality of the existing resource, through appropriate management, prioritising ancient woodland. Restore ancient woodland sites which have been planted with, or colonised by non-native species, prioritising sites with the best native flora left. Increase the area of native woodland in Dorset, through natural regeneration and planting, targeting links between existing woodlands or other semi-natural habitats, and where this does not conflict with existing wildlife, landscape and archaeological interests. Manage for ancient trees and dead wood habitat in woodland sites. Continue to conduct research and monitoring which will add to our knowledge and understanding of woodland habitats and species, their distribution and management. Provide opportunities for education, access and awareness raising initiatives in appropriate woodland sites.
	2.3.3 Lowland Calcareous Grassland	Maintain the extent and quality of existing habitat. Secure sympathetic management of remaining sites, which perpetuate the species they support. Increase the area of purple moor grass and rush pasture habitat by appropriate means, in order to buffer, link and expand existing sites. Continue to conduct research and monitoring which will improve our knowledge and understanding of associated key species. Provide opportunities for education, access and awareness raising initiatives.
	2.3.5 Ancient and/or Species Rich Hedgerows	Maintain the current network of ancient and species rich hedgerows. Achieve favourable management and enhancement of ancient and species rich hedgerows. Increase the length of species-rich hedgerows in Dorset. Maintain the overall numbers of hedgerow trees to eventually obtain a balanced age structure.
	2.3.6 Arable Land	Maintain the extent and quality of sites important for arable biodiversity. Increase the extent of arable land that is managed sympathetically for biodiversity. Achieve favourable management for all known sites of importance for biodiversity. Ensure that the needs of priority species associated with arable habitats are met. Improve knowledge of arable biodiversity in Dorset through survey, research and monitoring. Raise awareness of the importance of arable land for biodiversity.

	2.3.7 Ponds	Ascertain the value and extent of the existing resource Retain and enhance the existing range and value of open water habitats by appropriate management. Promote the retention, creation and enhancement of buffer zones and sympathetic land use around water bodies. Promote the strategic creation of 'pond ways' or pond clusters. Continue to conduct research and monitoring which will improve our knowledge and understanding of associated key species. Provide opportunities for education, access and awareness raising initiatives.
	2.4.2 Chalk Streams	Maintain and enhance the characteristic biological diversity and natural features of all chalk rivers and streams, including their winterbourne stretches. Restore to a favourable condition chalk rivers which have been adversely affected by physical modification. Maintain existing water quality in all chalk rivers and streams and improve where possible. Continue to conduct research and monitoring which will improve our knowledge and understanding of chalk rivers and associated key species. Provide opportunities for education, access and awareness raising initiatives at appropriate riverside sites.
Dorset Biodiversity Strategy – Mid Term Review 2010 *Existing actions within Dorset Biodiversity Strategy are still valid until 2013. The strategy should therefore still be used as normal until this time.*	**Forestry and Woodland Management**	Support a dedicated officer to maintain the impetus of Woodlink, to provide land owner liaison work in conjunction with other advisors across Dorset. Raise awareness of existing advisory services for landowners. Encourage woodland owners and managers to enter into appropriate schemes such as England Woodland Grant Scheme, Environmental Stewardship and Direct from Dorset (including facilitating management for woodfuel). Initiate workshops to encourage landowners in identified areas to maintain, restore and link semi-natural woodland, targeting Site of Nature Conservation Interest (SNCI) owners.
	Agriculture	Support existing biodiversity survey effort across the county and promote surveys in 'black hole' areas e.g. farmland birds in west Dorset. Produce baseline hedgerow information across Dorset to identify good quality hedges, management issues and gaps in detailed survey information. Ensure data are available for planning system. Continue to provide funding for SNCI monitoring and survey of additional areas, with a focus on key species, beyond the current Local Area Agreement. Target appropriate management options in suitable locations to benefit key species, ensuring these options are favorable to landowners.
	Freshwater Management - Rivers	Implement the Water Framework Directive in Dorset, targeting action to improve biological and hydrological integrity of the ecosystem. Implement an invasive species control programme for the river Frome and other target rivers (Bere Stream and Moors River). Establish medium term project to develop a strategy and carry out work where intervention will be most effective. Co-ordinate best practice and share experience of controlling invasive wetland species. Seek to maximize benefits to wildlife from headwater quality improvement work. Support and strengthen existing work and expertise on Chalk Rivers and streams in the county. Through the Dorset Wetland Group co-ordinate activities aimed at conserving this habitat; develop an agreed strategy and give the work a higher profile. Implement River Restoration Strategies for 3 rivers: Avon, Frome and the Moors River. Make use of existing demonstration sites and establish new sites and / or demonstration days to show best practice. Set out clear visions of what a good stretch of chalk stream might look like. Target advice and conservation work to enhance bank-side management. Increase our understanding of winterbourne ecology to inform management and identify appropriate restoration techniques. Network the Winterbournes project with a broad audience e.g. Highways Department. Implement targeted restoration work to enhance in-stream and riparian habitat.

	Freshwater Management - Ponds	Support the continuance of Purbeck Important Ponds project to identify UK BAP priority pond habitat and restore existing ponds and create new ones. Use the project to help spread good management practice to pond owners in the area. Outreach this good practice to garden ponds and garden centres. Once established, use best practice from the project to expand across other priority areas of Dorset. Identify and deliver further priority species survey work in relation to ponds, including rare plant species. Seek opportunities for pond creation through sustainable drainage systems (SuDS).
	Land – use Planning Influence planning documents	Integrate biodiversity objectives into Local Development Framework documents. Maintain and enhance the level of biodiversity protection given in any future alterations to the planning system. Assist planners by commenting on planning documents and providing guidance on key principles for biodiversity. Incorporate biodiversity targets and delivery into local authority indicators, community strategies and corporate plans and agreements, including Local Area Agreements. Develop a system for auditing the implementation of planning conditions and decisions.
	Land – use Planning Green infrastructure	Produce strategies for multi-functional green infrastructure for Dorset to create permeability for movement of wildlife and people through existing and proposed settlements, linking to the countryside beyond.
	Land – use Planning Information	Ensure up to date habitat and species data is made available to inform the planning process, through supporting the maintenance and development of the Dorset Environmental Records Centre. Develop a standard system to monitor the effects of landuse planning policies and decisions on biodiversity with advice on how to use it. Establish baselines for Local Development Frameworks which are meaningful and measured; in some cases this may mean adjusting monitoring systems so that appropriate information is recorded. Continue to investigate the impacts of recreation disturbance in the Poole Harbour area. Seek to develop and implement a system to manage identified impacts.
	Land – use Planning Communication and Partnership	Continue to engage in and develop DBOG as a mechanism for communication between planners and biodiversity specialists. Support Local Planning Authorities (LPAs) to develop protocol for species conservation through planning process. Build capacity within LPAs to adequately deal with biodiversity issues, including support and information for development control officers to better deal with biodiversity in-house. Produce project proposals for developers that could be incorporated through planning into mitigation, restoration and landscaping based on Dorset Biodiversity Strategy priorities. Continue to encourage adherence to Bat Protocol across LPAs. Use development to provide biodiversity enhancement. Promote measures to enhance new and existing developments for swifts, targeted at settlements with existing swift records.

3 METHODS

3.1 Desk Study

The ecological survey area is shown on Figure 1.1.

A desk study was carried out to identify designated sites potentially relevant to the development and records of protected and notable species. The desk study was received from the Dorset Environmental Records Centre (DERC) on 5th November 2015. DERC holds records from Dorset Bat Group, Dorset Bird Club and Dorset Mammal Group amongst others.

The search distances used were considered to be greater than the area potentially affected. The ecological study area of 2 km from the ecological survey area was used. Only records from within the last 10 years were requested.

The desk study was carried out using the data sources listed below. In addition, available online aerial photography was examined to understand the wider habitat context of the study area.

Particular attention was given to protected and notable habitats and species included under Schedules 1, 5, 8 and 9 of the Wildlife and Countryside Act 1981 (as amended); Schedules 2 and 4 of The Conservation of Habitat & Species Regulations 2010 (as amended); and Species and Habitats of Principal Importance in England, listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

The habitat connections between the sites and other areas were assessed from aerial photography, maps and designations. In addition to physical connections such as linear woodland, hedges and watercourses, an appraisal was made of the potential of habitat within ecological survey area to support local populations of protected and notable species occurring in the surrounding area.

The following organisations and websites were consulted/ searched:

- Dorset Environmental Record Centre (DERC);
- Multi-Agency Geographic Information for the Countryside (MAGIC).

3.2 Field Survey

3.2.1 Habitats and Protected and Notable Species

The habitat survey methodology followed the Phase 1 Habitat Assessment. This involved a site survey of the ecological survey area undertaken on the 28th and 29th October 2015, recording and mapping habitat types and other ecological features. The survey was undertaken by suitably qualified AECOM ecologists. Habitats within the boundary were classified according to the standard Phase 1 survey methodology (JNCC 2010)[1].

The survey was carried out on the accessible areas of the ecological survey area. The habitats in the ecological survey area were surveyed on foot where possible, and using binoculars where access was not permitted.

Botanical nomenclature used in this report follows Stace (2010)[2].

Where ecological features of particular note were present, target notes were marked on a field map and a description of each taken. Plant species were identified for different habitat types.However

[1] Joint Nature Conservation Committee (JNCC), 2010. Handbook for Phase 1 habitat survey: A technique for environmental audit. Joint Nature Conservation Committee.
[2] Stace, C. (2010) New Flora of the British Isles. Cambridge University Press, Cambridge.

these are indicative of habitat, rather than detailed inventories of the species present in the ecological survey area.

An appraisal was made of the potential suitability of the habitats to support protected or notable species of plants and/or animals. Field signs, features with potential to support protected species and evidence of their presence were recorded when encountered, but no detailed surveys were carried out for species. If additional detailed surveys are recommended for particular species or groups these are described in section 5.

3.2.2 Invasive Non-Native Plant Species

If found, a note was made of visible instances of invasive non-native plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), including Japanese knotweed (*Fallopia japonica).* Areas of invasive non-native species, if found, were mapped and target noted.

3.2.3 Desk study and Field Survey Limitations

Not all of the land parcels included within the ecological survey area could be accessed during this walkover, due to land access issues. These areas were surveyed from neighbouring land using binoculars, where possible. Therefore some features may have been missed. However, this is not believed to represent a significant limitation to the accuracy of this survey and the recommendations stated.

If the application boundary or other details of this project are amended in future, the study should be reviewed and revised as appropriate.

It should be noted that ecosystems are dynamic and constantly changing, and therefore species may move or new species may be recorded in subsequent years. For this reason, and in accordance with current guidance, the existing survey data has a ‘shelf-life’ of, and should only be relied on for a period of, two years from the date of survey (29th October 2017). After this date, update surveys are likely to be required and advice sought from an appropriately qualified ecologist to determine survey scope and methods.

4 Baseline Conditions

4.1 Desk Study

The statutory designated sites in the vicinity are summarised in Table 4.1 below and the non-statutory are summarised in Table 4.2. Ecological desk study records of protected and notable species have been incorporated with the field survey data in assessing the potential of the ecological survey area to support these species. These are discussed in section 4.2.

4.1.1 Statutory Designated Sites

There are six statutory designated sites within 2km of the ecological survey area, which are considered of national importance for nature conservation. The details are contained within Table 4.1 and shown in Appendix A. Two of the sites lie directly within the ecological survey area. All distances are approximations based on the measurements obtained from www.magic.gov.uk.

Table 4.1 Sites with statutory designations for nature conservation

Site name	Designation(s)	Reason for designation	Relationship to ecological survey area
Pitcombe Down	SSSI	An area of chalk downland of south and west aspect. In excellent condition, the swards show some variety in species composition whilst being characteristic of chalk grassland in the south west part of the county.	Approximately 2km west of the ecological survey area.
Valley of Stones	SSSI	The Valley of Stones SSSI derives its name from the impressive 'train' of boulders tumbling down the slope and floor of the dry chalk valley.	Approximately 2km west of the ecological survey area.
Blackdown (Hardy Monument)	SSSI	It is an extremely important geological site and the plant communities which have developed on the acid podzolic soils give the area additional biological interest.	Approximately 1km west of the ecological survey area.
Corton Cutting	gSSSI	Corton Cutting shows a section through the Portland Sand Formation of Late Jurassic (Tithonian) age.	Located directly within the ecological survey area.
Valley of Stones	SSSI	The Valley of Stones SSSI derives its name from the impressive 'train' of boulders tumbling down the slope and floor of the dry chalk valley.	Approximately 2km west of the ecological survey area.
Landscape Value			
Dorset	AONB	A collection of habitats and landscapes, recognised for their beauty within the county.	The whole study area lies within the AONB.

4.1.2 Non-Statutory Designated Sites

There are twenty two non-statutory sites within 2 km of the ecological survey area. These all are designated as Sites of Nature Conservation Interest (SNCI), which are considered of local importance for nature conservation. The details are contained within Table 4.2 and shown in Appendix A. Seven of the sites lie directly within the ecological survey area. All distances are approximations based on the measurements obtained from www.magic.gov.uk.

Table 4.2 Sites with non-statutory designations for nature conservation

Site name	Designation(s)	Reason for designation	Relationship to site
Home Coppice	SNCI	Deciduous woodland with a good ground flora.	Approximately 1.75km to the north of the ecological survey area.
Winterborne Poor Lot	SNCI	Chalk grassland on ancient monuments with a good flora.	Approximately 1.25km to the west of the ecological survey area.
Compton Valence	SNCI	Unimproved chalk grassland on steep slopes.	Approximately 0.75km to the north of the ecological survey area
Tatton Coppice	SNCI	A small ash/hazel coppice with an interesting ground flora.	Approximately 1.75km to the south of the ecological survey area.
Broad Coppice	SNCI	An oak/ash/hazel woodland over clay.	Approximately 1.5km to the south of the Site.
Hyde Coppice	SNCI	Mainly an ash/hazel woodland on a clay soil.	Approximately 1km to the south of the ecological survey area.
Dairy House Coppice	SNCI	A small ash/hazel coppice on a clay soil.	Approximately 0.25km to the south of the ecological survey area.
Windsbatch	SNCI	An area of chalk grassland on south and north-east facing slopes.	Located directly within the ecological survey area.
Bronkham Hill	SNCI	An area of acid grass and heath with dense gorse scrub.	Located directly within the ecological survey area.
Grove Hill Bottom	SNCI	Unimproved and semi-improved chalk grassland with areas of young plantation and scrub.	Approximately 0.5km to the east of the ecological survey area.
Kit Hill Bottom	SNCI	A series of unimproved chalk grassland on slopes of various aspects.	Located directly within the ecological survey area.
Ashton	SNCI	Unimproved chalk grassland with natural terracing.	Approximately 1.75km to the east of the ecological survey area.
Winterbourne Steepleton	SNCI	Unimproved and semi-improved chalk grassland on NW facing slopes.	Located directly within the ecological survey area.
Loscombe Down	SNCI	Two areas of calcareous grassland, mostly unimproved.	Located directly within the ecological survey area.
Winter's Lane Fields, Portesham	SNCI	Two field of unimproved calcareous and semi-improved	Approximately 1.75km to the west of the ecological survey

		neutral grassland.	area.
Higher Ashton Farm Downland	SNCI	A long narrow hillside field, with calcareous grassland and scrub.	Approximately 1.75km to the east of the ecological survey area.
Waddon, Corton & Friar Waddon	SNCI	Relicts of unimproved & semi-improved grassland on the South face of the limestone ridge.	Located directly within the ecological survey area.
Buckland Ripers Meadow	SNCI	Neutral grassland.	Approximately 1.75km to the south east of the ecological survey area.
South Slip	SNCI	A bank of chalk grassland supporting good butterfly populations.	Approximately 1.5km to the north of the ecological survey area.
Town Hill Farm	SNCI	Unimproved & semi-improved calcareous grassland on north facing slope.	Approximately 1.75km to the north of the ecological survey area.
Portesham Quarry	Local Geological Site	The front part of the quarry shows the Portland Stone, overlain by the lowest Purbeck.	Approximately 1.75km to the east of the ecological survey area.
Corton Farm	Local Geological Site	Jurassic, Portland Sand. Good exposures occur in the road cutting to Corton Farm and in a small disused quarry just to the west.	Located directly within the ecological survey area.

4.1.3 Protected and Notable Species

Records of protected and notable species within the search area are summarised below and further detailed in Appendix A.

Bats

There are previous records of brown long-eared (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), myotis species (*Myotis* sp), soprano pipistrelle (*Pipistrellus pygmaeus*), serotine (*Eptesicus serotinus*) and noctule (*Nyctalus noctula*) within 2 km of the ecological survey area from the DERC. Bat roost records, post 2000, include brown long-eared, pipistrelle sp, noctule and serotine (*Eptesicus serotinus*). Other roosts may occur in other natural and man-made features within the search area.

Badger

There are previous records of badger (*Meles meles*) within the search area, from as recently as 2014, including setts and signs. However, the locations of these records are confidential.

Hazel Dormouse

There is one previous record of hazel dormouse (*Muscardinus avellanarius*) which was recorded directly under the electrical pylons within the ecological survey area. This species is known to have been recorded historically within 2 km of the west of the survey area.

Brown Hare

There are several records from DERC of brown hare within the ecological survey area and 2 km buffer.

Water Vole

There are previous records of water vole (*Arvicola amphibius*) from 2006 - 2012 (including field records, feeding remains and droppings) the closest record is directly within the ecological survey area along the WInterborne South water course to the north of the ecological survey area.

Otter

There are previous records of otter (*Lutra lutra*) within 2 km of the ecological survey area. The closest record is within the ecological survey area along the Winterborne South water course to the north of the ecological survey area.

Reptiles

There are previous records of adder (*Vipera berus*) and slow-worm (*Anguis fragilis*) within 2 km of the ecological survey area from DERC. There is also a record of smooth snake (Coronella austriaca) within the ecological survey area, recorded in 2013 from DERC. However, the record was from a residential garden and no suitable habitat occurs within the development footprint for this species.

Amphibians

There are historical records of great crested newt (*Triturus cristatus*) with 2 km of the ecological survey area boundary. There are no recent records of this species within 2 km of the ecological survey area.

Birds

Several Schedule 1 bird species have been recorded within 2 km of the ecological survey area including; common crossbill (*Loxia curvirostra*), brambling (*Fringilla montifringilla*), Dartford warbler (*Sylvia undata*), common kingfisher (*Alcedo atthis*), Eurasian hobby (*Falco subbuteo*), firecrest (*Regulus ignicapilla*), fieldfare (*Turdus pilaris*), woodlark (*Lullula arborea*), barn owl (*Tyto alba*), Mediterranean gull (*Larus melanocephalus*), red kite (*Milvus milvus*), honey buzzard (*Pernis apivorus*), greenshank (*Tringa nebularia*), peregrine falcon (*Falco peregrinus*), and redwing (*Turdus iliacus*). Also European Protected Species from Birds Directive Annex I species include: Nightjar (*Caprimulgus europaeus*) and short-earred owl (*Asio flammeus*).

Other Species

There are records of Schedule 9 invasive plant species from DERC, including Japanese knotweed (*Fallopia japonica*), Indian balsam (*Impatiens glandulifera*) and rhododendron (*Rhododendron ponticum*) within 2 km of the ecological survey area.

There are twenty seven Dorset notable plant species which have been recorded within 2 km of the ecological survey area. Among them: Autumn ladies-tresses *(Spiranthes spiralis),* green-winged orchid *(Orchis morio),* dwarf spurge *(Euphorbia exigua),* bluebell *(Hyacinthoides non-scripta*) and common cudweed *(Filago vulgaris)* are listed under the IUCN red list as a near threatened species. Dwarf spurge *(Euphorbia exigua)* is listed under the IUCN red list as near threatened. Bluebell *(Hyacinthoides non-scripta*) is listed in Schedule 8 of the Wildlife and Countryside Act 1981 (as amended), this level of protection restricts the commercial sale of this species.

There are records of notable invertebrate species occurring within 2 km of the ecological survey area from DERC, including species listed under the Species of Principle Importance in England, NERC Act (2006), Section 41 list. Among them include: dingy skipper (*Erynnis tages*), wall (*Lasiommata megera*), and small heath (*Coenonympha pamphilus*). Also white-letter hairstreak (*Satyrium w-album*), small blue (*Cupido minimus*), chalkhill blue (*Polyommatus (Lysandra) coridon*) and adonis blue

(*Polyommatus (Lysandra) bellargus*), which are also on the Wildlife and Countryside Act (1981). A full species list can be found in Appendix A.

Polecat (*Mustela putorius*) has been recorded within 2 km of the ecological survey area.

4.2 Field Survey Results

4.2.1 Habitat Survey and Appraisal

The habitats recorded and their extent and distribution are shown on Figure 1.2. Target notes are provided in Appendix B. The most extensive habitats of the ecological survey area are arable and improved grassland.

The habitats within the ecological survey area have a moderate potential for biodiversity and protected species.

4.2.2 Habitats

Table 4.3 Summary of habitats within the Site

Habitat type	Extent (Ha/m)	Appraisal	Comments
Habitat Areas (ha)			
Cultivated/disturbed land - arable	449.36	2	Heavily managed and supports limited species diversity.
Improved grassland	351.98	2	Supports limited species diversity.
Hardstanding	11.12	4	Minimal value for biodiversity.
Broadleaved woodland - semi-natural	7.41	1	Moderate - high value for biodiversity. Provides habitat corridors.
Buildings	3.51	3	Low value for biodiversity.
Bracken - continuous	3.07	2	Low – moderate value for biodiversity.
Scrub - dense/continuous	2.74	2	Low – moderate value for biodiversity. Provides habitat corridors.
Scrub - scattered	1.72	2	Low – moderate value for biodiversity.
Mixed woodland - semi-natural	1.41	1	Moderate - high value for biodiversity.
Broadleaved parkland/scattered trees	1.32	2	Moderate value for biodiversity.
Broadleaved woodland - plantation	1.26	2	Moderate value for biodiversity.
Cultivated/disturbed land - amenity grassland	1.00	3	Heavily managed and supports limited species diversity.
Caravan site	0.23	3	Heavily managed and supports limited species diversity.
Standing water	0.16	2	Moderate - high value for biodiversity.
Linear Features (m)			
Hedge with trees - native species-rich	18785.55	1	Moderate - high value for biodiversity. Provides habitat corridors.
Defunct hedge - species-poor	10919.52	3	Low – moderate value for biodiversity.
Intact hedge - native species-rich	7986.18	1	Moderate - high value for biodiversity. Provides habitat corridors.

Intact hedge - species-poor	4263.73	2	Moderate value for biodiversity. Limited species diversity but provides habitat corridors.
Hedge with trees - species-poor	3751.55	2	Moderate value for biodiversity. Limited species diversity but provides habitat corridors.
Fence	2079.47	4	No value for biodiversity.
Running water	2045.70	1	Moderate - high value for biodiversity. Increases species diversity and provides habitat corridors.
Broadleaved parkland/scattered trees	1923.19	1	Moderate - high value for biodiversity. Increases species diversity and provides habitat corridors.
Defunct hedge - native species-rich	1337.22	2	Low – moderate value for biodiversity. Increases species diversity.
Scrub - scattered	822.45	2	Low – moderate value for biodiversity.
Dry ditch	300.39	2	Low – moderate value for biodiversity.
Mixed Parkland/scattered trees	250.26	2	Moderate - high value for biodiversity. Increases species diversity.

*Appraisal value – **1** – High, **2** – Medium, **3** – Low, **4** - Minimal.*

Arable Land

Cultivated/disturbed land - arable grassland was a dominant habitat within the survey area. Winter wheat and maize crops were noted within this habitat.

Arable grassland is accorded **negligible** value (see resorce evaluation table in appendix C for a breakdown of these values) since it is an abundant, widespread and botanically impoverished habitat. The use of pestcides and herbicides also contribute to the minimal value of this habitat.

Improved Grassland (Pasture)

Improved grassland (pasture) was a dominant habitat within the survey area. It was widely being utilised for grazing cattle including cows and sheep. This habitat was noted as botanically poor.

Improved grassland is accorded **negligible** value since it is an abundant, widespread, and botanically a relatively impoverished habitat.

Amenity Grassland

Closely mown amenity grassland was found in playing fields within the local villages. The species composition within this habitat was dominated by perennial rye grass (*Lolium perenne*) with components of ribwort plantain (*Plantago lanceolata*), yarrow (*Achillea millefolium*), and common dandelion (*Taraxacum officinale*).

Amenity grassland is accorded **negligible** value since it is a botanically poor habitat.

Species Rich Hedges, Species Rich Hedge and Trees

Species present include; common ash (*Fraxinus excelsior*), hazel (*Corylus avellana*), pedunculate oak (*Quercus robur*), field maple (*Acer campestre*), wayfaring tree (*Viburnum lantana*), elder (*Sambucus nigra*), blackthorn (*Prunus spinosa*), dog rose (*Rosa canina*), common ivy (*Hedera helix*), hawthorn (*Crataegus monogyna*), and spindle (*Euonymus europaeus*).

Field layer with components of: perennial rye-grass, red campion (*Silene dioica*), white clover (*Trifolium repens*), silverweed (*Argentina anserina*), ribwort plantain, hedge woundwort (*Stachys sylvatica*), cow parsley (*Anthriscus sylvestris*), white dead nettle (*Lamium album*), poppy (*Papaver rhoeas*), common nettle (*Urtica dioica*), hart's tongue fern (*Asplenium scolopendrium*), bramble (*Rubus fruticosus* agg.), green alkanet (*Pentaglottis sempervirens*), herb robert (*Geranium robertianum*), cleavers (*Galium aparine*), hedge parsley (*Torilis arvensis*), hogweed (*Heracleum sphondylium*), and common dandelion.

Species rich hedges, species rich hedge and trees were accorded **medium** value as they enrich the botanical resource of the area and may support protected species.

Mixed Deciduous Woodland

Small pockets of this habitat existed and was spread throughout the survey area. Species present included; larch (*Larix decidua*), beech (*Fagus sylvatica*), ash, and pedunculate oak.

The *mixed deciduous woodland* is accorded **medium** value as it enriches the botanical resource of the area and may support protected species.

Scattered Trees

Scattered trees were present throughout the ecological survey area and may provide a resource for roosting bats.

The scattered trees are accorded **low** (parish) value as they do enrich the botanical resource, but consist of widespread and abundant species, so only do so at the most local level. However, some may be suitable to support roosting bats.

Species-Poor Hedgerows

Species poor hedgerows border some of the improved grassland and arable field habitats within the survey area.

Dominant species include blackthorn and ash (*Fraxinus excelsior*).

These hedges are accorded **negligible** value as a feature, despite qualifying on the NERC Act S41 as a priority habitat, since they are botanically and structurally poor.

Scrub

Scrub habitat was present on ecological survey area, scattered between the arable and improved grassland fields in some areas. Species present include common nettle with alder buckthorn (*Rhamnus frangula*), blackthorn and elder.

This habitat is accorded **low** (parish) value as it enriches the botanical resource of the area, but consists of widespread and abundant species, so only does so at the most local level.

Watercourses

There is both running water and standing water present within the ecological survey area.

This habitat is accorded **medium** value as it enriches the variety of resource of the area and may support a number of protected species.

Buildings and Hard Standing

Buildings and areas of hard standing form small areas of the ecological survey area. These are considered to be of **negligible** value.

4.2.3 Protected and Notable Species

Table 4.4 below shows a summary of the species and their conservation status. It shows the likelihood of species occurring in the ecological survey area, based on the habitat survey and desk study.

Table 4.4 Protected and notable species and the likelihood of occurrence within the ecological survey area

Species	Habitat Regs	UK Priority spp.	W&C Act	Local BAP species	Other Notable spp.	Likelihood on Site	Likelihood within 2 km	Comments
Amphibians	X	X	X		X	2	1	There are a number of freshwater ponds in the ecological survey area and there is terrestrial habitat in the ecological survey area which is suitable to support these species.
Bat species	X	X	X	X	X	2	1	There are trees and buildings which may provide potential roosting habitats as well as suitable foraging and commuting habitat.
Brown hare (*Lepus europaeus*)					X	1	1	There is suitable habitat in the ecological survey area to support this species.
Eurasian badger * (*Meles meles*)					X	1	1	There is evidence of this species in the ecological survey area.
European otter (*Lutra lutra*)	X	X	X	X	X	3	1	There is potentially suitable habitat in the ecological survey area to support this species.
Water vole (*Arvicola amphibius*)			X	X		3	1	There is potentially suitable habitat in the ecological survey area to support this species.
White clawed crayfish (*Austropotamobius pallipes*)			X		X	3	3	There is potentially suitable habitat in the ecological survey area to support this species.
Hazel dormouse (*Muscardinus avellanarius*)		X	X	X	X	2	1	There is potentially suitable habitat in the ecological survey area to support this species.
Reptiles		X	X			3	1	Habitats in the ecological survey area have limited potential to support these species due to the high levels of agricultural disturbance.
Bird species	X	X	X	X	X	3	1	Terrestrial habitats in the ecological survey area have the potential to support these species. The pasture, amenity grassland and planted trees may be important habitats for these species.
Notable plant species	X	X	X	X	X	4	1	There is limited habitat in the ecological survey area which is suitable to support these species.

Key to Likelihood of species presence: 1 = confirmed, 2 = likely, 3 = possible, 4 = unlikely

Key to conservation status:

- Protection of Badgers Act 1992;
- Habitat Regs: Conservation of Habitats and Species Regulations 2010 (as amended). Species protected under Annex II of the EU Habitats Directive. The Regulations make it an offence (subject to exceptions) to

deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4;

- UK Priority spp.: species listed as a priority species, from Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and Species of Principal Importance in England; 943 species in England identified for conservation action under UK Post 2010 Biodiversity Framework (2012);and
- W&C Act Sch 1, 5, 8: Wildlife & Countryside Act 1981 (as amended); species protected under Schedule 1 (birds), 5 (other animals), 8 (plants).Local BAP species: The Dorset Biodiversity Strategy 2003.

5 Identification of Ecological Constraints and Recommendations

For features of value for biodiversity it is recommended that proposed development should follow the hierarchy of mitigation: 1. avoid features where possible, 2. minimise impact, by design, method of working or other measure, 3. compensate for loss, *e.g.* by creating new habitats, or enhancing existing features (within the ecological survey area or elsewhere). The UK National Planning Policy Framework aims for no net loss of biodiversity. The Dorset Biodiversity Compensation Framework[3] aims to calculate the level of compensation relevant for significant losses to biodiversity based on Defra metrics (area x risk x spatial extent x time).

The likelihood that features represent a constraint on development is measured on a scale shown in Table 5.1. The higher the importance of a feature for conservation of biodiversity at national and local scales, the more likely it is to be a material consideration in development planning. Opportunities for enhancement are not scaled in the table, but are identified in the appraisal. Likely scope for enhancement is where existing features could be improved or enhanced within the scope of development or with only minor amendments; possible indicates some scope for enhancement, but some modification of the master plan would be required. Unlikely is where there is little scope to accommodate any enhancement within the development.

Table 5.1 Scale of likelihood of constraint on development

Likelihood	Definition
High	A constraint that **could be a primary reason for refusal** of planning and is **very likely to require further survey** (*e.g.* potential for significant impact on European/National site; or affect status of population of European/National protected species). Early contact should be made with the local planning authority and appropriate statutory nature conservation body to agree scope of further work.
Medium	A constraint that is **likely to require further survey** and depending on level of potential impact of development it may have **some potential to be a reason for refusal of planning**. Early contact should be made with LPA to agree scope of further work.
Low	A constraint that may require further survey, but is unlikely to lead to a refusal of planning on its own. It is likely to be a matter that could be dealt with under a planning condition or other measure.
Minimal	Unlikely to be a constraint to development or require further survey. Mitigation likely to be covered under general soft landscaping and biodiversity enhancements

5.1 Constraints and Opportunities; Sites of Importance for Biodiversity

One statutory site lies directly within the ecological survey area, however this is designated for its geological importance rather than its ecology. The Dorset AONB is the main reason for this study as part of the visual impact of the existing 400kV overhead line. The proposed work will create a

[3] Dorset Biodiversity Protocol, June 2014, Phil Sterling, MCIEEM Natural Environment Manager

temporary disturbance to the AONB but longer term will lead to significant benefits to the landscape and views.

All the other statutory and non-statutory sites identified in the desk study (Table 4.1 and 4.2) are considered not to be relevant to the current development proposals, based on their status, relative distance from the ecological survey area and the information available on the proposed development. The impact of the proposed development works on statutory and non-statutory designated sites is therefore assumed to be minimal. However, this likelihood may need to be reassessed and potential impacts on non-statutory designated sites for nature conservation should be borne in mind for any future development proposals or any change in the type or scale of this development.

5.2 Constraints and Opportunities; Habitats and Species

5.2.1 Habitats

The presence of hedgerows, woodland and scattered trees represent potential constraints to the development, as do the waterbodies in the ecological survey area.

The methodology planned to be followed as part of the VIP project with regards to crossing hedges and waterbodies is not yet clear.

Species-rich hedgerows are a UK priority Biodiversity Action Plan Habitat.

Species-rich hedgerow habitat also receives statutory protection under the Hedgerow Regulations, 1997, which requires permission from the local planning authority for removal or alterations to this habitat. This habitat is also well represented and connected within the surrounding landscape.

However, if none of these habitats are likely to be impacted upon by this development, opportunities should still be taken post development, where possible, to enhance the biodiversity levels, in reference to the habitats currently present in the ecological survey area. Measures may include funding landowners to fill gaps in existing hedgerows.

5.2.2 Current Management

Semi-natural habitats in the ecological survey area are currently subject to high levels of agricultural management. The amenity, arable and improved grassland is of a low local value for wildlife. Other habitats include species-rich and species-poor hedgerows and broadleaved woodland and planted trees. Habitat enhancement through updated management regimes should only be implemented in areas that are not earmarked for future development.

5.2.3 Recommendations for Enhancement

Based on the results of the extended Phase 1 Habitat Survey the following nature conservation objectives have been identified:

Invasive Species Management

One invasive species listed under schedule 9 of the wildlife and countryside act was recorded within the survey area (Japanese knotweed (*Fallopia japonica*)).

Under Schedule 9 of the Wildlife and Countryside Act, 1981 it is an offence to plant or cause the spread of this species. It should be noted that this species can reproduce and be spread from very small segments. The areas supporting these species should be fenced off with netlon or similar fencing to avoid anyone causing the spread of the species' and contaminating the rest of the ecological survey area during works.

A best practice method statement should be produced to guide the control/eradication, removal and disposal of this invasive species, based on Environment Agency guidelines.

Due to the time of year, other invasive plant species may not have been recorded at the time of survey. Great care should be taken during the construction phase when working near to vegetated areas that there are no Schedule 9 species growing near to proposed route.

5.2.4 Species

The habitats in the ecological survey area have the potential to support notable species. Table 5.2 below provides a summary of the features identified as potentially important for biodiversity; their potential level of constraint (see Table 5.1) and recommendations for further survey where there is insufficient information from this appraisal to assess the constraints and opportunities from habitats and species in the ecological survey area.

Table 5.2 Summary of features of potential biodiversity value and recommendations

Feature	Likelihood of constraint for development	Opportunity for enhancement in the ecological survey area	Recommended action	When action likely to be required
Species-rich hedges	Medium	Unlikely	It is currently unclear whether the hedgerows will be impacted as part of this development as the installation methodology is currently unclear. However, if development plans will impact hedges a licence will need to be applied for, for the removal of hedges and protected species surveys will need to be considered including bat activity surveys, dormouse surveys and breeding bird watching brief.	Application to the LPA for hedgerow removal – as soon as possible. **Dormouse**: May – September, 2016. **Bat activity**: April – September, 2016. **Breeding bird watching brief** required if habitat disturbance is planned for the bird nesting season: March – August, 2016 inclusive.
Species-poor hedges.	Low	Unlikely	Unclear if hedgerows will be impacted upon as part of this development as the installation methodology is currently unclear. However, if development plans will impact these hedges protected species surveys will need to be considered including bat activity surveys, dormouse surveys and breeding bird watching brief.	**Dormouse**: May – September, 2016. **Bat activity**: April – September, 2016. **Breeding bird watching brief** required if habitat disturbance is planned for the bird nesting season: March – August, 2016 inclusive.
Potential spread of invasive species.	Medium	Likely	Japanese knotweed (*Fallopia japonica*) noted within survey area.	Due to the time of year this survey was undertaken, some stands of invasives may have been missed. A further survey should be undertaken in the summer to ensure all invasives present are recorded.

				Invasive plant survey: May – September 2016 A method statement should be produced to control this species and include best practice to avoid spreading this species through this development. This should be undertaken as soon as possible.
Arable fields.	Low	Unlikely	Watching brief may be required if the trenching through this habitat is required during the bird nesting season.	If habitat disturbance is planned for the bird nesting season (March – August, 2016 inclusive), an ecologist should be present in the ecological survey area.
Tree potential to support breeding birds and roosting bats.	Medium	Unlikely	It is unclear the extent of this habitat which is due to be impacted upon as part of this development. Suitable habitat which will be impacted by the methodology of these works will require protected species surveys including a breeding bird watching brief if removal of these trees is required.	If habitat disturbance is planned for the bird nesting season (March – August, 2016 inclusive), an ecologist should be present in the ecological survey area. **Tree assessment for bats**: November, 2015 – March, 2016. **Bat emergence surveys** on suitable trees: May – September, 2016.
Buildings within survey area – potential to support roosting bats.	Low – Bat roosts in buildings unlikely to be impacted by development.	Unlikely	If any buildings to be impacted by these works, undertake building inspections and bat roost emergence-entry surveys. Activity surveys may be required following this.	**Bat activity and emergence surveys:** May – September, 2016.
Hedgerows and grassland potential to support foraging and commuting bats.	Medium	Unlikely	It is currently unclear how this habitat will be impacted upon as part of this development. It may be that the methodology of removal and installation only include a short term change to this habitat and therefore that the impact to these species is minimal. However, if plans will significantly impact these habitats - undertake bat activity surveys to determine use of the habitats in the ecological survey area. Use this information to inform landscape planning of development.	**Bat activity surveys**: May – September, 2016.
Pasture and arable grassland	Low	Unlikely	Undertake wintering bird surveys to determine use and importance of habitats in the	**Winter bird surveys**: November, 2015- February, 2016.

potential to support wintering birds and brown hare.			ecological survey area and likelihood of impact. Discuss with local stakeholders.	**Brown hare surveys:** January – March, 2016.
Potential of water bodies to support water vole, otter, great crested newts, and white clawed crayfish.	Medium	Unlikely	Methodology of trenches crossing water bodies is currently unclear. If the methodology used for crossing waterbodies is likely to disturb these habitats/species, surveys may be required to determine how best to mitigate for these protected species. Great crested newt terrestrial habitat is believed to extend up to at least 250m from inhabited waterbodies. Therefore, if works are to be undertaken within the vicinity of the water bodies then a Habitat Suitability Index (HSI) and great crested newt surveys will be required by law. If present a *ESPL will be needed to undertake any works.	If surveys are required due to habitat disturbance: **Water vole**: March – September, 2016. **Otter**: All year, 2016. **Great crested newt**: March – June, 2016. **White clawed crayfish**: July – September, 2016.
Farmland and scrub habitat potential to support badgers.	High	Unlikely	Badger signs were recorded (latrines and setts) but a full badger survey was not within scope of this survey. A full badger survey of this area should be carried out to determine use of this habitat. Produce mitigation plan and licence application if present in habitat to be impacted.	**Badger**: November, 2015 – March, 2016.

*EPSL: European Protected Species Licence

For likelihood of constraint for development, see key in Table 5.1.

6 Conclusions

The survey area supports habitats of varied value to biodiversity.

The recommendations made for habitat enhancement are dependent upon the final agreed construction methodology and the level of habitat disturbance deemed to be caused by this.

A suite of further protected species surveys have been suggested (Table 5.2), dependent upon the methodology adopted for these works, to ensure the levels of biodiversity in the ecological survey area are retained.

Any information gathered from these surveys should be used to inform landscape planning of development to mitigate for any loss.

Habitats within the survey area including pasture, arable and improved grassland have the potential to support breeding and wintering birds and brown hare.

The survey area supports other notable habitats, including species-rich hedges. This habitat has the potential to support protected species. No surveys will be required if hedge breaks are avoided and trenches are bored under the hedges.

Hedge, tree, grassland and scrub habitat within the survey area has the potential to support nesting birds. There is the potential for barn owl to be present in some of the farmland buildings in the ecological survey area. If any habitat removal is required between March and August this must be done under an ecological watching brief.

There are a number of mature trees on in the ecological survey area which have the potential to support roosting bats. These should be inspected by a licenced ecologist and relevant surveys undertaken to determine their use and importance and the impact the development may have on any bat populations found.

Water bodies have the potential to support a number of protected species, such as water vole, otter, great crested newt and white clawed crayfish . The methodology to be used to cross water bodies is currently unclear. However, it is likely that the protected species surveys recommended in Table 5.2 will be required to determine the potential impacts of this development upon these species and how best to mitigate for them.

Signs of badgers were noted directly below the pylon wires, around scrub habitats. As a full badger survey was not within the scope of this PEA, a full badger survey should be undertaken to determine the use of this habitat and a mitigation plan produced from the survey.

The results of the protected species surveys will inform management plans for the proposed development. Providing mitigation plans proposed based on the results of these surveys are followed and any restrictions adhered to, this development should not result in the loss or negative impact upon levels of biodiversity within the range of the works, or within the local area.

7 References

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Figure 1.1 – Overview Map

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LEGEND

- Ecological Survey Area
- Ecological Study Area - 2km
- Search Area for Permanent Development

Purpose of Issue
DRAFT

Client
NATIONAL GRID

Project Title
VISUAL IMPACT PROVISION

Drawing Title
DORSET VIP
OVERVIEW MAP

Drawn	Checked	Approved	Date
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Figure 1.2 – Phase I Habitat Map

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FIGURE 1.2A

FIGURE 1.2B

FIGURE 1.2C

FIGURE 1.2D

FIGURE 1.2E

FIGURE 1.2F

FIGURE 1.2G

LEGEND

- Ecological Survey Area
- Broadleaved parkland/scattered tree
- Scrub - scattered
- Target note
- Defunct hedge - native species-rich
- Defunct hedge - species-poor
- Dry ditch
- Fence
- Hedge with trees - native species-rich
- Hedge with trees - species-poor
- Intact hedge - native species-rich
- Intact hedge - species-poor
- Mixed parkland/scattered trees
- Running water
- Bracken - continuous
- Broadleaved woodland - plantation
- Broadleaved woodland - semi-natural
- Buildings
- Caravan site
- A — Cultivated/disturbed land - amenity grassland
- A — Cultivated/disturbed land - arable
- Hardstanding
- I — Improved grassland
- Mixed woodland - semi-natural
- Scrub - dense/continuous
- Standing water

Purpose of Issue: DRAFT

Client: NATIONAL GRID

Project Title: VISUAL IMPACT PROVISION

Drawing Title: DORSET VIP
PHASE 1 HABITAT SURVEY
OVERVIEW

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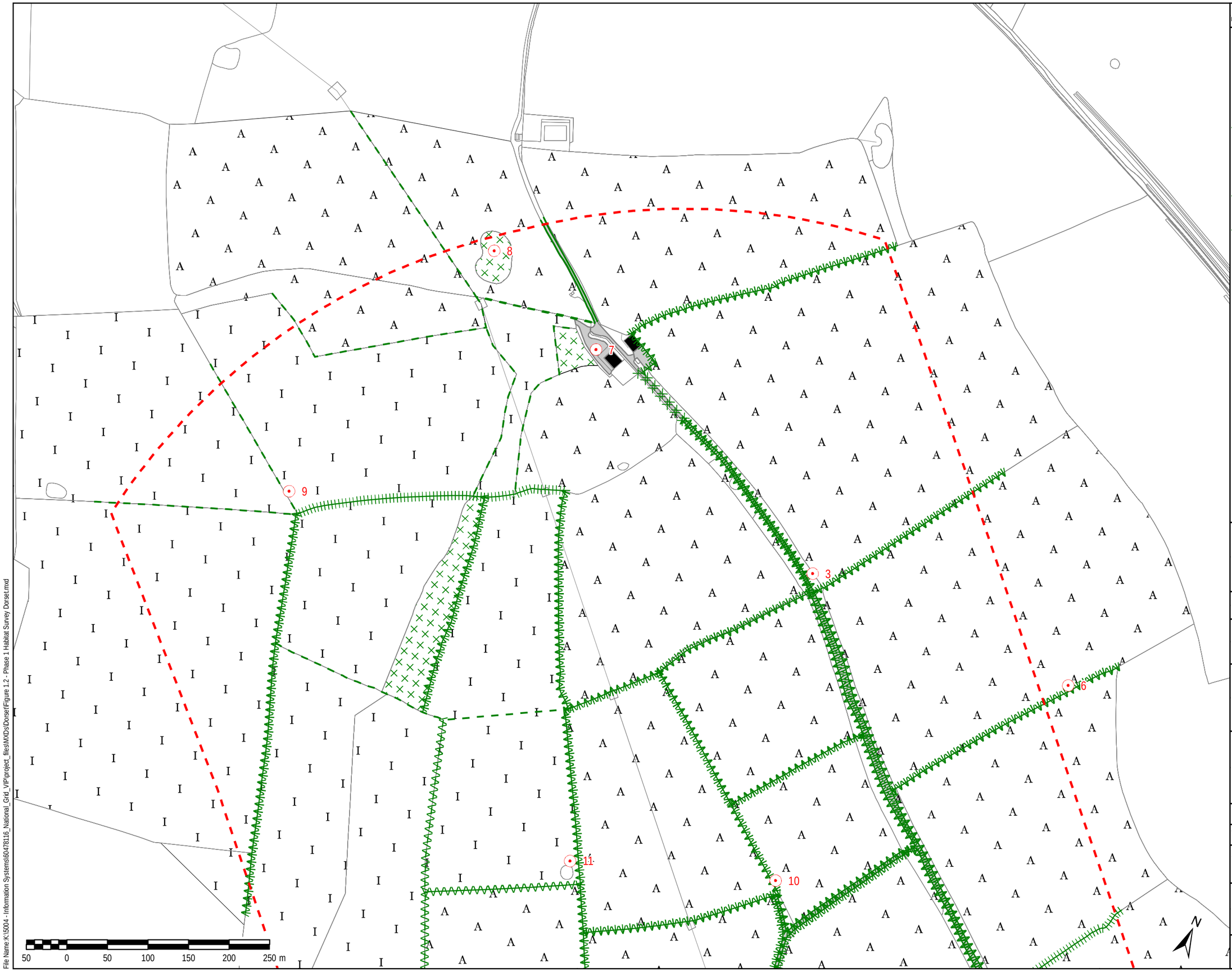

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LEGEND

- Ecological Survey Area
- Broadleaved parkland/scattered tree
- Scrub - scattered
- Target note
- Defunct hedge - native species-rich
- Defunct hedge - species-poor
- Dry ditch
- Fence
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- Hedge with trees - species-poor
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- Intact hedge - species-poor
- Mixed parkland/scattered trees
- Running water
- Bracken - continuous
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- Buildings
- Caravan site
- A — Cultivated/disturbed land - amenity grassland
- A — Cultivated/disturbed land - arable
- Hardstanding
- I — Improved grassland
- Mixed woodland - semi-natural
- Scrub - dense/continuous
- Standing water

Purpose of Issue: DRAFT

Client: NATIONAL GRID

Project Title: VISUAL IMPACT PROVISION

Drawing Title: DORSET VIP
PHASE 1 HABITAT SURVEY

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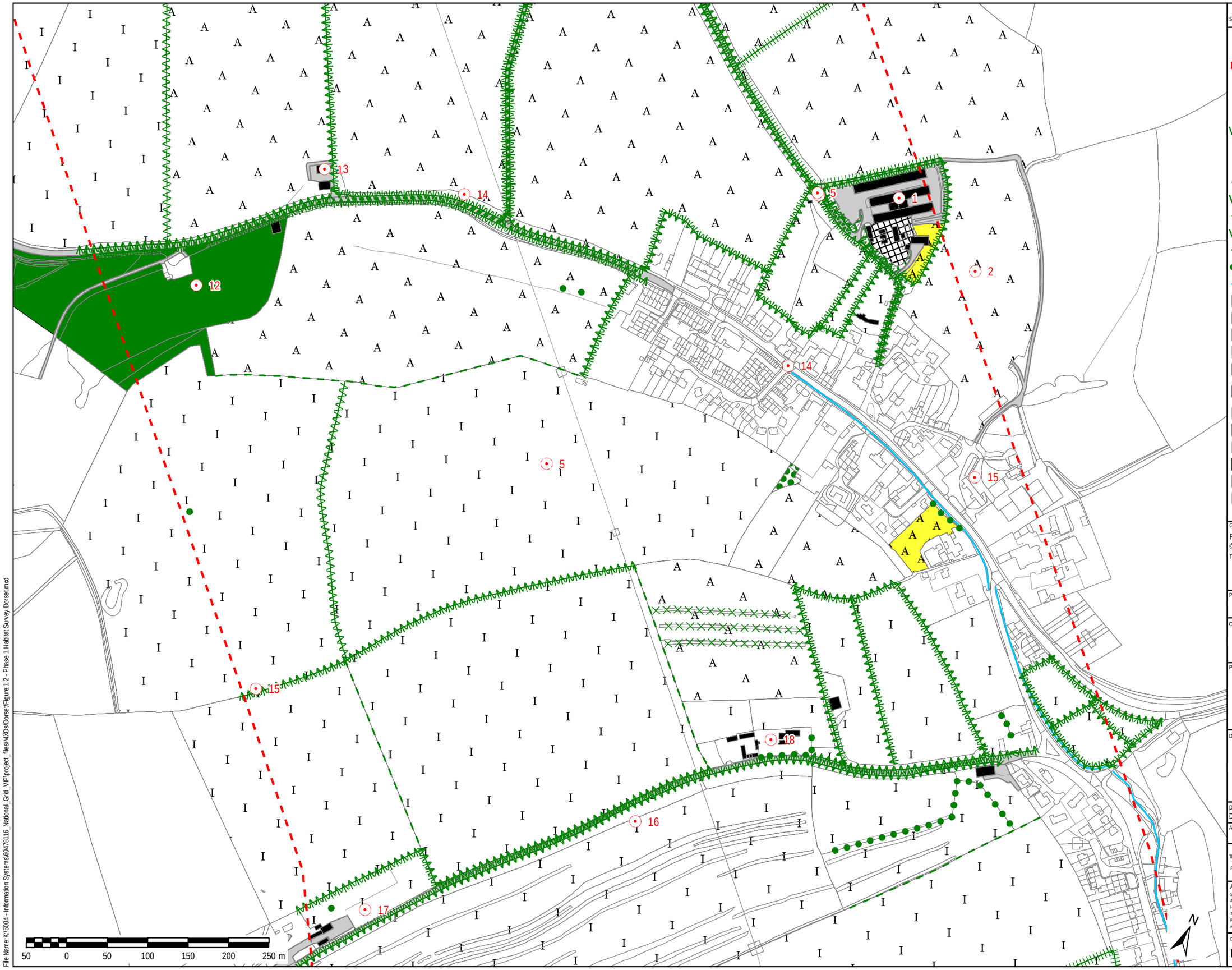

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LEGEND

- Ecological Survey Area
- Broadleaved parkland/scattered tree
- Scrub - scattered
- Target note
- Defunct hedge - native species-rich
- Defunct hedge - species-poor
- Dry ditch
- Fence
- Hedge with trees - native species-rich
- Hedge with trees - species-poor
- Intact hedge - native species-rich
- Intact hedge - species-poor
- Mixed parkland/scattered trees
- Running water
- Bracken - continuous
- Broadleaved woodland - plantation
- Broadleaved woodland - semi-natural
- Buildings
- Caravan site
- Cultivated/disturbed land - amenity grassland
- Cultivated/disturbed land - arable
- Hardstanding
- Improved grassland
- Mixed woodland - semi-natural
- Scrub - dense/continuous
- Standing water

Purpose of Issue: DRAFT

Client: NATIONAL GRID

Project Title: VISUAL IMPACT PROVISION

Drawing Title: DORSET VIP
PHASE 1 HABITAT SURVEY

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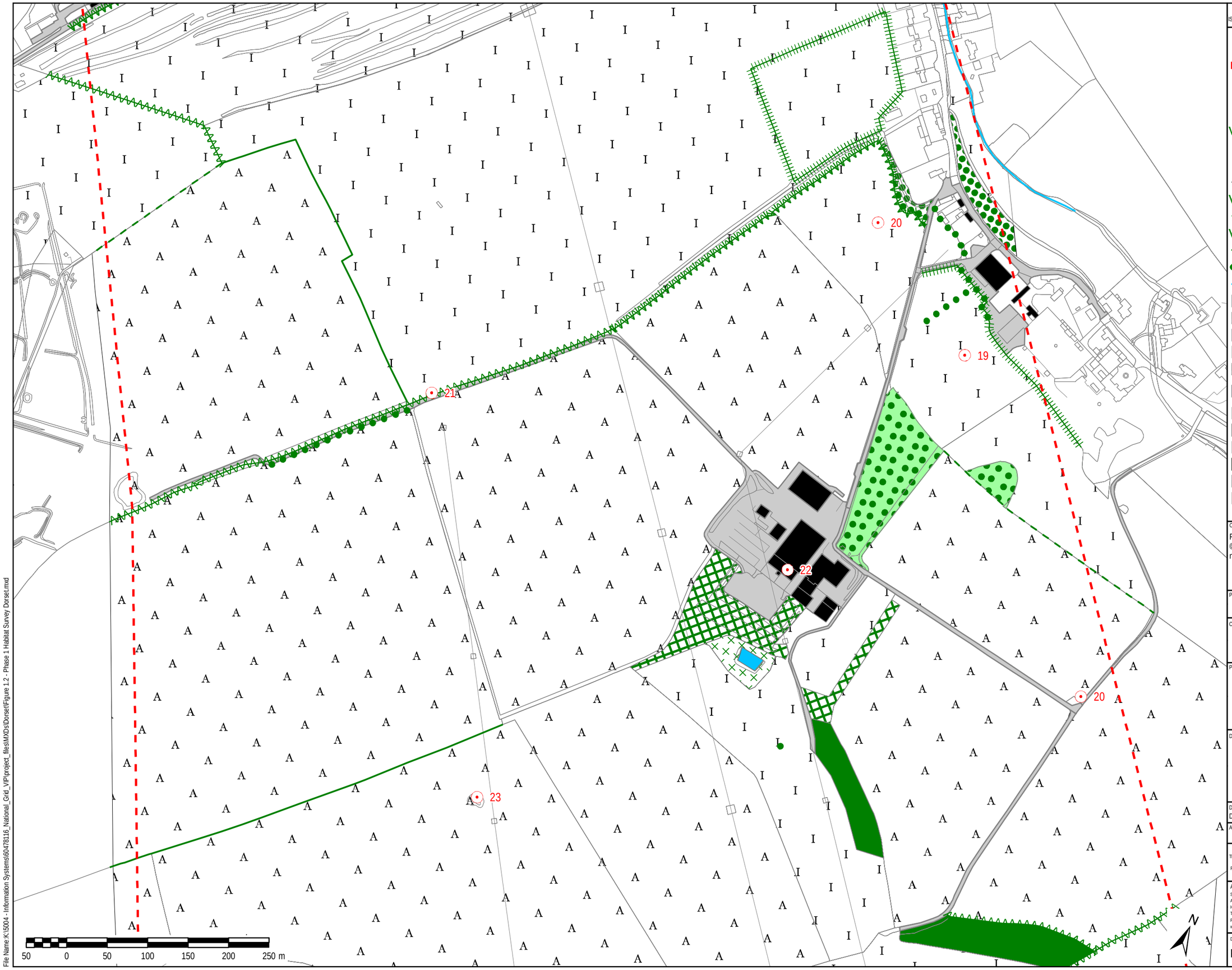

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Ecological Survey Area
- Broadleaved parkland/scattered tree
- Scrub - scattered
- Target note
- Defunct hedge - native species-rich
- Defunct hedge - species-poor
- Dry ditch
- Fence
- Hedge with trees - native species-rich
- Hedge with trees - species-poor
- Intact hedge - native species-rich
- Intact hedge - species-poor
- Mixed parkland/scattered trees
- Running water
- Bracken - continuous
- Broadleaved woodland - plantation
- Broadleaved woodland - semi-natural
- Buildings
- Caravan site
- A — Cultivated/disturbed land - amenity grassland
- A — Cultivated/disturbed land - arable
- Hardstanding
- I — Improved grassland
- Mixed woodland - semi-natural
- Scrub - dense/continuous
- Standing water

Purpose of Issue: DRAFT

Client: NATIONAL GRID

Project Title: VISUAL IMPACT PROVISION

Drawing Title: DORSET VIP
PHASE 1 HABITAT SURVEY

Drawn	Checked	Approved	Date
DH	AH	CB	12/02/2016

AECOM Internal Project No.

Scale @ A3: 1:4,250

AECOM
Scott House
Alencon Link, Basingstoke
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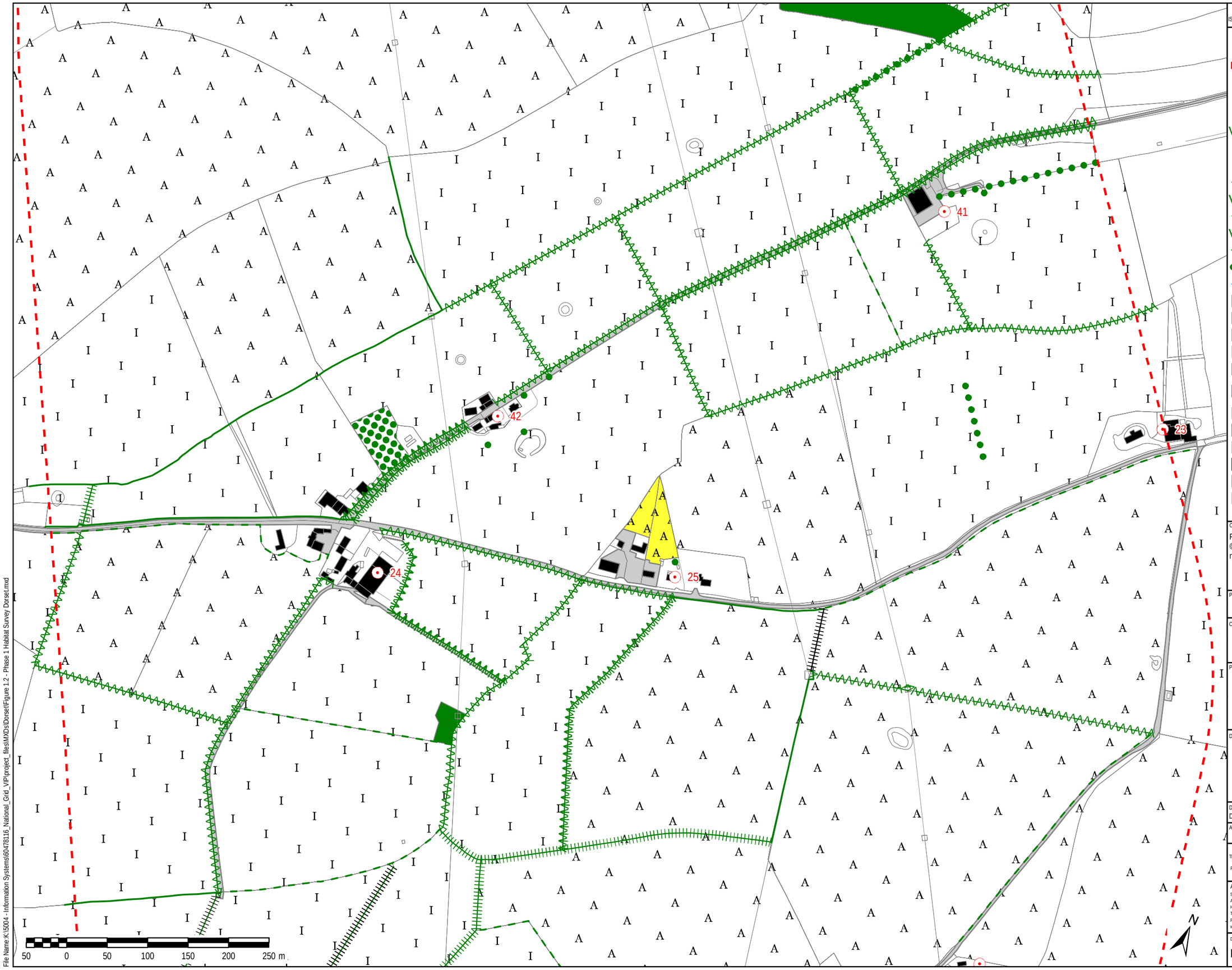
www.aecom.com

Drawing Number: FIGURE 1.2C

Rev: 00

File Name:K:\5004 - Information Systems\60478116_National_Grid_VIP\project_files\MXDs\Dorset\Figure 1.2 - Phase 1 Habitat Survey Dorset.mxd



THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Ecological Survey Area
- Broadleaved parkland/scattered tree
- Scrub - scattered
- Target note
- Defunct hedge - native species-rich
- Defunct hedge - species-poor
- Dry ditch
- Fence
- Hedge with trees - native species-rich
- Hedge with trees - species-poor
- Intact hedge - native species-rich
- Intact hedge - species-poor
- Mixed parkland/scattered trees
- Running water
- Bracken - continuous
- Broadleaved woodland - plantation
- Broadleaved woodland - semi-natural
- Buildings
- Caravan site
- Cultivated/disturbed land - amenity grassland
- Cultivated/disturbed land - arable
- Hardstanding
- Improved grassland
- Mixed woodland - semi-natural
- Scrub - dense/continuous
- Standing water

Purpose of Issue: DRAFT

Client: NATIONAL GRID

Project Title: VISUAL IMPACT PROVISION

Drawing Title: DORSET VIP
PHASE 1 HABITAT SURVEY

Drawn	Checked	Approved	Date
DH	AH	CB	12/02/2016

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Drawing Number: FIGURE 1.2D

Rev: 00

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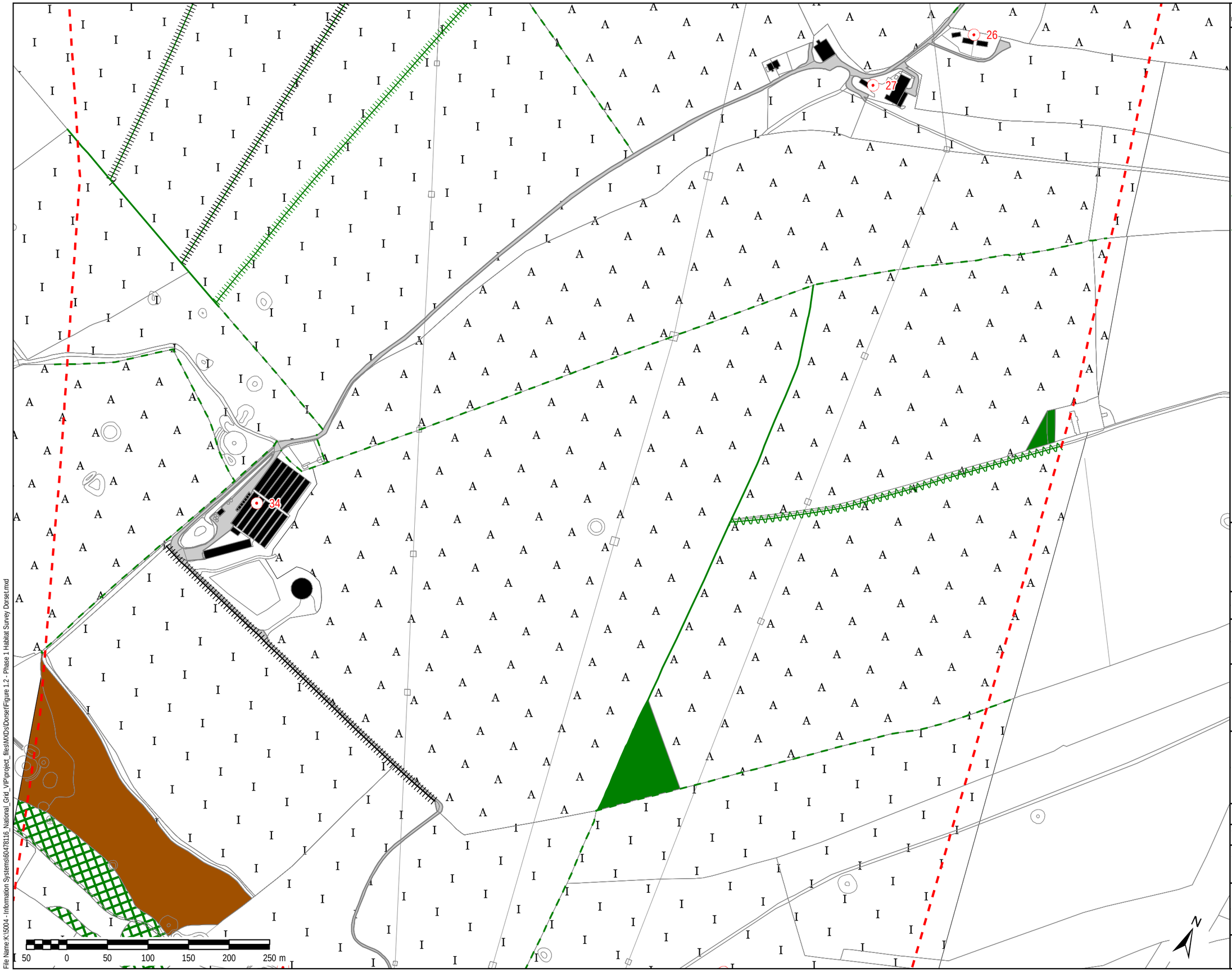

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LEGEND

- Ecological Survey Area
- Broadleaved parkland/scattered tree
- Scrub - scattered
- Target note
- Defunct hedge - native species-rich
- Defunct hedge - species-poor
- Dry ditch
- Fence
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- Broadleaved woodland - semi-natural
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- Caravan site
- Cultivated/disturbed land - amenity grassland
- Cultivated/disturbed land - arable
- Hardstanding
- Improved grassland
- Mixed woodland - semi-natural
- Scrub - dense/continuous
- Standing water

Purpose of Issue: DRAFT

Client: NATIONAL GRID

Project Title: VISUAL IMPACT PROVISION

Drawing Title: DORSET VIP
PHASE 1 HABITAT SURVEY

Drawn	Checked	Approved	Date
DH	AH	CB	12/02/2016

AECOM Internal Project No.

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Drawing Number: FIGURE 1.2E

Rev: 00

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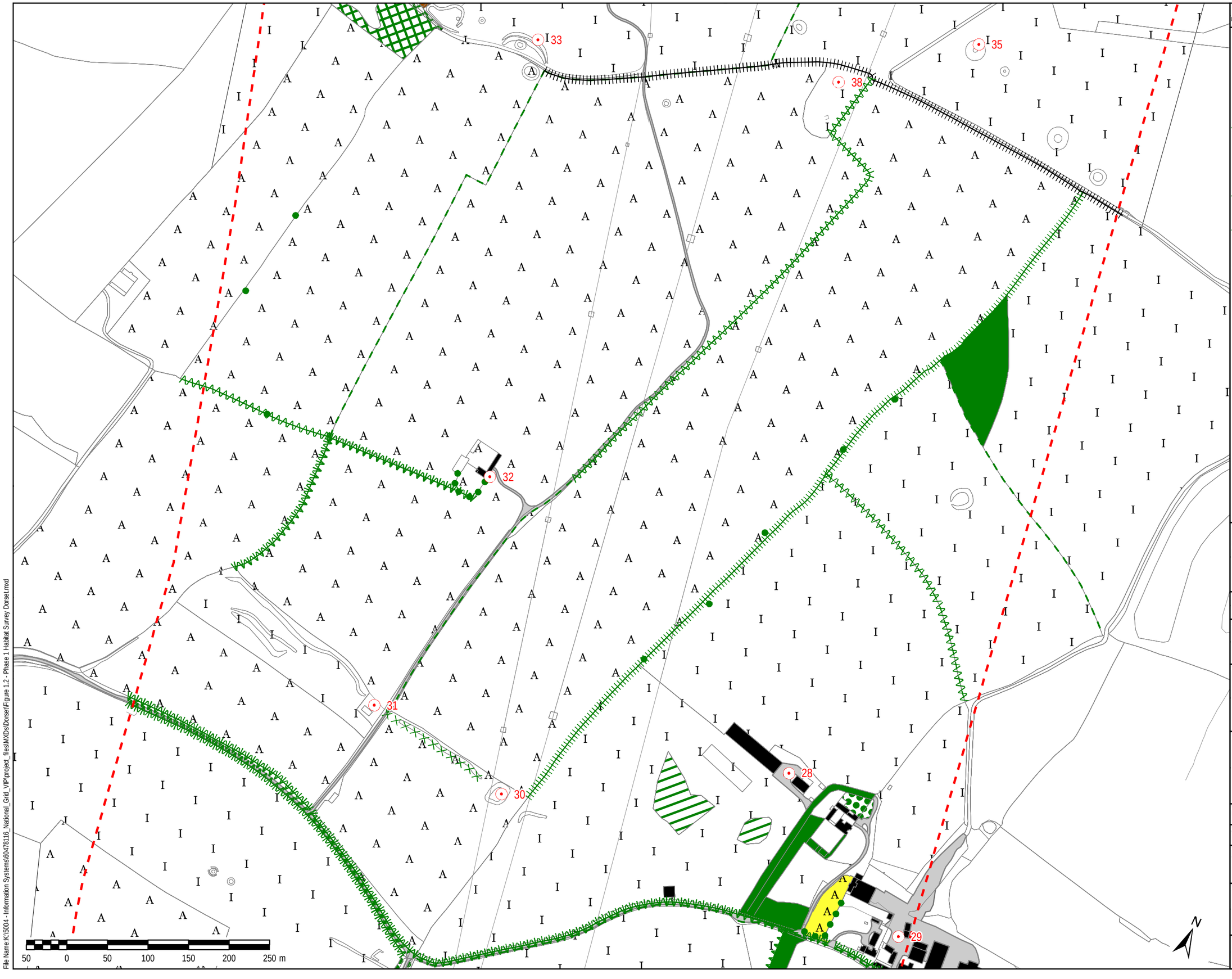

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LEGEND

- Ecological Survey Area
- Broadleaved parkland/scattered tree
- Scrub - scattered
- Target note
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- Hedge with trees - native species-rich
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- Cultivated/disturbed land - arable
- Hardstanding
- Improved grassland
- Mixed woodland - semi-natural
- Scrub - dense/continuous
- Standing water

Purpose of Issue: DRAFT

Client: NATIONAL GRID

Project Title: VISUAL IMPACT PROVISION

Drawing Title: DORSET VIP
PHASE 1 HABITAT SURVEY

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Drawing Number: FIGURE 1.2F

Rev: 00

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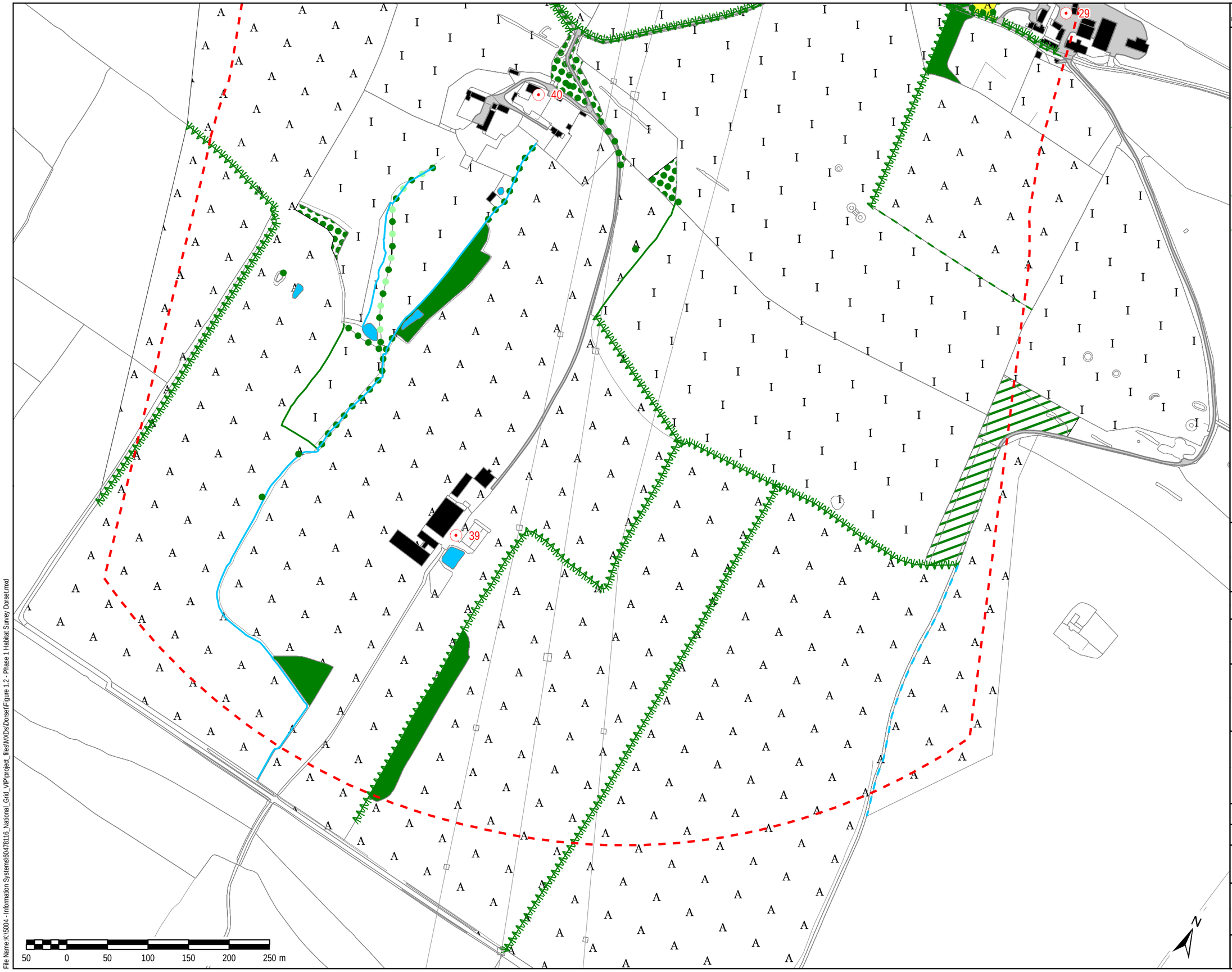

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- Ecological Survey Area
- Broadleaved parkland/scattered tree
- Scrub - scattered
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- Caravan site
- Cultivated/disturbed land - amenity grassland
- Cultivated/disturbed land - arable
- Hardstanding
- Improved grassland
- Mixed woodland - semi-natural
- Scrub - dense/continuous
- Standing water

Purpose of Issue
DRAFT

Client
NATIONAL GRID

Project Title
VISUAL IMPACT PROVISION

Drawing Title
DORSET VIP
PHASE 1 HABITAT SURVEY

Drawn	Checked	Approved	Date
DH	AH	CB	12/02/2016

AECOM Internal Project No.

Scale @ A3
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FIGURE 1.2G

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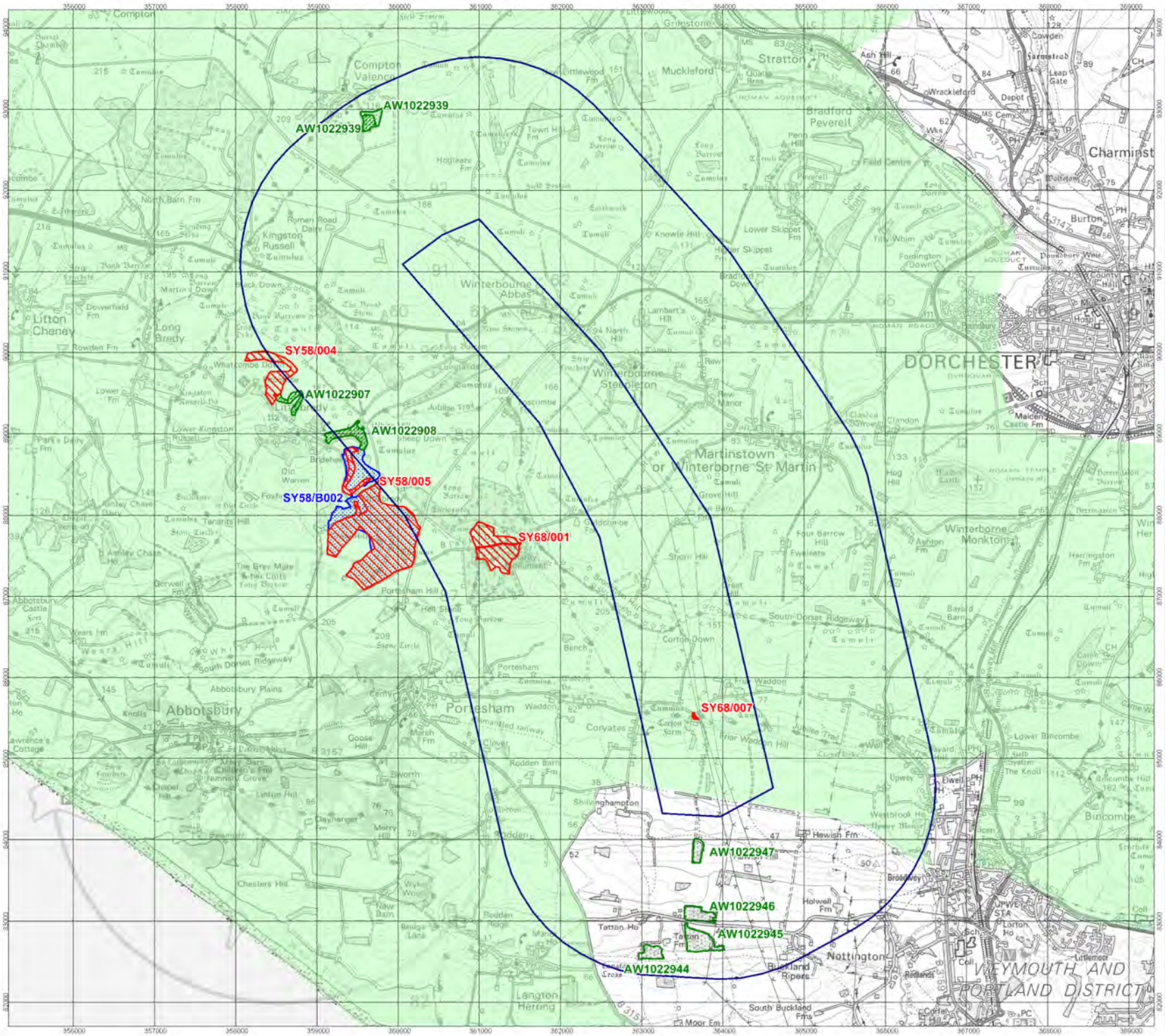


DERC

Dorset Environmental Records Centre

Dorset AONB
Winterbourne Abbas
Dorset

Nationally Designated Sites

Key:

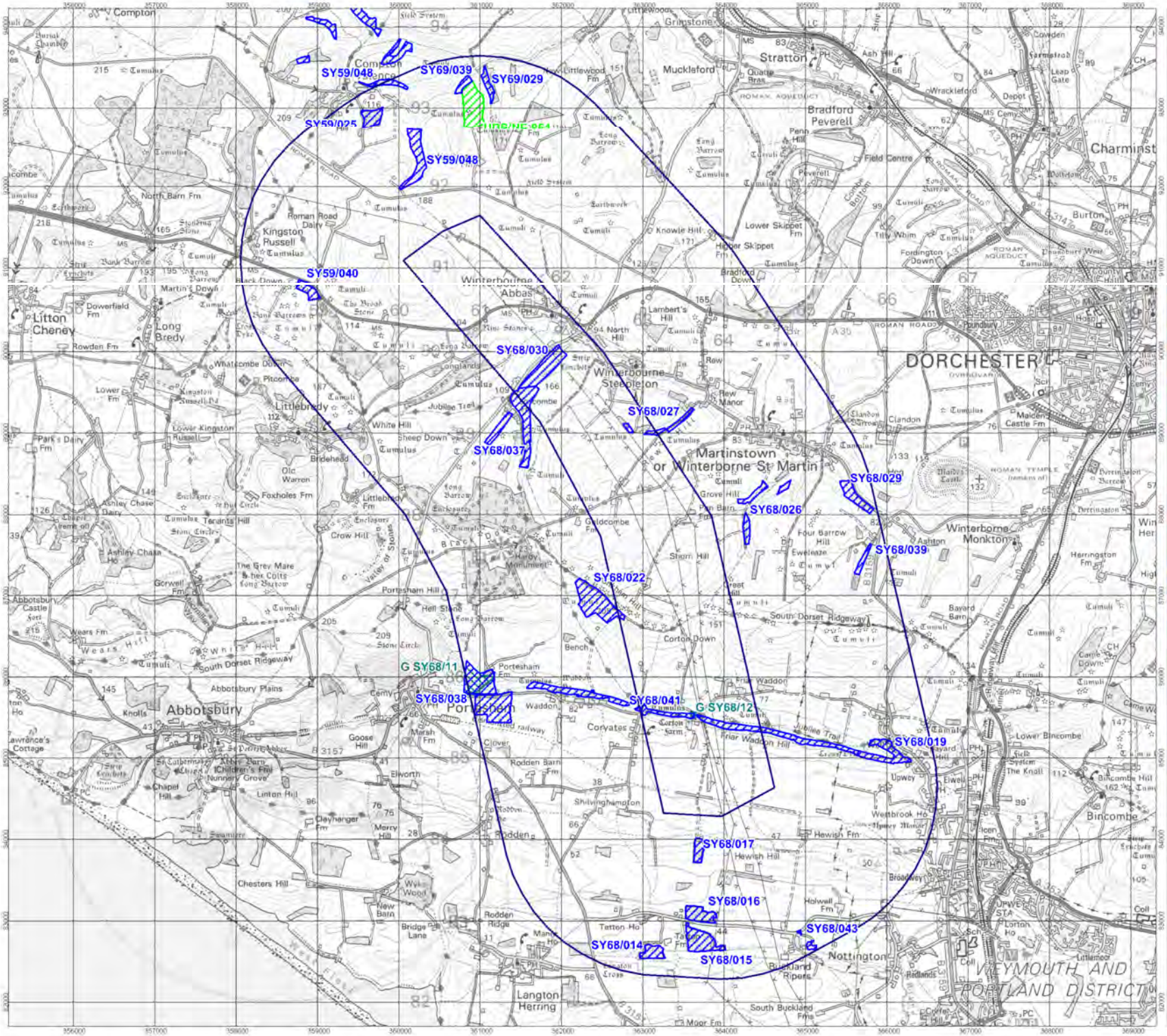
- Plantation on Ancient Woodland Site (PAWS)
- Ancient Semi-natural Woodland (ASNW)
- Area of Outstanding Natural Beauty (AONB) - Dorset
- Butterfly Conservation Reserve
- National Nature Reserve (NNR)
- RSPB Reserve
- Site of Special Scientific Interest (SSSI)
- Area of interest and 2km search area

Scale 1:45000 @ A3

N W E S

DORSET County Council

Environmental Services
County Hall, Dorchester DT1 1XJ



DERC

Dorset Environmental Records Centre

Dorset AONB
Winterbourne Abbas
Dorset

Local Sites

Key:

- Monitored Conservation Verge
- Dorset Wildlife Trust (DWT) Reserve
- Habitat Restoration Site
- Habitat Restoration/Creation Site (Ponds)
- Local Nature Reserve (LNR)
- Local Geological Site (LGS)
- Site of Nature Conservation Interest (SNCI)
- Veteran Tree Site
- Veteran Greenwood Tree
- Area of interest and 2km search area

Scale 1:45000 @ A3

N W E S

DORSET County Council

Environmental Services
County Hall, Dorchester DT1 1XJ

DORSET SNCI SURVEY

Site Number **SY68/030**

Site Name: **Winterbourne Steepleton SNCI**

Survey Type:	SNCI Monitoring Visit	**Site Grid:**	SY618898
Date of Survey:	07 August 2015	**Surveyor(s):**	MJ
Area Surveyed:	Whole site		

Summary Description:

This comprises an area of semi-improved and unimproved calcareous grassland strip lynchets, on a steep to moderate northwest facing slope. Situated near Winterbourne Abbas, it covers a total area of approx. 10.5ha.

Site Description:

The interest is confined to the narrow, linear banks of the numerous lynchets, and a larger area of open grassland on a steep slope in the south of the site. The wide flat areas between the lynchets are species poor overall, comprising abundant Red Fescue, Cock's-foot and White Clover, with only scattered interest in the form of Common Bird's-foot-trefoil, Rough Hawkbit and Smooth Hawk's-beard.

On the lynchets themselves the sward comprises abundant Quaking-grass, Sweet Vernal-grass, Crested Dog's-tail, Creeping Bent, Sheep's-Fescue and Red Fescue, with varying amounts of Meadow Oat-grass, Yellow Oat-grass, False Oat-grass, Downy Oat-grass, Cock's-foot, Yorkshire Fog, Rye-grass and Small Cat's-tail. Herbs present include abundant Glaucous Sedge, Rough Hawkbit and Ribwort Plantain, with frequent Dwarf Thistle, Lady's Bedstraw, Cat's-ear, Common Bird's-foot-trefoil, Cowslip, Selfheal, Eyebright sp, Red Clover and Common Knapweed, whilst the slope in the south contains additional abundant Salad Burnet and Betony.

Scrub is almost non-existent with two very small patches of Bramble, and a very young Hawthorn, whilst Nettle is found rarely, being present in two small clumps on the lower slopes.

Dorset Notable Species

Calcareous grassland:
Kidney Vetch (Anthyllis vulneraria), Not re-found
Rough Hawkbit (Leontodon hispidus), A
Fairy Flax (Linum catharticum), O

DORSET SNCI SURVEY

Burnet-saxifrage (Pimpinella saxifraga), R
Hoary Plantain (Plantago media), R
Salad Burnet (Sanguisorba minor), RLA
Small Scabious (Scabiosa columbaria), O
Wild Thyme (Thymus polytrichus), Not re-found
Autumn Gentian (Gentianella amarella), Not re-found
Squinancywort (Asperula cynanchica), Not re-found
Quaking-grass (Briza media), A
Harebell (Campanula rotundifolia), RO
Dwarf Thistle (Cirsium acaule), OLF
Lady's Bedstraw (Galium verum), OLF
Cowslip (Primula veris), FLA
Devil's-bit Scabious (Succisa pratensis), R
Clustered Bellflower (Campanula glomerata), Not re-found
Heath-grass (Danthonia decumbens), Not re-found
Crested Hair-grass (Koeleria macrantha), LO
Common Milkwort (Polygala vulgaris), Not re-found
Saw-wort (Serratula tinctoria), Not re-found
Betony (Stachys officinalis), RLA
Hairy Violet (Viola hirta), Not re-found
Total: 14

Neutral grassland:,
Common Knapweed (Centaurea nigra), OLF
Common Bird's-foot-trefoil (Lotus corniculatus), FLA
Spring Sedge (Carex caryophyllea), R
Lesser Hawkbit (Leontodon saxatilis), O
Oxeye Daisy (Leucanthemum vulgare), R
Yellow-rattle (Rhinanthus minor), R
Total: 6

Total:, 20

Negative Indicator Species
Creeping Thistle (Cirsium arvense), RLO
Spear Thistle (Cirsium vulgare), R
Nettle (Urtica dioica), LO
Total:, 3

SNCI Panel Date:	29 September 2015
Assessment:	SNCI status confirmed
Reason for selection or confirmation:	Habitat: 2.08 calcareous grassland

DORSET SNCI SURVEY

Notes:

Only the main reason(s) for selection is recorded. For help in interpretation of the SNCI information provided, please contact the SNCI Project Manager, Dr Sharron Abbott, at Dorset Wildlife Trust (Tel. 01305 264620).

Species List: SY68/030 Winterbourne Steepleton

DN Dorset Notable - these species are chosen as indicators of good unimproved or semi-improved habitat to assist in the selection of Sites of Nature Conservation Interest.

Neg Negative indicator

SY68/030 Winterbourne Steepleton **08/10/1991**

Common Name	Species	Habitat Indicator	Abundance
Creeping Bent	*Agrostis stolonifera*		
False Oat-grass	*Arrhenatherum elatius*		
Daisy	*Bellis perennis*		
Common Knapweed	*Centaurea nigra*	DN	
Common Centaury	*Centaurium erythraea*	DN	
Common Mouse-ear	*Cerastium fontanum*		
Dwarf Thistle	*Cirsium acaule*	DN	
Creeping Thistle	*Cirsium arvense*	Neg	
Spear Thistle	*Cirsium vulgare*	Neg	
Crested Dog's-tail	*Cynosurus cristatus*		
Cock's-foot	*Dactylis glomerata*		
Eyebright	*Euphrasia officinalis agg.*		
Hedge Bedstraw	*Galium mollugo*		
Autumn Gentian	*Gentianella amarella*	DN	
Cat's-ear	*Hypochaeris radicata*		
Field Scabious	*Knautia arvensis*		
Rough Hawkbit	*Leontodon hispidus*	DN	
Fairy Flax	*Linum catharticum*	DN	
Perennial Rye-grass	*Lolium perenne*		
Common Bird's-foot-trefoil	*Lotus corniculatus*	DN	
Greater Bird's-foot-trefoil	*Lotus pedunculatus*		
Black Medick	*Medicago lupulina*		
Timothy	*Phleum pratense*		
Ribwort Plantain	*Plantago lanceolata*		
Greater Plantain	*Plantago major*		
Selfheal	*Prunella vulgaris*		
Meadow Buttercup	*Ranunculus acris*		
Creeping Buttercup	*Ranunculus repens*		
Common Ragwort	*Senecio jacobaea*	Neg	
Devil's-bit Scabious	*Succisa pratensis*	DN	
Red Clover	*Trifolium pratense*		
White Clover	*Trifolium repens*		
Germander Speedwell	*Veronica chamaedrys*		

SY68/030 Winterbourne Steepleton **31/07/1997**

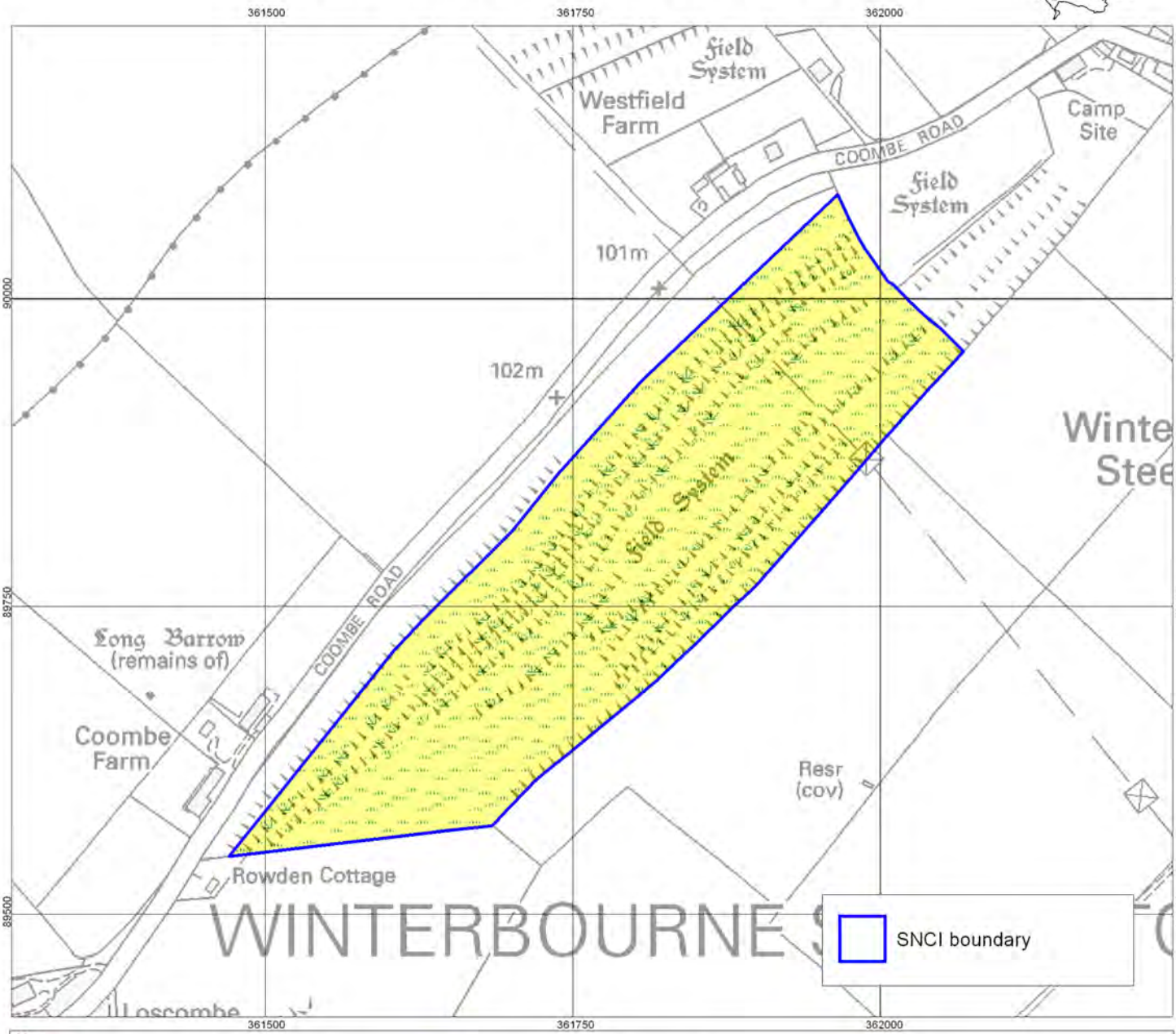
Yarrow	*Achillea millefolium*		
Creeping Bent	*Agrostis stolonifera*		locally abundant DAFOR
Sweet Vernal-grass	*Anthoxanthum odoratum*		
Kidney Vetch	*Anthyllis vulneraria*	DN	occasional DAFOR
False Oat-grass	*Arrhenatherum elatius*		

Squinancywort	*Asperula cynanchica*	DN	occasional DAFOR
Quaking-grass	*Briza media*	DN	locally frequent DAFOR
Clustered Bellflower	*Campanula glomerata*	DN	locally frequent DAFOR
Harebell	*Campanula rotundifolia*	DN	occasional DAFOR
Welted Thistle	*Carduus crispus*		
Spring-sedge	*Carex caryophyllea*	DN	
Glaucous Sedge	*Carex flacca*		locally frequent DAFOR
Common Knapweed	*Centaurea nigra*	DN	locally abundant DAFOR
Greater Knapweed	*Centaurea scabiosa*		
Common Mouse-ear	*Cerastium fontanum*		
Dwarf Thistle	*Cirsium acaule*	DN	locally frequent DAFOR
Creeping Thistle	*Cirsium arvense*	Neg	
Spear Thistle	*Cirsium vulgare*	Neg	
Smooth Hawk's-beard	*Crepis capillaris*		
Crested Dog's-tail	*Cynosurus cristatus*		frequent DAFOR
Cock's-foot	*Dactylis glomerata*		frequent DAFOR
Heath-grass	*Danthonia decumbens*	DN	
Eyebright	*Euphrasia nemorosa*		locally abundant DAFOR
Sheep's-fescue	*Festuca ovina*		locally abundant DAFOR
Red Fescue	*Festuca rubra*		abundant DAFOR
Hedge Bedstraw	*Galium mollugo*		
Lady's Bedstraw	*Galium verum*	DN	locally frequent DAFOR
Autumn Gentian	*Gentianella amarella*	DN	locally frequent DAFOR
Meadow Oat-grass	*Helictotrichon pratense*		locally frequent DAFOR
Downy Oat-grass	*Helictotrichon pubescens*	DN	
Yorkshire-fog	*Holcus lanatus*		
Field Scabious	*Knautia arvensis*		
Crested Hair-grass	*Koeleria macrantha*	DN	rare DAFOR
Meadow Vetchling	*Lathyrus pratensis*		
Rough Hawkbit	*Leontodon hispidus*	DN	locally abundant DAFOR
Lesser Hawkbit	*Leontodon saxatilis*		locally frequent DAFOR
Wild Privet	*Ligustrum vulgare*		
Fairy Flax	*Linum catharticum*	DN	locally frequent DAFOR
Perennial Rye-grass	*Lolium perenne*		
Common Bird's-foot-trefoil	*Lotus corniculatus*	DN	locally abundant DAFOR
Field Wood-rush	*Luzula campestris*		
Black Medick	*Medicago lupulina*		locally abundant DAFOR
Common Restharrow	*Ononis repens*		
Smaller Cat's-tail	*Phleum bertolonii*		
Burnet-saxifrage	*Pimpinella saxifraga*	DN	occasional DAFOR
Ribwort Plantain	*Plantago lanceolata*		frequent DAFOR
Hoary Plantain	*Plantago media*	DN	locally frequent DAFOR
Common Milkwort	*Polygala vulgaris*	DN	
Cowslip	*Primula veris*	DN	locally abundant DAFOR
Selfheal	*Prunella vulgaris*		
Bulbous Buttercup	*Ranunculus bulbosus*		
Elder	*Sambucus nigra*		locally abundant DAFOR
Hoary Ragwort	*Senecio erucifolius*		locally frequent DAFOR
Saw-wort	*Serratula tinctoria*	DN	locally frequent DAFOR
Betony	*Stachys officinalis*	DN	locally frequent DAFOR

Devil's-bit Scabious	*Succisa pratensis*	DN	locally abundant DAFOR
Thymus polytrichus	*Thymus polytrichus*	DN	occasional DAFOR
Red Clover	*Trifolium pratense*		frequent DAFOR
White Clover	*Trifolium repens*		abundant DAFOR
Yellow Oat-grass	*Trisetum flavescens*	DN	abundant DAFOR
Common Nettle	*Urtica dioica*	Neg	
Germander Speedwell	*Veronica chamaedrys*		
Hairy Violet	*Viola hirta*	DN	

SY68/030 Winterbourne Steepleton		**22/01/2008**	
Common Bent	*Agrostis capillaris*		frequent DAFOR
Daisy	*Bellis perennis*		occasional DAFOR
Glaucous Sedge	*Carex flacca*		occasional DAFOR
Common Mouse-ear	*Cerastium fontanum*		occasional DAFOR
Spear Thistle	*Cirsium vulgare*	Neg	occasional DAFOR
Crested Dog's-tail	*Cynosurus cristatus*		occasional DAFOR
Cock's-foot	*Dactylis glomerata*		frequent DAFOR
Sheep's-fescue	*Festuca ovina*		frequent DAFOR
Hedge Bedstraw	*Galium mollugo*		occasional DAFOR
Cut-leaved Crane's-bill	*Geranium dissectum*		occasional DAFOR
Downy Oat-grass	*Helictotrichon pubescens*	DN	occasional DAFOR
Yorkshire-fog	*Holcus lanatus*		frequent DAFOR
Cat's-ear	*Hypochaeris radicata*		rare DAFOR
Meadow Vetchling	*Lathyrus pratensis*		rare DAFOR
Common Bird's-foot-trefoil	*Lotus corniculatus*	DN	occasional DAFOR
Timothy	*Phleum pratense*		occasional DAFOR
Ribwort Plantain	*Plantago lanceolata*		occasional DAFOR
Rough Meadow-grass	*Poa trivialis*		occasional DAFOR
Cowslip	*Primula veris*	DN	occasional DAFOR
Selfheal	*Prunella vulgaris*		occasional DAFOR
Bulbous Buttercup	*Ranunculus bulbosus*		locally frequent DAFOR
Lesser Celandine	*Ranunculus ficaria*		rare DAFOR
Common Sorrel	*Rumex acetosa*		occasional DAFOR
Salad Burnet	*Sanguisorba minor subsp. minor*	DN	occasional DAFOR
Common Ragwort	*Senecio jacobaea*	Neg	rare DAFOR
Betony	*Stachys officinalis*	DN	locally frequent DAFOR
Dandelion	*Taraxacum officinale agg.*		occasional DAFOR
White Clover	*Trifolium repens*		rare DAFOR
Germander Speedwell	*Veronica chamaedrys*		rare DAFOR

Dorset Environmental Records Centre

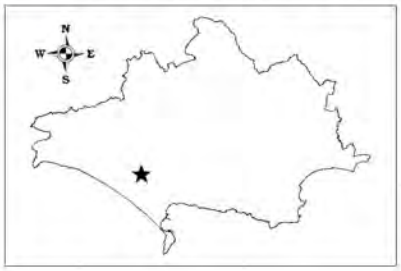


Key:

- Broadleaved woodland - semi-natural
- Broadleaved woodland - plantation & other
- Mixed woodland
- Mixed woodland - plantation & other
- Wet woodland
- Coniferous woodland
- Dense scrub
- Dry acid grassland - unimproved
- Dry acid grassland - semi-improved
- Dry acid grassland - semi-improved - species rich
- Dry acid grassland - semi-improved - species poor
- Calcareous grassland - unimproved
- Calcareous grassland - semi-improved
- Calcareous grassland - semi-improved - species rich
- Calcareous grassland - semi-improved - species poor
- Lowland meadows & other unimproved neutral grassland
- Neutral grassland - semi-improved
- Neutral grassland - semi-improved - species rich
- Neutral grassland - semi-improved - species poor
- Improved grassland
- Arable and horticulture
- Bracken
- Lowland heathland
- European dry heath
- Wet heath
- Purple moorgrass and rush pasture
- Fens & mires
- Open water: running & standing
- Swamp, reedbeds & marginal vegetation
- Other habitats & features
- Hedges
- Line of trees

Sites of Nature Conservation Interest

Scale 1:5000



Site_number: SY68/030
Site_name: Winterbourne Steepleton
Grid: SY618898
Area_ha: 10.52
Panel_date: 29/09/2015

The SNCI project is administered by the Dorset Wildlife Trust
Compiled by JC on 5 November 2015
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DORSET County Council
Environmental Services
County Hall, Dorchester DT1 1XJ

DORSET SNCI SURVEY

Site Number **SY68/041**

Site Name: **Waddon, Corton & Friar Waddon SNCI**

Survey Type:	SNCI Monitoring Visit	**Site Grid:**	SY646852
Date of Survey:	14 August 2012	**Surveyor(s):**	MJ
Area Surveyed:	Whole site		

Summary Description:

This follows the line of a ridge from Portesham to Upwey and covers a distance of approx 2.5 miles and an area of 22.5ha. It comprises steep south facing slopes of calcareous grassland and scrub.

Site Description:

Site Description- Compartment 1
This is Waddon Hill and covers an area of approx 6.5ha for a distance of 1km on moderate to steep sided slopes and is Sheep grazed. The sward comprises abundant Crested Dog's-tail (Cynosurus cristatus), Red Fescue (Festuca rubra) with Sheep's Fescue (Festuca ovina), Cock's-foot (Dactylis glomerata), Meadow Oat-grass (Helictotrichon pratense), Yorkshire Fog (Holcus lanatus), Yellow Oat-grass (Trisetum flavescens), Rye-grass (Lolium perenne), False Oat-grass (Arrhenatherum elatius), Crested Hair-grass (Koeleria macrantha) with Red Clover (Trifolium pratense), White Clover (Trifolium repens), Yarrow (Achillea millefolium), Common Mouse-ear (Cerastium fontanum), Ribwort Plantain (Plantago lanceolata), Meadow Buttercup (Ranunculus acris), Bulbous Buttercup (Ranunculus bulbosus) and Common Sorrel (Rumex acetosa).
The western end is semi-improved with only minor scattered interest, with Common Bird's-foot-trefoil (Lotus corniculatus), Dwarf Thistle (Cirsium acaule), Common Knapweed (Centaurea nigra) and Burnet-saxifrage (Pimpinella saxifraga), but these are rare.
An area of scrubby secondary woodland with frequent Sycamore (Acer pseudoplatanus) and Ash (Fraxinus excelsior) divides the next section of grassland and beneath here the sward is very rank with abundant Nettle (Urtica dioica). This central area runs as far as a farm track and although the sward is fairly rank it contains more of interest, but the richest area is the eastern end.
This is a steep sided slope with terracing and contains abundant Small Scabious (Scabiosa columbaria), Burnet-saxifrage, Common Bird's-foot-trefoil, Black Medick (Medicago lupulina), with frequent Lesser Hawkbit (Leontodon saxatilis), Hedge Bedstraw (Galium mollugo), Dwarf Thistle, Mouse-ear-hawkweed (Pilosella officinarum), occasional Musk Thistle (Carduus nutans), Hoary Plantain (Plantago media), Cat's-ear (Hypochaeris radicata), Lady's Bedstraw (Galium verum), Wild Thyme (Thymus polytrichus) and rare Harebell

(Campanula rotundifolia). The base of the slope is scrubby with abundant Bramble (Rubus fruticosus).
In the north alongside the farm track is a small outcrop of bare limestone rock and here can be found frequent Harebell, with Carline Thistle (Carlina vulgaris), Salad Burnet (Sanguisorba minor) and Ivy-leaved Toadflax (Cymbalaria muralis).

Dorset Notable Species- Compartment 1
Calcareous grassland notables:
Harebell (Campanula rotundifolia), OLF
Carline Thistle (Carlina vulgaris), R
Dwarf Thistle (Cirsium acaule), LF
Crested Hair-grass (Koelaria macrantha), R
Fairy Flax (Linum catharticum), Not re-found
Mouse-ear-hawkweed (Pilosella officinarum), LF
Burnet-saxifrage (Pimpinella saxifraga) , LA
Hoary Plantain (Plantago media), RO
Salad Burnet (Sanguisorba minor), R
Small Scabious (Scabiosa columbaria), LA
Wild Thyme (Thymus polytrichus), OLF
Lady's Bedstraw (Galium verum), OLF
Total: 11

Neutral grassland notables:
Common Knapweed (Centaurea nigra), R
Lesser Hawkbit (Leontodon saxatilis), FLA
Common Bird's-foot-trefoil (Lotus corniculatus), A
Total: 3

Fen notables:
Fleabane (Pulicaria dysenterica), Not re-found
Total: 0

* Negative Indicator Species,
Creeping Thistle (Cirsium arvense), O
Spear Thistle (Cirsium vulgare), Not re-found
Ragwort (Senecio jacobaea), Not re-found
Total:, 1

Site Description- Compartment 2
This is a small compartment consisting of steep terracing to the west and a small area on the end of the hill to the east, again steep and terraced, covering approx 1.5ha and cattle grazed. The sward is very similar with abundant Crested Dog's-tail, along with Red Fescue, Sheep's Fescue, Cock's-foot, Meadow Oat-grass, Rye-grass, Crested Hair-grass, Yellow Oat-grass and Soft-brome (Bromus hordeaceus), Red & White Clover, Yarrow, Common Mouse-ear, Ribwort Plantain, Bulbous Buttercup and Common Sorrel.
The sward is tightly grazed and on the terracing can be found abundant Lesser Hawkbit,

Common Bird's-foot-trefoil, Black Medick, frequent Dwarf Thistle, Smooth Hawk's-beard (Crepis capillaris), Selfheal (Prunella vulgaris), Mouse-ear-hawkweed, Burnet-saxifrage, Small Scabious, occasional Musk Thistle, Common Knapweed, Lady's Bedstraw, Hedge Bedstraw, Hoary Plantain, Wild Thyme and rare Oxeye Daisy (Leucanthemum vulgare), Salad Burnet, Wild Clary (Salvia verbanaca) and Fiddle Dock (Rumex pulcher). Ragwort (Senecio jacobaea) and Creeping Thistle (Cirsium arvense) are frequent, with occasional Spear Thistle (Cirsium vulgare) and there are patches of Bramble and rare Hawthorn (Crataegus monogyna), with a handful of Ash in the east.

Dorset Notable Species- Compartment 2
Calcareous grassland notables:
Wild Clary (Salvia verbanaca), R
Dwarf Thistle (Cirsium acaule), LF
Crested Hair-grass (Koelaria macrantha), R
Mouse-ear-hawkweed (Pilosella officinarum), LF
Burnet-saxifrage (Pimpinella saxifraga) , LF
Hoary Plantain (Plantago media), LO
Salad Burnet (Sanguisorba minor), RO
Small Scabious (Scabiosa columbaria), LF
Wild Thyme (Thymus polytrichus), OLF
Lady's Bedstraw (Galium verum), OLF
Total: 10

Neutral grassland notables:
Common Knapweed (Centaurea nigra), OLF
Lesser Hawkbit (Leontodon saxatilis), A
Common Bird's-foot-trefoil (Lotus corniculatus), A
Oxeye Daisy (Leucanthemum vulgare), R
Total: 4

* Negative Indicator Species,
Creeping Thistle (Cirsium arvense), F
Spear Thistle (Cirsium vulgare), O
Ragwort (Senecio jacobaea), F
Total:, 3

Site Description- Compartment 3
This section comprises the steep terracing of Corton Hill and a small section of Friar Waddon Hill in the east. It covers an area of approx 4.0ha and runs for 700m.
The sward again contains abundant Crested Dog's-tail, with Red Fescue, Rye-grass, Sheep's Fescue, Cock's-foot, Yellow Oat-grass, Meadow Oat-grass, Soft-brome, False Oat-grass, Smaller Cat's-tail (Phleum bertolonii), Red & White Clover, Common Mouse-ear, Ribwort Plantain, Meadow Buttercup, Bulbous Buttercup, Common Sorrel, Yarrow and is semi-improved and also cattle grazed.
The interest is moderate overall and contains abundant Common Bird's-foot-trefoil, Euphrasia sp, Black Medick, frequent Dwarf Thistle, Smooth Hawk's-beard, Hedge

Bedstraw, Cat's-ear, Lesser Hawkbit, Mouse-ear-hawkweed, occasional Musk Thistle, Lady's Bedstraw, Hoary Plantain, Selfheal, Wild Thyme and rare Carline Thistle, Autumn Hawkbit (Leontodon autumnalis) and Burnet-saxifrage. There are areas of bare limestone on the upper slopes and to the east and Biting Stonecrop (Sedum acre) can be found here. Ragwort is abundant with frequent Creeping Thistle, Spear Thistle, patches of Nettle and minor Hawthorn.
The small section to the east on Friar Waddon Hill is overgrazed with areas of bare earth and is badly scrubbing over, with frequent Bramble, Hawthorn, Sycamore, Thistle and Nettle with very little of interest found in the sward at all. It is currently being Sheep grazed along with a handful of Cattle.

Dorset Notable Species- Compartment 3
Calcareous grassland notables:,
Carline Thistle (Carlina vulgaris), R
Dwarf Thistle (Cirsium acaule), LF
Mouse-ear-hawkweed (Pilosella officinarum), LF
Burnet-saxifrage (Pimpinella saxifraga) , R
Hoary Plantain (Plantago media), LO
Salad Burnet (Sanguisorba minor), Not re-found
Wild Thyme (Thymus polytrichus), OLF
Lady's Bedstraw (Galium verum), O
Total: 7

Neutral grassland notables:
Lesser Hawkbit (Leontodon saxatilis), FLA
Common Bird's-foot-trefoil (Lotus corniculatus), A
Total: 2

* Negative Indicator Species,
Creeping Thistle (Cirsium arvense), FLA
Spear Thistle (Cirsium vulgare), F
Ragwort (Senecio jacobaea), A
Total: 3

Site Description- Compartment 4
This is the western end of Friar Waddon Hill, is unimproved steep terracing and covers an area of approx 2.7ha and 470m.
The sward comprises abundant Red Fescue and Crested Dog's-tail, with Sheep's Fescue, Cock's-foot, Meadow Oat-grass, Downy Oat-grass, Yellow Oat-grass, Creeping Bent (Agrostis stolonifera), Rye-grass, Smaller Cat's-tail and False Oat-grass, Red & White Clover, Yarrow, Common Mouse-ear, Meadow Buttercup, Bulbous Buttercup and Common Sorrel.
Common Bird's-foot-trefoil and Black Medick are abundant, with frequent Dwarf Thistle, Smooth Hawk's-beard, Hedge Bedstraw, Lesser Hawkbit, Mouse-ear-hawkweed, Burnet-saxifrage, Selfheal, Wild Thyme, occasional Wild Carrot (Daucus carota), Lady's Bedstraw and rare Carline Thistle, Common Restharrow (Ononis repens) and Ploughman's-spikenard

(Inula conyzae).
To the east of the site was found additional Common Knapweed and Fleabane (Pulicaria dysenterica), and at the base of the slope in the east Wild Parsnip (Pastinaca sativa). Ragwort was absolutely abundant throughout the slope, with frequent Creeping Thistle, and there was minor scrub in the form of Bramble, mainly on lower slopes.

Dorset Notable Species- Compartment 4
Calcareous grassland notables:
Hound's-tongue (Cynoglossum officinale), Not re-found
Carline Thistle (Carlina vulgaris), R
Dwarf Thistle (Cirsium acaule), OLF
Ploughman's-spikenard (Inula conyzae), RO
Mouse-ear-hawkweed (Pilosella officinarum), OLF
Burnet-saxifrage (Pimpinella saxifraga) , LF
Small Scabious (Scabiosa columbaria), Not re-found
Wild Thyme (Thymus polytrichus), OLF
Lady's Bedstraw (Galium verum), RO
Total:, 7

Neutral grassland notables:
Common Knapweed (Centaurea nigra), LF
Lesser Hawkbit (Leontodon saxatilis), FLA
Common Bird's-foot-trefoil (Lotus corniculatus), A
Total:, 3

Fen notables:
Fleabane (Pulicaria dysenterica), LO
Total:, 1

* Negative Indicator Species
Creeping Thistle (Cirsium arvense), F
Spear Thistle (Cirsium vulgare), R
Ragwort (Senecio jacobaea), A
Broadleaved Dock (Rumex obtusifolius),
Total: 3

Site Description- Compartment 5
This adjacent compartment is dissected in the west by a farm road and is fenced off and un-grazed. It covers an area of approx 3.5ha and 580m of steep sloping ground. Due to serious access difficulties this was only surveyed from the public footpath at the base of the slope just outside the compartment.
The small section east of the road is scrub/secondary woodland and west of the road is thick scrub with a ground-flora of dense Nettle.
Scrub is abundant throughout, especially on the lower to middle slopes with dense Blackthorn (Prunus spinosa), Hawthorn and Bramble. Nettle is again abundant, with Ash, Sycamore and Elder (Sambucus nigra) also present.

The sward is very rank and consists of abundant Cock's-foot and False Oat-grass, with Red Fescue and areas of Tor-grass (Brachypodium pinnatum). In amongst this were Common Knapweed, Hogweed (Heracleum sphonylium), Wild Carrot, Yarrow and Ragwort.

Dorset Notable Species- Compartment 5
Calcareous grassland notables:
Ploughman's-spikenard (Inula conyzae), Not re-found
Mouse-ear-hawkweed (Pilosella officinarum), Not re-found
Total: 0

Neutral grassland notables:
Common Knapweed (Centaurea nigra), OLF
Common Bird's-foot-trefoil (Lotus corniculatus), Not re-found
Total: 1

Arable notables:
Corn Parsley (Petroselinum segetum), Not re-found
Total: 0

* Negative Indicator Species,
Ragwort (Senecio jacobaea), O
Broadleaved Dock (Rumex obtusifolius), Not re-found
Total: 2
Cover of trees and/or scrub, A

Site Description- Compartment 6
The final eastern end is botanically the richest overall and joins up with Windsbatch SNCI. It covers an area of approx 4.5ha, runs for 800m, is unimproved, steep sloped and Sheep grazed.
The sward differs in that Tor-grass is dominant on the terracing, with abundant Crested Dog's-tail and Red Fescue, along with Sheep's Fescue, Meadow Oat-grass, Yellow Oat-grass, Crested Hair-grass, Cock's-foot in ranker areas, and Rye-grass on upper flatter areas. Red & White Clover are present, with Ribwort Plantain, Yarrow, Meadow Buttercup, Bulbous Buttercup and Common Sorrel.
On the terracing Common Bird's-foot-trefoil, Black Medick are abundant, with frequent to locally abundant Common Knapweed, Small Scabious, Lesser Hawkbit, frequent Dwarf Thistle, Wild Carrot, Hedge Bedstraw, Mouse-ear-hawkweed, Burnet-saxifrage, Selfheal, Wild Thyme, occasional Musk Thistle, Glaucous Sedge (Carex flacca), Lady's Bedstraw, Autumn Hawkbit, Hoary Plantain and rare Carline Thistle, Fairy Flax (Linum catharticum), Common Restharrow and Salad Burnet.
There are areas of scrub present with Hawthorn and Bramble and patches of Nettle, with occasional Creeping Thistle and rare Spear Thistle and Ragwort.

Dorset Notable Species- Compartment 6
Calcareous grassland notables:
Carline Thistle (Carlina vulgaris), R

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Dwarf Thistle (Cirsium acaule), F
Crested Hair-grass (Koelaria macrantha), RO
Fairy Flax (Linum catharticum), R
Mouse-ear-hawkweed (Pilosella officinarum), OLF
Burnet-saxifrage (Pimpinella saxifraga) , OLF
Hoary Plantain (Plantago media), O
Salad Burnet (Sanguisorba minor), RO
Small Scabious (Scabiosa columbaria), FLA
Wild Thyme (Thymus polytrichus), OLF
Lady's Bedstraw (Galium verum), RO
Total: 11

Neutral grassland notables:
Common Knapweed (Centaurea nigra), FLA
Lesser Hawkbit (Leontodon saxatilis), FLA
Common Bird's-foot-trefoil (Lotus corniculatus), A
Total: 3

* Negative Indicator Species,
Creeping Thistle (Cirsium arvense), O
Spear Thistle (Cirsium vulgare), RO
Ragwort (Senecio jacobaea), RO
Broadleaved Dock (Rumex obtusifolius), RO
Total: 4

SNCI Panel Date:	11 December 2012
Assessment:	SNCI status confirmed
Reason for selection or confirmation:	Habitat: 2.08GC

Notes:

Only the main reason(s) for selection is recorded. For help in interpretation of the SNCI information provided, please contact the SNCI Project Manager, Dr Sharron Abbott, at Dorset Wildlife Trust (Tel. 01305 264620).

Species List: SY68/041 Waddon, Corton and Friar Waddon Hill SNCI
Survey date: 14/08/2012

DN	Dorset Notable - these species are chosen as indicators of good unimproved or semi-improved habitat to assist in the selection of Sites of Nature Conservation Interest.
Neg	Negative indicator

Common name	Species	Habitat Indicator
Compartment 1		
Ranunculus acris	Meadow Buttercup	
Ranunculus bulbosus	Bulbous Buttercup	
Urtica dioica	Common Nettle	
Cerastium fontanum	Common Mouse-ear	
Rumex acetosa	Common Sorrel	
Rubus fruticosus agg.	Bramble	
Sanguisorba minor	Salad Burnet	
Lotus corniculatus	Common Bird's-foot-trefoil	DN
Medicago lupulina	Black Medick	
Trifolium repens	White Clover	
Trifolium pratense	Red Clover	
Acer pseudoplatanus	Sycamore	
Pimpinella saxifraga	Burnet-saxifrage	DN
Thymus polytrichus	Wild Thyme	DN
Plantago media	Hoary Plantain	DN
Plantago lanceolata	Ribwort Plantain	
Fraxinus excelsior	Ash	
Euphrasia sp.	an eyebright	
Cymbalaria muralis	Ivy-leaved Toadflax	
Campanula rotundifolia	Harebell	DN
Galium verum	Lady's Bedstraw	DN
Galium mollugo	Hedge Bedstraw	
Sambucus nigra	Elder	
Scabiosa columbaria	Small Scabious	DN
Carlina vulgaris	Carline Thistle	DN
Carduus nutans	Musk Thistle	
Cirsium acaule	Dwarf Thistle	DN
Cirsium arvense	Creeping Thistle	
Centaurea nigra	Common Knapweed	DN
Hypochaeris radicata	Cat's-ear	
Leontodon autumnalis	Autumnal Hawkbit	
Leontodon saxatilis	Lesser Hawkbit	
Pilosella officinarum	Mouse-ear-hawkweed	DN
Bellis perennis	Daisy	
Achillea millefolium	Yarrow	
Festuca rubra sens.str.	Red Fescue	
Festuca ovina sens.str.	Sheep's Fescue	
Lolium perenne	Perennial Rye-grass	
Cynosurus cristatus	Crested Dog's-tail	
Dactylis glomerata	Cock's-foot	
Helictotrichon pratense	Meadow Oat-grass	
Arrhenatherum elatius	False Oat-grass	
Trisetum flavescens	Yellow Oat-grass	DN
Koeleria macrantha	Crested Hair-grass	DN
Holcus lanatus	Yorkshire-fog	
Aglais urticae	Small Tortoiseshell	
Lasiommata megera	Wall	
Maniola jurtina	Meadow Brown	

Compartment 2		
Ranunculus bulbosus	Bulbous Buttercup	
Urtica dioica	Common Nettle	
Cerastium fontanum	Common Mouse-ear	
Rumex acetosa	Common Sorrel	
Rumex pulcher	Fiddle Dock	
Malva sylvestris	Common Mallow	
Rubus fruticosus agg.	Bramble	
Sanguisorba minor	Salad Burnet	
Crataegus monogyna	Hawthorn	
Lotus corniculatus	Common Bird's-foot-trefoil	DN
Medicago lupulina	Black Medick	
Trifolium repens	White Clover	
Trifolium pratense	Red Clover	
Geranium molle	Dove's-foot Crane's-bill	
Pimpinella saxifraga	Burnet-saxifrage	DN
Convolvulus arvensis	Field Bindweed	
Prunella vulgaris	Selfheal	
Thymus polytrichus	Wild Thyme	DN
Salvia verbenaca	Wild Clary	DN
Plantago media	Hoary Plantain	DN
Plantago lanceolata	Ribwort Plantain	
Fraxinus excelsior	Ash	
Galium verum	Lady's Bedstraw	DN
Galium mollugo	Hedge Bedstraw	
Scabiosa columbaria	Small Scabious	DN
Carduus nutans	Musk Thistle	
Cirsium vulgare	Spear Thistle	
Cirsium acaule	Dwarf Thistle	DN
Cirsium arvense	Creeping Thistle	
Centaurea nigra	Common Knapweed	DN
Leontodon saxatilis	Lesser Hawkbit	
Taraxacum officinale agg.	Dandelion	
Crepis capillaris	Smooth Hawk's-beard	
Pilosella officinarum	Mouse-ear-hawkweed	DN
Bellis perennis	Daisy	
Achillea millefolium	Yarrow	
Leucanthemum vulgare	Oxeye Daisy	DN
Senecio jacobaea	Common Ragwort	
Festuca rubra sens.str.	Red Fescue	
Festuca ovina sens.str.	Sheep's Fescue	
Lolium perenne	Perennial Rye-grass	
Cynosurus cristatus	Crested Dog's-tail	
Dactylis glomerata	Cock's-foot	
Helictotrichon pratense	Meadow Oat-grass	
Arrhenatherum elatius	False Oat-grass	
Trisetum flavescens	Yellow Oat-grass	DN
Koeleria macrantha	Crested Hair-grass	DN
Bromus hordeaceus ssp. hordeaceu	a soft-brome	
Polyommatus icarus	Common Blue	
Aglais urticae	Small Tortoiseshell	
Emberiza citrinella	Yellowhammer	

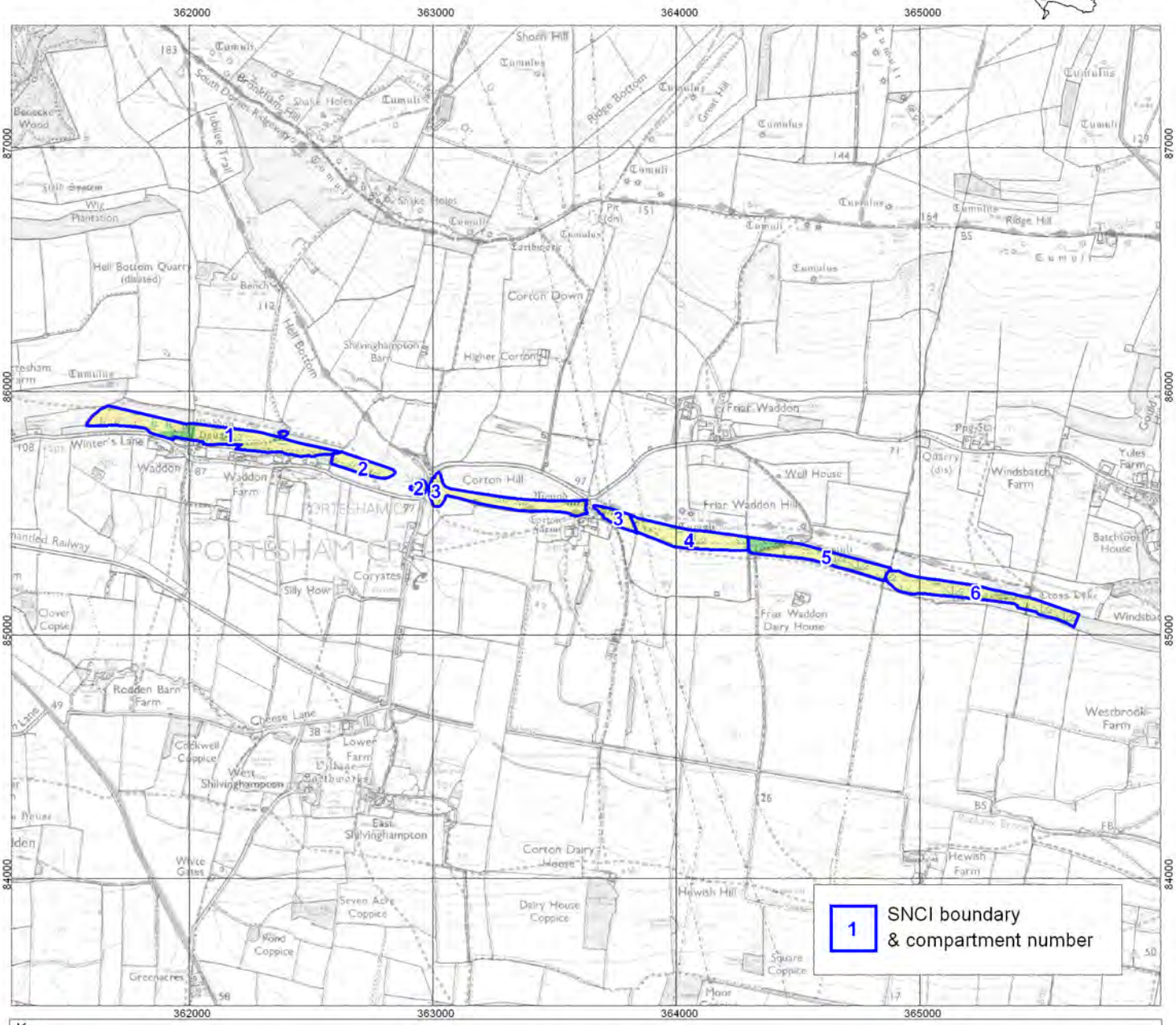
Compartment 3		
Ranunculus acris	Meadow Buttercup	
Ranunculus bulbosus	Bulbous Buttercup	
Urtica dioica	Common Nettle	
Cerastium fontanum	Common Mouse-ear	
Rumex acetosa	Common Sorrel	
Sedum acre	Biting Stonecrop	DN
Rosa canina sens.str.	Dog Rose	
Crataegus monogyna	Hawthorn	
Lotus corniculatus	Common Bird's-foot-trefoil	DN
Medicago lupulina	Black Medick	
Trifolium repens	White Clover	
Trifolium pratense	Red Clover	
Acer pseudoplatanus	Sycamore	
Geranium molle	Dove's-foot Crane's-bill	
Pimpinella saxifraga	Burnet-saxifrage	DN
Convolvulus arvensis	Field Bindweed	
Ballota nigra	Black Horehound	
Prunella vulgaris	Selfheal	
Thymus polytrichus	Wild Thyme	DN
Plantago media	Hoary Plantain	DN
Plantago lanceolata	Ribwort Plantain	
Euphrasia sp.	an eyebright	
Galium verum	Lady's Bedstraw	DN
Galium mollugo	Hedge Bedstraw	
Sambucus nigra	Elder	
Carlina vulgaris	Carline Thistle	DN
Carduus nutans	Musk Thistle	
Cirsium vulgare	Spear Thistle	
Cirsium acaule	Dwarf Thistle	DN
Cirsium arvense	Creeping Thistle	
Hypochaeris radicata	Cat's-ear	
Leontodon autumnalis	Autumnal Hawkbit	
Leontodon saxatilis	Lesser Hawkbit	
Crepis capillaris	Smooth Hawk's-beard	
Pilosella officinarum	Mouse-ear-hawkweed	DN
Bellis perennis	Daisy	
Achillea millefolium	Yarrow	
Senecio jacobaea	Common Ragwort	
Festuca rubra sens.str.	Red Fescue	
Festuca ovina sens.str.	Sheep's Fescue	
Lolium perenne	Perennial Rye-grass	
Cynosurus cristatus	Crested Dog's-tail	
Dactylis glomerata	Cock's-foot	
Helictotrichon pubescens	Downy Oat-grass	DN
Arrhenatherum elatius	False Oat-grass	
Trisetum flavescens	Yellow Oat-grass	DN
Phleum bertolonii	Smaller Cat's-tail	
Bromus hordeaceus ssp. hordeaceu	a soft-brome	
Polyommatus icarus	Common Blue	
Aglais urticae	Small Tortoiseshell	
Inachis io	Peacock	
Lasiommata megera	Wall	
Picus viridis	Green Woodpecker	

Compartment 4		
Ranunculus acris	Meadow Buttercup	
Ranunculus bulbosus	Bulbous Buttercup	
Urtica dioica	Common Nettle	
Cerastium fontanum	Common Mouse-ear	
Rumex acetosa	Common Sorrel	
Rubus fruticosus agg.	Bramble	
Potentilla reptans	Creeping Cinquefoil	
Prunus spinosa	Blackthorn	
Lotus corniculatus	Common Bird's-foot-trefoil	DN
Ononis repens	Common Restharrow	
Medicago lupulina	Black Medick	
Trifolium repens	White Clover	
Trifolium pratense	Red Clover	
Geranium dissectum	Cut-leaved Crane's-bill	
Geranium molle	Dove's-foot Crane's-bill	
Pimpinella saxifraga	Burnet-saxifrage	DN
Pastinaca sativa	Wild Parsnip	
Heracleum sphondylium	Hogweed	
Daucus carota	Wild Carrot	
Prunella vulgaris	Selfheal	
Thymus polytrichus	Wild Thyme	DN
Plantago lanceolata	Ribwort Plantain	
Galium verum	Lady's Bedstraw	DN
Galium mollugo	Hedge Bedstraw	
Dipsacus fullonum	Wild Teasel	
Carlina vulgaris	Carline Thistle	DN
Carduus nutans	Musk Thistle	
Cirsium vulgare	Spear Thistle	
Cirsium acaule	Dwarf Thistle	DN
Cirsium arvense	Creeping Thistle	
Centaurea nigra	Common Knapweed	DN
Leontodon saxatilis	Lesser Hawkbit	
Sonchus arvensis	Perennial Sow-thistle	
Taraxacum officinale agg.	Dandelion	
Crepis capillaris	Smooth Hawk's-beard	
Pilosella officinarum	Mouse-ear-hawkweed	DN
Inula conyzae	Ploughman's-spikenard	DN
Pulicaria dysenterica	Common Fleabane	DN
Bellis perennis	Daisy	
Achillea millefolium	Yarrow	
Senecio jacobaea	Common Ragwort	
Festuca rubra sens.str.	Red Fescue	
Festuca ovina sens.str.	Sheep's Fescue	
Lolium perenne	Perennial Rye-grass	
Cynosurus cristatus	Crested Dog's-tail	
Dactylis glomerata	Cock's-foot	
Helictotrichon pubescens	Downy Oat-grass	DN
Helictotrichon pratense	Meadow Oat-grass	
Arrhenatherum elatius	False Oat-grass	
Trisetum flavescens	Yellow Oat-grass	DN
Agrostis stolonifera	Creeping Bent	
Phleum bertolonii	Smaller Cat's-tail	
Polyommatus icarus	Common Blue	
Aglais urticae	Small Tortoiseshell	
Maniola jurtina	Meadow Brown	
Falco tinnunculus	Kestrel	
Picus viridis	Green Woodpecker	

Compartment 5		
Urtica dioica	Common Nettle	
Rubus fruticosus agg.	Bramble	
Prunus spinosa	Blackthorn	
Crataegus monogyna	Hawthorn	
Acer pseudoplatanus	Sycamore	
Heracleum sphondylium	Hogweed	
Daucus carota	Wild Carrot	
Solanum dulcamara	Bittersweet	
Fraxinus excelsior	Ash	
Sambucus nigra	Elder	
Arctium minus	Lesser Burdock	
Centaurea nigra	Common Knapweed	DN
Achillea millefolium	Yarrow	
Senecio jacobaea	Common Ragwort	
Dactylis glomerata	Cock's-foot	
Arrhenatherum elatius	False Oat-grass	
Agrostis stolonifera	Creeping Bent	
Brachypodium pinnatum	Tor-grass	
Brachypodium sylvaticum	False-brome	

Compartment 6		
Ranunculus acris	Meadow Buttercup	
Ranunculus bulbosus	Bulbous Buttercup	
Urtica dioica	Common Nettle	
Rumex acetosa	Common Sorrel	
Rumex obtusifolius	Broad-leaved Dock	
Malva sylvestris	Common Mallow	
Rubus fruticosus agg.	Bramble	
Sanguisorba minor	Salad Burnet	
Crataegus monogyna	Hawthorn	
Lotus corniculatus	Common Bird's-foot-trefoil	DN
Ononis repens	Common Restharrow	
Medicago lupulina	Black Medick	
Trifolium repens	White Clover	
Trifolium dubium	Lesser Trefoil	
Trifolium pratense	Red Clover	
Linum catharticum	Fairy Flax	DN
Geranium molle	Dove's-foot Crane's-bill	
Pimpinella saxifraga	Burnet-saxifrage	DN
Daucus carota	Wild Carrot	
Prunella vulgaris	Selfheal	
Thymus polytrichus	Wild Thyme	DN
Plantago media	Hoary Plantain	DN
Plantago lanceolata	Ribwort Plantain	
Verbascum thapsus	Great Mullein	
Galium verum	Lady's Bedstraw	DN
Galium mollugo	Hedge Bedstraw	
Sambucus nigra	Elder	
Dipsacus fullonum	Wild Teasel	
Scabiosa columbaria	Small Scabious	DN
Carlina vulgaris	Carline Thistle	DN
Carduus nutans	Musk Thistle	
Cirsium vulgare	Spear Thistle	
Cirsium acaule	Dwarf Thistle	DN
Cirsium arvense	Creeping Thistle	
Centaurea nigra	Common Knapweed	DN
Leontodon autumnalis	Autumnal Hawkbit	
Leontodon saxatilis	Lesser Hawkbit	
Pilosella officinarum	Mouse-ear-hawkweed	DN
Bellis perennis	Daisy	
Achillea millefolium	Yarrow	
Senecio jacobaea	Common Ragwort	
Carex flacca	Glaucous Sedge	
Festuca rubra sens.str.	Red Fescue	
Festuca ovina sens.str.	Sheep's Fescue	
Lolium perenne	Perennial Rye-grass	
Cynosurus cristatus	Crested Dog's-tail	
Dactylis glomerata	Cock's-foot	
Helictotrichon pratense	Meadow Oat-grass	
Trisetum flavescens	Yellow Oat-grass	DN
Koeleria macrantha	Crested Hair-grass	DN
Bromus hordeaceus ssp. hordeaceu	a soft-brome	
Brachypodium pinnatum	Tor-grass	
Polyommatus icarus	Common Blue	
Lasiommata megera	Wall	
Pyronia tithonus britanniae	Gatekeeper	
Maniola jurtina	Meadow Brown	
Bombus lapidarius	Large Red Tailed Bumble Bee	
Emberiza citrinella	Yellowhammer	

Dorset Environmental Records Centre

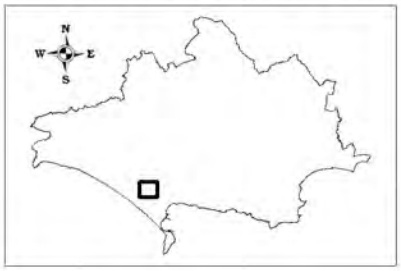


Key:

- Broadleaved woodland - semi-natural
- Broadleaved woodland - plantation & other
- Mixed woodland
- Mixed woodland - plantation & other
- Wet woodland
- Coniferous woodland
- Dense scrub
- Dry acid grassland - unimproved
- Dry acid grassland - semi-improved
- Dry acid grassland - semi-improved - species rich
- Dry acid grassland - semi-improved - species poor
- Calcareous grassland - unimproved
- Calcareous grassland - semi-improved
- Calcareous grassland - semi-improved - species rich
- Calcareous grassland - semi-improved - species poor
- Lowland meadows & other unimproved neutral grassland
- Neutral grassland - semi-improved
- Neutral grassland - semi-improved - species rich
- Neutral grassland - semi-improved - species poor
- Improved grassland
- Arable and horticulture
- Bracken
- Lowland heathland
- European dry heath
- Wet heath
- Purple moorgrass and rush pasture
- Fens & mires
- Open water: running & standing
- Swamp, reedbeds & marginal vegetation
- Other habitats & features
- Hedges
- Line of trees

Sites of Nature Conservation Interest

Scale 1:25000



Site_number: SY68/041
Site_name: Waddon, Corton & Friar Waddon
Grid: SY618858
Area_ha: 22.70
Panel_date: 11/12/2012

The SNCI project is administered by the Dorset Wildlife Trust
Compiled by JC on 25 March 2013
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DORSET County Council
Environmental Services
County Hall, Dorchester DT1 1XJ

Appendix A - Desk Study Results

Appendix B - Target Notes

Target Note	Details
1	Block work wooden paneled workshop buildings. Corrugated metal and asbestos roofing. **Low bat potential.**
2	Maize crop.
3	Public bridleway of hard standing and semi-improved grassland.
4	Hedge and trees. Species present include; common ash (*Fraxinus excelsior*), hazel (*Corylus avellana*), pedunculate oak (*Quercus robur*), field maple (*Acer campestre*), wayfaring tree (*Viburnum lantana*), elder (*Sambucus nigra*), blackthorn (*Prunus spinosa*), dog rose (*Rosa canina*), common ivy (*Hedera helix*), hawthorn (*Crataegus monogyna*), and spindle (*Euonymus europaeus*). Field layer with components of; perennial rye-grass (*Lolium perenne*), red campion (*Silene dioica*), white clover (*Trifolium repens*), silverweed (*Argentina anserina*),ribwort plantain (*Plantago lanceolata*), hedge woundwort (*Stachys sylvatica*), cow parsley (*Anthriscus sylvestris*), white dead nettle (*Lamium album*), poppy (*Papaver rhoeas*), common nettle (*Urtica dioica*), hart's tongue fern (*Asplenium scolopendrium*), bramble (*Rubus fruticosus* agg.), green alkanet (*Pentaglottis sempervirens*), herb robert (*Geranium robertianum*), cleavers (*Galium aparine*), hedge parsley (*Torilis arvensis*), hogweed (*Heracleum sphondylium*), and common dandelion (*Taraxacum officinale*). This habitat has the potential to support dormouse.
5	Pasture.
6	Two large ash trees with ivy cover. **Moderate bat roost potential**.
7	Farm buildings, single storey, wooden cladding and corrugated asbestos roofing.
8	Disused flint quarry and dumped farm waste. Large badger sett to northeast.
9	Large mature ash **Moderate bat roost potential**.
10	Group of mature trees – should be checked for bat roost potential.
11	Area of ephemeral growth dominated by common nettle with alder buckthorn (*Rhamnus frangula*), blackthorn and elder. Old silted up pond, dry.
12	Trees present include - Larch (*Larix decidua*), beech (*Fagus sylvatica*), ash, pedunculate oak. Need checking for bat roost potential.
13	Two farm buildings and hard standing - one open on one side. Constructed of corrugated metal and storing straw. Other single storey building of breeze block and asbestos corrugated roofing. Swallow nests and badger latrines and footprints internally.
14	Small stand of Japanese knotweed (*Fallopia japonica*) on roadside approx. 0.25m sq.
15	Village - urban conurbation of Winterbourne Abbas. Houses with tiled

	pitched roofs and ornamental gardens and associated parking along main a35 road.
16	Group of new metal farm buildings and older flint and stone built buildings with pitched tiled roofs - well sealed.
17	Mature stand of trees.
18	Mature ash tree.
19	Farm buildings and hard standing.
20	Farm and business buildings and hard standing.
21	Lots of scattered mature trees with bat roost potential.
22	Trees with moderate bat roost potential.
23	Electrical substation.
24	Group of semi-mature trees, approx. 100.
25	Modern farmland buildings of metal and wooden paneling with corrugated asbestos roofing construction housing cattle, feed and milking parlor.
26	Disused quarry area, mostly removed for pylon, and overgrown with nettles. Large main badger sett with at least 22 entrances.
27	Farmstead.
28	Farmstead and associated buildings.
29	Collection of dormer bungalows and planted gardens.
30	Residential.
31	Residential and farm buildings.
32	Chicken farm and associated buildings.
33	Conurbation of Friar Waddon. Barns and houses with bat roost potential.
34	Disused quarry area.
35	Residential.
36	Residential.
37	Scattered trees and scrub on burial mounds.
38	Pig farm and associated modern farm buildings.
39	Tall ruderal growth on burial mounds.
40	Disused quarry.
41	Industrial farm buildings.
42	Entrance cut through limestone. Small conurbation with small chapel and out buildings.
43	Dairy farm buildings.
44	Bungalows and outbuildings.

Appendix C- Summary of Planning Policy

National Planning Policy Framework

The NPPF came into being in March 2012 and relevant sections within the National Planning Policy Framework (NPPF) are as follows.

Section 11 of the NPPF relates specifically to "Conserving and Enhancing the Natural Environment". Paragraph 109 states that "The planning system should contribute and enhance the natural and local environment by:

- Protecting and enhancing valued landscapes, geological conservation interests and soils;

- Recognising the wider benefits of ecosystem services;

- Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

- Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and

- Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Paragraph 113 states that "Local Planning Authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged. Distinctions should be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks". Referenced here is ODPM Circular 06/2005, which provides further guidance re the hierarchical approach and the Circular remains extant in its entirety within the NPPF.

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

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

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

- development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;

- opportunities to incorporate biodiversity in and around developments should be encouraged;

• planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and

• the following wildlife sites should be given the same protection as European sites:

- potential Special Protection Areas and possible Special Areas of Conservation;
- listed or proposed Ramsar sites;26 and
- sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

Paragraph 119 states "The presumption in favor of sustainable development (paragraph 14) does not apply where development requiring appropriate assessment under the Birds or Habitats Directive is being considered, planned or determined".

Resource Evaluation*

Nature Conservation Value of Resource (CIEEM)	Examples of Selection Criteria
Very High (International)	An internationally designated site or candidate site (SPA, SAC and/or Ramsar site). A substantial proportion (e.g. 1%) of the international resource of a habitat listed in Annex I of the EC Habitats Directive (92/43/EEC) as amended. A substantial proportion of the international resource of an internationally important species or site supporting such a species (or supplying a critical element of their habitat requirement) e.g.: • UK Red data book species that is listed as occurring in 15 or fewer 10 km squares in the UK that is of unfavourable conservation concern in Europe or of uncertain conservation status or global conservation concern in the UK BAP. • Species listed in Annex II of the EC Habitats Directive (92/43/EEC) as amended.
High (National)	A nationally designated site (SSSI, NNR, Marine Nature Reserve) or a discrete area which meets the selection criteria for national designation (e.g. SSSI selection criteria). A substantial proportion (e.g. 1%) of the UK resource of a habitat listed in Annex I of the Habitats Directive or S41 of the NERC Act (2006). A substantial proportion of a nationally important species or site supporting such a species (or supplying a critical element of their habitat requirement) e.g.: • Species listed in Schedules 5 and 8 of the WCA (1981); • Other UK Red Data Book species; • Other species listed as occurring in 15 or fewer 10km squares in the UK.

Nature Conservation Value of Resource (CIEEM)	Examples of Selection Criteria
Medium – High (Regional)	Sites/populations that exceed the County-level designations but fall short of SSSI selection guidelines, including the following: • A substantial proportion of the regional resource of a S41 species or habitat or a key habitat identified in a Regional BAP; • A population of a species listed as being nationally scarce which occurs in 16-100 10km squares in the UK; • A substantial proportion of the regional population of a species listed in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation; or • Sites supporting 1% or more of a regional population.
Medium (Metropolitan / County)	Sites/features and species identified by local authorities and The Wildlife Trusts to be of importance at a county level. These are recognised, as part of Local Plans and Local Development Frameworks, above sites/features and species of borough importance.
Low – Medium (District / Borough)	Some designated sites (LNR, Sites of Borough Importance in London). Viable areas of habitat identified in a District/Borough BAP. Sites/features that are scarce within the District/Borough or that appreciably enrich the District/Borough habitat resource. Sustainable populations of the following species: • Species listed in a District/Borough BAP on account of its rarity/localisation in a district context; or • Sites supporting 1% or more of a District/Borough population.
Low (Parish / Neighbourhood)	Sites/populations, which appreciably enrich the Parish/Neighbourhood habitat resource (for example hedgerows of medium richness).
Negligible	No significant ecological value.
Negligible	Detriment to ecological value.

* Criteria should not be applied rigidly and should be tailored to the specific details of any site, species or habitat.

Appendix D - Relevant Wildlife Legislation

Habitats & Species Regulations, 2010 (as amended)

The original Regulations transposed the EU Directive on Natural Habitats, and Wild Fauna and Flora 9/43/EEC) into domestic legislation. Amendments in 2007 and 2009 addressed a number of gaps and inconsistencies in the original legislation and provided a greater legal certainty and clarity in a number of areas. In April 2010 the Regulations were brought up to date to consolidate changes made since 1994. The Regulations afford a high level of protection to a variety of species that are considered important at a European scale. The Regulations identify European Protected Species and various habitats of importance within the European Union, with important sites for these habitats/species or both being designated as special Areas of Conservation (SAC). Any proposed development that may have a significant effect on a SAC or Special Protection Area (SPA) should be assessed in relation to the site's 'conservation objectives', i.e. the reasons for which the site is designated.

The new Regulations simplified the species protection regime to better reflect the Habitats Directive, providing a clear legal basis for surveillance and monitoring of European Protected Species (EPS). The Regulations also amended the WCA, updating Schedules 5 and 8 to consider provisions made by the Habitat Regulations 1994 in relation to the protection of EPS. They also offered further clarification to Part 4 of Section 9 considering "reckless" offences on wild animals, which was previously amended by the CROW Act 2000.

In 2012, the Regulations were further amended to place new duties on public bodies to take measures to preserve, maintain and re-establish habitat for wild birds. They were also amended to ensure certain provision of the Habitats Directive and the Birds Directive were transposed clearly and Section 15 was amended to make clear that Local Nature Reserves can be designated for re-establishing bird habitat.

The Wildlife and Countryside Act, 1981 (as amended)

The WCA 1981 is the major domestic legal instrument for wildlife protection in the UK, and is the primary means by which the following are implemented:

- The Convention on the Conservation of European Wildlife and Natural Habitats ('the Bern Convention'); and
- The Council Directive 79/409/EEC on the Conservation of Wild birds (the 'Bird Directive')

The main relevant provisions of the Act are: allowance for the protection of the most important habitats and species by designating SSSI's, a level of protection to all nesting wild birds and specific bird species under Schedule 1.

The Countryside and Rights of Way (CroW) Act, 2000

Part III of this Act deals specifically with wildlife protection and nature conservation in England and Wales. The CroW Act strengthened the safeguards afforded to SSSI's.

Natural Environment and Rural Communities (NERC) Act, 2006

Section 41 of the NERC Act requires the listing of habitats and species that are considered to be of principle importance for the conservation of biodiversity in England, including habitats and species in England that have been identified as priorities within the UK Biodiversity Action Plan (UKBAP).

The NERC Act requires that the section 41 list be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the NERC Act 2006 'to have regard' to the conservation of biodiversity in England, when carrying out their normal functions.

About AECOM

AECOM is a global, fully integrated infrastructure firm with nearly 100,000 employees operating around the world. A Fortune 500 company, our revenues reached US$19.2 billion during the 12 months ended June 30, 2014. We serve clients in more than 150 countries, with a project life-cycle offering that spans design (including planning, architecture and engineering), construction, finance, operations and maintenance.

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Appendix B: Certificate of Conformity to the EC Directive 89/336

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Technical Certificate 05R110 issued by
Hursley EMC Services Ltd

Appointed by the Secretary of State for Trade and Industry as a UK EMC Competent Body

TECHNICAL CERTIFICATE

PRODUCT TITLE: NGT Electricity Transmission Network

MANUFACTURED BY: National Grid Transco (NGT) plc
Manufacturers Address: NGT House, Warwick Technology Park, Gallows Hill, Warwick CV34 6DA UK

Applicants Name: Mr Jon Carlton, of NGT plc.

Product Description: The NGT Electricity Transmission Network (consisting of some 14,000 Km of high voltage supply lines) is the high voltage electricity transmission system in England and Wales.

Technical Statement: The Technical Construction File (TCF), "NGT Electricity Transmission Network" (dated 2005), describes the general construction, conformity procedures and EMC test rationale for the Electricity Network. This Technical Construction File, in so far as is technically viable, is based on testing to international standards, specifically EN50121-2:2000 and CISPR 18 for emissions. These standards were used as the most suitable guide for the emissions testing in lieu of any other practical or harmonized product related standards. Given the size of the equipment, testing was performed in-situ at several representative sites and is therefore an approximation to the standards. The results of the tests applied and described in the test reports along with the EMC detail supplied in the TCF indicate that the product complies with the standards.
Taking into consideration the technical rationale provided in the TCF and the results of the site measurement reports, Hursley EMC Services is satisfied the TCF does demonstrate compliance with the essential protection requirement of EC Directive 89/336. NGT operates a certified ISO 9001 quality management system covering both the operation and installation procedures for the Electricity Network. Due to its size and nature along with quality procedures used for installations the NGT Electricity Transmission Network would seem inherently immune to normal EMC phenomena.
This route to compliance with respect to the provisions of EC Directive 89/336 is in accordance with section 42(c) of the UK Statutory Instrument 1992 No 2372 (The Electromagnetic Compatibility Regulations). This application and certificate applies only to the NGT Electricity Transmission Network for the UK as described in the Technical Construction File.

COMPETENT BODY CONFORMITY STATEMENT

Hursley EMC Services Ltd. certifies that the National Grid Transco plc TCF demonstrates that the NGT Electricity Transmission Network conforms to the protection requirements of European Council Directive 89/336 and its amendments. This directive is on the approximation laws of the Member States relating to electromagnetic compatibility.

Signed: R.P.St John James
Rob St John James
EMC Technical Manager

Approved: Ian Kenney
Ian Kenney
EMC Quality Manager

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