

Dunsbury Hill Farm
Environmental Impact Assessment
Scoping Report

Client: Portsmouth City Council

March 2011

Dunsbury Hill Farm

Environmental Impact Assessment Scoping Report

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Glossary of Abbreviations

Abbreviation	Definition
AADT	Annual Average Daily Traffic
ALC	Agricultural Land Classification
AOD	Above Ordnance Datum
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
BGS	British Geological Survey
BGL	Below ground level
BS	British Standard
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
CPO	Compulsory Purchase Order
dB	Decibel
Defra	Department of Environmental, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
ES	Environmental Statement
EC	European Community
EclA	Ecological Impact Assessment
FRA	Flood Risk Assessment
GCN	Great crested newts
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GIS	Geographic Information Systems
GLVIA	Guidelines for Landscape and Visual Assessment
HBC	Havant Borough Council
HCC	Hampshire County Council
HGV	Heavy Goods Vehicle
HSI	Habitat Suitability Index
Ha	hectare(s)
Km	kilometre(s)
LAQMTG	Local Air Quality Management Technical Guidance,
LCA	Landscape Character Assessment
LVIA	Landscape and Visual Impact Assessment
m	metre(s)
m ²	square metre(s)

Abbreviation	Definition
m ³	cubic metre(s)
MAGIC	Multi Agency Geographical Information for the Countryside
MDA	Major Development Area
NGR	National Grid Reference
NO ₂	Nitrogen Dioxide
NTS	Non Technical Summary
PPG	Planning Policy Guidelines
PPS	Planning Policy Statements
RPG	Regional Planning Guidance
RSS	Regional Spatial Strategy
PCC	Portsmouth City Council
PCCHER	Portsmouth City Council Historic Environment Record
PUSH	Partnership for Urban South Hampshire
SFRA	Strategic Flood Risk Assessment
SINC	Site of Importance for Nature Conservation
SAC	Special Area of Conservation
SEEDA	South East England Development Agency
SPA	Special Protection Area
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
SUDS	Sustainable Drainage Systems
SWMP	Site Waste Management Plan
TA	Transport Assessment
ZVI	Zone of Visual Influence
WHO	World Health Organisation

1. Introduction

Background to the Proposed Development

- 1.1 Havant Borough Council (HBC) is preparing a Core Strategy which is now at an advanced stage and is scheduled for adoption on 1 March 2011. Policy CS18 identifies strategic sites that are critical to achieving the Borough's Core Strategy vision, which include a 20.2 hectare site at Dunsbury Hill Farm.
- 1.2 The Core Strategy states that *"Dunsbury Hill Farm is a key strategic employment site for the borough and the wider sub-region, which will form a new businesses gateway to South Hampshire from the A3(M). The creation of a high quality business and technology park with excellent transport connections will deliver a large number of jobs in close proximity to Leigh Park. It will provide new first class employment floorspace for start-up and growing businesses. It could provide approximately 60,000 square metres of new employment floorspace. This is about a third of the total requirement for new employment in the borough up to 2026."* (Core Strategy, Strategic Site Profile, pages 95 and 96).
- 1.3 Atkins Ltd has been commissioned by Portsmouth City Council (PCC) to prepare a planning application for the development of Dunsbury Hill Farm for employment uses focused on knowledge-based businesses and a quality hotel with conference facilities. The application will be a hybrid application, which seeks to secure outline consent for the entire development site and full consent for the access junction and road link. The Core Strategy states that an Environmental Impact Assessment (EIA) leading to the production of an Environmental Statement (ES) is required to support the planning application.

The Process of Environmental Assessment

- 1.4 Environmental assessment is a means of compiling, evaluating and presenting the significant environmental effects of a proposed development. The EIA process will be carried out in a number of stages as follows:
- Scoping and consultation;
 - Baseline data gathering;
 - Impact assessment, identification of mitigation measures and consultation; and
 - Preparation of an ES and non-technical summary (NTS).
- 1.5 This report presents the results of the first stage of the EIA process, the findings of the scoping exercise. As set out in the report, progress has also been made in terms of the gathering of baseline data. Following the receipt of a scoping opinion from HBC, the project team will complete the remaining stages of the EIA process, culminating in the preparation of an ES and NTS for the proposed development. The EIA and scheme design processes are interlinked and iterative, and the findings of the environmental work will be used to inform and modify the proposed development as the scheme progresses.
- 1.6 The planning application for the proposed development will be supported by a range of further documents in addition to the ES. These will include a Transport Assessment (TA) and Sustainability Statement. Issues related to traffic and transport and sustainability will be comprehensively covered by these documents, and thus to avoid duplication they will not be reported within the ES. The environmental impacts of traffic and transport will be covered in the Air Quality, Noise and Landscape and Visual Assessment chapters of the ES. The outputs of all the topic work streams will be used iteratively to inform the design of the scheme.

Purpose of the Scoping Report

- 1.7 In Schedule 2 (items 10 a and b) of the Town and Country Planning Act (Environmental Impact Assessment) (England and Wales) Regulations 1999 (referred to hereafter as the “1999 Regulations”) the proposed development falls under “infrastructure projects” and is classified as an “industrial estate development project” and an “urban development project”.
- 1.8 Under Regulation 10 of the 1999 Regulations, the applicant may submit a voluntary request to the Local Planning Authority to provide a formal ‘scoping opinion’ on the information to be supplied in the ES. Defining the scope of an EIA is an important early stage in EIA as it sets the context for the remainder of the process. The main functions of this Scoping Report are to:
- Define the proposal – including the characteristics and location of the development;
 - Define the characteristics of the potential impacts and identify the important environmental factors that are most likely to be affected by the proposal. This will mean that all potentially significant effects are taken into account and only those that are potentially significant are examined in detail;
 - Describe the possible mitigation measures proposed to minimise any negative impacts of the proposal during and/or after its completion; and
 - Outline the proposed structure of the ES.
- 1.9 A variety of interested parties and consultees are being advised of the findings of this report. Consultees will include the following, amongst others:
- Partnership for Urban South Hampshire (PUSH), PCC and HBC;
 - Natural England;
 - Highways Agency;
 - Environment Agency; and
 - English Heritage.
- 1.10 Responses from the consultees will ultimately help to ensure that the issues addressed in the ES are comprehensive and are given the correct degree of emphasis.

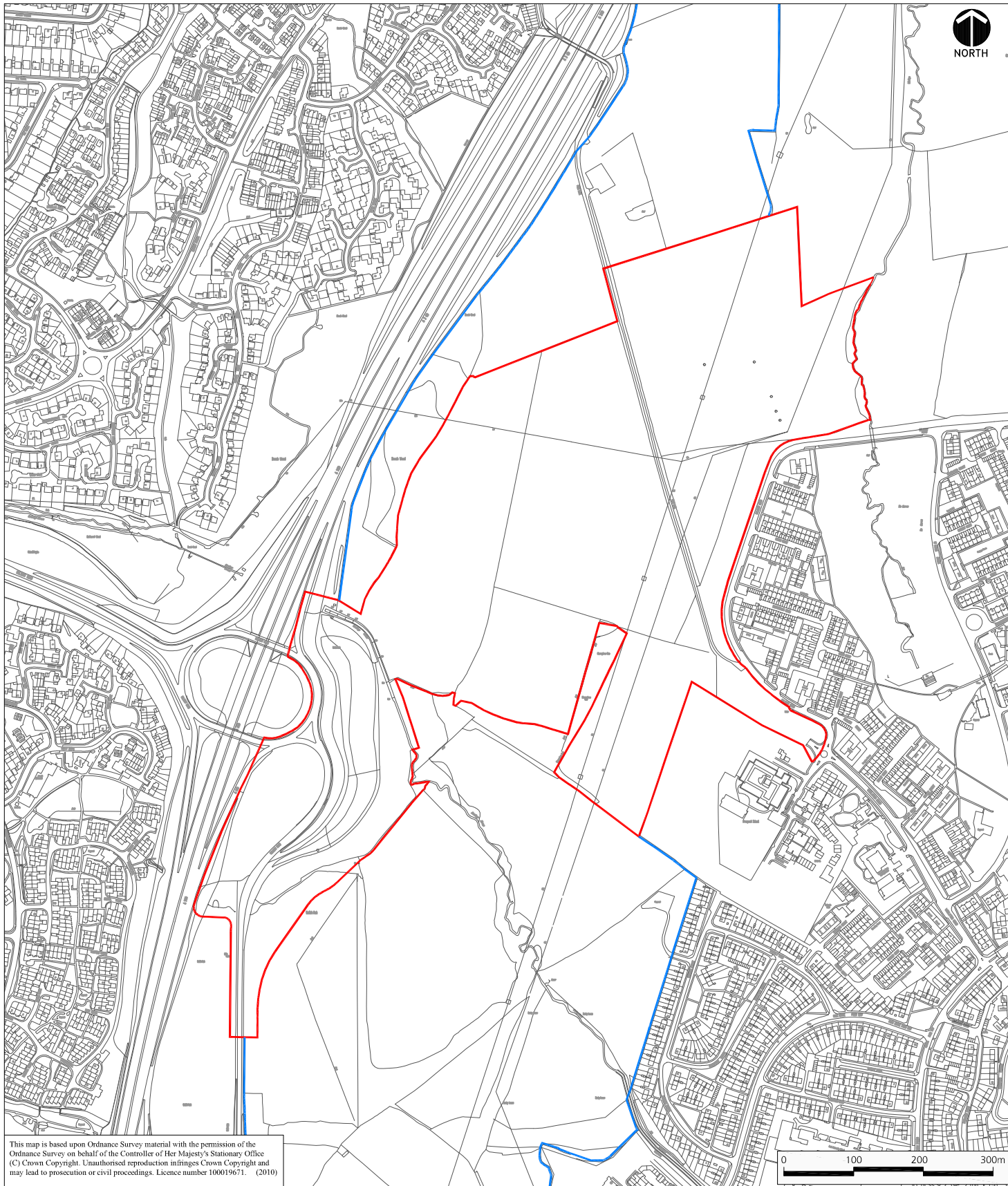
2. Site Description

Site Context

- 2.1 The application site (referred to hereafter as the “Site”) is located on undeveloped land between Waterlooville and Leigh Park on the north western side of Havant Borough, as shown in Figure 2.1. The Site lies immediately to the east of the A3(M) motorway Junction 3, and the A3(M) runs along the western edge of the Site.
- 2.2 The residential area of Waterlooville lies to the west of the Site, while the Leigh Park estate, Havant lies to the east. Open countryside consisting of blocks of woodland and agricultural fields lie to the north of the Site. There is a further area of woodland and agricultural fields to the south of the Site, with superstores located further south on Purbrook Way.
- 2.3 The slip road leading off the A3(M) is the B2150 Hubert Road, which runs on the western side of the Site, and is proposed to provide access for the scheme (see below).
- 2.4 The Site comprises a series of extensive open fields enclosed with established hedgerows. It is dissected across the north east corner by Park Lane which connects Waterlooville with the Leigh Park estate. The Site slopes gently from north to south, down to the Hermitage Stream which runs on the south western side of the Site from Waterlooville to Leigh Park. A 50m section of the Stream is canalised where it runs eastwards from the A3(M). The Stream is located within Flood Zone 3 and is subject to fluvial flooding.
- 2.5 Belts of woodland lie to the south and west of the Site which are identified as Sites of Importance to Nature Conservation (SINCs), namely Beech Wood East, Cherry Tree Row and Bushy Lease. There are a number of trees located within and adjacent to the Site.
- 2.6 High voltage power lines and a mains gas pipeline run through the Site along the eastern side.
- 2.7 The environmental characteristics of the Site are set out under topic headings in more detail in Section 6.

Planning History and Strategic Context

- 2.8 A site at Dunsbury Hill Farm was first allocated for employment uses in the Revised Deposit Draft Havant Borough District-Wide Local Plan, February 2002. The justification for additional employment land within the Local Plan was based on two important issues:
- A serious lack of supply of good quality employment sites to attract inward investment and provide for expansion of existing businesses; and
 - Problems in the Havant economy evidenced by high out-commuting, higher than average unemployment (in some wards) and an over dependence on traditional manufacturing.
- 2.9 The Partnership for Urban South Hampshire (PUSH), has developed a Sub-Regional Strategy for South Hampshire under the new South East Plan which is underpinned by a goal to improve the sub-region’s economic performance. PUSH recognises Dunsbury Hill Farm as key strategic employment site.



- KEY**
- PLANNING APPLICATION BOUNDARY
 - ADDITIONAL LAND WITHIN PCC OWNERSHIP

**Dunsbury Hill Farm
Site Location Plan
Figure 2.1**

Scale 1:7,500 at A4
March 2011



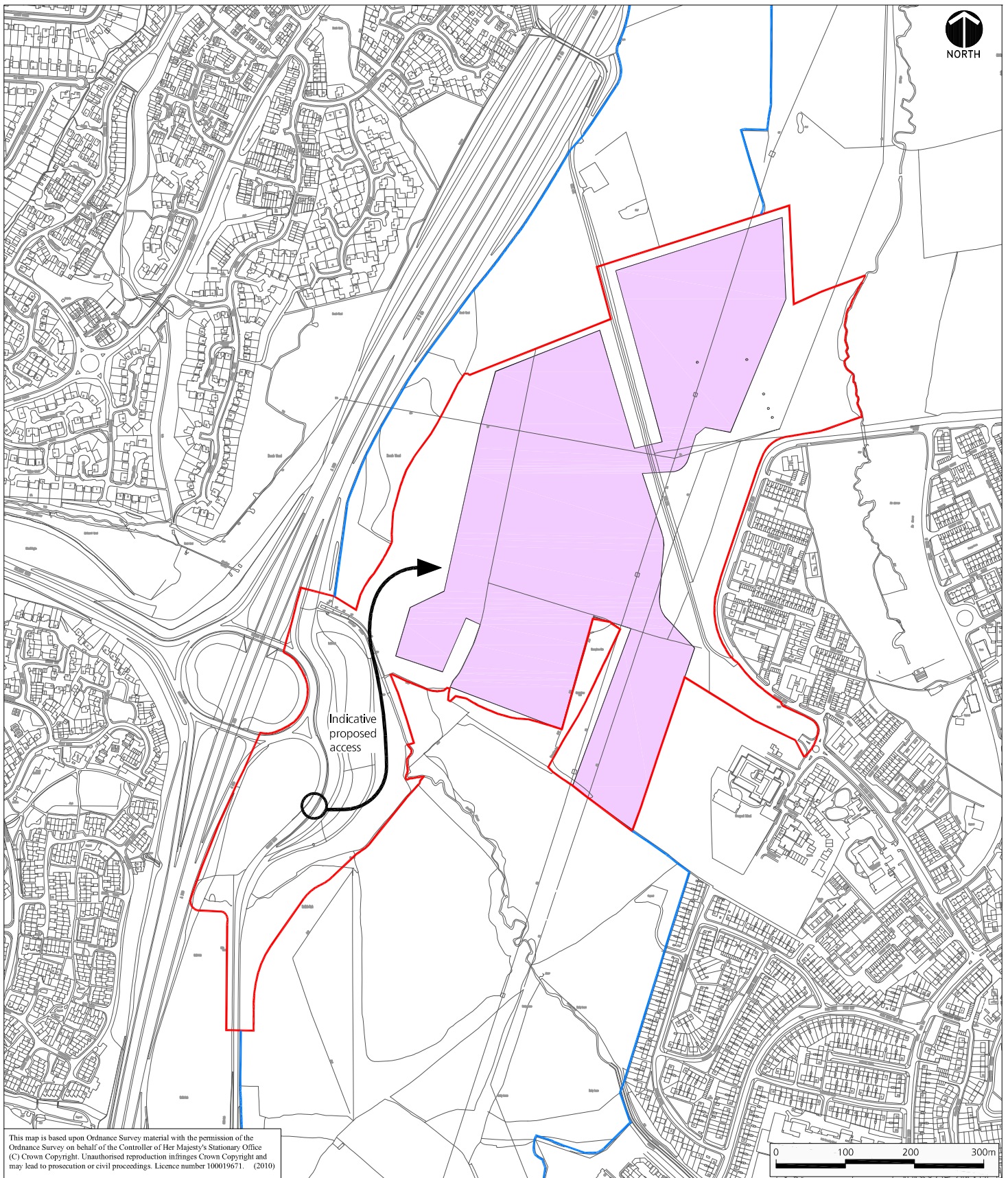
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- 2.10 The Regeneration Strategy for Havant Borough and the Leigh Park Strategic Framework (July 2006) identify Dunsbury Hill Farm as a major development opportunity. The Site is important because it will deliver a considerable number of jobs next to Leigh Park which is a priority area for regeneration, as well as providing space for start-up businesses. Themes one and three within the Borough's Strategy specifically deal with creating a diverse and dynamic business base and creating the right conditions for growth. The key actions that flow from these themes include business creation and new jobs. Dunsbury Hill Farm is central to the delivery of these targets.
- 2.11 A master plan for a business park at Dunsbury Hill was produced and supported by an ES which was published in February 2003¹. The master plan was considered as part of the Local Plan Inquiry held between November 2002 and June 2003. The Inspector's report of 6th May 2004 noted that *"some development with a reduced volume and spread of building could be accommodated at Dunsbury Hill Farm whilst ensuring the retention of the Strategic Gap function. However, in the absence of any information that a reduced scheme would be viable it is concluded that the land should revert to the Strategic Gap designation."*
- 2.12 A study was consequently commissioned to revise the master plan to address the comments made by the Inspector so that the site could be re-submitted into the Local Plan as a modification. This assessment is detailed in a report by Rummey Environmental Ltd, 'Dunsbury Hill Farm, Siting of Employment Allocation in the Strategic Gap, October 2004'.
- 2.13 A site was subsequently included in the Havant Borough District-Wide Local Plan (adopted by HBC in September 2005) as an Employment Site under Policy EMP 1.4 - Land at Dunsbury Hill Farm, Park Lane, Havant/Waterlooville. In June 2007 the 'Dunsbury Hill Farm Development Brief' was produced by HBC's Planning Policy and Development Teams.
- 2.14 A 20.2 hectare site at Dunsbury Hill Farm was subsequently included within the emerging Core Strategy, and this is scheduled for adoption on 1 March 2011.

¹ SEEDA 2003, Dunsbury Hill Farm Environmental Statement, January 2003
Dunsbury_Hill_EIA_Scoping_Report (NEW).doc

3. Description of Proposed Development

- 3.1 This section provides an initial description of the proposed development. The various elements of the scheme will be developed as the design progresses. As explained in Section 2, the design of the scheme will be informed by the findings of the environmental investigations into the Site.
- 3.2 As set out in Section 2, proposals for the development of employment uses at Dunbury Hill Farm have been evolving for a number of years. The Dunsbury Hill Farm Development Brief (June 2007) sets out the following concept for the development:
- “The development concept is for a prestigious high quality Business and Technology Park development in a generous landscape setting. The development should represent a flagship of sustainable design and construction within a strong framework of environmental management in relation to all buildings and land within the site and adjoining land.”*
- 3.3 The currently proposed development draws on previous schemes and is indicatively shown in Figure 3.1. Phase 1 of the development is located in the southern and central portions of the Site and, in line with the requirements of the Core Strategy, comprises 13.2 ha of land which will accommodate 46,450 m² of employment floor space, including 10,000 m² Enterprise Centre and 5,574 m² of hotel floor space.
- 3.4 The hotel is located on the south western side of the Site to enable the creation of a high quality entrance and landmark feature for the scheme. Phase 1 also includes other ancillary uses required to support the Site and its employment uses.
- 3.5 Phase 2 of the development comprises 7 ha of land and is located in the northern portion of the Site. Phase 2 will provide an additional 15,329 m² of employment floor space.
- 3.6 Access is provided by a new link road which originates at a junction with Hulbert Road. The development is envisaged to be phased as follows:
- Link road – construction to commence in 2013;
 - Phase 1 – construction to commence in 2014 with occupation from 2016 onwards; and
 - Phase 2 – construction to commence in 2020 with occupation from 2022 onwards.
- 3.7 In line with the requirements in the Core Strategy, a maximum of 20% of the employment floorspace will be for B8 storage and distribution, with the remainder of the floorspace split flexibly between B1 business and B2 general industrial uses (as defined in the Use Classes Order 2005). B1(a) uses will be acceptable on the site providing a sequential test has been carried out to ensure there are no suitable sites in the town centres.
- 3.8 A dedicated public transport link is proposed between residential areas to the east and west. The scheme will also include a range of cycle and pedestrian linkages connecting the development with the surrounding areas. These will include the provision of a metalled surface for Park Lane. The scheme will be supported by a Green Travel Plan.
- 3.9 The proposed development will include a landscaped buffer of 150-180m wide between the employment uses and the A3(M). This will form part of a comprehensive landscape framework which provides broad bands of woodland planting to create woodland “fingers” extending eastwards into the development from Beech Wood. The scheme includes the retention of existing important trees, particularly protected trees, and hedgerows, within the development. Enhanced green infrastructure links between Havant Thicket Reservoir and Dunsbury Hill Farm are proposed. The scheme also seeks to preserve the Site’s important habitats and features of ecological value as far as possible.



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KEY

-  PLANNING APPLICATION BOUNDARY
-  ADDITIONAL LAND WITHIN PCC OWNERSHIP
-  PROPOSED DEVELOPMENT AREA

Dunsbury Hill Farm Proposed Block Plan Figure 3.1

Scale 1:7,500 at A4
March 2011



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- 3.10 The development will be designed to be an exemplar for sustainable construction and design. All commercial buildings constructed on the site after 2012 will be required to achieve at least BREEAM 'excellent' standard. The development will contribute to the PUSH target of delivering 100MW of renewable energy by 2020 by maximising on-site renewable energy production and resource efficiency.
- 3.11 The scheme includes the enhancement of the Hermitage Stream Corridor through the restoration of a section of the Stream and provision of a new wetland feature to provide both wildlife benefits and increased flood storage capacity. The scheme will be developed with appropriate sustainable drainage system (SUDS) techniques to ensure that greenfield run-off rates are achieved.

4. Approach to the Environmental Impact Assessment

Legislative Framework and the Role of the Environmental Statement

- 4.1 The EIA will be carried out in accordance with the provisions of Schedule 2 of EC Directive 85/337/EEC (as amended by Directive 97/11/EC) (referred to hereafter as the “Directives”), which is given legal effect in the UK through the 1999 Regulations.
- 4.2 An ES is the document that should contain information meeting the requirements of the relevant EIA Regulations. The ES provides a meaningful description of the project, a description of significant environmental effects and the measures to mitigate or enhance those effects and the alternatives considered. The ES will identify, describe and assess in an appropriate manner, in the light of each individual case and in accordance with Articles 4 to 11 of the Directive, the direct and indirect effects of the project on the factors mentioned in Article 3 of the Directive. It will contain the information referred to in Annex III of the Directive including at least:
- A description of the project comprising information on the site, design and size of the project;
 - A description of the measures envisaged in order to avoid, reduce and if possible, remedy significant adverse effects;
 - The data required to identify and assess the main effects which the project would be likely to have on the environment;
 - An outline of the main alternatives studied by the applicant and an indication of the main reasons for the choice, taking into account the environmental effects; and
 - A non-technical summary of the information mentioned in the four statements above.

Overall Approach to Preparing the Environmental Statement

- 4.3 An outline of the various parts which it is currently envisaged will comprise the ES is provided in Section 5. In summary, it is currently envisaged that the ES will comprise: Part I setting out the background to the scheme, Part II describing the proposed development and alternatives considered, Part III setting out the assessment of environmental impacts for each relevant topic and Part IV summarising the findings of the ES, as well as a non-technical summary.

Study Area and Timescale

- 4.4 The study area for the EIA will be defined for each topic in the appropriate chapters and will vary according to the environmental resource potentially affected.
- 4.5 The timescale will run from the intended start of construction in 2013 through the intended opening year of the scheme which is assumed to be 2016 for Phase 1 and 2022 for Phase 2. The assessment will cover all of the construction period as well as the changes in operational effects.

Baseline Conditions

- 4.6 To establish baseline conditions for each of the environment topics covered by the ES, a review of existing available information has been undertaken using various methods, including literature research, desktop review of previous reports and studies, site visits, site investigations, surveys and consultations.
- 4.7 This Scoping Report identifies the need to undertake further surveys required to provide a baseline of existing conditions adequate to inform a robust prediction of the environmental impacts of the proposed development.

Influence of Mitigation Measures

- 4.8 The general approach for mitigation design follows this hierarchy:
- Optimise beneficial effects;
 - Avoid new adverse effects;
 - Reduce new adverse effects;
 - Remedy new adverse effects; and
 - Compensate for new adverse effects, but only as a last resort where these cannot be avoided otherwise.

Disruption due to Construction

- 4.9 Construction-related effects will be covered as an intrinsic part of each topic assessment within the ES, rather than being dealt with as a separate issue. The principal distinction will be whether the effects will be temporary or permanent, rather than how they are caused.

The Do-Minimum Scenario

- 4.10 The environmental assessment process does not merely consider the effects of the proposed scheme against the conditions as they are now, but instead makes the detailed assessment against what is described as the “do-minimum scenario”. That is defined as what could be reasonably expected to have occurred over the same timescale if the scheme did not go ahead. This relates, for example, to changes in traffic conditions, the local environment and development pattern. This do-minimum scenario underlies the assumptions made regarding the baseline conditions for the assessment years of opening (assumed to be 2016 for Phase 1 and 2022 for Phase 2).

Significance of Effects

- 4.11 The assessment will identify the potential effects that might occur due to the construction and operation of the scheme. Impacts may be adverse/negative or beneficial/positive, direct, indirect, secondary or cumulative, temporary or permanent, short, medium or long term. Impacts can affect the environment in a variety of ways. The differing parts of the environment affected by a scheme are known as receptors i.e. those things that receive an impact from a scheme. Receptors can range from individual plants, animals or human beings living in or passing through the area, through to the landscape as a whole and the physical and cultural elements within it.
- 4.12 The assessment of the effects of the scheme will be based on the scheme with all the agreed mitigation measures incorporated, taking account of any change in effectiveness over time, such as growth of planting and establishment of new habitats. The detail of the assessment under each topic will in part reflect the relative importance of the effects.
- 4.13 In general terms the significance of effect is determined by balancing the value and sensitivity of the resource against the magnitude of the impact, or change, and the

significance of the resultant effects. Specific methodologies for assessment will be described in each topic chapter of the ES.

- 4.14 The overall methodology can be summarised generally, although not necessarily for every topic, as a three-step process:
- The evaluation of the value or importance of a resource and the sensitivity of the receptors;
 - Assessment of the magnitude of the impact of the proposed development on the resource or receptor, be it adverse or beneficial; and
 - Determination of the significance of the effect resulting from impact (of a certain magnitude) on a resource (of a particular value).
- 4.15 Tables 4.1 to 4.4 provide generic classifications for environmental value, magnitude of impact and significance of effect. Not all assessment topics will use all of the value or magnitude criteria in these tables and the matrix approach to deriving the significance may therefore not be appropriate in all cases. The wording of the descriptors will be suited to the topic being assessed.
- 4.16 The topic specific criteria for significance rely on reasoned argument, professional judgement and the advice and views of appropriate organisations. Assigning each effect to one of the five significance categories (see Table 4.3) enables different topic issues to be placed upon the same scale of importance to the decision-making process.
- 4.17 Change can be either beneficial or adverse, and effects can also therefore be either beneficial or adverse. In some cases in Table 4.4 the significance is shown as being one of two alternatives. In these cases a single description will be decided upon with reasoned judgement for the choice.
- 4.18 This approach to the assessment of significance can inform the design process, particularly in the selection of options, as well as providing a reasonably consistent approach for the consideration of potential cumulative effects.

Table 4.1 - Environmental Value

Value	Typical Descriptors
Very High	High importance and rarity, international scale and limited potential for substitution
High	High importance and rarity, national scale, and limited potential for substitution
Medium	High or medium importance and rarity, regional scale, limited potential for substitution
Low	Low or medium importance and rarity, local scale
Negligible	Very low importance and rarity, local scale

Table 4.2 - Magnitude of Impact

Magnitude of Impact		Typical Descriptors
Major	Adverse	Loss of resource and/or quality and integrity; severe damage to key characteristics, features or elements
	Beneficial	Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality
Moderate	Adverse	Substantial impact on the resource, but not adversely affecting the integrity; partial loss of / damage to key characteristics, features or elements
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality

Magnitude of Impact		Typical Descriptors
Minor	Adverse	Some measurable change in attributes quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring
Negligible	Adverse	Very minor loss or detrimental alteration to one or more characteristics, features or elements
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements
No Change		No loss or alteration of characteristics, features or elements; no observable impact in either direction

Table 4.3 - Significance of Effect

Significance	Typical Descriptors
Very Large	Only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a serious change in a site or feature of district importance may also enter this category.
Large	These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process.
Moderate	These beneficial or adverse effects may be important, but are not likely to be key decision-making factors. The cumulative effects of such issues may become a decision-making issue if leading to an increase in the overall adverse effect on a particular resource or receptor.
Slight	These beneficial or adverse effects may be raised as local issues. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

Table 4.4 - Matrix for Deriving Significance

Environmental Value (Sensitivity)	Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
	High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
	Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
	Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight
		No change	Negligible	Minor	Moderate	Major
Magnitude of Impact (Degree of Change)						

Significance in Terms of the EIA Regulations

- 4.19 There is also a need to address the significance of effects in the context of whether they are considered to be 'significant effects on the environment' in terms of the 1999 Regulations and hence in terms of the Directives. The following factors should be considered:
- The characteristics of the project in terms of its size, cumulative impacts, use of natural and man made resources, production of waste, pollution incidents and risk of accidents.
 - The importance of the receiving environment, whether international, national, regional, county or local importance. Designations reflect existing land use, abundance, protected status, quality, population density, ability to absorb the project and regenerative capacity of natural resources. Undesignated land may also be important.
 - Whether the effect is temporary or permanent; if temporary, its duration.
 - The scale of the change following mitigation or enhancement e.g. the land area, number of people affected and degree of change from the existing situation.
- 4.20 These factors will be considered within the methodologies of the various topic assessments. An appropriate general approach is to consider all moderate, large or very large effects as 'significant' in this wider sense. This aspect will be considered further in the summary chapter of the ES.

Cumulative Effects

- 4.21 EIA legislation seeks that a project assessment should have regard to the accumulation of effects with other projects:
- They are caused by the sum of past, present and reasonably foreseeable future actions;
 - They are the total effect, including direct and indirect effects, upon a given environmental resource, ecosystem or human system of all actions taken regardless of the organisation responsible for the action;
 - They may arise from the accumulation of similar effects or the synergistic interaction of different effects; or
 - They may arise over a longer timescale than individual project impacts.
- 4.22 Cumulative effects can result from incremental changes caused by the interactions between effects within a project and/or the interaction with the effects from other developments. Cumulative effects should be considered in the following ways:
- Multiple effects from the project, and from different projects of the same or similar type, upon the same resource; such as the effect on a single community of noise from several sources;
 - Different multiple effects from the project, and from other projects, upon the same resource; such as land take and damage due to hydrological change, affecting several sites of the same habitat; and
 - Incremental effects arising from a number of small actions, including ongoing maintenance operations, having developed or developing over time.
- 4.23 The topic assessments will address cumulative effects within the topic where appropriate. Cumulative effects across different topics will be addressed in the summary chapter. Advice will be sought from HBC on the relevant committed developments to include within the assessment of cumulative effects.

5. Outline of the Environmental Statement

Proposed Structure of the Environmental Statement

- 5.1 The ES will provide a thorough assessment of all the possible effects of the development. At this stage, it is envisaged that the ES will comprise four parts as described below.
- 5.2 Part I entitled Background Conditions which will:
- Provide general background information relating to the ES and the proposed development, including details of the applicant (making the planning submission) and the team responsible for the environmental assessment;
 - Briefly describe the site and surrounding area; and
 - Identify relevant national, regional, strategic and local planning policies.
- 5.3 Part II entitled Proposed Development which will:
- Describe the main features of the proposed development, including the measures which will be taken to mitigate adverse environmental effects during both construction and operational phases, including reference to sustainability; and
 - Outline the main alternatives that have been considered.
- 5.4 Part III entitled Environmental Impacts will contain chapters covering the following topics:
- Land use;
 - Socio-economic assessment;
 - Air quality;
 - Noise and vibration;
 - Cultural heritage;
 - Ground conditions and contaminated land;
 - Water resources and flood risk;
 - Landscape and visual assessment;
 - Ecology; and
 - Waste and recycling.
- 5.5 For each environmental topic reporting of the assessment will follow a consistent structure:
- Introduction and scope of topic;
 - Key aspects of the Project material to the topic assessment – these could include design elements, construction methods and environmental management procedures intended to avoid or limit adverse effects or enhance beneficial effects, along with any proposed monitoring;
 - Policies and guidelines of greatest relevance;
 - Methodology and approach to assessment, including consultation – detailed methodologies may be placed in the appendices;
 - Description of baseline conditions pertinent to the topic under consideration - to include changes to baseline between assessment periods, identification of relevant sensitive receptors and a summary of any modelling, measurements or surveys undertaken;

- Identification and assessment of the likely effects, described according to whether they would be temporary or permanent;
- Consideration of potential cumulative effects with other topics and with other developments;
- Mitigation;
- Summary.

5.6 Each topic chapter will:

- Report on the results of the environmental assessment scoping exercise and set out the approach to the assessment;
- Assess the likely environmental effects of the proposed development, (for both construction and operation as appropriate) taking into account appropriate mitigation measures;
- Assess the likely impact of the proposed development against the objectives of relevant planning policies and guidance; and
- Present the main residual effects of the proposed development, in both written and tabular form.

5.7 Part IV entitled Conclusion will provide a summary of the key findings of the ES and discuss cumulative effects across different topics if relevant. A non-technical summary will also be prepared, summarising the key findings of the ES.

6. Anticipated Scope of Work

- 6.1 This section sets out the anticipated scope of work for each of the environmental topics, as listed previously in paragraph 5.4.

Land use

Introduction

- 6.2 This section details the scope of the land use assessment for the proposed Dunsbury Hill Farm development. Impacts that relate to agricultural land represent the focus of this assessment.

Approach to Assessment

- 6.3 The assessment will follow the methodology outlined in the Design Manual for Roads and Bridges (DMRB), Volume 11, Part 6 'Guidelines for a Stage 2 Environmental Assessment'. This provides a comprehensive framework for the assessment of impacts on land use of infrastructure developments, such the Dunsbury Hill Farm development. The assessment will comprise desk study and field reconnaissance as outlined below.

Desk Study

- 6.4 The desk study will consider: scheme drawings and proposed mitigation measures; national and local policy guidance; and published agricultural, soil and geological maps and data.

Field Reconnaissance

- 6.5 Landowner liaison will be undertaken to consider the potential impacts of the proposed development on land use and to identify opportunities for mitigation. Landowners that have the potential to be affected by the development will be interviewed individually to obtain baseline data about each holding, the size and location of the units, enterprise type and methods of husbandry and management. Information will also be gathered on field access and drainage. Land holdings within the scope include rural businesses, farms and rural land parcels that the proposals may directly impact, plus those whose access arrangements and infrastructure (such as water supply and drainage) may potentially be affected.
- 6.6 Detailed field assessment of soils is not proposed. Desk study and landowner liaison will be used to support broad field evidence. A specialist study of agricultural land classification was undertaken by Soil Environment Services of the majority of the proposed study area north of Junction 3 of the A3 in 2002 as part of a previous ES². This identified that land of Grade 3a and above (best and most versatile) was not present. The finding suggests that land of Grade 3a and above is not likely to be present within the wider study area currently under consideration, and will be used to support the field reconnaissance for this assessment.
- 6.7 Liaison with the project team will be undertaken to assist the design of the scheme.

Assessment of Impact

- 6.8 The general methodology for assessment of the significance of land use impact includes consideration of impacts which affect the agricultural land use of the land and agricultural businesses. This includes factors such as land take, soils, farming practice, access, broad economic impacts and drainage and water supply.

² SEEDA 2003, Dunsbury Hill Farm Environmental Statement. January 2003.

- 6.9 A nationally recognised set of standard assessment criteria for effects on agricultural land and farm and other businesses does not exist; a bespoke set of criteria will therefore be used for this assessment, developed in the light of relevant European, national, regional and local policies and guidance. Most agricultural impacts are neutral or negative, few being positive, and are graded on a scale from neutral to major.

Baseline Conditions

Land Use

- 6.10 The land use within the study area largely comprises arable fields, pasture, woodland and areas of rough grassland. The belts of woodland lying to the south and west of the Site are identified as Sites of Importance to Nature Conservation (SINCs). The A3(M) motorway borders the west of the Site and the housing area of Waterloooville lies beyond this. The Leigh Park housing area of Havant borders the east of the Site.

Soils

- 6.11 The 1:250, 000 Soil Map of South East England³ identifies the site as comprising soils of the Wickham 4 and Wickham 4 association. Wickham and Kings Newton series soils were identified by the specialist study of the northern section of the study area. These soils are slowly permeable, seasonally waterlogged and have fine silty over clayey and coarse loamy over clayey textures.

Agricultural Land Classification

- 6.12 The Agricultural Land Classification map shows the study area to comprise ALC Grade 3 and Grade 4.⁴ The classification does not subdivide Grade 3 land into 3a and 3b. Grades 1, 2 and 3a represent 'best and most versatile' land and it is these that require proper consideration of the impacts of development under Government Planning Policy Statement 7 (PPS7) *Sustainable Development in Rural Areas* published in August 2004 (paragraphs 28-29).
- 6.13 Specialist study undertaken in 2002 has confirmed that the northern part of the study area comprises Grade 3b and Grade 4. Field reconnaissance of the remainder of the study area will be used to confirm the classification. The evidence would suggest that 'best and most versatile' land is unlikely to be present. Preliminary assessment therefore suggests that the Site is not likely to receive special protection in respect of its agricultural quality under national and local planning policies.

Assessment of Potential Effects

- 6.14 Potential impacts of the proposed development include:
- Permanent land take of the footprint of the development area, of approximately 20.2ha plus land required for the construction of the link road. The scheme will involve the loss of agricultural land that is unlikely to be in the best and most versatile category;
 - Impacts on agricultural businesses including both those directly affected by the development and those indirectly affected. Impacts include loss of or a reduction in the size of agricultural holdings, severance or disruption to access during and after

³ Soil Map of England and Wales: Sheet 6 South East England. Soil Survey and Land Research Centre, Silsoe 1997.

⁴ MAFF (1988). Agricultural Land Classification of England and Wales. Revised Guidelines and Criteria for Grading the Quality of Agricultural Land

MAFF (1979). Agricultural Land Classification Map 1:250 000. South Eastern Region

construction, and impacts on infrastructure such as field drainage and water supplies; and

- Impacts on soils resulting from the development.

Mitigation

Effects on Soils

- 6.15 The EC Thematic Strategy for Soil and Government policy set out in the First Soil Action Plan for England 2001-2006 and subsequent draft Soil Strategy for England (March 2008) has moved away from the protection of land towards the sustainable use of soil. Whilst there is no mitigation for the loss of agricultural land (apart from compensation at market value through the CPO process), it is possible to partially mitigate effects of the proposals on soil.
- 6.16 The quality and quantity of soil on site would be maintained by implementing appropriate techniques for stripping, storing and re-use. This approach would be adopted in a Soil Handling and Management Strategy (SHMS), which would in due course form part of the Construction Environmental Management Plan (CEMP).
- 6.17 Where possible, loss of agricultural land would be minimised by careful engineering design, sensitive landscape works and restoration of disturbed land.

Effects on Agricultural Businesses

- 6.18 Potential key opportunities for mitigation include the following:
- Appropriate compensation at market value for loss of land, through the CPO process. In the longer term, compensation packages are likely to enable landowners' business structures to overcome any negative impacts;
 - Severance and disruption to farm and business access and drainage will be mitigated by accommodation works and/or appropriate compensation. There is not likely to be a long-term negative impact; and
 - Returning land/soil quality within temporary construction areas (e.g. haul road, construction compounds, etc) back to farming.

Socio-Economics

Introduction

- 6.19 The purpose of this section is to identify the key socio-economic matters which should be considered in detail in the socio-economic section of the ES. The main questions that need to be answered at this stage are:
- What are the local socio-economic conditions and are the proposals aligned to the local and sub-regional needs and priorities?
 - What socio-economic effects could the proposed developments have at the local and sub-regional level?
 - Which of these effects are likely to be significant and therefore need particular attention in the ES?
 - If any adverse impacts are identified, then which alternatives and mitigating measures ought to be considered in developing the proposals for the project?

Baseline Conditions

- 6.20 The HBC Core Strategy sets out the framework for future development and growth in the Borough over the period to 2026. In terms of policy guidance, the Core Strategy recognises the necessity to revitalise the economy of the Borough by providing high quality land and buildings for employment development and by promoting development that will help to raise skill levels and employment opportunities. Support for advanced manufacturing is identified as a priority for the future of the local economy and the Core Strategy also supports the growth of the marine based and tourism sectors. The Core Strategy identifies five strategic sites that are critical to the delivery of the overall vision, Dunsbury Hill Farm being one of them.
- 6.21 Dunsbury Hill Farm is located in the area of Leigh Park, in the north central area of Havant Borough. Leigh Park has a population of about 26,700 with a relatively young age structure. Overall the area suffers from high levels of deprivation. Many of the manufacturing firms that were once based there have now left the area and there is a significant skills gap between the skills of the local population and the jobs available in the sub-region. Leigh Park District Centre has a high level of vacant retail units and the area is characterised by high levels of social rented housing. The Core Strategy recognises that addressing the skills gap is a priority for the regeneration of the area and the provision of new employment facilities in the area is equally important.
- 6.22 Across the Borough of Havant as a whole, manufacturing and retail are the two main employment sectors, with each sector accounting for 15% of all residents' employment. The skills gap discussed earlier is reflected in the Borough's percentage of people with no qualifications which is significantly higher than the Hampshire average (11.2% and 8.8% respectively). The percentage of Havant residents educated to NVQ level 4 or above is only 22.6% compared to the Hampshire average of 31.2%. Reflecting the low qualifications and skills levels of Havant residents, average earnings in the Borough are much lower than the Hampshire and national averages (£24,962 compared to £28,274 and £26,268 respectively).
- 6.23 The initial analysis of baseline data indicates that the areas where the socio-economic effects of the proposed development are likely to be most pronounced are subject to significant social and economic challenges including structural industrial vulnerability, unemployment, poor skills base and deprivation. The proposed development will provide much needed employment opportunities and will attract significant levels of investment. It is an important part of the Core Strategy and is well aligned to the needs and priorities of the area.
- 6.24 A more detailed analysis of existing socio-economic conditions will be undertaken as part of the ES to provide a benchmark against which potential impacts can be assessed. These conditions will include: key socio-economic indicators such as employment activity; structure of the local economy; unemployment; employment opportunities, qualifications and skills; population change; and age structure of the local population. This would allow the consideration of impacts including the existing balance between locally available skills and future demand for skills resulting from implementation of the proposal. The analysis will also consider the local and regional policy context in terms of identifying key economic, social and regeneration priorities for the impact areas.
- 6.25 Establishing the baseline will primarily be a desk-top exercise, drawing on national, regional, sub-regional and local economic data and sources such as the Census, Office of National Statistics, Labour Force Survey and Indices of Deprivation, as well as publications from local and regional sources. At this stage, it is anticipated that much of the information relating to the area of Leigh Park, the surrounding area and the wider sub-region will be provided through secondary sources including the websites of the local authorities and the South East England Intelligence Network.

Assessment of Potential Impacts

Construction phase

- 6.26 The assessment for the construction phase will focus on the number of direct and indirect jobs that are likely to be associated with the construction of the development. These would include:
- Temporary employment associated with the construction programme; and
 - Indirect and induced employment which comprises: employment arising offsite in response to the demand generated by the proposed development in relation to construction materials and supplies; and employment arising from employees' (including contractors) expenditure on local goods and services.
- 6.27 The assessment will also identify the balance of skills available locally relative to that required during the construction stage.
- 6.28 Direct impacts to people relating to increases in noise, traffic, congestion, dust, visual impact etc. during the construction phase will be assessed (as necessary) in the relevant ES chapters (i.e. noise, air quality).
- 6.29 The main positive impact of the construction of the development is currently expected to be the creation of many short-term construction jobs, many of which are likely to be taken up by local people. The Site is currently used for agricultural purposes. Impacts on current agricultural businesses will be considered in the ES chapter on land use, as set out above.

Operational phase

- 6.30 The focus of the assessment for the operational phase will be the number of direct and indirect jobs that are likely to be associated with the operation of the proposed development. This will be generated as follows:
- Direct employment on the Site;
 - Indirect and induced employment which comprises: employment arising offsite through the increased demand for goods and services by the operators of the development; and employment arising from employees' (including the operators) expenditure on local goods and services.
- 6.31 The assessment will consider the impacts of the project on demand for local services and amenities, including any additional requirements for the provision of social infrastructure. Similarly to the construction phase, direct impacts to people relating to increases in noise, traffic, congestion, dust, visual impact etc. arising from the operation of the power station will be assessed (as necessary) in the relevant ES chapters (i.e. noise, transport, air quality).
- 6.32 The ES will also consider the alignment of the development with local, regional and national socio-economic policies and strategies. As set out above, the proposed development is considered to be well aligned to the area's needs and priorities.

Mitigation

- 6.33 At this early stage in the project it is difficult to accurately define the scope of, and requirement for, mitigation measures. The ES will consider mitigation measures which will aim to avoid, minimise or compensate for any adverse impacts.
- 6.34 As set out above, the proposed development will have an overwhelmingly positive impact on the area and the wider sub-region, creating a wide range of much needed employment opportunities, attracting investment and contributing to regeneration and economic development.

- 6.35 A key challenge and priority will be ensuring that local people take full advantage of the new employment opportunities created. Given the skills and qualifications gap identified in the baseline section, it is likely that complementary measures will be required to help local people develop the skills that will allow them to take up many of the new jobs in their area. As an example, training programmes and apprenticeships developed in conjunction with the businesses that will be based on the Site would allow local people to develop skills and competencies that would directly match the needs of employers. The ES will provide recommendations for measures related to skills development and training.
- 6.36 The assessment will consider the best ways of maximising benefits to existing local businesses, services and amenities, and minimising negative impacts. For example, the provision of high quality pedestrian and cycle connections between the Site and surrounding areas may maximise the benefits to existing local businesses enabling them to capture some of the additional convenience expenditure of people working at the Site. Any additional demands placed on social and community infrastructure will be identified, and appropriate mitigation, for example through Section 106 contributions will be set out, if necessary.

Air Quality

Introduction

- 6.1 This section considers existing air quality conditions in the vicinity of the proposed Dunsbury Hill Farm development, potential effects of the development on air quality, mitigation options and describes the methodology for the air quality section of the EIA.

Baseline Conditions

- 6.2 Good air quality is important for human health and vegetation and the Government has produced an Air Quality Strategy (AQS) with objectives in order to protect it. Where a local authority anticipates non-compliance with one or more of the AQS objectives, it must designate an Air Quality Management Area (AQMA) and develop an action plan to reduce pollution levels.
- 6.3 The Site lies within HBC where, like many other boroughs in the UK, road transport is the largest contributor to pollutant emissions. The Site is located in a residential area with no permitted industrial installations or designated ecological sites located within a one kilometre radius. The nearest major pollutant source to the Site is the A3(M). HBC has not declared any AQMAs hence existing air quality in the vicinity of the Site is likely to be relatively good.
- 6.4 HBC uses diffusion tubes to measure concentrations of nitrogen dioxide (NO₂) at 24 sites in the Borough. The Ramblers Way diffusion tube site is located 75 metres west of the Site and about 50 metres from the A3(M). This site best represents NO₂ concentrations on the west side of the Site, where concentrations are expected to be higher due to the proximity to the A3(M). Bias adjusted annual mean concentrations recorded in the last three years at the Ramblers Way site were between 24 and 27 µg/m³, well below the AQS annual mean objective of 40µg/m³.

Assessment of Potential Effects and Mitigation

Operation

- 6.5 The proposed development is for employment uses and a hotel adjacent to the A3(M), east of Junction 3, and includes a new link road. The main effect of the proposal on local air quality will be as a result of changes to vehicle flows in the area.

- 6.6 According to the Highways Agency's Design Manual for Roads and Bridges (DMRB), Volume 11, Section 3, Part 1, May 2007, roads that meet the following criteria may lead to a significant change in local air pollutant concentrations at a nearby receptor:
- Road alignment will change by 5 metres or more; or
 - Daily traffic flows will change by 1000 Annual Average Daily Traffic (AADT) or more; or
 - Heavy Goods Vehicle (HGV) flows will change by 200 AADT or more; or
 - Daily average speed will change by 10 km/hr or more; or
 - Peak hour speed will change by 20 km/hr or more.
- 6.7 A traffic assessment has yet to be completed for the proposed development; therefore it has not been possible to consider the extent of the affected road network at this stage.
- 6.8 Mitigation of air quality impacts due to traffic derived pollutants is regulated at a national and European level through the introduction of increasingly stringent exhaust emissions criteria, the Euro emissions categories.

Construction

- 6.9 The DMRB requires that, where the construction phase of a development is likely to last more than six months, consideration be made of the effect of traffic management measures and the additional construction vehicles on local air pollutant concentrations. Information on the potential changes to traffic flow and speed during construction is not yet available therefore it is not possible to say at this stage whether the DMRB criteria will be exceeded.
- 6.10 The proposed works, if unmitigated, have the potential for elevated dust levels to be occasionally experienced at nearby properties within 200 metres of the works. With the application of good practice mitigation measures, which would be set out in a Construction Environmental Management Plan (CEMP), the potential for short-term adverse effects would be very low and would cease on completion of construction.

Approach to Assessment

- 6.11 Following the completion of the Transport Assessment, the effects of the development on local air quality should be assessed using standard methodologies contained in Defra's Local Air Quality Management Technical Guidance, LAQM TG (09)⁵, and Environmental Protection UK's Development Control Guidance⁶. The change in local air quality will be identified using the screening method outlined in the DMRB, and the associated DMRB Screening Tool.
- 6.12 A qualitative assessment of the impacts of dust and heavy duty vehicle emissions during the construction of the development will also be undertaken, with reference to guidance produced by the Greater London Authority and the London Boroughs⁷. Although the guidance is for London it is useful in the context of schemes elsewhere when considering assessment, planning and management of control measures.
- 6.13 Where appropriate, mitigation options would be recommended for inclusion within the CEMP.
- 6.14 Although not directly related to air quality we will also consider the health effects of the overhead powerline within this chapter of the EIA.

⁵ Department for the Environment, Food and Rural Affairs (Defra), Local Air Quality Management, Technical Guidance, TG(09), February 2009

⁶ Environmental Protection UK, Development Control: Planning for Air Quality (2010 update), April 2010

⁷ Greater London Authority (GLA), (2006); The Control of Dust and Emissions from Construction and Demolition: Best Practice Guidance, GLA, London

Noise

Approach to Assessment

- 6.15 The potential noise implications associated with the proposed development will be assessed by reference to:
- The acoustic suitability of the Site, both in whole and in part, for the proposed land uses;
 - The acoustic interaction between the proposed different land use zones;
 - The effect of the internal road layout and positioning of serviced land uses upon neighbouring uses;
 - The effect of the proposed development upon existing residential areas;
 - The need for and scope for achieving meaningful noise controls; and
 - The effect of changed traffic patterns adjacent to the existing road network.
- 6.16 Assessment of the suitability of the Site for the intended uses will be aided by sample noise level surveys conducted at appropriate locations around and within the Site. This assessment will be informed by reference to noise standards and guidance such as BS 5228 (construction noise), PPG 24 (general noise planning issues), WHO (general noise planning and recreational areas) and BS 8233 (internal noise levels relevant to building use).

Baseline Conditions

- 6.17 Sample noise level measurements undertaken in 2003, at three locations to the north and east of the Site boundary, were conducted in order to inform an ES which supported a previous scheme for the Site, and this data was reviewed⁸. A walk-over site visit conducted in July 2010 identified the main acoustic characteristics of the Site. Areas were identified where further sample noise level surveys should be conducted in order to aid the acoustic assessment and help inform the need for noise mitigation. These additional measurement locations are likely to include:
- Calshot Road near the junction with Park Lane, approximately 600 m from the centreline of the A3(M)
 - Approximately 570 m along Park Lane (from the Calshot Road entrance), corresponding to the western corner of the 5ha Phase 2 development area, approximately 220 m from the centreline of the A3(M).
 - On the field track at the western end of the demarcation line between Phase 1 and the 2ha area of Phase 2, approximately 165 m from the centreline of the A3(M).
 - Within the south western area of Phase 1, at the junction of the north-south hedge line through the Site and the western end of the east-west hedge line from the Calshot Road/Park Lane junction, approximately 270 m from the centreline of the A3(M).
 - On the site of the proposed hotel, approximately 200 m from the centreline of the A3(M).
- 6.18 Measurements will be conducted with a tripod mounted statistical sound level meter programmed to record the standard noise descriptors such as the background level (L90 – the level exceeded for 90% of the measurement period), the L10 level (that exceeded for 10% of the measurement period and conventionally used in the assessment of free-flow road traffic noise) and the Leq level, being the energy-average level during the measurement period, used for assessing most other types of noise source. These noise

⁸ SEEDA 2003, Dunsbury Hill Farm Environmental Statement, January 2003
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levels would be measured using octave bands filters as well as the overall dB(A) weighting network.

Assessment of Potential Effects

- 6.19 The existing noise level survey would highlight any areas of the Site that would require mitigation from “external” noise sources such as traffic on the A3(M). The octave band data would be used to help identify if there was any specific need regarding the acoustic insulation of the building fabric, in particular the hotel bedrooms.
- 6.20 A construction phasing diagram detailing the status of each plot within the whole development will be needed in order to assess the potential construction noise impacts on the existing residential areas to the east.
- 6.21 If some plots within the Phase 1 development are likely to be completed and occupied while other plots are still being developed, the potential construction noise effects on the occupiers of the completed buildings will also need to be considered.
- 6.22 Potential sources of noise following development of the Site are likely to be limited to:
- The movement of vehicles within and on the access road to the Site;
 - Building services noise associated with all the use classes; and
 - “Industrial” noise from the B2 areas.
- 6.23 The potential noise impact associated with the movement of vehicles is likely to be restricted to heavy vehicles, especially in relation to Class B8, assuming that 24-hour operation would be permitted. The impact of this type of activity is likely to be of greatest significance in relation to the occupiers of hotel bedrooms adjacent to the spine road connecting with Hulbert Road/A3(M).

Mitigation

- 6.24 The need for noise mitigation measures will depend in part upon factors that are specific to particular development plots within zones allocated to different use classes.
- 6.25 Preliminary assessments indicate that there are no overriding noise issues that will dictate site layout. However, consideration of noise issues during the design of the internal road network and location of different use classes could help to eliminate potential land-use conflicts and so help to deliver a high quality development.

Cultural Heritage

Introduction

- 6.26 This section provides the findings of a scoping exercise for heritage assets within the Site and surrounding 1 km Study Area, centred on NGR: SU 7000 0900. From this information, an assessment of the likely effects on the significance of known heritage assets and their settings and potentially as yet unknown buried archaeological remains, has been undertaken.
- 6.27 Scoping was carried out for both designated and non-designated heritage assets, which were provided by the Hampshire Archaeology and Historic Buildings Record (HAHBR) and Portsmouth City Council Historic Environment Record (PCC HER) include the following:
- Scheduled Monuments;
 - Listed Buildings;
 - Registered Parks and Gardens;

- Registered Battlefields;
- Conservation Areas;
- Archaeological sites; and
- Find Spots.

6.28 For the purposes of this report, all HAHBR records have been given an Atkins Heritage reference number (**A1**, **A2**, etc.). The location of these heritage assets is shown on Figure 6.1.

Baseline Conditions

Designated heritage assets

6.29 As identified in the Feasibility Study, the following designated heritage assets were not identified within the Site or Study Area:

- Scheduled Monuments;
- Listed Buildings;
- Registered Parks and Gardens;
- Registered Battlefields; and
- Conservation Areas.

Non-designated heritage assets

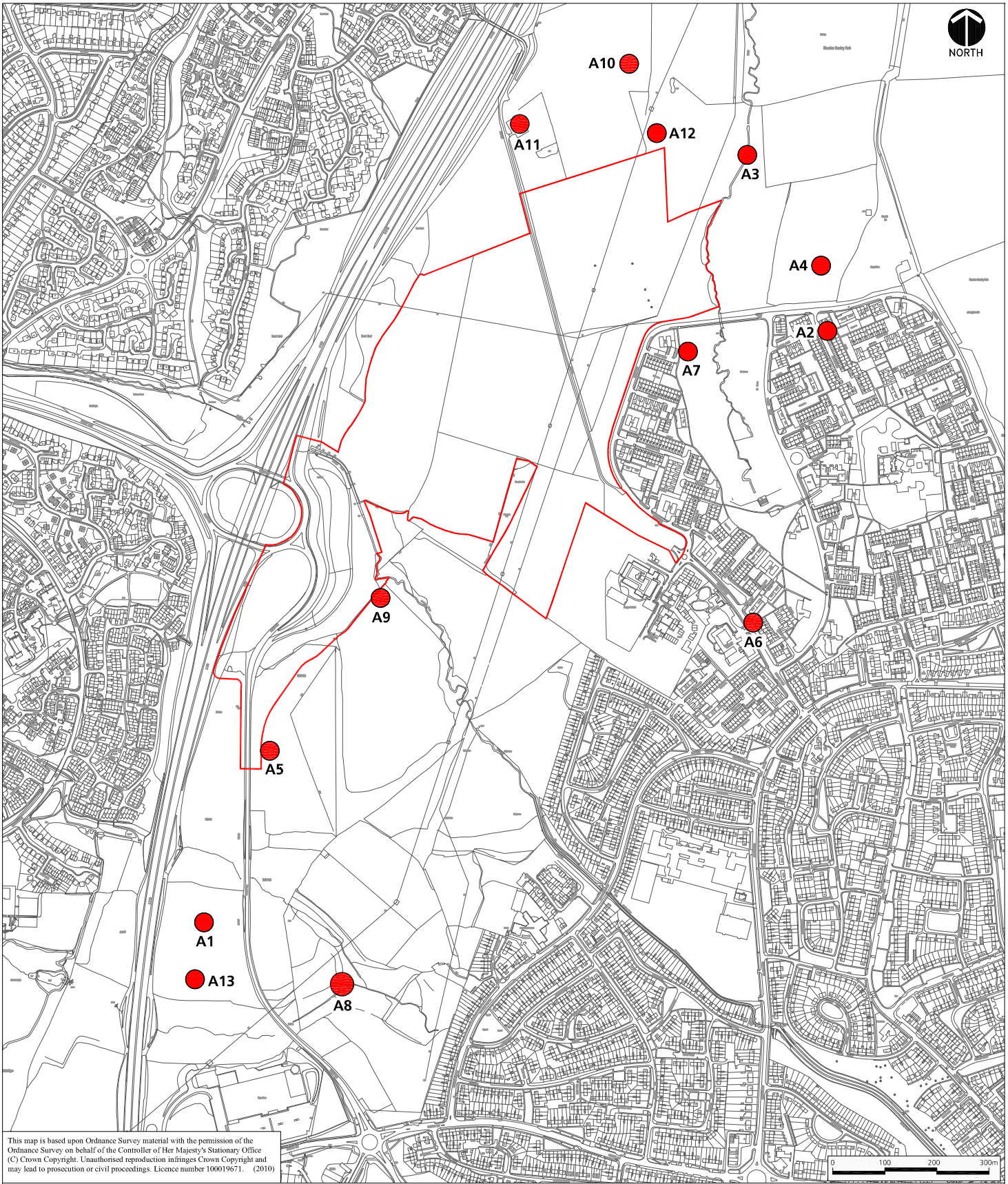
6.30 There is one non-designated heritage asset; Bedhampton Park (**A5**), recorded within the Site and a further four potential assets of archaeological interest identified from historic maps:

- **A8** – ‘The Cottage’, named on the 1:2500 1867 1st Edition Ordnance Survey map, the date of which is unknown, and appears to have been demolished in the 1960s (approx NGR SU 69890 08140)
- **A9** – Brick and Tile Works, visible on the 1867 1:2500 1st Edition Ordnance Survey map, but not on subsequent maps (approx NGR SU 69850 08810)
- **A10** – Disused clay pit, visible on the 1867 1:2500 1st Edition Ordnance Survey map (approx NGR SU 70404 10315)
- **A11** – Dunsbury Hill farmhouse and farmstead, visible on the 1867 1:2500 1st Edition Ordnance Survey map and subsequent maps, now demolished (approx NGR SU 70032 09717)

6.31 Eleven non-designated heritage assets are recorded within the Study Area:

- **A1** – Prehistoric scattered burnt flint (HAHBR 23240)
- **A2** – Prehistoric Flint hearth (HAHBR 23384)
- **A3** – Neolithic flint scraper (HAHBR 23383)
- **A4** – Prehistoric polished flint axe (PCC MPM346)
- **A5** – Bedhampton Park - medieval deer park (HAHBR 31435)
- **A6** – Warren Park - medieval earthen bank (HAHBR 38752)
- **A7** – The Warren - medieval causeway (HAHBR 38751)
- **A12** – Prehistoric scatter of struck flints (HAHBR 57573)

P:\04948\TP\04948\PROJECTS\04948\9 - Dunsbury Hill (Stage 2) - MAL\947\04 Technical\ACAD\masterplan\out\FIG 6.1 KNOWN HERITAGE ASSETS (3.1.11).dwg
Rev 03, 2011 - H. Khan



- KEY
- PLANNING APPLICATION BOUNDARY
 - HERITAGE ASSETS

- 6.32 The Site is undeveloped land, enclosing a mixture of deciduous woodland, predominately in the southern third of the Site, and open arable and pastoral farmland in the northern two-thirds. It is believed that the area was woodland in perhistoric times only more recently turned to agricultural use.

Assessment of Potential Effects and Approach to Assessment

- 6.33 The Site was subject to an Archaeological Desk Based Assessment in 2002 (AOC Archaeology) and an archaeological field evaluation (**A13** HAHBR 60050) was undertaken immediately to the south-west of the Site in 2008. The results of the investigation found no archaeological features, finds or deposits.
- 6.34 An updated Archaeology and Historic Buildings Record search has revealed no additional heritage assets within the Site or Study Area.
- 6.35 The results of a feasibility work carried out by Atkins in 2010 and the subsequent review of the HAHBR database has shown there will be no impacts on the following types of designated heritage assets and their settings, and therefore the following heritage assets can be scoped out:
- Scheduled Monuments;
 - Listed Buildings;
 - Registered Parks and Gardens;
 - Registered Battlefields; and
 - Conservation Areas.
- 6.36 There remains a potential, however, for as yet unknown buried archaeological remains of possible Prehistoric, Roman (HCC Senior Archaeologist per comms) and/or medieval date to exist within the Site (AOC 2002).
- 6.37 Following discussions with the HCC Senior Archaeologist, it was highlighted that an increasingly comprehensive picture of landscape use and settlement activity in the area has been developed in recent years, particularly with recent discoveries at Purbrook and Waterlooville, which are within 1 km of the Site. The lack of significant finds and sites recorded on the Site to date should not therefore be taken as a strong indication of absence of below ground archaeological remains.
- 6.38 The HCC Senior Archaeologist advised that field assessment will be required to better understand the risk of impacting buried remains, followed by appropriate mitigation. The field evaluation should target those areas where enabling and construction works will physically impact below the current ground level. Based on the results of the field evaluation and subject to agreement with the HCC Senior Archaeologist, any archaeological remains of high to moderate significance may require mitigating through a targeted field excavation or if of low significance, as part of a watching brief monitoring exercise during the enabling and construction works.
- 6.39 The project is currently at outline design stage, and details of locations where construction works will require excavations are currently not known. It is therefore considered most appropriate for the field evaluation to be carried out during the detailed design of the scheme. The ES will provide a desktop analysis, based on the information set out above, as well as recommendations for the field investigation to be carried out during the detailed design stage of the scheme.

Landscape and Visual Impact

Introduction

- 6.40 The ES will include a Landscape and Visual Impacts Assessment (LVIA) of the proposed development. This section considers the likely key landscape and visual effects of the scheme.

Assessment Methodology

- 6.41 This LVIA will consider the potential effect of the development on the character and fabric of the existing landscape as identified within the Study Area and on the overall visual context and character of the Site. This will include for during the construction phase and in the operational long term. The landscape and visual impacts shall be assessed separately, with the approach drawing reference from:
- Landscape Character Assessment: Guidance for England and Scotland, (LCA), Countryside Agency, (now Natural England), 2001; and,
 - Guidelines for Landscape and Visual Impact Assessment, (GLVIA), The Landscape Institute and Institute for Environmental Management and Assessment, 2nd Edition, 2002.

Landscape

- 6.42 The assessment will be based on desktop and field work to establish baseline conditions, analysis and identification of the landscape as a resource. While the report will set the Site and Study Area within the regional context, the assessment will be considered for the defined Study Area. This is considered sufficient as the extent of existing vegetation and infrastructure limit the extent of potential effects. With regards to paragraph 7.16 of the GLVIA, the assessment will identify the Landscape Sensitivity and Landscape Impact with regards to being either potentially significant or not. Of note is the Strategic Gap within the Study Area and the potential effect on this.

Visual

- 6.43 A theoretical Zone of Visual Influence (ZVI) has been established as the area over which the proposals would be expected to influence people's perception of their surroundings. The actual visibility of the proposals may extend beyond this, but not in an influential way. Impacts will be assessed to identify those which are potentially significant only. Receptors with views into the sites shall be identified, either as groups or individuals, as is considered appropriate. Key viewpoints are considered to be residential properties and the public rights of way. A series of key viewpoints which are considered to be typical of key views have been included in Appendix A. Potential effects for visual receptors will be assessed for both winter and summer time views. The assessment will be carried out for the year of occupation of Phase 1 and for 15 years after. The assessment will include indicative photovisualisations based on the known scheme parameters. A commentary will also be provided on the likely visual effects of Phase 2. A qualitative appraisal of the likely effects of the lighting will also be included to consider the potential effects from sky glow and ambient lighting, and will be along the a similar method as the day time assessment, using the same receptors.
- 6.44 With regards the hybrid application, the LVIA will assess the maximum elements of the development only, i.e. maximum building height, as this is considered to reflect the 'worst case' scenario and have most potential for significant effects.
- 6.45 All information will be provided as a written report, with tabular formats for receptors, outlining the findings, supported with photographs where appropriate, for the construction and long term operational phase.

Baseline Conditions

- 6.46 The study area has been included within several published landscape character assessments, which have been briefly reviewed to identify the extent of published data, in conjunction with aerial photographs and site visits. These include:
- Countryside Character Volume 7, South East & London, 1999;
 - Havant Borough Landscape Character Assessment Sensitivity Report, 2007, Kirkham Landscape Planning Consultants, (KLPC);
 - Havant Borough Townscape, Landscape and Seaside Character Assessment, 2007, KLPC; and
 - Formation of Strategic and Local Gaps, (KLPC), 2008.

Landscape Baseline

- 6.47 The Site comprises a number of small to medium scale agricultural fields, bounded by hedgerows. It is gently undulating with a general rise south to north from 25mAoD to 50mAoD. The main landform features are the embankments associated with Hulbert Road and Junction 3 of the A3 (M). The principle watercourse is the Hermitage Stream which traverses west to east, between Waterlooville and Leigh Park neighbourhood. For parts of its course this stream is canalized.
- 6.48 The Site is bounded on all sides by vegetation, comprising woodland, hedgerows and tree belts. This includes for Neville's Park and Bushy Lease to the south, Beech Wood to the west and Bell's Copse to the north and east.

Visual Baseline

- 6.49 Due to the Site's low lying position it is considered that both long distance and close range views are afforded from the surrounding area. The exception is views from the west, which are negated due to the motorway embankments which are considered to screen the Site.
- 6.50 Long distance views are afforded from the south, from elevated locations in Purbrook Way and Leigh Park. From the north, open views are afforded from the motorway crossing bridge.
- 6.51 Close range open and truncated views are afforded from the public rights of way which traverse through the Site. These views are often short range in extent being truncated by existing field boundary vegetation. Existing views include for landscape detractors such as pylons.
- 6.52 A list of the key receptors is included within the Appendix.

Assessment of Potential Effects

Construction Phase

- 6.53 The main effects are likely to come from:
- Excavation, re-profiling and general building and construction programs;
 - Site compounds, hoardings and storage materials; and
 - Removal and pruning of existing vegetation.

Operational Phase

- 6.54 Permanent change to the existing landscape and visual context from completion of the development and maturity of landscape mitigation is likely to result from:
- Introduction of new roads and associated infrastructure; and

- New building units, at B1, B2 and B8 class including for a new hotel and associated car-parking and infrastructure.

Mitigation

- 6.55 Primary mitigation will be included for within the development of parameter plans, including for new planting and the review of the landscape management objectives of HBC. This will be expanded upon within the LVIA. The findings of the LVIA will be used to inform the development of the scheme, including the definition of maximum building heights.

Ground Conditions and Contaminated Land

Introduction

- 6.56 The scope of assessment for ground conditions and contaminated land has been prepared in light of the emerging guidance as noted in DMRB Volume 11, Section 1, Part 1 (HA200/08) and IAN 125/09 Supplementary Guidance of Users of DMRB Volume 11 'Environmental Assessment'. This sees the geology and soils chapter covering the soils, geology and geomorphology elements. Impacts related to soils are covered in the section on land use above. This section also considers effects related to contaminated land.
- 6.57 The Study Area for this section comprises the full area within the boundary of the Site together with a zone extending 500m outwards from the boundary around the full circumference. The significance of effects is considered within the area that can reasonably be considered to be affected by construction and operation of the proposed development.

Baseline Conditions

Solid and Drift Geology

- 6.58 The geology of the Study Area is covered by British Geological Survey (BGS) map sheet 316: Fareham. The Site is underlain by Made Ground, Head Deposits and London Clay. The Bognor Sand member of the London Clay outcrops in the central and northern part of the Site. The London Clay is further underlain by the Reading Formation and Upper Chalk Formation.
- 6.59 The Site is partially underlain by Head Deposits described as locally gravelly sandy silty clay. The Head Deposits are generally confined to the southern part of the Site.
- 6.60 The geological map indicates Made Ground in the south western part of the Site mainly associated with the construction of the motorway. Another area of Made Ground is shown to the south of the Site between the wooded area of Neville's Park and Hermitage Stream whose origin is not known.
- 6.61 The London Clay Formation of the Thames Group dates back to the Eocene Period and is generally between 20m and 30m in thickness in the area. The formation consists of brownish grey silty and fine grained sandy clay in the weathered horizon and grey, pyritic, bioturbated silty and fine grained sandy clay with interbedded seams of calcareous clay/cementstone and rounded flint pebble beds. The Basement Bed, a glauconitic sandy bed occurs at the bottom of the formation at the interface of the Reading Formation. The Bognor Sand Member is generally a 6 to 10m thick glauconitic fine to medium grained sand occurring as an interbedded layer within the London Clay but is exposed at surface over the majority of northern part of the Site. It may be possible that isolated pockets of London Clay are found in the northwest boundary of the Site adjoining the embankment of the motorway and the eastern boundary along the wooded area.
- 6.62 The Reading Formation of the Lambeth Group dating to the Palaeocene period underlies the London Clay Formation and is generally between 20m and 35m thick and rests

unconformably on the eroded surface of the Upper Chalk Formation. It consists of brightly coloured mottled clays and silty clays interspersed with local lenticular bodies of fine to medium grained well graded sand. A basal bed similar to the Basement Bed of the London Clay formation consisting of glauconitic sand and interbedded sand and clay is evident at the junction of the Reading Formation and the Upper Chalk Formation.

- 6.63 The Upper Chalk Formation of the late Cretaceous period underlies the Reading Formation. The chalk is predominantly soft white and off white very fine grained microporous limestone with beds of marl, calcarenite and flint, and contains microscopic skeletal remains of coccoliths. Flint occurs in much of the Upper Chalk as nodules and in tabular form in seams parallel to the bedding. Flints are present as cross cutting joints and fissures also. Geological data suggests that the Upper Chalk Formation is approximately 320m in thickness.

Topography

- 6.64 The Site slopes gently from north to south down to the Hermitage Stream. South of the Hermitage Stream along the line of the proposed access the land is essentially flat. Maximum elevation is a little over 50m OD in the northern extremity of the Site; the lowest a little below 25m OD at the Hermitage Stream.

Hydrogeology and Hydrology

- 6.65 Water quality, hydrology and hydrogeology are covered in paragraphs 6.85-6.99. The Site is situated on the non-aquifer of the London Clay Formation, although the Bognor Sand Member is noted as a minor aquifer of variable permeability. The area is not a designated Source Protection Zone, but is designated as being a Nitrate Vulnerable Zone.
- 6.66 The Site affects only one watercourse, the Hermitage Stream which passes across the south west corner of the Site having flowed under the A3(M) in culvert immediately north of Junction 3 to flow south eastwards through Neville's Park.

Designated/Non-Designated Sites

- 6.67 There are no statutory designated geological sites within the Study Area. No Geological Conservation Review sites have been identified within the Study Area.

Contaminated Land

- 6.68 There is one historic landfill site registered within the Study Area. This is found at NGR 470125 109314, at Dunsbury Hill Farm, and was used by Gleeson Civil Engineering Ltd for the deposit of inert construction waste, presumably during the construction of the A3(M). The grid reference is that given by the Environment Agency; the local authorities quote a slightly different one (470073, 190252), which is nevertheless within the same 10m grid square. The location is adjacent to and to the west of Park Lane, immediately west of the northern end of Calshot Road.
- 6.69 An area of Made Ground is shown on the BGS geological map to the south of the Site in Neville's Park, adjacent to the Hermitage Stream, and also in conjunction with the embankments constructed for Junction 3 of the A3(M). They are apparently separated by a small strip of undisturbed ground. The nature of the made ground in Neville's Park is unknown.

Quarries, Mines and Mineral Workings

- 6.70 There is no record of any active or historic mines, quarries or mineral workings. There is however evidence of small brick pits and kilns having once been in operation on the Site.

Assessment of Potential Effects and Approach to Assessment

- 6.71 There are no nationally or regionally important attributes within the Study Area. The sensitivity may therefore be taken to be low.

- 6.72 The affect of the project on the historic landfill and made ground is unknown until the nature of the material in these areas is known.
- 6.73 A ground investigation is proposed to be undertaken to inform the design of the link and access roads to the development, and to provide an outline ground model for the development of the Site. This ground investigation will also investigate the areas documented to be made ground and historic landfill in order to quantify the nature of any hazard. Any potential impacts and necessary mitigation will be reported in the ES.
- 6.74 Although not directly related to ground conditions we will also consider the constraints posed by the high pressure gas pipeline within this chapter of the EIA.

Water Resources and Flood Risk

Introduction

- 6.75 This section outlines the proposed scope of the assessment to be undertaken for the water environment.
- 6.76 Previous detailed considerations of the water environment have been undertaken on land within the application boundary as part of an ES produced in January 2003.
- 6.77 This scoping assessment is also based upon publicly available information, a site visit and consultation with the Environment Agency, HBC and water/sewerage operators. All existing information was then gathered and subsequently used to inform a Feasibility Study for the current scheme which was produced in September 2010.
- 6.78 The results of these previous assessments will be used to inform the assessment of the water environment.

Approach to Assessment

- 6.79 The purpose of the assessment will be to identify existing water environment features and attributes of the development sites, assess the potential effects of the impacts that would occur on these features as a result of the scheme, and to propose possible mitigation and enhancement measures.
- 6.80 The assessment will be undertaken with reference to current best practice and in particular WebTAG⁹, the Design Manual for Roads and Bridges (DMRB)¹⁰ and CIRIA guidance including the SUDS Manual¹¹.
- 6.81 For this scoping stage, a checklist has been developed to identify receptors and processes related to the water environment (see Table 6.1). This is based on unit 3.3.11 “the water objective” of the WebTAG process developed by the Department for Transport. A number of receptors added to the WebTAG Methodology are noted in Table 6.1. At this stage the level of impact of the scheme on the water environment cannot be determined but some receptors and processes have been ‘scoped-out’ – colour coded red in Table 6.1. Other receptors or processes (colour-coded green) are ‘scoped-in’ and will require investigation as part of the formal EIA, as summarised below.

⁹ Department for Transport 2003, The Water Environment Sub-objective, TAG Unit 3.3.11. (<http://www.dft.gov.uk/webtag/documents/expert/pdf/unit3.3.11.pdf>).

¹⁰ The Design Manual for Roads and Bridges, Volume 11 Section 3 Part 10 Road Drainage and the Water Environment

¹¹ CIRIA c697 The SUDS Manual

Study Area

- 6.82 The boundary of the Site is outlined in red on Figure 2.1.
- 6.83 For the purposes of this report there is also some consideration of water receptors outside, but close to, the site boundary (such as groundwater abstraction Source Protection Zones (SPZs)) that could be affected indirectly from development. These have been considered from a radius of 1km from the centre of the site.
- 6.84 The zone of influence will be reviewed throughout the assessment and revised as appropriate.

Flood Risk Assessment

- 6.85 A Flood Risk Assessment will be carried out for the Site, following the guidance provided by PPS25. The Assessment will consider the impact the proposed development will have locally and elsewhere on people and property with regards to flood risk.

Baseline Conditions

Desk Study

- 6.86 An updated desk study was undertaken by Atkins in 2010 as part of a feasibility study. The baseline conditions of the Dunsbury Hill site have been identified through previous environmental reports (SEEDA 2002¹² and SEEDA 2003¹³), a site visit undertaken on the 20th July 2010 and data provided directly through consultees¹⁴ and via websites of the Environment Agency, MAGIC and Natural England.

Current Drainage and Water Conditions

- 6.87 The site has a maximum elevation of 55m above ordinance datum (AOD) to the north of the site, generally sloping to the south and the east. The slope to the south of the site is around 1 in 30. The lowest point on the site is Hermitage Stream at 15mAOD.
- 6.88 The water environment of Dunsbury Hill is dominated by Hermitage Stream which runs from Waterloooville located to the west and south of the site and then into Leigh Park to the south east of the site. A 50m section of Hermitage stream is canalised running eastwards from the highway, shown in Figure 6.2.

¹² SEEDA, 2002, Dunsbury Hill Farm Preliminary Drainage Impact Assessment, Project Number 8033 June 2002.

¹³ SEEDA 2003, Dunsbury Hill Farm Environmental Statement. January 2003.

¹⁴ Environment Agency, 2010 Data Request (SSD/2010/003042 ref 238).



Figure 6.2 Hermitage Stream - Canalised Section

- 6.89 A tributary of Hermitage Stream runs to the east of the site, referred to as the 'Park Lane Stream' in previous investigations. The Park Lane Stream is culverted before it reaches an area of housing prior to joining Hermitage Stream. Upstream of the culverted section there is a weir (known as "giant steps") and a flood storage reservoir known as "The Warren".
- 6.90 There are two small ponds recorded within the land ownership of PCC. One within the grounds of the farm/house buildings of Dunsbury Hill Farm and the second in a woodland area to the east.

Surface Water Quality

- 6.91 The current (Water Framework Directive classification) ecological quality of Hermitage Stream is 'moderate' and there is no expectation of any improvement in quality by 2015. Appendix B of the South East River Basin Management Plan¹⁵ states that this watercourse is heavily modified and it would be disproportionately expensive and technically infeasible to improve the water quality to Good status by 2015.
- 6.92 The overall physio-chemical water quality (Water Framework Directive classification) for this watercourse is moderate.

Groundwater Quality

- 6.93 There are secondary (undifferentiated) aquifers associated with Hermitage Stream and Park Lane Stream to the east of the site. These aquifers are a combination of minor and non-aquifer and will only yield small volumes of water. There are secondary aquifers noted at the site which could provide local supply or provide base flow to watercourses. Historical maps show little change in 150 years and little activity that might contaminate groundwaters (SEEDA, 2002).

Soils

- 6.94 The majority of the Site is underlain by London Clay with small areas of Bognor Sands as shown on British Geological Survey Sheet 316. The London Clay is negligibly permeable

¹⁵ Defra, 2009. Water for life and livelihoods, River Basin Management Plan South East Appendix B.

and the Bognor Sands are variably permeable. The Bognor Sands are known to be 5-10m thick across the sites where they occur. Details of the Site's geology is set out in the section on ground conditions and contamination above.

Abstractions and Discharges

- 6.95 There is no groundwater abstraction SPZs located on the site. The nearest Zone is located over 500m to the north of the site. Surface water gradients flow away from this SPZ.
- 6.96 There are no groundwater abstraction licences within the site or within a 1km radius.
- 6.97 HBC has confirmed there are no private abstractions within or downstream of the proposed site.
- 6.98 There are two consents to discharge with a 1km radius of the site. One of the two discharges is upstream of the site near to Hermitage Stream. No further information is known at this stage.

Flood risk - Surface Water

- 6.99 Previous investigations have found that most surface water in the catchment flows into Hermitage Stream and the Park Lane Stream (SEEDA, 2002). The Environment Agency website highlights the outline of the 1 in 100 and 1 in 1000 year flood events which appear to be outside the proposed development boundaries although there is potential for flooding problems in the housing area downstream. There are no known flooding problems from Hermitage Stream in the proposed site. Upstream of the culverted section of the Park Lane Stream is a flood storage area known as The Warren. This has been developed to help alleviate known flooding problems downstream of the Park Lane Stream.

Flood risk - Pluvial

- 6.100 The Partnership for Urban South Hampshire (PUSH) Strategic Flood Risk Assessment (SFRA) indicates that the majority of the Dunsbury Hill site has a moderate potential for pluvial flood risk.

Flood risk - Groundwater

- 6.101 There is currently no detailed site information available on groundwater levels. However, indicative investigations have suggested a groundwater level of around 2m below ground level (BGL). Historically the groundwater level has been known to be 0.5m BGL. The presence of London Clay would suggest minimal groundwater recharge from the site.

Water Infrastructure

- 6.102 There are two existing foul sewers crossing the southern part of the site. Southern Water hopes to provide an indication of whether there is sufficient existing capacity for the development to discharge to these sewers. This will be reported in the ES. The Environment Agency has indicated that sewers in this area flow to Budd's Farm wastewater treatment works which has a constrained consent with capacity for planned housing development, but may not have sufficient capacity for additional industrial flows. It is possible that such issues may place requirements on the development for a high level of water efficiency in order to minimise additional sewage flows.
- 6.103 Portsmouth Water has confirmed that there would be sufficient supply of water to meet the demands of the site, given the information available in local development plans.
- 6.104 In each case, it would be the responsibility of the developer to conduct standard applications and provide all connections to the existing infrastructure.

Recreation

- 6.105 Hermitage Stream is not navigable. The Park Lane Stream is noted for coarse fishing but there is no other known recreational use of the water receptors on this site.

Biodiversity

- 6.106 There are no statutory designated sites within the proposed development site.
- 6.107 Hazelton Common Local Nature Reserve is around 1km to the north of the proposed development site.
- 6.108 Records of protected species are included in the ecology chapter.
- 6.109 A 125m section of stream is canalised at the western extent of Hermitage Stream.

Assessment of Potential Effects

- 6.110 Based on the information available at the time of this scoping study there may be a number of effects of the scheme both during construction and operation. Table 6.1 provides an assessment of the likely effects of the scheme.

Table 6.1 Water Environment scoping summary table

Feature	Attribute/service	Indicator of quality	Measure	Grading	Importance level	Potential receptors (theoretical)	Outcome of scoping	Reason
River	Water supply	Chemical Water Quality	Environment Agency classification. WFD ecological water quality criteria technical data.	High Good Moderate Poor Bad	High Good Moderate Low Negligible	Hermitage Stream Tributary of Hermitage Stream	In	Good and high physio-chemical water quality. Potential requirement for mitigation or betterment through scheme
		Drinking water supply intakes/private abstractions	Classification, defined within the Surface Waters (abstraction for Drinking Water) (Classification) Regulations 1996 no, 3001. Data from EA Website and Local council	SPZ 1 /Private abstraction SPZ2/ Total zone Not designated	High Medium Low Negligible	SPZ Private abstractors.	Out	No drinking water abstractions from watercourses. No SPZ affected by Scheme No private abstractions (<20m) confirmed by Havant Borough Council No further requirement
		Industrial/agricultural abstractions	Location and volume of abstraction	> 1000m3 per day 500-1000 50-499 <50	High Medium Low Negligible	Agricultural or industrial abstractor	Out	No abstractions within a 1km radius. No further requirement
	Biodiversity	Biological water quality	Environment Agency classification. WFD ecological water quality criteria technical data.	High	High			

Feature	Attribute/service	Indicator of quality	Measure	Grading	Importance level	Potential receptors (theoretical)	Outcome of scoping	Reason
				Good	Good	Hermitage Stream Tributary of Hermitage Stream	In	Moderate biological water quality. Potential requirement for mitigation or betterment through scheme.
				Moderate	Moderate			
				Poor	Low			
		Fisheries quality	Fisheries status as defined within the Freshwater Fish Directive 78/659/EEC Presence of SAC species (bullhead, sea lamprey, brook lamprey, river lamprey, allis shad, twaite shad, atlantic salmon, spined loach)	Designated salmonid fishery or SAC fish present Designated cyprinid fishery	High	Tributary of Hermitage Stream	In	Known location of fishing; potential discharges from scheme could have an effect.
					Medium			
					Low Negligible			
	Transport and dilution of effluent	Consented discharges	Types of discharge with reference to the EC Dangerous Substances Directive (76/464/EEC) and daughter directives) CSOs	List I or CSO	High	Two consented discharges from EA database	In	Two consented discharges within a 1km radius from site. Important that scheme discharge does not make water quality worse.
				List II Other consented discharges	Medium Low			
				Absent	Negligible			
	Recreation	Riverside access	presence/absence	National trail/cycle route/other route PRoW (e.g. footpath, bridleway) or Common Land Permissive access or residential frontage No access or interaction	High Medium Low Negligible	Hermitage Stream and Park Lane stream	Out	None known

Feature	Attribute/service	Indicator of quality	Measure	Grading	Importance level	Potential receptors (theoretical)	Outcome of scoping	Reason
Floodplain		Navigation	Presence/absence within 2km	Statutory navigation with associated facilities (e.g. moorings, marina, lock, portage or canoe course) Statutory navigation without associated facilities Permissive access No access	High Medium Low Negligible		Out	None known
		Presence of clubs/recreational users	Presence/absence within 2km. The grading will vary depending on the quality and size of the facility	Within site <500m from site 500 to 2000m from site >2000m from site	High Medium Low Negligible	Coarse Fishing	In	Presence of EA fishing watercourse. discharges from scheme could have an affect
	Conveyance of flow and material	Channelized watercourse *	Human channelization	Fully channelized Part channelized Natural	High Medium Low	Part of hermitage stream channelized	In	Potential for restoration as part of scheme.
	Flood risk	Channel and floodplain capacity	Function of floodplain and existing flood defence assets	Flood storage areas, floodplain (FZ3b and FZ3a) or land drainage infrastructure Other floodplain areas (FZ2) Non-functional floodplain (i.e. areas benefiting from formal or informal defences) Non-floodplain	High Medium Low Negligible			
						Hermitage Steam and tributary	In	Outside of floodplain. FRA still required as site over 1ha.

Feature	Attribute/service	Indicator of quality	Measure	Grading	Importance level	Potential receptors (theoretical)	Outcome of scoping	Reason
		Assets in floodplain *	Presence/absence of assets (defined with reference to PPS25 Flood Risk Vulnerability Classification (Table D2)) within FZ3b, FZ3a, and FZ2	Vulnerable or essential infrastructure Other associated infrastructure (e.g. garages, car parks) Water compatible infrastructure and intensive agriculture Other land use (e.g. parkland, pasture)	High Medium Low Negligible	Leans heavily on scheme development and FRA	In	Development of scheme will require mitigation to ensure no worsening of flood risk and protection of assets from GW flooding if applicable.
	Water dependent/sensitive habitat	Presence/absence	Designation	SAC/SPA, Ramsar, SSSI or NNR BAP or CWS Local designation Ubiquitous	High Medium Low Negligible	Hazelton Common LNR	Out	Excluded due to distance and most probable mechanism of impact (WQ coinciding with significant pollution incident)
	Aesthetic value of river within wider landscape	Landscape quality		AONB Conservation area	High Medium Low Negligible	No AONB	Out	No further requirement
Groundwater	Water supply	Chemical water quality	Aquifer status and vulnerability, source protection zone. Source protection zone	Principal aquifer/SPZ (Inner, total catchment or special site) Secondary A (or undifferentiated) aquifer/SPZ (outer) Secondary B aquifer Unproductive strata	High Medium Low Negligible	Secondary (undifferentiated) aquifer "u/s" of site	In	Potential for effect on aquifer without mitigation

Feature	Attribute/service	Indicator of quality	Measure	Grading	Importance level	Potential receptors (theoretical)	Outcome of scoping	Reason
		PWS abstractions	Location and volume of abstraction	>1000m3 per day 500-1000 50-499 <50	High Medium Low Negligible	None	Out	None within 1km of intrusive works No further requirement
		Other abstractions	Location and volume of abstraction	>1000m3 per day 500-1000 50-499 <50	High Medium Low Negligible	Groundwater aquifer	Out	No abstraction within 1km of site No further requirement
	Groundwater dependent/sensitive habitat	Presence/absence	Designation	SAC/SPA, Ramsar, SSSI or NNR BAP or CWS Local designation Ubiquitous	High Medium Low Negligible	None	Out	No further requirement
	Land drainage and flood risk		Infiltration capacity, surface permeability, groundwater flow routes and groundwater flooding			General flood risk for ground and surface water.	in	Requirement to restrict discharge rates and provide SUDS
Water Infrastructure	Water supply	Resource allocation *	Availability of water supply	Consultation with water company		Groundwater	In	Requirement for new supply
	Foul water	Sewage removal *	Capacity for sewage removal	Consultation with water company		Hermitage Stream	In	Required increase of foul capacity and location of potential foul outfall near Hermitage Stream

* Indicators of quality developed specifically for this scheme scoping assessment.

- 6.111 A number of water attributes have been scoped out as show in Table 6.1. Of the remaining attributes and features examples of likely effects of the proposed development and associated link road during construction and operation are shown described below.
- 6.112 During construction:
- Increased silt loading or spillages could impact on surface or groundwaters. In particular this may have an impact on ecology of Hermitage and Park Lane Streams.
- 6.113 During operation:
- Alteration of channel may have effect on flood risk. It may be possible to show a reduction in flood risk if a widened berm is added to the channel;
 - Potential for pollution to discharge to surface water bodies from spillages. It is unlikely that routine run-off will be heavily polluting due to the nature of the development;
 - Potential to impact groundwater quality. It is unlikely that routine run-off will be heavily polluting due to the nature of the development;
 - Potential to impact drinking water supply. Further detailed investigations on available drinking water supply will be made. This may require further consultation from the provider;
 - Potential constraint to foul water provision. Further detailed investigations on available foul water capacity will be carried out. This may require further consultation from the provider;
 - Increased pollution or flood risk to the water environment from the link road. Increased impermeable surfaces will increase surface water run-off and pollutants from daily traffic flow could be a source of pollution to the water environment;
 - Potential impact to recreational fishing with respect to discharge of silts and pollutants from routine run-off from roads;
 - Increase in surface water run-off from impermeable area of the development; and
 - Risk from fluvial flooding has been noted on a small portion of the site. This is likely to be outside of the developed area but within the boundary of the development.

Mitigation

- 6.114 For the purpose of this assessment, mitigation refers to measures that will be incorporated into the proposed development that will be taken forward for construction to avoid, reduce, repair, reinstate, restore, 'rescue' and off-set negative impacts. In addition, opportunities to benefit the water environment will be incorporated within the proposed development that will be taken forward for construction.
- 6.115 Mitigation measures during construction and operation could include the following:
- Adherence to the Environment Agency Pollution Prevention Guidelines 1, 3, 5, 13, 21, 22 and PPS24, to prevent any flooding, incidental impacts and preserve water quality during the works and operation period;
 - Provision of SUDS to ensure treatment of run-off and attenuation to Greenfield Run off Rates. This will be informed by further information collated from ground investigations on this site to enable identification of the most appropriate SUDS techniques;
 - Adherence to best practise guidance from CIRIA C648 Control of Water Pollution from Linear Construction Projects for construction of the link road;

- Restoration of a section of Hermitage Stream to provide wildlife corridor benefit but also potential for some increased flood storage capacity; and
- Consideration of water efficiency measures such as water butts, rainwater harvesting and green roofs.

6.116 A CEMP will be required to ensure that methods of best practice are followed. Further consideration of DMRB tests as noted in Volume 11 Section 3 Part 10 of the DMRB will be considered for the impacts of the development of the link road on the water environment as part of this chapter. All recommended mitigation measures will be discussed and agreed with the Environment Agency.

Ecology

Approach to Assessment

- 6.117 This section outlines the proposed scope of the Ecological Impact Assessment (EclA) to be undertaken. The purpose of the assessment will be to identify and evaluate existing ecological features within the application site, assess the significance of the impacts that would occur on these ecological features as a result of the scheme, and to identify possible mitigation and enhancement measures. The EclA work will be used to inform and guide the scheme design, including mitigation.
- 6.118 The EclA will be undertaken with reference to current best practice and in particular the Guidelines for Ecological Impact Assessment in the United Kingdom (Institute of Ecology and Environmental Management, June 2006).
- 6.119 Previous detailed ecological surveys have been undertaken on land within the Site as part of an ES produced on behalf of SEEDA in January 2003. An updated desk study and a Phase 1 survey were undertaken by Atkins in July 2010. All existing information was then gathered and subsequently used to inform a feasibility study for the current scheme which was produced in September 2010.
- 6.120 The results of these previous assessments will be used to inform the EclA.

Study Area

- 6.121 The boundary of the application site is outlined in red on Figure 2.1. Local information regarding the Site was obtained by desk top studies, reference to previous ecological surveys as mentioned above, and will be further populated through updated surveys to be undertaken by Atkins in 2011.
- 6.122 To define the total extent of the study area for ecological assessment, the scheme was reviewed in order to identify the spatial scale at which ecological features could be affected. The study area has been defined by determining a zone of influence encompassing all predicted adverse ecological effects of the scheme, including those which will occur by land-take and habitat loss and those which will occur through disturbance, such as noise.
- 6.123 The desk study search area will be applied as outlined in the section on data gathering below. For the field survey, the site itself plus the immediately adjacent land is an appropriate area to survey, ensuring that an area of at least 50m outside the development footprint is covered.
- 6.124 The zone of influence will be reviewed throughout the EclA and revised as appropriate. It will be reviewed during further design development during the EIA process and amended if necessary.

Temporal Scope

- 6.125 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 will be assessed in the context of the predicted baseline conditions within the zone of influence during the lifetime of the project (i.e. the assessment takes into account how the existing conditions might change between the surveys and the start of construction and/or operation). For this scheme, construction is expected to start in 2013 with the road works. This will be followed by Phase 1 in 2014 and Phase 2 in 2020, with operation of Phase 2 in 2022. Therefore, potential changes in existing conditions up to 2022 will be considered.

Baseline Conditions

Desk Study

- 6.126 An updated desk study was undertaken by Atkins in 2010 as part of a feasibility study. The Hampshire Biodiversity Information Centre was contacted for information on locations of non-statutory sites of nature conservation importance within 2 km of the application site, and records of notable species (legally protected, biodiversity action plan and locally notable and/or rare species) within the 1 km of the application site (records for bat species were requested within a 5 km radius). Eight Sites of Importance for Nature Conservation (SINC) are located either within or adjacent to the application site.
- 6.127 The Multi Agency Geographical Information for the Countryside (MAGIC) website was used to find all statutory designated sites of importance for nature conservation and Ancient Woodlands within 2 km of the application site. A search for statutory designated sites with a hydrological connection to the site was also carried out. Three sites were consequently identified: Chichester and Langstone Harbours SPA/Ramsar, the Solent Maritime SAC, and Portsmouth Harbour SPA/Ramsar.
- 6.128 Natural England will be consulted for information on any proposed or candidate European sites within 2 km.
- 6.129 A search for waterbodies was made within 500m of the site using the Ordnance Survey website. Great crested newts can use suitable terrestrial habitat up to 500m from a breeding pond, and a search area of 500m was chosen according to English Nature Great crested newt mitigation guidelines (2001).

Site Surveys

- 6.130 The application site consists of arable fields, some of which being used for set aside. Other habitats that are within the site are hedgerows, woodland, grassland and scrub. The Hermitage Stream flows along the west side of the site and a public access track (Park Lane) runs across the site.
- 6.131 Following an initial review of all existing ecological information for the application site and immediate surrounds, the Feasibility Study produced by Atkins in 2010 recommended that further detailed surveys will be undertaken during 2010/2011 for the following species following current best practice:
- Presence/absence surveys for reptiles in suitable habitat within the application site (completed in September 2010);
 - Two wintering and four breeding bird surveys (wintering bird surveys were completed in end January 2011; breeding bird surveys to start at the end of March 2011);
 - Dormice surveys (currently underway, to be completed in August 2011);
 - Two bat activity transect surveys (first transect survey was completed in September 2010 with the second survey due in June 2011)

- Assessment of habitat potential for amphibians, in particular great crested newts (completed in end January 2011);
- Search for signs of otters and water voles, including spraints, footprints and runs (due in Spring 2011);
- Search for signs of badger activity including setts, tracks, snuffle holes and latrines (due in Spring 2011);
- Visual inspection of trees to be impacted by the scheme to assess their suitability for bat roosts (due in Spring 2011);
- Hedgerow surveys (due in May/June 2011).

- 6.132 Reptile survey results revealed that adders, grass snakes, slow worms and lizards are present and breeding across the site. In particular, adder and grass snake hibernation sites have been identified in areas which will be directly affected by the current scheme design.
- 6.133 Initial findings from the first dormouse survey (September 2010) suggest that suitable habitat within the site supports dormice. Further information will be collected as the surveys take place in spring and summer 2011.
- 6.134 Initial findings from the bat survey carried out in September 2010 showed that at least four species of bats are using the various habitat features of the site for foraging and commuting. Several bats were recorded early in the evening, which suggests that some of the species are likely to be roosting nearby.
- 6.135 Three ponds and ditches within 500m of the scheme were identified using an Ordnance Survey map. The initial habitat suitability assessment of the ponds for great crested newts (GCN) was undertaken and habitat suitability indexes (HSI) were produced in accordance with current guidance. These HSIs showed that one pond can be excluded from further surveys as it dry and overgrown by vegetation, and is mostly shaded. Due to the high HSIs of the remaining two ponds, the highly suitable habitats surrounding them and their close proximity to the scheme (less than 150m away), GCN presence/absence surveys will need to be carried out to determine if great crested newts are present which will be undertaken in accordance with the methodologies described in the Great crested newt mitigation guidance produced by Natural England (EN, 2001). Further population size class assessments will be carried out if great crested newts are found.

Criteria for Nature Conservation Value and Significance of Effects

- 6.136 The assessment of the nature conservation value or potential value of ecological features and the assessment of the significance of impacts upon ecological features will be undertaken broadly following the Guidelines for Ecological Impact Assessment in the United Kingdom (Institute of Ecology and Environmental Management, June 2006).

Assessment of Potential Effects

- 6.137 The EclA will include predictions of potential impacts on ecological receptors. The assessment of the potential impacts of the proposed development needs to take into account both on-site impacts and those that may occur to adjacent and more distant ecological features. Impacts can be positive or negative. Based on the information available at the time of this scoping study, examples of potential effects of the proposed development and associated link road on ecology and nature conservation resources could include:
- Effects resulting in potential impacts on a European Protected Site: a Habitats Regulation Assessment (HRA) screening of impact of European Sites (a NATURA

2000 site) is currently underway¹⁶ to assess whether there are likely to be significant effects on Chichester and Langstone Harbours SPA/Ramsar, the Solent Maritime SAC, and Portsmouth Harbour SPA/Ramsar, particularly in relation to hydrological connection and migrating or commuting wintering birds. This will assist the competent authority in determining whether formal Appropriate Assessment is required;

- Aquatic habitat within the SPA/Ramsar and SAC might be adversely affected by decreasing quality of runoff during construction;
- Impacts may occur along the edge of the SINC's that are either within or adjacent to the scheme;
- Large areas of habitat would be lost due to land-take for the construction of the proposed development and associated link road;
- Fragmentation and isolation of habitats which would have an adverse effect on protected species such as dormice, bats, reptiles and amphibians;
- Some disturbance to protected species would be expected through noise, vibration and presence of human workers associated with the construction activities;
- If suitable mitigation were not undertaken, there could be risks of potential killing/injuring/disturbance of legally protected species including: dormice, bats, reptiles, great crested newts, breeding birds, badgers, water voles and otters.

6.138 Further surveys are currently underway in order to provide a detailed baseline, allowing potential impacts to be identified and assessed.

6.139 In addition to determining the significance of an impact on any ecological features, the assessment will also identify any legal requirements such as protected species licensing.

Mitigation

6.140 For the purpose of this assessment, mitigation refers to measures that will be incorporated into the proposed Option that will be taken forward for construction to avoid, reduce, repair, reinstate, restore, 'rescue' and off-set negative impacts. In addition, opportunities to provide nature conservation enhancements will be incorporated within the proposed Option that will be taken forward for construction. Enhancement refers to measures that improve biodiversity within land acquired for the Scheme but not specifically for the purposes of ecological mitigation.

6.141 Potential mitigation measures could include the following:

- A Masterplan for the scheme is currently being prepared and will take into account those important habitats and features of ecological value;
- Mitigation against loss of habitats will include habitat reinstatement using an appropriate species mix. Measures to protect more sensitive habitats in close proximity will also be adopted and are currently being drafted as part of the Masterplan for the scheme;
- Retention and enhancement of as many connecting features as possible (such as hedgerows) to minimise impacts on dormice (a Natural England development licence may be required as dormouse habitat is likely to be affected by the scheme);
- Enhancement of retained habitat for reptiles such as the provision of refuge habitat;

¹⁶ Natural England (NE) was consulted with regards to the extent of the zone of influence in relation to the HRA screening, and confirmed that they are content with the aforementioned list of NATURA sites to be considered as part of the assessment. Ref: phone and email conversations dated 3rd and 4th February 2011 between Val Pollard of NE and Atkins)
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- Provision of alternative roosting provision if bat roosts are to be destroyed (a Natural England development licence may be required if bat roosts are impacted by the works);
- Careful programming of works to avoid effects on sensitive species;
- To minimise impacts on bats during construction, works should be carried out during the day to avoid disturbance to bats from lighting; and
- Strict adherence to the Environment Agency Pollution Prevention Guidelines 1, 5, 6 and 21 to prevent any incidental impacts and preserve water quality during the works period.

6.142 All the mitigation proposals above will be supported and supervised by the presence of an ecological watching brief throughout the main construction phases of the works. An Environmental Management Plan is likely to be required 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 are avoided. All recommended mitigation measures will be discussed and agreed with Natural England.

Waste and Recycling

6.143 Developments which wish to provide a project that exemplifies sustainability will, by definition, include maximising resource efficiency and minimising wastage by design.

Methodology

6.144 We will undertake a review of both waste legislation and national, regional and local planning policies to identify waste management objectives and targets the development is required to comply with.

6.145 An assessment of the likely types and volumes of waste generated by the development will be undertaken for each of the following lifecycle stages:

- Demolition of existing structures and enabling work;
- Construction of new development; and
- Operation of new development.

6.146 The likely main waste streams will be identified and quantities estimated for construction and operational phases of the development via review of available information relating to the proposed development, including plans and elevations indicating proposed building materials, land use proposal and unit mixes.

6.147 For the construction phase, the design as far as is developed at this stage, will be reviewed to identify the potential areas for waste generation and their magnitude assessed in order to establish the likely mitigation measures required.

6.148 We will summarise the waste management strategies for storing and disposing of construction wastes with reference to the Site Waste Management Plan (SWMP) Regulations 2008. A SWMP will be produced by the appointed contractor, subsequent to the ES.

6.149 During the operational stage, waste material will be generated by the occupants of the development. An assessment will be made of the generation of each waste type for the operational phase (i.e. glass, paper, biodegradable food, etc) using standard indices or guidance from PCC and/or HBC for different land uses. The quantity will then be assessed

for significance against the existing waste collection, recycling and disposal infrastructure in the local area.

- 6.150 Hampshire County Council (as the waste disposal authority covering the development area) have the responsibility to plan for waste infrastructure developments to cope with all waste streams, whether from a municipal, commercial or industrial source. The potential effects of the waste produced by the development on future waste management proposals in the area will also be assessed.

Baseline Conditions

- 6.151 The site is currently in agricultural use for the most part. As such, a baseline of waste will be set at zero. The waste from the proposed development will be assessed as part of the EIA.

Preliminary Assessment of the Likely Effects and their Significance

- 6.152 Although every effort will be made through the design process to maximise resource efficiency it is inevitable that some waste will be generated during each phase of the development and this will have some impact on the local waste collection and disposal infrastructure and targets.

Preliminary Indication of Mitigation Measures Required

- 6.153 The design and operation of the development will ensure that wastage is minimised throughout its lifecycle. At this stage it is likely that the potential impacts will be addressed using the following mitigation measures:
- The design will focus on the sustainability of the project and incorporate low-carbon, recycled or recyclable materials wherever possible.
 - An Operational Waste Management Statement will be produced to ensure that, where waste generation is unavoidable, this waste is properly managed and stored at source with the materials being suitable for recycling. The statement would also consider waste reduction/reuse methods such as industrial symbiosis within the development, whereby waste from one industrial process can be used as a feedstock for another industrial process.
 - The potential for mitigation in the demolition phase will be addressed qualitatively as part of the design process, with materials used that have the potential for re-use of recycling at the end of the development's design life.

7. Key Environmental Effects and Recommendations

Summary of Key Environmental Effects

- 7.1 Chapter 6 of this report highlights a range of environmental issues, some more significant than others, which will influence the design of the scheme outlined in Chapter 3 and which will need to be addressed in the technical assessments accompanying the planning application. These issues are summarised as a checklist in Table 7.1. The entries marked ✓ indicate the likely significant (slight or above) effects of the proposed development, insofar as they can be ascertained at this stage. The table differentiates between those impacts which could occur during the construction and operational stages of development.

Table 7.1 - Key Environmental Effects

Effects	Construction	Operation
Land Use - Agricultural land take and impacts on agricultural businesses - Development impacts on soil	✓ ✓	✓ -
Socio-economic Effects - Direct employment generation - Induced and indirect employment generation - Effects on local services and amenities	✓ ✓ -	✓ ✓ ✓
Air Quality Effects generated by: - Dust and particulates - Vehicle exhaust emissions - Health issues related to overhead power lines	✓ ✓ -	- ✓ ✓
Noise and Vibration Effects generated by: - Road traffic - Construction activities - Building services - Industrial noise	✓ ✓ - -	✓ - ✓ ✓
Cultural Heritage - Effects on buried archaeology	✓	-
Ground Conditions and Contamination - Effects on soil (see land use above) - Effects on groundwater (see water resources below) - Risk associated with historic landfill and gas pipeline	✓	-

Effects	Construction	Operation
Water Resources and Flood Risk Effects on: - Flood risk - Surface water run-off and quality - Ground water quality - Drinking water supply - Foul water system - Recreational fishing - Restoration of Hermitage Stream	- ✓ ✓ - - - ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓
Landscape and Visual Impact - Visual impact - Landscape impact - Impact of lighting	✓ ✓ -	✓ ✓ ✓
Ecology Effects on: - European Protected Sites - SINCs - Protected species - Habitats, large areas of which will be lost due to land take	✓ ✓ ✓ ✓	- - - -
Waste and Recycling - Construction waste - Operational waste	✓ -	- ✓

Key Recommendations for Further Assessment

- 7.2 As highlighted in the technical scoping sections in Chapter 5 of this report, a number of key recommendations for further assessment and investigation are made (Table 7.2).

Table 7.2 - Key Recommendations for Further Assessment

Technical Area	Key Recommendations for Further Assessment
Land Use	Desk top study and field reconnaissance to identify land take and impacts on agricultural businesses Analysis of impacts on soils
Socio-Economic Effects	Estimate construction and operational employment figures Calculate the expected level of indirect and induced employment likely to arise from both phases of the development Identify measures to maximise employment opportunities for local people Qualitatively assess the likely impacts of the development on existing local services and amenities, and identify measures to maximise benefits
Air Quality	Assess effects of development using Defra's LAQM TG to identify any changes in local air quality Qualitative assessment of dust and HGV emissions Assess health issues related to overhead power lines

Technical Area	Key Recommendations for Further Assessment
Noise and Vibration	Carry out sample noise surveys at appropriate locations Estimate the noise and vibration likely to be created during the construction and operational phases, and assess impacts on sensitive receptors Identify routes experiencing a change in traffic flow and assess any likely noise impacts
Cultural heritage	Desk-based assessment of archaeological potential and design of field assessment
Ground Conditions and Contamination	Ground investigation to document areas of made ground and historic landfill Identification of any hazards/pollution issues related to historic landfill and gas pipeline
Water Resources and Flood Risk	Undertake a Flood Risk Assessment to comply with the requirements of PPS25 Identify existing water environment features and assess the likely effects of the development and mitigation/enhancement measures Consultations to be undertaken with respect to drinking water supply and foul water capacity
Landscape and Visual Impact	Desktop and field work to establish baseline conditions Assessment to identify landscape sensitivity and impact with particular reference to impacts on the Strategic Gap Establish a theoretical ZVI and identify visual receptors and viewpoints within it Prepare indicative photovisualisations from selected key viewpoints and assess visual impacts Qualitative appraisal of likely effects of lighting
Ecology	Identify and evaluate existing ecological features, assess the significance of impacts and identify mitigation/enhancement measures Screening of impact on European Sites Ecological surveys have already commenced and will be completed for the following species: reptiles, wintering and breeding birds, dormice, bats, amphibians (in particular great crested newts), otters and water voles and badgers. Surveys will also be conducted of hedgerows.
Waste and Recycling	Assessment of the likely types and volumes of waste generated by the development Assessment of likely main waste streams and significance against the existing waste collection, recycling and disposal infrastructure Identification of measures to minimise waste for incorporation into the scheme design, and operational waste management

Appendix A

A.1 Key Visual Receptors and Groups

Reference	Location	Comments
1	PRoW 120 (Bridleway)	Slightly elevated view
2	PRoW 121 (Bridleway)	Slightly elevated view
3	PRoW 123 (Bridleway)	Proximal views from grade
4	PRoW 14d (Footpath)	Slightly elevated view
5	PRoW 14e (Footpath)	Slightly elevated view
6	PRoW 503 (Footpath)	Proximal view at grade
7	PRoW 508 (Footpath)	Proximal view at grade
8	PRoW 509 (Footpath)	Proximal view at grade
9	Road Infrastructure in Leigh Park	Proximal view at grade
10	Road Infrastructure Hulbert Road	Proximal view at grade
11	Road Infrastructure M3	Proximal view slightly elevated
12	Road Infrastructure Purbrook Way	Slightly elevated view
13	Residential properties in Leigh Park	Slightly elevated view
14	Residential properties in Waterloooville	Slightly elevated view

