Hinkley Point C | Development Consent Order Application

Environmental Statement
Doc Ref 4.2
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Environmental Statement - Volume 1

Introduction

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Environmental Statement

(Documents 4.1 to 4.19)

Regulation 5(2)(a)(includes information pursuant to Regulations 5(2)(L) and 5(2)(m))

CHAPTER 1: INTRODUCTION

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1. INTRODUCTION

1.1 Introduction

1.1.1 NNB Generation Company Limited (Company number 06937084), part of EDF Energy, is the Company that will lead the new nuclear programme in the UK. For the purpose of this consultation, NNB Generation Company Limited is referred to as EDF Energy.

1.1.2 EDF Energy is seeking Development Consent for a new nuclear power station known as Hinkley Point C (HPC), comprising two pressurised water reactors and associated infrastructure for the generation of electricity at Hinkley Point, Somerset. HPC together with proposed associated developments which are necessary for the construction and operation of the nuclear power station is referred to as the HPC Project (HPC Project). The HPC Project is located within the districts of West Somerset and Sedgemoor.

1.1.3 Under the framework established by the Planning Act 2008 (the Act) (Ref. 1.1) the HPC Project is termed a Nationally Significant Infrastructure Project (NSIP). This Environmental Statement (ES) has been prepared to document the findings of an Environmental Impact Assessment (EIA) which has been undertaken for the proposed HPC Project as required by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (EIA Regulations). The EIA has been carried out to identify the likely significant environmental impacts arising from the HPC Project and to establish appropriate measures to mitigate adverse impacts.

1.1.4 This ES accompanies an application for a Development Consent Order (DCO) which is being made to the Infrastructure Planning Commission (IPC) under the Act. The application for Development Consent will provide for the construction and operation of the new nuclear power station as well as the associated developments.

1.2 The Applicant

1.2.1 EDF Group (EDF) is one of the world's largest energy companies and the world's largest operator of nuclear power plants, with 58 operational plants in France and a further one under construction in Normandy. EDF has a strong safety track record of operating nuclear power stations and safety is at the heart of the design and operating procedures for all its nuclear plants. Within the UK, EDF operates via its UK subsidiary, as EDF Energy.

1.2.2 In January 2009, EDF acquired control of the UK nuclear power station operator, British Energy and as a result became the UK's biggest producer of electricity providing around one fifth of the nation's electricity requirements through nuclear, coal and gas power stations, as well as combined heat and power plants and wind farms. EDF Energy currently owns and operates eight nuclear power stations around the country, with a combined capacity of almost 9,000MW. These comprise seven Advanced Gas-cooled Reactor (AGR) power stations (each with two reactors) at six locations on the coast of Britain (there are two power stations at Heysham), and one Pressurised Water Reactor (PWR) at Sizewell in Suffolk (Sizewell B). The combined EDF Energy and British Energy installed capacity is around 16.5GW, and the

company supplies gas and electricity to over 5.5 million businesses and residential customers.

1.2.3 EDF Energy has confirmed publicly that it intends to invest in a new generation of nuclear plants in the UK and in doing so will contribute towards meeting the need for 25GW of new capacity from non-renewable technologies. EDF Energy is clear that nuclear power has a key role to play as part of the solution to climate change and in ensuring secure and affordable supplies of energy. EDF Energy also has confidence that new plants can be built and run safely and economically without Government subsidy.

1.3 Planning Process for Major Infrastructure

a) The Planning Act 2008

1.3.1 The Act (Ref. 1.1) introduced a new planning regime for Nationally Significant Infrastructure Projects (NSIPs) in England and Wales. The aim of the new regime is a faster, fairer and more efficient system for the consideration of proposals for NSIPs.

1.3.2 Under the Act, a new independent body, the Infrastructure Planning Commission (IPC), was established to consider applications for NSIPs. The IPC has been able to receive applications for energy and transport development since 1 March 2010. Under the Localism Bill (see paragraph 4.2.10) which is currently before Parliament, it is proposed that the IPC would be abolished and all decisions on NSIP applications taken by the SoS. The Government has announced that a new Major Infrastructure Planning Unit would be established as part of the Planning Inspectorate to carry out the examination of these applications.

1.3.3 Further details of the regime are set out in secondary legislation. This secondary legislation serves to implement the relevant parts of the Act, and is detailed in **Chapter 4** of this volume together with relevant statutory guidance produced by the Department for Communities and Local Government (CLG).

b) National Policy Statements

1.3.4 The Act (Ref. 1.1) also provides for Government to produce National Policy Statements (NPSs) setting out national policy for NSIPs. NPSs set out the strategic policy framework with the intention that they will operate as the primary policy document for the IPC, applicants and other interested parties when considering applications for development consent made under the Act.

1.3.5 The Overarching NPS for Energy (EN-1) (Ref. 1.1) is the umbrella document under which all other energy NPSs sit. It sets out how the suite of energy related NPSs will work; explains the framework of existing Government policy; and sets out the need for new energy infrastructure.

1.3.6 The Nuclear NPS (EN-6) (Ref. 1.2) provides a strategic policy framework for the consenting of new nuclear power station projects and provides site-specific guidance on nuclear specific impacts and siting issues. Unlike other technology-specific NPSs, the Nuclear NPS presents the Government's assessment of the need for new nuclear power and lists sites that the Government considers to be potentially suitable for the deployment of new nuclear power stations by 2025. These sites have been identified through the Strategic Siting Assessment (SSA).

1.3.7 An application for a DCO authorising the project works will be subject to consideration by the IPC (or the Secretary of State) once the Localism Bill comes into force, following a detailed examination of the proposed development, including its local impacts.

1.3.8 Further details of the legislation and national planning, energy and nuclear policies are provided in **Chapter 4** of this volume.

c) Development Consent Order (DCO)

1.3.9 Consent by the IPC will take the form of a DCO, which grants development consent for the NSIP and its associated development. A DCO may also remove the requirement to obtain certain separate consents or authorisations provided that the body which would otherwise have granted that consent or authorisation has agreed to this. A DCO may also make provision relating to other matters, such as the compulsory acquisition of land required for the development. Where a DCO is required for a project, as it is for the HPC Project, certain separate consents do not need to be obtained, such as planning permission.

1.3.10 Following acceptance of a DCO application by the IPC, there is a pre-examination stage during which (amongst other things) a preliminary meeting is held and an examination timetable set. The IPC will then have six months to examine the application, after which it must make a decision or make a recommendation to the SoS. The SoS then has a further three months to make a decision. As mentioned above, changes are proposed in the Localism Bill which would mean that the decision on an application would always be taken by the SoS even where the relevant NPS has been designated.

1.4 Overview of the Hinkley Point C Project

1.4.1 The HPC Project proposals are divided into two categories in accordance with the Act (Ref. 1.1), which defines what constitutes a NSIP. The first category is the NSIP itself, in this case the construction and operation of a nuclear power station, which is essentially plant and buildings involved in the generation of electricity, such as the reactors and turbine halls. The second category is development that is associated with that NSIP. The Act defines associated development as development which is associated with a NSIP. Sub-sections (2) and (3) of Section 115 of the Act set out other requirements which must be satisfied in order for development to be associated development. This latter category (associated development) can be included as part of the overall development proposal if it can be reasonably demonstrated that it is needed to enable the nuclear power station to be constructed and operated. The Department for Communities and Local Government (CLG) has prepared a guidance note (Ref.1.3), which identifies key matters for consideration with regard to NSIPs and associated development. The guidance note states that the IPC may also grant consent for development associated with that NSIP, where the IPC decides that the development can be treated as associated development, providing it has regard to the following principles (summarised):

- Associated development should not be an aim in itself but should be subordinate to and necessary for the development and effective operation, to its design capacity, of the NSIP that is the subject of the application.

- In most cases associated development is expected to be of a type normally brought forward with the relevant sort of primary development. For clarification, it could include:
  - measures necessary to mitigate the impacts of the primary development; and
  - innovative development ideas where the resulting development would fulfil the principles outlined in the guidance.
- Development should not be treated as associated development if it is actually an integral part of the NSIP.
- Throughout this ES, the NSIP or nuclear power station is referred to as HPC; the other development is referred to as associated development and is strategically located both within and away from the HPC development site; the HPC development site is the defined site area required for the construction of HPC.

a) Hinkley Point C

1.4.2 The proposed HPC nuclear power station will comprise two UK EPR reactor units and shared facilities. The reactor is designed for an operational lifetime of 60 years. Generated steam will power turbines, directly connected to a generator capable of producing around 1,630MW of electrical power, giving a total site capacity of approximately 3,260MW. A summary of the HPC proposals is provided in **Chapter 2** of this volume, and further detail in **Volume 2**.

b) Associated Developments

1.4.3 EDF Energy has identified a number of associated developments which are necessary to facilitate the construction, and in some instances, the operation of HPC and to mitigate potential environmental impacts associated with the project. The proposed associated developments include:

- three accommodation campuses for construction workers, with ancillary facilities;
- park and ride facilities across four sites;
- freight management facilities across two sites;
- an induction centre for the training of staff in connection with the HPC construction phase;
- a consolidation facility for postal/courier deliveries;
- a bypass around the west of Cannington;
- refurbishment and extension of the existing Combwich Wharf and an associated freight laydown facility; and
- a range of highway improvement works.

1.4.4 For the purpose of this ES and the other DCO application documents, EDF Energy refers to the "associated development" and the "associated development sites" to mean:

- an on-site accommodation campus and associated leisure facilities for construction workers;

- two off-site accommodation campuses and associated facilities for construction workers in Bridgwater;
- a park and ride facility at Williton;
- a park and ride facility at Cannington;
- a bypass around the west of Cannington;
- a refurbished and extended wharf at Combwich, and the provision of a freight logistics/storage facility to the south-east of Combwich;
- a park and ride facility, freight logistics facility, courier consolidation facilities and an induction centre at Junction 23 of the M5 motorway; and
- a park and ride facility and freight management facility at Junction 24 of the M5 motorway.

1.4.5 However, EDF Energy recognises that in legal terms, some of the development proposed on the HPC development site (in addition to the on-site campus) is likely to constitute "associated development" within the meaning of s115(2) Planning Act 2008. The temporary jetty and the public information centre, for example, are not part of the "generating station" itself (for which a DCO is required by virtue of s14 and s15 Planning Act 2008). However, they are associated with its construction and operation. The location of HPC and the off-site associated developments are shown in **Plate 1.1**.

1.4.6 In other cases it is less clear whether elements of the development proposed on the HPC development site should be considered part of the generating station itself or merely associated with its operation (for example, the sea wall, offices and workshops). EDF Energy has therefore not sought to draw this distinction in relation to each element of the HPC development, but is confident that all elements of the proposed development either constitute part of the generating station or "associated development" within the meaning of s115(2) Planning Act 2008.

1.4.7 In addition, EDF Energy recognises that the proposed off-site highway works constitute "associated development" in legal terms. However, with the exception of the construction of the Cannington bypass for ease of reference, these works are generally referred to in this document and in EDF Energy's other application documents as "highway improvements" rather than as part of the "associated development" or the "associated development sites".

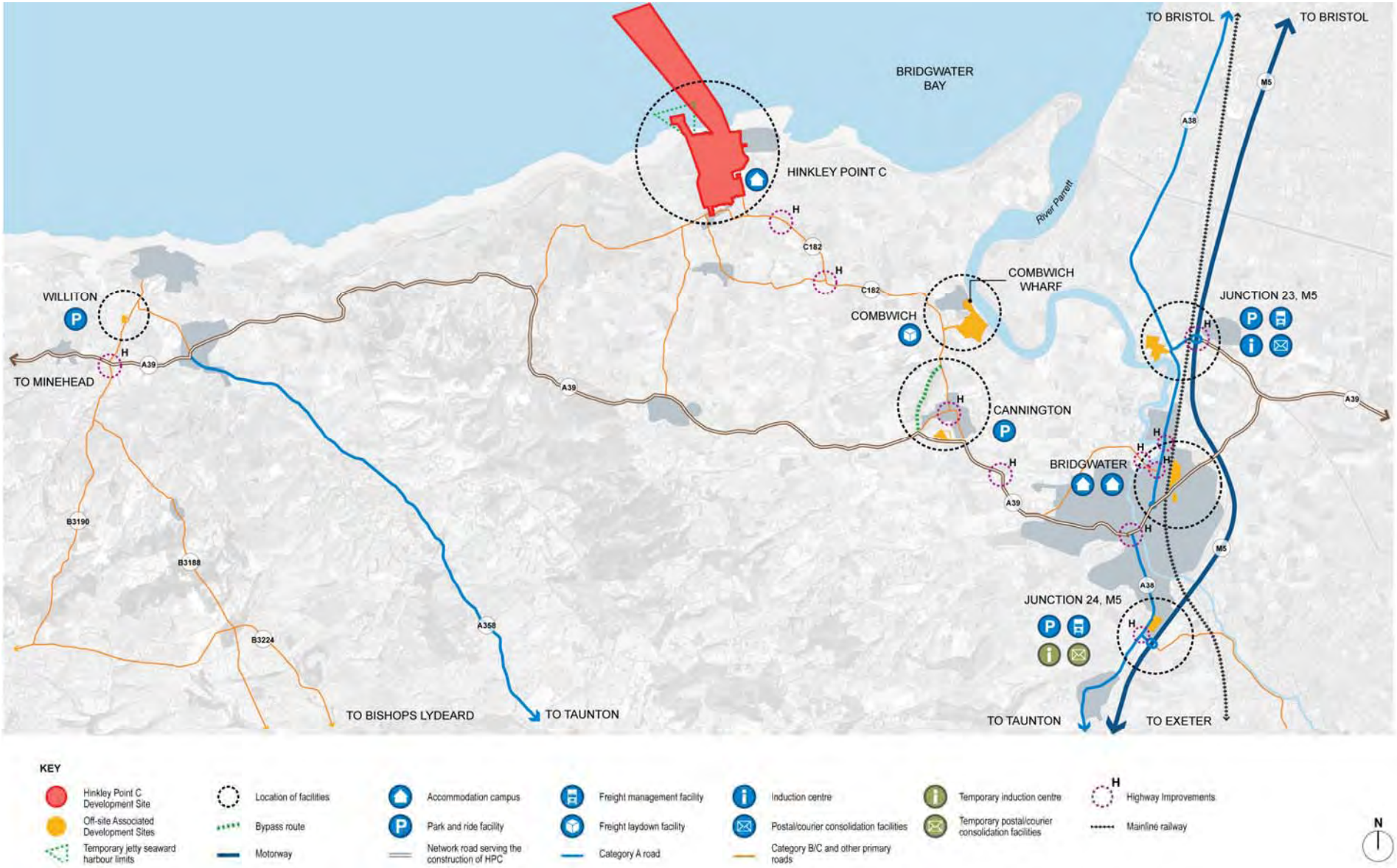
1.5 Recent Development Activity at the HPC Site

1.5.1 EDF Energy has recently progressed the following works at the HPC site:

- remediation of the north-eastern part of the site which included removal of spoil and contaminated waste (non-radiological) from the construction of the existing Hinkley Point A and Hinkley Point B (herein referred to as the ‘ existing Hinkley Point Power Station Complex’). These works are expected to be complete in early 2012; and
- construction of a bat barn along the site’s south-western boundary.

1.5.2 These works, which commenced in 2011 are described in **Chapter 6** of this volume.

Plate 1.1: Hinkley Point C Site Context Plan



1.5.3 EDF Energy has also submitted two applications to undertake further works collectively entitled “preliminary works” to facilitate the construction of a new nuclear power station at HPC, including:

- site preparation works to prepare the site for the construction of HPC (considered by West Somerset Council Planning Committee in July 2011 and a resolution to grant planning permission was made subject to resolving conditions and finalising a s106 legal agreement); and
- the construction and operation of a temporary jetty, providing the infrastructure needed to import construction materials, especially bulk materials such as aggregate and cement, directly to site by sea (to be considered at a public inquiry due to begin in November 2011).

1.5.4 The applications for the preliminary works were made to West Somerset Council for the site preparation works, and the Marine Management Organisation (MMO) and Secretary of State (SoS) for Transport for the temporary jetty. These applications were made in advance of the application for a DCO for HPC to expedite the construction programme so that the new power station can be operational as soon as possible. This is in accordance with the Government’s policy to encourage early deployment of new nuclear power stations (see **Chapter 4** of this volume).

1.5.5 Further details on the preliminary works and how the site preparation works and temporary jetty are considered within this application and Environmental Statement are provided in **Chapter 6 Enabling and Preliminary Works** and **Chapter 7 EIA Approach and Methodology**.

1.6 Environmental Statement

1.6.1 The EIA Regulations came into force on 1 October 2009 and set out the procedures that must be followed so that the consideration of applications for NSIPs fully reflect the requirements of European Council Directive 85/337/EEC (Ref. 1.4) (as amended by 97/11/EC (Ref. 1.5) and 2003/35/EC (Ref. 1.6)) on the assessment of the effects of certain specified private and public projects on the environment.

1.6.2 Pursuant to the EIA Regulations, nuclear power stations are an EIA development, for which an EIA must be carried out. Accordingly this ES has been prepared to assess the likely significant environmental impacts of the HPC Project and propose mitigation measures designed to prevent, reduce or offset any such impacts.

1.6.3 In accordance with best practice, a scoping process was undertaken to identify the potentially significant environmental effects of the proposed development and outline the approach to undertaking the assessment of these effects. Details of the scoping process, which started in Spring 2008, are provided in **Chapter 7** of this volume.

1.6.4 As required by the Act, EDF Energy undertook detailed pre-application consultation on its proposals with statutory consultees and other relevant stakeholders under Section 42; with local communities living in the vicinity of the site under Section 47; and with the general public under Section 48 of the Act (Ref. 1.1). The first stage of consultation set out the initial proposals and options, and took place between November 2009 and January 2010. The second stage of formal consultation set out preferred proposals for development and ran from July to October 2010. This was followed up by two supplementary consultations in 2011 on specific aspects of the

proposals as new information became available, and to reflect the views of the consultees. Preliminary environmental information was provided in conjunction with the consultations. In addition to formal consultation activities, EDF Energy has held numerous meetings with local authorities, statutory bodies, local organisations and community groups. Details of the consultation process are provided in the **Consultation Report**.

1.6.5 This ES presents the assessment of likely significant environmental impacts that would occur as a result of the proposed development including the construction and operational phases of HPC and the associated developments; the post-operational phase of the associated development sites; and the decommissioning of HPC. In accordance with the EIA Regulations, this ES contains the following:

- a description of the proposed scheme;
- an outline of the main alternatives considered and an indication of the main reasons for EDF Energy's choice;
- a description of the aspects of the environment likely to be significantly affected by the development;
- a description of the likely significant effects of the development on the environment, which will cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development;
- a description of any mitigation measures proposed to prevent, reduce or off-set any significant adverse impacts on the environment;
- a summary of the ES in non-technical language in a separate document (a Non-Technical Summary); and
- an indication of any difficulties (technical deficiencies or lack of know-how) in compiling the required information.

1.6.6 The ES for the HPC Project comprises eleven volumes and seven annexes, accompanied by a suite of figures, appendices and supporting referenced reports, as follows:

a) Volume 1: Introduction

1.6.7 This volume provides an introduction to the HPC Project and the ES, the planning process and the overarching legislative and planning policy context. It presents an account of the strategic alternatives considered, identifying preferred options and supporting studies that have informed the final HPC Project proposals; a summary of recent planning applications for the site; and details on the EIA approach and methodology.

b) Volume 2: Hinkley Point C

1.6.8 This volume presents details of:

- the existing site and surrounding environment;
- the proposed development;
- site preparation, construction, operational and decommissioning activities; and

- the assessment of environmental effects of the HPC development (having regard in particular to current knowledge and methods of assessment), proposed mitigation and residual effects.

c) Volumes 3 to 10: Off-site Associated Developments

1.6.9 These volumes present details of:

- the off-site associated development sites;
- the proposed developments;
- construction and operational activities;
- the potential post-operational states; and
- the assessment of environmental effects of the associated development (having regard in particular to current knowledge and methods of assessment), proposed mitigation and residual effects.

1.6.10 The off-site associated developments are presented as follows:

- **Volume 3** - Bridgwater A accommodation campus.
- **Volume 4** - Bridgwater C accommodation campus.
- **Volume 5** - Cannington bypass.
- **Volume 6** - Cannington park and ride facility.
- **Volume 7** - Combwich Wharf refurbishment and extension, and freight laydown facility.
- **Volume 8** - Junction 23 park and ride facility, freight management facility, consolidation facility for postal/courier deliveries and induction centre.
- **Volume 9** - Junction 24 park and ride, freight management facility, temporary consolidation facility for postal/courier deliveries and temporary induction centre.
- **Volume 10** - Williton park and ride facility.

d) Volume 11: Cumulative Impact Assessment

1.6.11 This volume comprises an assessment of the potential cumulative impacts, including assessment of any additive and interactive impacts of the HPC Project developments and any cumulative impacts of the HPC Project in combination with other 'non-HPC Project' developments.

e) Non-Technical Summary (NTS)

1.6.12 The ES is accompanied by a Non-Technical Summary which provides a summary of the key findings of the EIA for the HPC Project.

f) Environmental Statement Annexes

1.6.13 There are seven project-wide technical documents that support the ES and these are provided as annexes, as follows:

- **Annex 1** – Scoping Opinion for Proposed Nuclear Development at Hinkley Point C Somerset, Infrastructure Planning Commission
- **Annex 2** – Construction Method Statement
- **Annex 3** - Hinkley Point C Development Site - Environmental Management and Monitoring Plans
- **Annex 4** - Off-Site Associated Developments - Environmental Management and Monitoring Plans
- **Annex 5** - Waste Management Implementation Strategy
- **Annex 6** - Community Safety Management Plan
- **Annex 7** - Transport Assessment

g) Glossary

1.6.14 A glossary of common and technical terms and abbreviations is provided in **Appendix 1A**.

References

1.1 Planning Act. HMSO, 2008.

1.2 DECC. National Policy Statement for Nuclear Power Generation (EN-6). HMSO, 2011.

1.3 Localism Bill. HMSO, 2010.

1.4 European Commission. Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment. Publications Office of the European Union, 1985.

1.5 European Commission. Council Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment. Publications Office of the European Union, 1997.

1.6 European Commission. Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC. Publications Office of the European Union, 2003.

CHAPTER 2: PROPOSED HINKLEY POINT C DEVELOPMENT

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PLATES

FIGURES

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2. PROPOSED HINKLEY POINT C DEVELOPMENT

2.1 Introduction

2.1.1 This chapter of the Environmental Statement (ES) provides an overview of the proposed development at Hinkley Point C (HPC), including key processes and functions involved in the operation of the power station. Detailed descriptions of the permanent built development, construction, operation and decommissioning activities are provided in **Volume 2**.

2.2 Description of the Proposed Development

a) Hinkley Point C Nuclear Power Station

2.2.1 The nuclear power station development itself would comprise two UK EPR reactor units and shared facilities. Generated steam will power turbines, directly connected to a generator capable of producing around 1,630 megawatts (MW) of electrical power giving a total site capacity of 3,260MW.

2.2.2 The permanent HPC built development which incorporates the completed landscape restoration scheme is illustrated in **Figure 2.1**. HPC will comprise a range of buildings and appropriate structures above ground, sub-surface and on the sea bed, including:

- two Nuclear Islands each comprising a UK EPR reactor and associated buildings;
- two Conventional Islands, each including a Turbine Hall, located adjacent to the Nuclear Islands;
- a Cooling Water Pumphouse for each UK EPR reactor unit with related infrastructure;
- sea bed cooling water intakes and outfall structures together with tunnels connecting these to the cooling water pumphouses and turbine halls.
- fuel and waste management facilities, transmission infrastructure including the National Grid 400kV substation, staff facilities, administration, storage facilities and other plant;
- a Public Information Centre (PIC) to provide education and public information facilities;
- a Sea Wall incorporating a public footpath; and
- access and parking facilities for workers, visitors and deliveries for the main power station and the National Grid 400kV substation.

2.2.3 The permanent built development (comprising 67.5ha) will be distributed over a series of level platforms at various elevations. Elsewhere the permanent landform will be in accordance with the topography presented in the landscape restoration proposals. The main development platform will accommodate the nuclear islands and conventional islands and onshore cooling water infrastructure.

2.2.4 The layout and design of HPC has taken into consideration a number of options and constraints including:

- nuclear and conventional safety and security requirements;
- environmental risk and radiological protection;
- adequate spacing between the reactor buildings and turbine halls to facilitate construction and operation;
- provision of an open circuit main cooling system;
- on-site interim spent fuel storage and intermediate level waste storage for the two UK EPR units;
- EDF Energy power transmission infrastructure (including overhead lines) to export electricity via the power transmission platform to the National Grid 400kV substation; and
- an Operational Service Centre to be located between the two reactors.

2.2.5 Each UK EPR reactor unit has been designed for an operational lifetime of 60 years, and includes at least 10 years of fuel storage in the ponds inside the plant before it is transferred to an Interim Spent Fuel Store. The UK EPR design is such that once the fuel is loaded in the reactor core the reactor can operate at full power continuously for approximately 18 months.

2.2.6 The two reactor buildings would each house one UK EPR. At the heart of the UK EPR is a reactor core, which comprises the fuel assemblies which contain an array of fuel rods comprising uranium dioxide pellets in a sealed cladding tubes which is cooled by water. The uranium has been enriched in the fissile isotope uranium-235 (U-235). A fissile isotope is an isotope where, when it collides with a low energy neutron, its nucleus splits ("fissions") into smaller fragments ("fission products") and releases further neutrons together with energy. In a nuclear reactor, where these neutrons are slowed down ("moderated") by the water surrounding the fuel to the point where they can cause a further nucleus to fission, this results in a sustained chain reaction and the release of energy as heat.

2.2.7 The functioning of the UK EPR reactor is based on a primary system, a secondary system and an open circuit cooling system which provides the heat sink for the plant. The primary system is a closed water-filled pressurised system. The heat produced by the nuclear fission reaction inside the fuel assemblies in the reactor core is extracted with pressurised water, which circulates in the primary system. The heated water then passes through tubes within the steam generators. Here the heat is transferred through the tube walls into the water of the separate secondary system which flows outside and between the tubes. The secondary system is a closed system which is independent of the primary system, and it operates at a lower pressure. Consequently, when heated by the primary system in the steam generators, the water in the secondary system boils to steam. The steam is supplied to the turbine located in the turbine hall. The turbine is directly coupled to the generator which produces electricity. After leaving the turbine, the steam is cooled and condensed back to water in the condenser. It is then returned to the steam generators.

2.2.8 The cooling system is independent of the primary and secondary systems. It is an open system which draws water directly from the sea. This absorbs heat from the secondary system in the condenser and is then discharged back to the sea.

2.2.9 The proposed nuclear power station will be direct cooled with water from Bridgwater Bay via two intake heads for each of the reactor units. Water will be discharged back to Bridgwater Bay via a single shared outfall. The proposed locations of these structures are approximately 3.4km and 3.5km offshore for the intake heads, and approximately 1.8km offshore for the outfall head.

b) Transmission Infrastructure

2.2.10 Electricity generated in the turbine halls, as outlined above, would be converted by transformers to high voltage (400 kilovolts, or kV), before being exported by overhead lines connected to the National Grid 400kV substation within the HPC permanent development site. The 400kV sub-station is included in this application for a DCO.

2.2.11 To facilitate connections between the proposed 400kV substation and the national grid high voltage transmission system, modifications to the existing overhead lines in the vicinity of the power station site will be required. This will include the re-routing of existing overhead lines and construction of a number of new towers (pylons). These works will form part of a separate DCO application to be submitted by the National Grid.

c) Access and Parking

2.2.12 The existing access road into the Hinkley Point Power Station Complex (including Hinkley Point A and Hinkley Point B) will also be the main access for the proposed development. Two roundabouts are proposed along this route. The first to the east of HPC will generally provide access to site personnel and deliveries. The second, to the south-east of the HPC development site, will provide access to the southern part of the development site during the construction phase, and during the operational phase will provide an alternative means of access to HPC, including public access to the public information centre.

2.2.13 In addition, an emergency access road will be constructed from the south of the HPC development site as an alternative means of accessing HPC in exceptional circumstances such as for the emergency services to respond to an incident at the power station. The public highway route for this emergency access is proposed to be from Shurton to the A39 via Stogursey Lane.

2.2.14 A car park for operational staff will be located to the south-east of the HPC permanent development site, adjacent to the National Grid 400kV substation. In addition, a second permanent car park will be constructed to the south of the permanent development site to accommodate visitors to the PIC and additional workers who will be required for planned ‘outage’ (i.e. maintenance) activities. A further smaller car park will be constructed to the east of the site to provide parking facilities for staff from both HPC and the existing Hinkley Point Power Station Complex overflow car park, replacing the existing car park to the north-east of the HPC development site.

d) Landscape Proposals

2.2.15 When the HPC permanent development is complete, the extended HPC development site area will be landscaped. The landscape proposals provide for all suitable excavated material to be retained on-site for use as backfill and incorporation into the indicative scheme. This reduces the need to dispose of the material off-site and minimises the potential impacts of the resultant traffic on the road network. As illustrated in **Figure 2.1** the landscape strategy aims to recreate the existing landform through the following principles:

- maintain the relative height and prominence of the Green Lane ridge through landscape design which ensures the southern landform will be no higher than 35m AOD;
- use landform for visual mitigation, including coastal screening with landforms to the west at a height of no more than 35.5m AOD;
- create a wide, gently sloping shallow valley over a culverted Holford Stream;
- support required land uses e.g. gentle slopes for arable agricultural land; and
- create a smooth transition between the HPC development site and adjacent land e.g. the Eastern Lowlands and Wick.

2.3 Construction of Hinkley Point C

2.3.1 As illustrated in **Plate 2.1** construction works at HPC, including the preliminary works, are anticipated to commence in 2011 with unit 1 and unit 2 fully operational in 2019 and 2020 respectively. The workforce numbers during construction are expected to peak at around 5,600.

2.3.2 EDF Energy has identified a number of associated developments which are necessary to facilitate the construction, and in some instances, the operation of HPC and to mitigate potential environmental impacts associated with the project. As summarised in **Chapter 3** of this volume, the proposed associated developments include accommodation campuses, park and ride facilities, freight management facilities, a bypass and refurbishment of the existing Combwich Wharf facility.

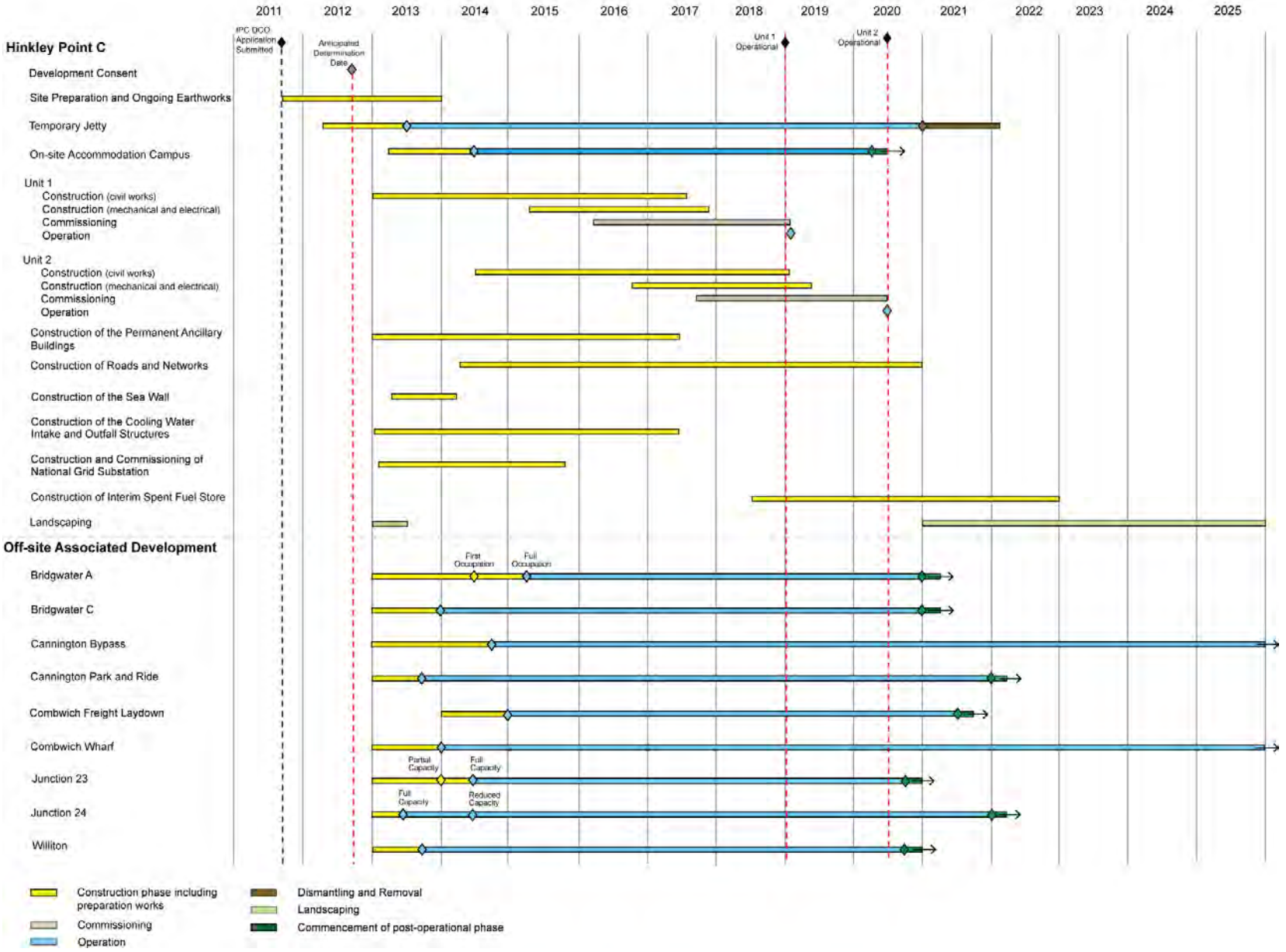
2.3.3 A range of highway improvement works will be implemented across the network including modifications to existing road alignments, junction or roundabout arrangements, and enhanced safety measures.

2.3.4 The construction of HPC comprises a number of key phases as described below.

a) Preliminary Works

2.3.5 To facilitate the construction of a new nuclear power station at HPC a series of preliminary works will be undertaken at the HPC development site, including site preparation works and the construction and operation of a temporary jetty. The works have been subject to separate applications as detailed in **Chapter 6** of this volume. The site preparation works include land clearance and topsoil stripping; earthworks to create the new platforms for the development site; creation of spoil storage areas; construction of access roads, haulage roads and temporary facilities for the contractors; and construction of a surface water drainage system.

Plate 2.1: Indicative Construction Programme for the HPC Project



2.3.6 The temporary jetty is needed early to provide a means for delivery of bulk construction materials (principally stone, sand and cement) to the construction site at Hinkley Point. Early construction of the temporary jetty would mean it would be available to serve the whole of the construction phase for HPC; thus reducing HGV construction traffic on local roads.

b) Construction of Buildings

2.3.7 Following the site preparation works and excavations, first structural concrete would be poured for each of the main buildings. Material requirements during this period would be mainly sand, aggregate and cement, reinforcing steel and pipework. This would include construction of the nuclear island, conventional island, the balance of plant, ancillary buildings and structures, the National Grid 400kV substation and overhead line transmission infrastructure.

c) Installation of Plant

2.3.8 Mechanical and electrical plant would begin to arrive on-site about a year after the main construction works have commenced, as it would be necessary to install some of this equipment as the civil work proceeds. Main plant erection will take place approximately three years into the construction period.

d) Land Use Requirements for Construction

2.3.9 Activities required to construct the nuclear power station will involve the use of land on a temporary basis. The way land is used will be carefully planned to ensure the nuclear power station is built in a timely and efficient manner, with due consideration to environmental impacts. In summary, key temporary land use requirements are:

- contractors' working areas including laydown, workshops, stores, offices, canteen and car parking;
- spoil storage;
- construction roads, fencing, lighting and security features; and
- environmental mitigation features.

2.3.10 It is proposed that an accommodation campus for construction workers will be constructed in the south-east part of the HPC development site. This facility would accommodate up to 510 workers.

2.4 Operation of Hinkley Point C

2.4.1 The two UK EPR reactor units would be constructed 18 months apart with Unit 1 scheduled for commissioning and subsequent operation in 2019 and Unit 2 in 2020. Upon completion, each reactor will undergo commissioning which involves a series of tests to demonstrate, to the extent practicable, that the plant, as built and including all components and systems, is capable of safe and reliable operation in accordance with its design specification, performance objectives and safety requirements.

2.4.2 HPC will have an operational lifetime of 60 years and will undergo refuelling and maintenance shutdowns (otherwise known as 'outages') at regular periods throughout its operational life. The length of these shutdowns will vary according to the maintenance and inspections required.

2.5 Decommissioning of Hinkley Point C

2.5.1 At the end of its operational life HPC will be decommissioned in accordance with national policy and regulatory requirements whereby:

- each operator is expected to produce and maintain a decommissioning strategy and plans for its sites;
- decommissioning operations should be carried out as soon as reasonably practicable, taking all relevant factors into account as provided for in the operator's strategy and plan;
- strategies should minimise the volumes of radioactive wastes which are created, particularly the volume of Intermediate Level Waste. Wherever possible, wastes should not be created during decommissioning until an appropriate management solution is, or will shortly be, available for use; and
- any new facility should be designed and built so as to minimise decommissioning and associated waste management operations and costs.

2.5.2 Regulation of the decommissioning of a nuclear facility is carried out under essentially the same regulatory regime that applies to construction and operation. It will be subject to a separate consultation and consents process including its own specific EIA. EDF Energy will be adopting a decommissioning strategy where the nuclear power station buildings, including the reactor building, would be progressively removed following final shutdown and defueling. Decommissioning is expected to take approximately 20 years following end of generation.

CHAPTER 3: PROPOSED ASSOCIATED DEVELOPMENT

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PLATES

FIGURES

3. PROPOSED ASSOCIATED DEVELOPMENT

3.1 Introduction

3.1.1 This chapter of the Environmental Statement (ES) provides an overview of the proposed associated developments required in connection with the construction, and in some instances operation, of the Hinkley Point C (HPC) power station. Detailed descriptions of each of the proposed associated developments, along with details of the construction, operational and post-operational phases are provided in the relevant volumes (**Volumes 2** to **10**) of the ES. **Chapter 1** of this volume provides a site context plan that identifies the location of each of the proposed associated developments in relation to the HPC development site.

3.1.2 This chapter is structured as follows:

- an explanation of the definition and scope of the proposed associated developments which form part of the HPC Project, to which this application for Development Consent relates;
- an overview of the proposed associated developments; and
- a summary of the anticipated programme for the construction, operational and post-operational phases of the proposed associated developments.

3.1.3 An overview of the structure of the ES, including details of the volumes to which each proposed development relates, is described in **Chapter 1** of this volume of the ES.

3.2 Associated Development

a) Definition and Scope of Associated Development

3.2.1 Associated development is required by EDF Energy to facilitate the construction, and in some instances operation, of the HPC power station; as well as to reduce potential environmental impacts associated with the HPC Project. Section 115 of the Planning Act 2008 (the Act) (Ref. 3.1) gives powers to the Infrastructure Planning Commission (IPC) to grant Development Consent for development that is associated with a Nationally Significant Infrastructure Project (NSIP) (i.e. the proposed HPC power station). Section 115 of the Act also provides a definition of associated development, being that which is associated with a NSIP as defined by Part 3 of the Act.

3.2.2 The Department for Communities and Local Government (DCLG) has prepared a guidance note (Ref. 3.2), which identifies key matters for consideration with regard to NSIPs and associated development. The guidance states that it is for applicants to decide whether to include proposals that could be treated as associated development when applying for Development Consent and that these proposals should be included in the application for the main development (i.e. the HPC power station). The guidance provides examples of the types of development that may qualify as associated development, which include but are not limited to:

- highway improvements;
- construction of new roads;
- other highway-related works (e.g. to facilitate demand management measures or to provide lorry parking or service facilities);
- parking spaces for workers and users of the NSIP;
- accommodation for staff who must be on-site to enable the operation or maintenance of the NSIP;
- site offices; and
- mitigation measures to prevent or address environmental nuisance.

3.2.3 Refer to **Chapter 1** of this volume of the ES for further details.

b) HPC Project Associated Development

3.2.4 The proposed associated developments required in connection with the HPC Project comprise:

- Accommodation campuses for up to 1,510 non-home-based workers across three sites (see **Table 3.1:**).
- Park and ride facilities for up to 2,361 car parking spaces, 49 mini-bus/van parking spaces, 125 motorcycle spaces, 125 bicycle spaces and 51 bus parking bays, with ancillary facilities, across four sites (see **Table 3.2**).
- Freight management facilities for up to 140 heavy goods vehicles (HGVs) with ancillary facilities, across two sites (see **Table 3.2**).
- An induction centre for staff in connection with the HPC construction phase (see Section 3.2 (g) of this chapter).
- A consolidation facility for postal/courier deliveries (see Section 3.2 (g) of this chapter).
- A bypass around the west of Cannington (see Section 3.2 (h) of this chapter).
- Refurbishment and extension of the existing Combwich Wharf and an associated temporary freight laydown facility for the storage of Abnormal Indivisible Loads (AILs) and other construction goods being delivered via Combwich Wharf (see Section 3.2 (f) of this chapter).
- Highway improvements (see Section 3.2 (i) of this chapter).

3.2.5 Fuller descriptions of the location and nature of each of the proposed associated developments are provided in **Chapters 1** and **2** of the relevant volume of the ES for (i.e. **Volumes 2** to **10**).

c) Accommodation Campuses

3.2.6 In order to accommodate the non-home-based workforce associated with the construction phase, three accommodation campuses are proposed. **Table 3.1:** provides an overview of the proposed accommodation campuses; and **Figures 3.1** to **3.3** illustrate the masterplans for each of these proposed developments.

Table 3.1: Accommodation Campuses - Overview

Site Location	Description of Proposed Development
South-western part of the Hinkley Point C (HPC) development site (HPC development site) (**Figure 3.1**)	The proposed development would include: • living spaces, in en-suite rooms to accommodate 510 occupants within 15 accommodation buildings; • 353 car parking spaces and motorcycle and bicycle parking spaces; • an amenity building providing amongst other facilities including administration, canteen, laundry, gym and recreational facilities; • two 5-a-side football pitches and associated toilet facilities; • a bus drop-off point; • internal access roads; • access off the C182 (Wick Moor Drove); • landscaping within the site, including tree planting around the perimeter of the site; and • other ancillary development including signage, fencing, lighting, CCTV and utilities. Further details are provided in **Volume 2** of the ES.
Land at the former Innovia Factory site, off the A39 (Bath Road) (Bridgwater A) (**Figure 3.2**)	The proposed development would include: • an accommodation campus, including living space for 850 occupants within 25 accommodation buildings; three football pitches (one full size and two 5-a-side pitches) and associated changing facilities; 543 car parking spaces and bus, motorcycle and bicycle parking spaces; an amenity building providing amongst other things administration, canteen, laundry, gym and recreational facilities; and internal access roads; • access off the A39 (Bath Road), changes to the road markings along the A39 (Bath Road) and the stopping up of Fredrick Road; • a new drainage rhyne; • landscaping within the site, including tree planting around the perimeter of the site; and • other ancillary development, including signage, fencing, lighting, CCTV and utilities. Further details are provided in **Volume 3** of the ES.
Land at College Way/ Bridgwater and Albion Rugby Football Club (Bridgwater C) (**Figure 3.3**)	The proposed development would include: • an accommodation campus, including living space for 150 occupants within four accommodation buildings; an all weather 5-a-side football pitch; 66 car parking spaces, and motorcycle and bicycle spaces; a temporary canteen building for a period of approximately six months until the facilities at Bridgwater A accommodation campus become operational; and internal access roads; • alterations to the existing gyratory on the A39 (Bath Road), including provision of two bus shelters and changes to the road markings; • access road off College Way; • landscaping within the site, including tree planting along College Way; and • other ancillary development, including signage, fencing, lighting, CCTV and utilities. Further details are provided in **Volume 4** of the ES.

d) Park and Ride Facilities

3.2.7 In order to minimise the number of vehicle movements associated with workers travelling to the HPC development site by private car, four park and ride facilities are proposed. **Table 3.2** provides an overview of each facility; and **Figures 3.4** to **3.7** illustrate the masterplans for each of these proposed developments.

Table 3.2: Park and Ride Facilities - Overview

Site Location	Description of Proposed Development
Land to the south of Cannington with access off the A39 (Cannington) (**Figure 3.4**)	The proposed facility would include: • 252 parking spaces (132 workforce and 120 visitors) of which seven would be accessible spaces and six would be minibus/van spaces; • 18 bicycle parking spaces; • 18 motorcycle spaces; • four dedicated bus parking bays and pick up/drop off facilities; • kiss and drop facilities; • waiting facilities; • security and welfare facilities; • detention ponds; • pedestrian and bicycle access via existing rights of way from the north; • vehicular access off the existing A39 via a priority junction and internal roads; • widening of the A39 and provision of a footway between site access and A39 Main Road eastern roundabout; and • landscaping, including bunding. Further details are provided in **Volume 6** of the ES.
Land to the west of Dunball Roundabout/A38 (Junction 23) (**Figure 3.5**)	The proposed facility would include: • 1,300 parking spaces, of which 32 would be accessible spaces and 25 would be minibus/van spaces; • 65 bicycle spaces; • 65 motorcycle spaces; • 17 dedicated bus parking bays and pick up/drop off facilities for buses; • kiss and drop facilities; • waiting facilities; • security and welfare facilities; • works to River Parrett flood defences; • landscaping, ecological mitigation area, surface water drainage infrastructure to include a detention pond and bunding; and • re-aligned access off the existing A38 roundabout and internal roads. Further details are provided in **Volume 8** of the ES.
Land to the north-west of the Junction 24 roundabout and north-east of Huntworth roundabout (Junction	The proposed facility would include: • 1,300 parking spaces, of which 32 would be accessible spaces and 25 would be minibus/van spaces, reducing to 698 parking spaces, of which 17 would be accessible spaces, and 14 minibus/van spaces

Site Location	Description of Proposed Development
24) (**Figure 3.6**)	once the facilities at Junction 23 become available; • 65 bicycle spaces reducing to 34 bicycle spaces once the facilities at Junction 23 become available; • 65 motorcycle spaces reducing to 34 motorcycle spaces once the facilities at Junction 23 become available; • 25 dedicated bus parking bays and pick up/drop off facilities for buses; • kiss and drop facilities; • waiting facilities; • security and welfare facilities; • landscaping; and • access off the Huntworth Business Park access road and internal roads. Further details are provided in **Volume 9** of the ES.
Former Lorry Park to the west of Williton (Williton) (**Figure 3.7**)	The proposed facility would include: • 160 parking spaces, of which four would be accessible spaces and four would be minibus/van spaces; • eight bicycle parking spaces; • eight motorcycle spaces; • five dedicated bus parking bays; • pick up/drop off facilities for buses; • kiss and drop facilities; • waiting facilities; • security and welfare facilities; • landscaping; and • access off the existing B3190 and internal roads. Further details are provided in **Volume 10** of the ES.

e) Freight Management Facilities

3.2.8 In order to minimise the impact of freight movements on the local road network in connection with the construction phase of the HPC Project, two freight management facilities are proposed. **Table 3.3** provides an overview of each facility; and **Figures 3.5** and **3.6** illustrate the masterplans for each of these proposed developments.

Table 3.3: Freight Management Facilities - Overview

Site Location	Description of Proposed Development
Land to the west of Dunball Roundabout/A38 (Junction 23) (**Figure 3.5**)	The proposed development would include: • 85 HGV holding spaces; • freight checking area; • associated car parking spaces; • associated administration/amenity and security facilities; • works to River Parrett flood defences; • landscaping, ecological mitigation area, surface water drainage infrastructure to include a detention pond and bunding; and • re-aligned access off the existing A38 roundabout and internal roads. Further details are provided in **Volume 8** of the ES.
Land to the north-west of the Junction 24 roundabout and north-east of Huntworth roundabout (Junction 24) (**Figure 3.6**)	The proposed development would include: • 140 HGV holding spaces, reducing to 55 HGV parking spaces once the facility at Junction 23 becomes available; • freight checking area; • associated administration/amenity and security facilities; • landscaping; and • access off the Huntworth Business Park access road and internal roads. Further details are provided in **Volume 9** of the ES.

f) Refurbishment and extension of Combwich Wharf and Combwich Freight Laydown Facility

3.2.9 The primary function of Combwich Wharf is to enable the delivery of the largest Abnormal Indivisible Loads (AILs). These comprise a range of bespoke plant items manufactured off-site and delivered as complete packages for installation. As such, they are not geometrically suitable for long distance transport by road as they are too large and/or heavy. The facility would also be used for the import of other construction-related goods, during the construction phase of the HPC Project, such as palletised or containerised items including deliveries of reinforcement, pipework, cladding and other similar bulky construction items. The wharf would not be used for the delivery of aggregates (which would be delivered via the temporary jetty – see **Chapter 2** of this volume of the ES).

3.2.10 The new freight laydown facility is proposed to be constructed on land close to Combwich Wharf. The origin for many of the AILs means that they need to be transported long distances by sea with sailings booked many months in advance. Sailings may be subject to fluctuation due to adverse weather conditions. In recognition of this, and due to constraints at the HPC development site, it is proposed to provide a holding area for AILs at Combwich. As there is no laydown area available at Combwich Wharf itself, a freight laydown facility would provide a degree of contingency against any supply disruption before AILs are transported to the HPC development site. At times when the freight laydown facility would not be used for AILs, i.e. where limited or no AILs are delivered to Combwich Wharf, the facility would be used in the short-term for storing other construction items.

3.2.11 Use of the freight laydown facility would be prioritised for water-borne deliveries. Any surplus areas would be used for the storage of road-borne construction goods deliveries where practicable.

3.2.12 **Figure 3.8** identifies the proposed layout of the Combwich freight laydown facility and **Figure 3.9** identifies the proposed layout of Combwich Wharf. Further details are provided in **Volume 7** of the ES.

g) Induction Centre and Postal/Courier Consolidation Facility

3.2.13 An induction centre is proposed at Junction 23 to facilitate the induction of workers associated with the construction phase of the HPC Project. It includes a two-storey building and ancillary development.

3.2.14 A consolidation facility for postal/courier deliveries is proposed to provide a dedicated facility to receive all postal/courier deliveries bound for the HPC development site. These would be sorted, checked and then transferred to the HPC development site.

3.2.15 These facilities would be sited within the central part of the site and would use the same access roads and ancillary development as the other components of the proposed development at Junction 23. **Figure 3.5** identifies the location of these facilities within the masterplan. Further details are provided in **Volume 8** of the ES.

3.2.16 Until these facilities are available at the Junction 23 site, temporary facilities would be provided at the Junction 24 site. Further details are provided in **Volume 9** of the ES.

h) Cannington Bypass

3.2.17 In order to minimise the amount of construction traffic using the local road network within the village of Cannington, it is proposed to develop a bypass to the west of the village. **Figure 3.10** details the general arrangement of the proposed development. Further details are provided in **Volume 5** of the ES.

i. Highway Improvements

3.2.18 A number of highway improvements are proposed to mitigate impacts on the highway network. The proposed highway improvements comprise two principal types, modifications to existing road alignments and junction/roundabout arrangements or enhanced safety measures. The majority of these proposed improvements would be carried out within the existing highway boundary. The proposed highways improvements (see **Figures 3.11** to **3.21**) include:

- A38 Bristol Road/The Drove Junction;
- A39 Broadway/A38 Taunton Road Junction;
- A38 Bristol Road/Wylds Road Junction;
- Wylds Road/The Drove Junction;
- A39 New Road/B3339 Sandford Hill Roundabout;
- M5 Junction 23 Roundabout;
- Washford Cross Roundabout;
- Claylands Corner Junction;

- C182 Farringdon Hill Lane, Horse Crossing;
- Cannington Traffic Calming Measures; and
- Huntworth Roundabout.

3.2.19 Further details are provided in **Volume 2** of this ES.

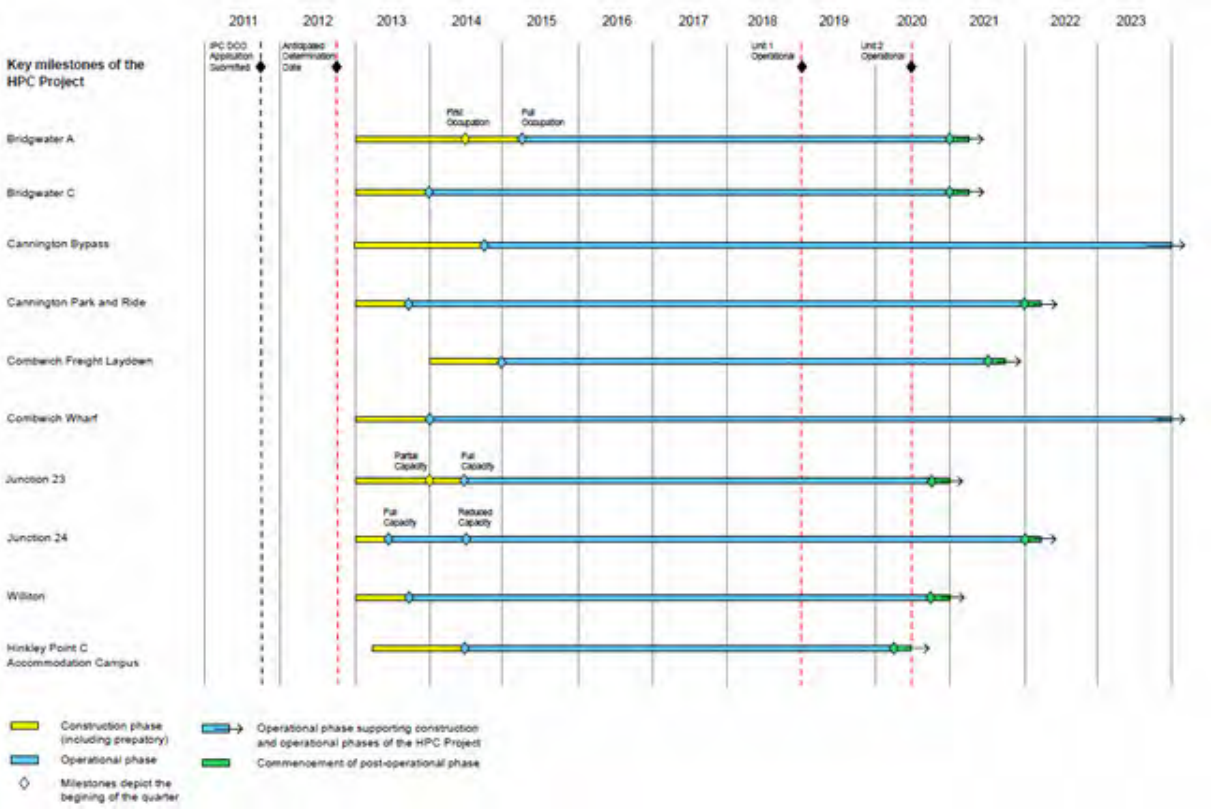
3.3 Summary of the Development Programme

3.3.1 In the event that development consent is granted and any relevant pre-commencement requirements are discharged, it is currently assumed that construction of the HPC Project would commence in Quarter 1 2013. EDF Energy seeks implementation of the proposed associated developments as early as possible within the HPC construction programme, as they are required to facilitate construction, and in some instances operation, of the HPC power station. The only exception to this is the proposed highway improvements, which would be delivered before or during the construction programme as necessary.

3.3.2 A full description of the indicative programme for the HPC Project is set out in **Chapter 2** of this volume of the ES; and a summary of these dates in respect of the associated developments is set out in **Plate 3.1**.

3.3.3 It is anticipated that the second unit of the HPC power station would be operational in mid-2020 (see **Chapter 2** of this volume for details). Following completion of the construction phase of the HPC power station, the proposed associated developments would no longer be required by EDF Energy with the exception of the Cannington bypass, Combwich Wharf and the highway improvements, which would be retained as permanent development. The programme for the post-operational phase for each of the proposed associated developments is described in **Chapter 5** of the relevant volumes of the ES. The timescales for completion of the works would vary between six and 36 months for across each of the sites, depending on the works required.

Plate 3.1: Indicative Development Programme for the Associated Developments



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CHAPTER 4: LEGISLATIVE AND PLANNING POLICY CONTEXT

CONTENTS

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4. LEGISLATIVE AND PLANNING POLICY CONTEXT

4.1 Introduction

4.1.1 This chapter provides the overarching planning context to the Hinkley Point C Project (the HPC Project), providing an overview of legislation and national planning, energy and nuclear policies, which are material to the development. This chapter also provides an overview of the regional and local planning policies relevant to the project.

4.1.2 It should be noted that the site and topic-specific planning legislation and policy context is considered in greater detail elsewhere in this Environmental Statement (ES), in particular within the:

- Technical assessment chapters for the Hinkley Point C development site (the HPC development site) and the off-site associated development – legislation and planning policies specific to the different environmental topics are set out within these chapters.
- The introductory chapters to the HPC development site and the off-site associated development volumes (**Volumes 2** to **11**) – legislation and planning policies specific to each of the off-site associated development sites is provided in these chapters.

4.2 Legislative Context

a) The Planning Act 2008

4.2.1 The Planning Act 2008 ("the Act") (Ref. 4.1) introduced a new planning regime for Nationally Significant Infrastructure Projects (NSIPs) in England and Wales, including the construction or extension of a generating station. The objective of the new regime is to improve the process for delivering major infrastructure projects, making the process both faster and fairer.

4.2.2 Under the Act, a new independent body was established to consider applications for NSIPs, the Infrastructure Planning Commission (IPC). The IPC has been able to receive applications for energy and transport development since 1 March 2010. Under the Localism Bill (see paragraph 4.2.10) which is currently before Parliament, it is proposed that the IPC would be abolished and all decisions on NSIP applications taken by the Secretary of State (SoS). The Government has announced that a new Major Infrastructure Planning Unit would be established as part of the Planning Inspectorate to carry out the examination of these applications.

4.2.3 Further details of the regime are set out in:

- Secondary legislation – needed to implement the relevant parts of the Act including:
  - The Infrastructure Planning (National Policy Statement Consultation) Regulations 2009 (Ref. 4.2);

  - The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (Ref. 4.3) ("the EIA Regulations");
  - The Infrastructure Planning (Applications: Prescribed Forms And Procedures) Regulations 2009 (Ref. 4.4);
  - The Infrastructure Planning (Model Provisions) (England and Wales) Order 2009 (Ref. 4.5);
  - The Infrastructure Planning (Interested Parties) Regulations 2010 (Ref. 4.6);
  - The Infrastructure Planning (Examination Procedure) Rules 2010 (Ref. 4.7);
  - The Infrastructure Planning (Compulsory Acquisition) Regulations 2010 (Ref. 4.8);
  - The Infrastructure Planning (Miscellaneous Prescribed Provisions) Regulations 2010 (Ref. 4.9);
  - The Infrastructure Planning (Fees) Regulations 2010 (Ref. 4.10); and
  - The Infrastructure Planning (Decisions) Regulations 2010 (Ref. 4.11)
- Statutory guidance produced by the Department for Communities and Local Government including:
  - Planning Act 2008: Guidance on pre-application consultation (September 2009) (Ref. 4.12);
  - Planning Act 2008: Nationally significant infrastructure projects – Application form guidance (September 2009) (Ref. 4.13);
  - Guidance on associated development: Applications to the Infrastructure Planning Commission (September 2009) (Ref. 4.14);
  - Planning Act 2008: Guidance for the Examination of Applications for Development Consent for Nationally Significant Infrastructure Projects (February 2010) (Ref. 4.15);
  - Planning Act 2008: Guidance Related to Procedures for Compulsory Acquisition (February 2010) (Ref. 4.16);
  - Planning Act 2008: The Infrastructure Planning (Fees) Regulations 2010 – Guidance (February 2010) (Ref. 4.17); and
  - Planning Act 2008: Guidance for Local Authorities (March 2010) (Ref. 4.18)
- Other Guidance and Advice Notes produced by the IPC, including, for example, advice on Local Impact Reports (LIRs) (Ref. 4.19), and advice on Environmental Impact Assessment Screening and Scoping (Ref. 4.20).

4.2.4 The EIA Regulations came into force on 1 October 2009 and set out the procedures that must be followed so that the consideration of applications for NSIPs fully reflect the requirements of European Council Directive 85/337/EEC (Ref. 4.21) (as amended by 97/11/EC (Ref. 4.22) and 2003/35/EC (Ref. 4.23)) on the assessment of the effects of certain specified private and public projects on the environment. Further details on the EIA Regulations and their application are provided in **Chapter 7** of this volume of the ES.

4.2.5 The Act also provides for Government to produce National Policy Statements (NPSs) setting out the national policy for NSIPs. The NPSs set the strategic policy framework in accordance with which the IPC will consider individual applications.

4.2.6 The first tranche of draft NPSs, which covered policies relating specifically to energy, were published for consultation in November 2009. The period of consultation closed in February 2010. Following the change of Government in summer 2010, revised drafts of the energy NPSs were published for consultation in October 2010 with the consultation period running until 24 January 2011. On 23 June 2011, the SoS laid a final set of the energy NPSs before Parliament for approval. The House of Commons voted to approve the NPSs on 18 July 2011 and the NPSs were then designated on 19 July 2011.

4.2.7 The NPS for Nuclear Power Generation (NPS EN-6) (Ref. 4.24) sets out the Government's assessment of the need for new nuclear power, including the identification of Hinkley Point as a potentially suitable site for the deployment of a new nuclear power station before the end of 2025. Also of relevance is the Overarching NPS for Energy (NPS EN-1) (Ref. 4.25) and the NPS for Electricity Networks Infrastructure (NPS EN-5) (Ref. 4.26). Further explanation is provided below.

4.2.8 NPS EN-6 provides a strategic policy framework for the consenting of new nuclear power station projects. It is important to note, however, that national policy on new nuclear will not in itself confer consent for new nuclear development at Hinkley Point. An application for a Development Consent Order (DCO) authorising the project works will be subject to determination by the IPC (or SoS once the Localism Bill comes into force), following a detailed examination of the proposed development, including its local impacts.

b) The Localism Bill

4.2.9 The Localism Bill (Ref. 4.27) was introduced to Parliament on 13 December 2010. The Bill seeks to devolve more powers to councils and neighbourhoods and, in relation to general planning powers, give local communities greater control over local decisions like housing and planning. After being debated and amended by the House of Commons, the Localism Bill completed its Committee stage in the House of Lords in July 2011. The next stage of the Bill will be the start of the Report stage in the House of Lords in September 2011. If passed, it is expected that the majority of the provisions of the Bill will come into force in April 2012.

4.2.10 In relation to nationally significant infrastructure, the Bill proposes to, amongst other things:

- Abolish the IPC and return to a position where the SoS takes the final decision on major infrastructure proposals of national importance.
- Require Parliamentary (House of Commons) approval of NPSs, in addition to the existing consultation, publicity and Parliamentary scrutiny arrangements.
- Give the SoS power to extend the regime so that certain other consents do not need to be sought separately.

- Allow the SoS to direct that a development is to be treated as requiring development consent under the Act before any application has been made in relation to the development.

4.3 National Planning Policy Context

a) White Papers on Energy Policy

4.3.1 As part of the Government's review of the UK's energy supply, a series of consultation documents and subsequent White Papers have been published in recent years, relating to the UK's energy goals and the strategy for meeting these. These include the following:

- 'The Energy Challenge' Energy Review Report, July 2006 (Ref. 4.28).
- 'Meeting the Energy Challenge': A White Paper on Energy, May 2007 (Ref. 4.29).
- Consultation paper 'The Future of Nuclear Power: The Role of Nuclear Power in a Low Carbon Economy', May 2007 (Ref. 4.30).
- 'Meeting the Energy Challenge': A White Paper on Nuclear Power, January 2008 (Ref. 4.31).
- UK Low Carbon Transition Plan, July 2009 (Ref. 4.32).
- 'Planning for our electric future: a White Paper for secure, affordable and low-carbon electricity' (July 2011) (Ref. 4.33).
- UK Renewable Energy Map (Ref. 4.34).

4.3.2 The series of White Papers on energy policy established Government policy that it is in the public interest for new nuclear power to have a role in the future UK generating mix, alongside other low carbon generation options. The Government has set out a number of long term energy related policy goals and a strategy for how the measures would be implemented. These are as follows:

- cut carbon dioxide emissions by some 60% by about 2050 with real progress by 2020;
- maintain reliable energy supplies;
- promote competitive energy markets; and
- provide a secure and affordable energy supply to the UK.

4.3.3 The Climate Change Act 2008 (Ref. 4.35) establishes a long-term framework to tackle climate change. The Climate Change Act aims to encourage the transition to a low-carbon economy in the UK through unilateral legally binding emissions reductions targets. This means a reduction of at least 34% in greenhouse gas emissions by 2020 and at least 80% by 2050. The first three carbon budgets, covering 2008-12, 2013-17 and 2018-22 were set in law in spring 2009 and require greenhouse gas emissions to be reduced by at least 34% below the 1990 baseline by 2020. The level of the Fourth Carbon Budget for the period 2023-2027 was set in law at 1950 mtCO_2 at the end of June 2011. The level set equates to a 50% reduction in greenhouse gas emissions on 1990 levels for each year over the Fourth Carbon Budget period.

4.3.4 The UK Low Carbon Transition Plan sets out how the UK will meet the target set of cutting emissions by 34% from 1990 levels (or an 18% cut on 2008 levels) by 2020. Part of the Plan for delivery by 2020 is for 40% of electricity to be from low-carbon sources, including renewables, nuclear and clean coal. The plan makes reference to Government policies and initiatives to facilitate the building of new nuclear power stations.

4.3.5 'Planning for our electric future: a White Paper for secure, affordable and low-carbon electricity' sets out the Government's commitment to transform the UK's electricity system to ensure that the UK's future electricity supply is secure, low-carbon and affordable. Key elements of the proposed reform package include:

- a new system of long-term contracts in the form of Feed-in Tariff with Contracts for Difference, providing clear, stable and predictable revenue streams for investors in low-carbon electricity generation;
- the introduction of a Carbon Price Floor (announced in Budget 2011) to reduce investor uncertainty, put a fair price on carbon and provide a stronger incentive to invest in low-carbon generation now;
- an Emissions Performance Standard set at an annual limit equivalent to 450g CO_2/kWh at baseload to provide a clear regulatory signal on the amount of carbon new fossil-fuel power stations can emit. This will reinforce the requirement that no new coal-fired power stations are built without Carbon Capture and Storage; and
- a new Capacity Mechanism to ensure future security of electricity supply. The Government is seeking further views on the type of mechanism required and will report on this in early 2012.

4.3.6 The UK Renewable Energy Roadmap sets out a comprehensive programme of targeted, practical actions to tackle the barriers to renewables deployment, enabling the level of renewable energy consumed in the UK to grow in line with the Government's ambitions for 2020 and beyond.

b) National Policy Statements on Energy

4.3.7 This section outlines policies within national planning policy documents that are of particular relevance to the project. It explains how the need for new nuclear development in the UK has been established through national policy.

4.3.8 NPS EN-1, when combined with NPS EN-6, provides the primary basis for decisions by the IPC on applications for nuclear power generation developments that fall within the scope of the NPSs. Section 104 of the Act also requires that the IPC, when making its decision in respect of an application for development consent, must decide the application in accordance with any relevant NPSs, except to the extent it is satisfied that to do so would:

- lead to the UK being in breach of any of its international obligations;
- lead to the IPC being in breach of any duty imposed on it by or under any enactment;
- be unlawful by virtue of any enactment;
- the adverse impact of the proposed development would outweigh its benefits; or

- any condition prescribed for deciding an application otherwise than in accordance with the NPS is met.

4.3.9 The Act provides for challenges to be made to NPSs by way of judicial review within six weeks of their designation. As stated above, NPS EN-1 and NPS EN-6 were designated on 19 July 2011 and the period for any potential challenge ended on 30 August 2011. On 26 August 2011, a claim for judicial review of the Secretary of State's decision to designate NPS EN-6 was lodged for permission with the Administrative Court by Greenpeace (case reference CO-8229-2011). No other challenges against the NPSs were lodged within the challenge period. The designated NPS EN-6 remains valid unless and until it is quashed by the Court.

4.3.10 Paragraph 4.1.5 of NPS EN-1 states that, although the energy NPSs provide the main policy context for the IPC, it should also refer to other matters that it thinks are both important and relevant to its decisions. This may, for example, include Development Plan Documents (DPDs) or other documents in the Local Development Framework (LDF). If there is a conflict between these or any other documents and the NPS, the NPS prevails for the purposes of IPC decision making given the national significance of the infrastructure. Paragraph 4.1.5 also confirms that the energy NPSs have taken account of relevant Planning Policy Statements (PPSs) and Planning Policy Guidance Notes (PPGs). In a few specific paragraphs, the NPSs incorporate by reference a particular paragraph or passage of a PPS or PPG. Apart from those points and paragraphs incorporated by reference in this way, however, it is clear that the overarching energy NPS EN-1 and the nuclear specific NPS EN-6 are intended to be self contained and to set out a comprehensive policy context for the assessment of relevant projects, such as Hinkley Point C.

4.3.11 A summary of the relevant energy NPSs is provided below.

c) Overarching NPS for Energy (NPS EN-1) (July 2011)

4.3.12 NPS EN-1, when combined with the relevant technology-specific energy NPS, provides the primary basis for decisions by the IPC on applications for energy developments that fall within the scope of the NPSs. It establishes the need for all types of energy infrastructure covered by the NPS in order to achieve energy security at the same time as dramatically reducing greenhouse gas emissions. It also takes account of the latest modelling and '2050 Pathways Analysis' (DECC, July 2010) (Ref. 4.36).

4.3.13 In addition to considerations of nuclear specific policies outlined in the NPS EN-6, NPS EN-1 has generic policies outlined in this section.

4.3.14 At the outset, Section 3.1 of NPS EN-1 confirms that the IPC should assess all applications for development consent for the types of infrastructure covered by the energy NPSs on the basis that the need for those types of infrastructure has been demonstrated by the Government and that this need is urgent (para 3.1.3).

4.3.15 In setting out the need for new nationally significant electricity infrastructure projects, Sections 3.3 and 3.5 of NPS EN-1 also provide specific policy on the need for new nuclear power infrastructure:

- The Government would like industry to bring forward as many new low carbon developments (renewables, nuclear and fossil fuel generation with carbon capture

and storage) as possible within the next 10 to 15 years to meet the twin challenge of energy security and climate change as we move towards 2050 (para 3.3.5).

- In the UK, at least 22GW (about a quarter) of existing electricity generating capacity will need to be replaced in the coming years, particularly to 2020. This is as a result of tightening environmental regulation and ageing power stations (para 3.3.7).
- The Government believes that, in principle, new nuclear power should be free to contribute as much as possible towards meeting the need for 18GW of new non-renewable capacity by 2025 (para 3.3.22).
- Given the urgent need for low carbon forms of electricity to contribute to the UK's energy mix and enhance the UK's energy security and diversity of supply, it is important that new nuclear power stations are constructed and start generating as soon as possible and significantly earlier than 2025. Based on the availability of, amongst other things, construction materials, skills, investment, the timescale for licensing, and related investment in transmission and distribution infrastructure, the Government believes that it is realistic for new nuclear power stations to be operational in the UK from 2018, with deployment increasing as we move towards 2025 (para 3.5.9).

4.3.16 Section 4.2 (Environmental Statement) of NPS EN-1 requires an ES to be provided for development proposals subject to Directive 85/337/EEC as amended by 97/11/EC and 2003/35/EC. The ES should describe the aspects of the environment likely to be significantly affected by the project.

4.3.17 The applicant is recommended to set out information on the likely significant social and economic effects of the development, and how any likely significant negative effects would be avoided or mitigated. Cumulative effects should be provided for within the ES in relation to how the effects of the development proposals would combine and interact with the effects of other development (including projects for which consent has been sought or granted, as well as those already in existence). The accumulation of, and interrelationship between, effects should be considered on the environment, economy and community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place.

4.3.18 Section 4.3 (Habitats Regulations Assessment) sets out the relationship to the Habitats Regulations Assessment and states that the IPC must consider whether the project may have a significant effect on a European site or on any site to which the same protection is applied as a matter of policy, either alone or in combination with other plans or projects. In the event that Appropriate Assessment is required, the applicant should provide information as may reasonably be required to the IPC to enable it to conduct the Appropriate Assessment.

4.3.19 Section 4.4 (Alternatives) sets out the framework for consideration of alternatives by the IPC and provides for the inclusion of the main alternatives studied by the applicant within the ES. This should indicate the reasons for the applicant's choice of development options taking into account the environmental, social and economic effects and including, where relevant, technical and commercial feasibility.

4.3.20 Section 4.5 (Criteria for "Good Design" for Energy Infrastructure) outlines that the IPC needs to be satisfied that energy infrastructure developments are sustainable and,

having regard to regulatory and other constraints, are as attractive, durable and adaptable as they can be. Applicants must take into account both functionality (including fitness for purpose and sustainability) and aesthetics (including its contribution to the quality of the area in which it would be located) as far as possible and demonstrate good design in respect of siting relative to existing landscape character, landform and vegetation. Applicants must also set out the consideration of design alternatives and the reasons for the chosen design.

4.3.21 Section 4.8 (Climate Change Adaptation) outlines that applicants must consider the impacts of climate change when planning the location, design, build, operation and, where appropriate, decommissioning of new energy infrastructure. The ES should set out how the proposal will take account of the projected impacts of climate change.

4.3.22 Section 4.9 (Grid Connection) of the Overarching Energy NPS states that the applicant should provide sufficient information about the grid connection. Applicants must ensure necessary infrastructure is either existing or planned to accommodate the electricity generated and liaise with National Grid accordingly. Applications for new generating stations and related infrastructure should be delivered in a timely and integrated way where it is not possible for them to be contained in a single application. The IPC decision on one consent should not restrict a subsequent decision on a related project and the applicant should explain the reasons for the separate application.

4.3.23 NPS EN-1 also sets out key policies relevant to the ES, including the following areas:

- Pollution control and other environmental conservation regimes (Section 4.10) – this section outlines that the IPC, in considering an application for development consent, should focus on whether the development itself is an acceptable use of the land, and on the impacts of that use, rather than the control of processes, emissions or discharges themselves. Furthermore, the IPC should work on the assumption that the relevant pollution control regime will be properly applied and enforced.
- Safety (Section 4.11) – this section advises that applicants should consult with the Health and Safety Executive (HSE) on matters relating to safety. Applicants seeking to develop infrastructure subject to the Control of Major Accident Hazards (COMAH) Regulations 1999 (Ref. 4.37) should make early contact with the Competent Authority (HSE and the Environment Agency acting jointly in England and Wales).
- Hazardous Substances (Section 4.12) – applicants should consult the HSE at pre-application stage if the project is likely to need hazardous substances consent. Where hazardous substances consent is applied for, the IPC will consider whether to make an order directing that hazardous substances consent shall be deemed to be granted alongside making an order granting development consent. In addition, HSE sets a consultation distance around every site with hazardous substances consent and notifies the relevant local planning authorities. The applicant should therefore consult the local planning authority at pre-application stage to identify whether its proposed site is within the consultation distance of any site with hazardous substances consent and, if so, should consult the HSE for its advice on locating the particular development on that site.

- Health impacts (Section 4.13) – this section advises that the ES should assess the health effects on human beings for each element of the project, identifying any adverse health impacts, and identifying measures to avoid, reduce or compensate for these impacts as appropriate. Cumulative impacts on health should also be considered.

d) NPS for Nuclear Power Generation (NPS EN-6) (July 2011)

4.3.24 NPS EN-6, taken together with NPS EN-1, provides the primary basis for decisions taken by the IPC on applications received for nuclear power stations covered by the NPS.

4.3.25 NPS EN-6 identifies Hinkley Point as being a potentially suitable site for the deployment of a new nuclear power station before the end of 2025 (para 4.1.1). It identifies a total of eight potentially suitable sites, whereas the original draft NPS (November 2009) identified ten potentially suitable sites (Braystones and Kirkstanton are no longer considered to be suitable). The Government's decision making process has been informed by, among other things, the Nuclear Appraisal of Sustainability and Habitats Regulations Assessment conducted at a strategic level for each site and the NPS as a whole, responses to the public consultation on the drafts of the NPS and Parliamentary scrutiny of the NPS.

4.3.26 The Government also concluded in NPS EN-6 that there are Imperative Reasons of Overriding Public Interest (IROPI) in making these eight sites available as potential sites for development and listing them in NPS EN-6 despite the inability, at that stage, to rule out potential adverse effects on sites of European nature conservation importance (para A.6.6). This takes into account the need for sites to be available for potential deployment by the end of 2025, the lack of alternatives, and the consideration given to compensatory measures. The IROPI case is based on fulfilling the Government's energy policy objectives whilst contributing to wider EU goals for sustainable low-carbon sources of energy as a means of reducing the effects of damaging climate change and ensuring security of energy supplies.

4.3.27 NPS EN-6 also sets out a number of policies that are of particular relevance to the HPC Project:

- Given the urgent need to decarbonise our electricity supply and enhance the UK's energy security and diversity of supply, the Government believes that new nuclear power stations need to be developed significantly earlier than the end of 2025 (para 2.2.2).
- Failure to develop new nuclear power stations significantly earlier than the end of 2025 would increase the risk of the UK being locked into a higher carbon energy mix for a longer period of time than is consistent with the Government's ambitions to decarbonise electricity supply. As a result, it would become more difficult and expensive to meet the Government's targets for significant and urgent decarbonisation of the economy and enhanced security of supply (see Part 3 of EN-1) (para 2.2.3).
- When considering an application for a new nuclear power station that is capable of deployment by a date significantly earlier than the end of 2025, the IPC should give substantial weight to the benefits (including the benefit of displacing carbon

dioxide emissions) that would result from the application receiving development consent (para 2.2.4).

- Given the very limited number of sites identified as potentially suitable for the deployment of new nuclear power stations before the end of 2025, the Government considers that all eight are required to be listed in the NPS. This is to allow sufficient flexibility to meet the urgent need for new nuclear power stations (para 2.4.4).
- The Government is satisfied from the information provided by nominators and an independent assessment that Hinkley Point is credible for deployment by the end of 2025 (para C.5.6).
- Having reviewed the nominated site at Hinkley Point against the Strategic Siting Assessment (SSA) criteria and considered the evidence from, inter alia, the public, regulators, the Appraisal of Sustainability and Habitats Regulations Assessment site reports, the Government has concluded that the site is potentially suitable. The assessment has outlined that there are a number of areas which will require further consideration by the applicant, the IPC and/or the regulators should an application for development consent come forward, including amongst other things the potential cumulative impacts of this proposal in combination with other relevant projects in the region, and in particular the effect of this on the biodiversity of the area including the Severn Estuary. However, none of these factors suggests that the site should not be considered as potentially suitable (para C.5.113).

4.3.28 Section 2.10 (Climate Change Adaptation) refers to the effects of climate change and states that the ES should set out how the development incorporates adaptation measures to take account of the effects of climate change, including:

- coastal erosion and increased likelihood of storm surge and rising sea levels;
- effects of higher temperatures; and
- increased risk of drought which could lead to lack of available process water.

4.3.29 Section 2.11 (Radioactive Waste Management) of NPS EN-6 states that the IPC does not need to consider the management and disposal of nuclear waste as a result of the Government being satisfied that arrangements will exist to manage and dispose of the waste. Additionally, in relation to the interim storage, disposal and transport of radioactive waste, the IPC should make its decision on the basis that the relevant licensing and permitting regimes will be properly applied and enforced.

4.3.30 Part 3 of NPS EN-6 outlines policy and guidance on nuclear-specific impacts and specific siting considerations. Nuclear specific impacts are in addition to the generic impacts outlined in NPS EN-1 and comprise the following:

- flood risk (including tsunami and storm surge);
- water quality and resources;
- coastal change;
- biodiversity and geological conservation;
- landscape and visual;

- socio-economic; and
- human health and well-being.

4.3.31 A number of specific siting criteria have been flagged for assessment at a project level usually due to site specific investigations and data required in addition to the SSA process. These have been considered relevant to the siting of new nuclear power stations to be considered by the IPC, and include:

- proximity to civil aircraft movements;
- access to transmission networks;
- impact on significant infrastructure and resources; and
- size of site to accommodate construction and decommissioning.

4.3.32 Other flags for local consideration that will be assessed separately at the time of the development consent application by the Office of Nuclear Regulation (ONR) include:

- demographics;
- seismic risk (vibratory ground motion);
- capable faulting;
- non-seismic ground conditions;
- emergency planning (the ONR will work together with the local authority or other Emergency Planning Authority);
- meteorological conditions; and
- proximity to mining, drilling and other underground operations.

e) Appraisal of Sustainability of the Revised Draft Nuclear NPS (October 2010)

4.3.33 In relation to the potentially suitable site at Hinkley Point, the Appraisal of Sustainability (AoS) of the revised draft Nuclear NPS EN-6 (Ref. 4.38) concluded that the potential likely effects and key findings recommended as guidance for the IPC to consider include:

- Adverse effects on protected conservation sites and designated species, including those in the Severn Estuary and Bridgwater Bay. There is the potential for adverse effects on water quality caused by the abstraction and release of cooling water and a risk to fish populations in nearby estuarine/coastal waters. Possible mitigations include ensuring fish protection in cooling water intake design and implementation of a Construction Environmental Management Plan.
- Adverse visual impact on views from an Area of Outstanding Natural Beauty (AONB), which would be difficult to mitigate. Possible mitigations include clustering of new and proposed buildings to avoid broadening of the potential visual impact and using existing screening woodland and use of protective buffer zones and application of principles of good design in accordance with Planning Policy Statement 1: Delivering Sustainable Development (2005).
- Positive cumulative effects associated with long-term employment and enhanced prosperity in the region.

- The site is in a cluster of two nominated sites (Oldbury being the other) in the south west region. Potential regional cumulative effects both positive and adverse may apply if both sites in the region were to be developed.
- Further significant adverse cumulative effects if both new power stations were to be developed alongside any Severn Tidal Power scheme.

4.3.34 The AoS also outlines the potential interactive and cumulative effects of Hinkley and Oldbury on water quality and on important biodiversity sites in the Severn Estuary, River Usk and River Wye, as well as the potential positive effects on local employment, upskilling, community viability and health/well-being which could be more significant if more than one new nuclear power station is built.

f) Electricity Networks Infrastructure NPS (NPS EN-5) (July 2011)

4.3.35 Hinkley Point C (HPC) would be connected to the national grid high voltage electricity transmission network via a new 400kV overhead line between Bridgwater and Seabank. There would also be associated electrical infrastructure, including modifications and diversions to existing overhead lines in the vicinity of Hinkley Point. These works will form a separate project and DCO application by National Grid to the IPC (or its successor).

4.3.36 NPS EN-5 provides the primary basis for decisions made by the IPC on applications received for the electricity networks infrastructure. It covers proposed development for infrastructure; above ground electricity lines carrying 132kV and above; and other infrastructure for electricity networks associated with a NSIP. This includes transmission and distribution systems, either carried on towers/poles or on underground cables; and associated infrastructure including substations.

4.3.37 NPS EN-5 considers additional technology-specific considerations on potential Biodiversity and Geological Conservation, Landscape and Visual, Noise and Vibration and Electric and Magnetic Fields effects, impacts or benefits. It looks at the assessment of effects and the considerations to be taken into account by the IPC in their decision making.

4.3.38 The document also states that it is for energy companies to decide what applications to bring forward and the Government does not seek to direct applicants to particular sites or routes for electricity networks infrastructure. NPS EN-1 recognises that it may not always be possible or appropriate for generating stations and any related electricity networks to be the subject of the same application to the IPC, particularly because of the differing lengths of time needed to prepare the applications or because the proposals are likely to come from different legal entities (para 4.9.2).

4.4 Planning Policy Statements and Planning Policy Guidance

4.4.1 As stated above, NPS EN-1, when combined with NPS EN-6, provides the primary basis for decisions by the IPC on applications for nuclear power generation developments that fall within the scope of the NPSs.

4.4.2 Notwithstanding this, the IPC may consider other matters that are both important and relevant to its decision-making. Although the energy NPSs stipulate that they have already taken the PPSs and PPGs into account, the IPC may still consider the PPSs and PPGs to be important and relevant to its decision although, if there is a conflict

between other policy documents and the NPS, the NPS prevails for the purposes of IPC decision making.

4.4.3 It is also noted that, on 25 July 2011, the Department for Communities and Local Government issued the consultation draft of the National Planning Policy Framework (NPPF) (Ref. 4.39) which is intended to replace PPSs, PPGs and some Circulars within a single consolidated document. The consultation period concludes on 17 October 2011 and it is expected that the final NPPF will be adopted in 2012. The draft NPPF sets out a presumption in favour of sustainable development, and the need to support economic growth through the planning system. The draft NPPF also states that NSIPs are determined by the decision-making framework set out in NPSs, which are part of the overall framework of planning policy (paragraph 6). Again, the IPC may consider the draft NPPF if it is important and relevant to its decision.

4.4.4 The Planning Statement explains the weight which EDF Energy considers should be attached to PPSs, PPGs and to the NPPF. In particular, it explains that the NPSs are intended to provide a comprehensive self contained framework of national policy for the assessment of NSIPs and that only limited weight should be attached to policies of PPSs or PPGs or to the NPPF in these circumstances.

4.4.5 Notwithstanding their limited weight, however, the policies of the PPSs and PPGs are set out below and have been taken into account in the preparation of the DCO application documents, including the Environmental Statement. Prior to the designation of the NPSs they provided a helpful policy guide as the DCO application was being prepared and their policies continue to be relied upon by some stakeholders. It is important to remember, however, that in the event of any conflict, it is the policies of the NPSs which prevail. A summary of the main policies contained in relevant PPSs and PPGs is set out below.

a) Planning Policy Statement 1: Delivering Sustainable Development (PPS1) (January 2005)

4.4.6 PPS1 (Ref. 4.40) sets out the Government's overarching planning policies on the delivery of sustainable development through the planning system.

4.4.7 Paragraph 5 (The Government's Objectives for the Planning System) states that planning should facilitate and promote sustainable and inclusive patterns of urban and rural development by:

- making suitable land available for development in line with economic, social and environmental objectives to improve people's quality of life;
- contributing to sustainable economic development;
- protecting and enhancing the natural and historic environment, the quality and character of the countryside, and existing communities;
- ensuring high quality development through good and inclusive design, and the efficient use of resources; and
- ensuring that development supports existing communities and contributes to the creation of safe, sustainable, liveable and mixed communities with good access to jobs and key services for all members of the community.

4.4.8 Paragraph 13 (Key Principles) sets out key principles which should be applied to ensure that decisions taken on planning applications contribute to the delivery of sustainable development. Of these key principles, those which are considered to be of some potential relevance to the HPC Project are summarised below:

- to ensure that development plans address the cause and potential impacts of climate change through policies which include reducing energy use and emissions (for example, by encouraging patterns of development which reduce the need to travel by private car, reduce the impact of moving freight), and take climate change impacts into account in the location and design of development;
- spatial planning should be at the heart of planning for sustainable development;
- planning policies should promote high quality inclusive design in the layout of new developments and individual buildings in terms of building function and impact;
- inclusive access policies, in terms of both location and external physical access should consider people's diverse needs and aim to break down unnecessary barriers and exclusions in a manner that benefits the entire community; and
- community involvement is an essential element in delivering sustainable development and creating sustainable and safe communities. Planning Authorities should ensure that communities have the opportunity to be involved in development proposals.

4.4.9 Paragraph 19 (Protection and Enhancement of the Environment) states that planning decisions should be based on:

- up-to-date information on the environmental characteristics of the area;
- the potential impacts, positive as well as negative, on the environment of the development (whether direct, indirect, cumulative, long-term or short-term); and
- recognition of the limits of the environment to accept further development without irreversible damage.

4.4.10 Paragraph 19 goes on to add that planning authorities should seek to enhance the environment as part of development proposals. Significant adverse impacts on the environment should be avoided and alternative options which might reduce or eliminate those impacts pursued. Where adverse impacts are unavoidable, planning authorities and developers should consider possible mitigation measures. Where adequate mitigation measures are not possible, compensatory measures may be appropriate.

4.4.11 Paragraph 23 (Sustainable Economic Development) sets out the Government's commitment to promoting a strong, stable and productive economy that aims to bring jobs and prosperity for all. In summary, planning authorities should:

- recognise that economic development can deliver environmental and social benefits;
- recognise the wider sub-regional, regional or national benefits of economic development and consider these alongside any adverse local impacts;
- be sensitive to changes in local economies and the implications for development and growth;

- promote and facilitate good quality development, which is sustainable and consistent with their plans; and
- ensure that infrastructure and services are provided to support new and existing economic development and housing.

4.4.12 Paragraph 27 (Delivering Sustainable Development) sets out the general approach to delivering sustainable development. In summary, planning authorities should:

- provide a positive planning framework for sustainable economic growth to support efficient, competitive and innovative business, commercial and industrial sectors;
- promote urban and rural regeneration;
- provide improved access for all ensuring that new development is located where everyone can access services or facilities on foot, bicycle or public transport rather than having to rely on access by car, while recognising that this may be more difficult in rural areas;
- enhance as well as protect biodiversity, natural habitats, the historic environment and landscape and townscape character; and
- address, on the basis of sound science, the causes and impacts of climate change, the management of pollution and natural hazards, the safeguarding of natural resources, and the minimisation of impacts from the management and use of resources.

4.4.13 The policies contained in PPS1 cut across most environmental topics and, where relevant, have been considered in the topic chapters of this ES.

b) Planning Policy Statement: Planning and Climate Change – Supplement to Planning Policy Statement 1 (December 2007)

4.4.14 The supplement to PPS1 (Ref. 4.41) sets out how planning should contribute to reducing emissions and stabilising climate change (mitigation) and take into account the unavoidable consequences (adaptation).

4.4.15 Paragraph 9 (Key Planning Objectives) requires that planning authorities should prepare and manage the delivery of spatial strategies that, in summary:

- provide for the homes, jobs, services and infrastructure needed by communities, secure the highest viable resource, energy efficiency and reduction in emissions;
- deliver patterns of urban growth and sustainable rural developments that help secure the fullest possible use of sustainable transport for moving freight, public transport, cycling and walking and which overall reduce the need to travel, especially by car;
- secure new development and provide resilience to climate change;
- conserve and enhance biodiversity; and
- reflect the development needs and interests of communities.

4.4.16 Where appropriate, consideration of the relevant policies contained in the supplement to PPS1 is provided in the relevant topic chapters of this ES.

c) Planning Policy Statement – Planning for a Low Carbon Future in a Changing Climate (Consultation Paper) (March 2010)

4.4.17 This consultation paper (Ref. 4.42) brings together the Planning and Climate Change supplement to PPS 1 (2007) with PPS 22 on Renewable Energy (2004) into a new draft PPS on Planning for a Low Carbon Future in a Changing Climate. The new PPS is intended to replace the 2007 and 2004 PPSs and it is proposed that it will become a consolidated supplement to PPS 1. It sets out a planning framework for securing progress against the UK's targets to cut greenhouse emissions and use more renewable and low carbon energy, and to plan for inevitable climate change.

4.4.18 The consultation paper states that addressing climate change is the Government's principal concern for sustainable development. Plan making and development management should fully support the transition to a low-carbon future in a changing climate and actively support the delivery of renewable and low carbon energy.

d) Planning Policy Statement 4: Planning for Sustainable Economic Growth (PPS4) (December 2009)

4.4.19 This PPS (Ref. 4.43) sets out the Government's comprehensive policies for the planning of sustainable economic development in both urban and rural areas. The policies apply to retail, leisure and entertainment, offices, arts/culture and tourism development.

4.4.20 Where appropriate, consideration of the relevant policies contained in PPS4 is provided in the Socio-Economics chapters of this ES.

e) Planning Policy Statement 5: Planning for the Historic Environment (PPS5) (March 2010)

4.4.21 This PPS (Ref. 4.44) sets out planning policies on the conservation of the historic environment. The PPS states that planning has a central role to play in conserving our heritage assets and utilising the historic environment in creating sustainable places. The policies contained within PPS5 will enable the Government's vision for the historic environment to be implemented through the planning system.

4.4.22 Where appropriate, consideration of the relevant policies contained in PPS5 is provided in the Historic Environment and Off-shore and Inter-tidal Archaeology chapters of this ES.

f) Planning Policy Statement 7: Sustainable Development in Rural Areas (PPS7) (August 2004)

4.4.23 PPS7 (Ref.4.45) sets out the Government's planning policies that apply to rural areas, including country towns and villages and the wider, largely undeveloped countryside up to the fringes of larger urban areas. It should be noted that the economic development sections of PPS7 have been replaced by PPS4.

4.4.24 PPS7 outlines the Government's objectives for rural areas which can be summarised as follows:

- raise the quality of life and the environment in rural areas;
- promote more sustainable patterns of development;

- promote the development of English regions by improving their economic performance; and
- promote sustainable, diverse and adaptable agriculture sectors.

4.4.25 Where appropriate, consideration of the relevant policies contained in PPS7 is provided in the Landscape and Visual and Soils and Land Use chapters of this ES.

g) Planning Policy Statement 9: Biodiversity and Geological Conservation (PPS9) (August 2005)

4.4.26 PPS9 (Ref. 4.46) sets out planning policies on the protection of biodiversity and geological conservation through the planning system. The broad aim of the policies is to ensure that planning, construction, development and regeneration should have minimal impacts on biodiversity and enhance it wherever possible.

4.4.27 Where appropriate, consideration of the relevant policies contained in PPS9 is provided in the Geology, Land Contamination and Groundwater, Marine Ecology and Terrestrial Ecology and Ornithology chapters of this ES.

h) Planning Policy Statement 10: Planning for Sustainable Waste Management (PPS10) (March 2011)

4.4.28 Originally published in July 2005, PPS10 (Ref. 4.47) forms part of the national waste management plan for the UK. The main aim of the policies is to protect human health and the environment by producing less waste and by using it as a resource wherever possible. Through more sustainable waste management – moving the management of waste up the 'waste hierarchy' of prevention, preparing for reuse, recycling, other recovery, and disposing only as a last resort – the Government aims to break the link between economic growth and the environmental impact of waste. PPS10 states that positive planning has an important role in delivering sustainable waste management through the development of appropriate strategies for growth, regeneration and the prudent use of resources.

4.4.29 Where appropriate, consideration of the relevant policies contained in PPS10 is provided in the Conventional Waste Management chapters of this ES.

i) Planning Policy Guidance 13: Transport (PPG13) (January 2011)

4.4.30 Originally published in April 2001, the objectives of PPG13 (Ref. 4.48) are to integrate planning and transport at the national, regional, strategic and local level to:

- promote more sustainable transport choices for both people and for moving freight;
- promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling; and
- reduce the need to travel, especially by car.

4.4.31 The Government considers that travel plans should be submitted alongside planning applications which are likely to have significant transport implications. In January 2011, amendments were made to paragraphs 49 to 56 of PPG13 to reflect the following changes to parking standards and charges which:

- remove the requirement for local authorities to set maximum parking limits for residential development in their area, and instead allow them to decide what level of parking is right based on the needs of their local community; and
- allow local authorities to set parking charges that reflect local needs.

4.4.32 Where appropriate, consideration of the relevant policies contained in PPG13 is provided in the Transport chapters of this ES.

j) Planning Policy Guidance 17: Planning for Open Space, Sport and Recreation (PPG17) (July 2002)

4.4.33 PPG17 (Ref.4.49) sets out the role of the planning system in assessing opportunities and needs for open space, sport and recreation provision in development proposals. It also describes the necessity of safeguarding open space which has recreational value.

4.4.34 Where appropriate, consideration of the relevant policies contained in PPG17 is provided in the Amenity and Recreation chapters of this ES.

k) Planning Policy Guidance 20: Coastal Planning (PPG20) (September 1992)

4.4.35 PPG20 (Ref. 4.50) sets out the planning policies for the coast. PPG20 is cancelled with the exception of paragraphs 2.9, 2.10, and 3.9, which concern development plans and large scale projects that require coastal locations. Planning Policy Statement 25 Supplement: Development and Coastal Change replaces the policy on managing the impacts of coastal erosion to development set out in PPG20.

4.4.36 Where appropriate, consideration of the relevant policies contained in PPG20 is provided in the Coastal Geomorphology and Hydrodynamics and Marine Environment chapters of this ES.

l) Consultation Paper on a New Planning Policy Statement – Planning for a Natural and Healthy Environment (March 2010)

4.4.37 In its final form, it is intended that this PPS (Ref. 4.51) will replace PPS9 (Biodiversity and Geological Conservation), and PPG17 (Planning for Open Space, Sport and Recreation). It would also replace PPS7 (Sustainable Development in Rural Areas) and PPG20 (Coastal Planning) in so far as it relates to specific sections of those documents.

4.4.38 The draft PPS contains policies to maintain and enhance, restore or add to biodiversity and geodiversity through the planning system. It includes policies to promote opportunities for the incorporation of beneficial biodiversity and geological features within the design of development, and to maintain networks of natural habitats by avoiding their fragmentation and isolation.

4.4.39 A key objective of this PPS is to bring together related policies on the natural environment and on open space and green spaces in rural and urban areas to ensure that the planning system delivers healthy sustainable communities which adapt to and are resilient to climate change and gives the appropriate level of protection to the natural environment.

4.4.40 Where appropriate, consideration of the relevant policies contained in the draft PPS is provided in the Amenity and Recreation, Geology, Land Contamination and Groundwater, Landscape and Visual, Marine Ecology, Marine Environment, Off-shore and Inter-tidal Archaeology, Terrestrial Ecology and Ornithology, Coastal Geomorphology and Hydrodynamics, and Soils and Land Use of this ES.

m) Planning Policy Statement 22: Renewable Energy (PPS22) (August 2004)

4.4.41 PPS22 (Ref. 4.52) sets out the Government's policies for renewable energy, which planning authorities should have regard to when preparing local development documents and when taking planning decisions. The policies in PPS22 cover technologies such as onshore wind generation, hydro, photovoltaics, passive solar, biomass and energy crops, energy from waste (but not energy from mass incineration of domestic waste), and landfill and sewage gas.

n) Planning Policy Statement 23: Planning and Pollution Control (PPS23) (November 2004)

4.4.42 PPS23 (Ref. 4.53) is intended to complement the pollution control framework under the Pollution Prevention and Control Act 1999 and the Pollution Prevention and Control (England and Wales) Regulations 2000 (though it should be noted that these Regulations were revoked in April 2008 by the Environmental Permitting (England and Wales) Regulations 2007, which themselves were revoked in April 2010 by the Environmental Permitting (England and Wales) Regulations 2010). The policy advises of the importance of the planning system in determining the location of development which may give rise to pollution, either directly or indirectly. The policy also ensures that other uses and developments are not, as far as possible, affected by major existing or potential sources of pollution.

4.4.43 PPS23 lists a number of national and international obligations in relation to controlling pollution and land contamination. PPS23 advises that local authorities must be satisfied that planning permission can be granted on land use grounds taking full account of environmental impacts. Development control decisions should be based on land use grounds having taken full account of environmental impacts.

4.4.44 It is noted that Appendix 2B of Annex 2 to PPS23 has been cancelled by the Department of Communities and Local Government's letter of 30 May 2008 to Chief Planning Officers. Where appropriate, consideration of the policies contained in PPS23 is provided in the Air Quality, Geology, Land Contamination and Groundwater, Marine Water Quality and Surface Water chapters of this ES.

o) Planning Policy Guidance 24: Planning and Noise (PPG24) (September 1994)

4.4.45 PPG24 (Ref. 4.54) guides local authorities in England on the use of their planning powers to minimise the adverse impact of noise. It outlines the considerations to be taken into account in determining planning applications both for noise-sensitive developments and for those activities which generate noise.

4.4.46 The PPS states that the impact of noise can be a material consideration in the determination of planning applications and that the planning system should ensure that, wherever practicable, noise-sensitive developments are separated from major sources of noise (such as road, rail and air transport and certain types of industrial development).

4.4.47 The guidance provides clarity on appropriate noise levels, provides details on the assessment of noise from different sources, examples of planning conditions, specifies noise limits and advises on insulating buildings against external noise. Where appropriate, consideration of the relevant policies contained in PPG24 is provided in the Noise and Vibration chapters of this ES.

p) Planning Policy Statement 25: Development and Flood Risk (PPS25) (March 2010)

4.4.48 PPS25 (Ref. 4.55) sets out the Government's policies on development and flood risk. The aim of this PPS is to ensure that flood risk is taken into account at all stages in the planning process, to avoid inappropriate development in areas at risk of flooding. Where development is exceptionally necessary in areas of flood risk, this policy intends to make it safe without increasing flood risk elsewhere and where possible, reducing flood risk overall.

4.4.49 Where appropriate, consideration of the relevant policies contained in PPS25 is provided in the Surface Water chapters of this ES.

q) Planning Policy Statement 25 Supplement: Development and Coastal Change (March 2010)

4.4.50 This PPS supplement (Ref. 4.56) sets out the Government's objectives for development and coastal change. The Government's aim is to ensure that coastal communities continue to prosper and adapt to coastal change.

4.4.51 Where appropriate, consideration of the relevant policies contained in this PPS supplement is provided in the Surface Water, Coastal Geomorphology and Hydrodynamics, and Marine Environment chapters of this ES.

4.5 Regional Planning Policy Context

4.5.1 Ordinarily, the planning policy basis for determining planning applications in England and Wales is set out in section 38(6) of the Planning and Compulsory Purchase Act 2004 (Ref. 4.57). This states that, if regard is to be had to the Development Plan for the purposes of any determination to be made under the Planning Acts, the determination must be made in accordance with the plan unless material considerations indicate otherwise.

4.5.2 The Development Plan for West Somerset and Sedgemoor currently comprises the following documents:

- Regional Planning Guidance for the South West (RPG 10) 2001-2016 (2001) (Ref.4.58).
- Somerset and Exmoor National Park Joint Structure Plan Review 1991-2001 (2000) (Policies 'saved' from 27th September 2007) (Ref. 4.59).
- West Somerset Council Local Plan (2006) (Policies 'saved' from 17 April 2009) (Ref. 4.60).
- Sedgemoor District Local Plan 1991-2011 (2004) (Policies 'saved' from 27 September 2007) (Ref. 4. 61).

4.5.3 As stated above, however, the Planning Act 2008 provides a different regime for NSIPs and it is NPS EN-1, when combined with NPS EN-6, which provides the primary basis for decisions by the IPC on applications for nuclear power generation developments that fall within the scope of the NPSs.

4.5.4 Notwithstanding this, the IPC may consider other matters that are both important and relevant to its decision-making. This could include Development Plan documents, although, if there is a conflict between these and the NPS, the NPS prevails for the purposes of IPC decision making.

4.5.5 Further, the Act provides that the IPC must, in making its decision on an application, have regard to any LIR prepared by relevant local authorities. It is anticipated that the LIRs will rely in part on regional and local policy to provide a context for their assessment. On this basis, regard has been given to the current and emerging regional and local policy documents relevant to the HPC Project which are likely to inform the LIRs prepared by the relevant local authorities.

4.5.6 A summary of both the current and emerging regional policy context relevant to the HPC development site and off-site associated developments is set out below. Other regional and local planning documents considered relevant to the HPC Project are also identified below.

4.5.7 More detailed consideration of the current and emerging regional policies is set out within the HPC development site and off-site associated developments introductory chapters as well as the technical assessment chapters of this ES.

4.5.8 On 27 May 2010 the Secretary of State advised of the Government's intention to abolish regional planning policy and that this should be a material consideration in planning decisions. On 6 July 2010 the Secretary of State for Communities and Local Government revoked all Regional Strategies with immediate effect under section 79(6) of the Local Democracy, Economic Development and Construction Act 2009. This includes Regional Planning Guidance for the South West (RPG10). However, following the High Court judgement on 10 November 2010 in a case brought by Cala Homes the Secretary of State's decision to revoke Regional Strategies was quashed.

4.5.9 As a result, on that same date, the Government wrote to the Chief Planning Officer to reiterate the Government's intention to abolish Regional Strategies through the Localism Bill.

4.5.10 This letter was also challenged on the grounds that the Government's intended revocation of Regional Strategies (including any Saved Structure Plan Policies) by the promotion of legislation for that purposes in the forthcoming Localism Bill was immaterial to the determination of planning applications and appeals prior to the revocation of Regional Strategies.

4.5.11 However, on 7 February 2011, the High Court held that the Government's advice to local authorities that the proposed revocation of regional strategies was to be regarded as a material consideration in their planning development control decisions should stand. The decision of the High Court was upheld by the Court of Appeal on 27 May 2011. The Court of Appeal clarified that it would be unlawful to have regard to the Government's intention to abolish regional strategies in the preparation and examination of DPDs. Therefore, the regional strategies remain in place but in the

case of a development control decision it is for planning decision makers to decide on the weight to attach to the strategies taking into account, as a material consideration, the Government's stated intention to revoke them.

4.5.12 In EDF Energy's view, only very limited weight should be given to the regional policies in the context of the proposed development.

a) Regional Planning Guidance for the South West (RPG 10) 2001-2016 (2001)

4.5.13 Regional Planning Guidance 10 (RPG 10) which was published in 2001 sets out:

- a regional spatial strategy within which local authority development plans and Local Transport Plans in the South West should be prepared;
- a broad development strategy for the period to 2016 and beyond; and
- the spatial framework for other strategies and programmes.

4.5.14 The following regional policies which are contained in RPG10 are considered to be of some potential relevance in the sense explained above.

b) Regional Vision

4.5.15 Policy VIS 2 (Principles for Future Development) states that Local Authorities in their development plans and other agencies in their plans, policies and programmes, should:

- seek the development of suitable previously developed urban land (or buildings for re-use or conversion) and other appropriate sites in urban areas as a first priority for urban-related land uses; authorities and all agencies involved should examine critically the potential of the urban areas to accommodate new development;
- seek a balance of land uses in urban localities:
  - by promoting mixed-use development and, where sites are smaller, through complementary land allocations over a wider urban area;
  - including a mix of housing types, retail, business and commercial development, industry, education, social and cultural facilities, leisure, sport, recreation and open space uses;
- ensure that land is used efficiently in both urban and rural locations, with well-designed development taking place at as high a density as possible commensurate with a good living and working environment, and by carrying out a rigorous reappraisal of policies on development in order to achieve increasing density, ensure good design and reduce parking requirements;
- make adequate provision for all land uses, including those with large space requirements, the development needs of new or expanding firms and those unable to be accommodated within urban areas;
- meet the economic and social needs of rural communities;
- promote the provision and enhancement of networks for walking, cycling and public transport and ensure that development which generates large amounts of movement is well served by sustainable transport networks;

- conserve and enhance environmental assets and promote a good quality of design, including good building design, quality landscape and urban spaces and a mixture of complementary uses; and
- reduce and minimise flood risk to people and properties and take fully into account issues of water supply and treatment infrastructure.

c) Spatial Strategy

4.5.16 Policy SS 1 (Regional Spatial Strategy) states that the South West is a diverse area that can be broadly sub-divided into four spatially based sub-regions, each of which makes an important contribution to the region as a whole. The HPC Project falls within the Central sub-region.

4.5.17 Policy SS 1 further advises that local planning authorities through their development plans and other agencies (in their plans, policies and programmes) should reflect these varying sub-regional issues and take into account, where appropriate, important linkages with adjoining regions. In particular, policies for the Central sub-region should reflect its pivotal role in the South West of helping spread economic prosperity westwards throughout the region.

4.5.18 Policy SS 3 (The Sub-Regional Strategy) states that planning of development and infrastructure investment in the Central sub-region should be based on the following sub-regional objectives:

- raise the economic performance of the sub-region;
- encourage sustainable growth at Exeter and Taunton and economic diversification at Torbay;
- improve transport and economic links within and through the sub-region and with neighbouring areas;
- focus housing, employment, retail and social facilities in sustainable locations to reduce social exclusion and rural need; and
- conserve and enhance important environmental assets.

4.5.19 Policy SS 19 (Rural Areas) states that market towns should be the focal points for development and service provision in the rural areas and this role should be supported and enhanced. Outside market towns, development should be small scale and take place primarily within or adjacent to existing settlements, avoiding scattered forms of development.

d) Natural and Built Environment

4.5.20 Policy EN1 (Landscape and Biodiversity) seeks the protection and enhancement of the region's internationally and nationally important landscape areas and nature conservation sites. The protection and, where possible, enhancement of the landscape and biodiversity should be planned into new development.

4.5.21 Policy EN2 (Air Quality) states that local authorities should ensure that air quality considerations are properly considered along with other material considerations in the planning process, particularly where any Air Quality Management Areas (AQMAs) have been designated.

4.5.22 Policy EN 3 (The Historic Environment) seeks the protection of historic and archaeological areas, sites and monuments of international, national and regional importance. This policy also advises that new development should preserve or enhance historic buildings and conservation areas and important archaeological features and their settings.

4.5.23 Policy EN 4 (Quality in the Built Environment) states that local authorities, developers and other agencies should work together to further the objectives of urban renaissance and make the urban areas places where people wish to live.

4.5.24 Policy EN5 (Health, Education, Safety and other Social Infrastructure) states that health, education and other social infrastructure requirements need to be taken into account fully in development planning throughout the region.

e) Economy

4.5.25 Policy EC 1 (Economic Development) advises that local authorities, the South West of England Regional Development Agency (SWRDA), local economic partnerships and other agencies should support the sustainable development of the regional economy by, amongst other things, positively promoting and encouraging new economic activity in the areas where it can bring the greatest economic and social benefits.

4.5.26 Policy EC 3 (Employment Sites) states that local authorities, the SWRDA and other agencies should aim to provide for a range and choice of employment sites to meet the projected needs of local businesses and new investment. These should include major strategic sites, suitable for significant inward investment and large-scale reinvestment by existing companies.

4.5.27 In the Budget of June 2010, the Government confirmed that all Regional Development Agencies, including the SWRDA, will close by March 2012, and terminate or transfer their responsibilities before then.

f) Transport

4.5.28 Policy TRAN 1 (Reducing the Need to Travel) states that local authorities, developers and other agencies should work towards reducing the need to travel by private motor vehicle through the appropriate location of new development.

4.5.29 Policy TRAN 6 (Movement of Goods) states that local authorities, the business community, transport operators and other agencies should work together to achieve more sustainable patterns of distribution. Amongst other things, they should aim to locate major freight generating development close to the regional rail and road networks.

g) Infrastructure and Natural Resources

4.5.30 Policy RE 1 (Water Resources and Water Quality) states that to achieve the long term sustainable use of water, water resources need to be used more efficiently. The policy also states that the quality of inland and coastal water environments must be conserved and enhanced.

4.5.31 Policy RE 2 (Flood Risk) states that local authorities, the Environment Agency, other agencies and developers should seek to:

- protect land liable to river and coastal flooding from new development, by directing development away from river and coastal floodplains;
- promote, recognise and adopt the use of sustainable drainage systems for surface water drainage; and
- adopt a sequential approach to the allocation and development of sites, having regard to their flood risk potential.

4.5.32 Policy RE 6 (Energy Generation and Use) states that local authorities, energy suppliers and other agencies should support and encourage the region to meet the national targets for:

- a 12.5% reduction in greenhouse gas emissions below 1990 levels by 2008-2012 and a 20% reduction (from 1990 levels) in carbon dioxide emissions by 2010; and
- a minimum of 11-15% of electricity production to be from renewable energy sources by 2010.

4.5.33 Policy RE 6 also states that development plans should specify the criteria against which proposals for renewable energy projects will be assessed, balancing the benefits of developing more sustainable forms of energy generation against the environmental impacts, in particular on national and international designated sites.

h) The Draft Revised Regional Spatial Strategy for the South West Incorporating the Secretary of State's Proposed Changes 2008 – 2026 (July 2008)

4.5.34 The Draft Regional Spatial Strategy (RSS) for the South West (2006-2026) (Ref. 4.62) was published by the South West Regional Assembly in 2006. In 2008 the Secretary of State published proposed changes to the draft RSS for further consultation. If adopted the RSS would replace RPG10.

4.5.35 The draft RSS sets out the Government's policies in relation to the development of land within the region. The draft RSS looks forward to 2026 and provides a broad and long term development strategy designed to manage the change and development the South West will need if it is to rise to the challenge of a growing population and play its role in national and regional prosperity.

4.5.36 As explained above (see paragraph 4.5.7), it is the Government's intention to revoke Regional Strategies. Notwithstanding this, the following regional policies contained in the draft RSS are considered to be of some potential relevance in the sense explained above.

i) Sustainability Principles and Policies

4.5.37 Policy SD1 (The Ecological Footprint) supports, amongst other things, the building of a low carbon economy and meeting national and regional targets relating to renewable energy. It states that the region's Ecological Footprint will be stabilised and then reduced by:

- achieving development that respects environmental limits
- requiring the wise use of natural resources and reducing the consumption of key resources such as energy, water and minerals;

- building a sustainable, low carbon and low resource consuming economy which can be secured within environmental limits to bring prosperity and well-being to all parts of the region;
- encouraging sustainable construction and design as the norm in all future development and when opportunities arise, improving the region's existing building stock in line with current best practice;
- minimising the need to travel and securing a shift to use of more sustainable modes of travel by effective planning of future development, better alignment of jobs, homes and services, improved public transport and a strong demand management regime applied in the region's Strategically Significant Cities and Towns (SSCTs); and
- meeting national and regional targets relating to renewable energy, resource consumption/extraction and waste production/recycling.

4.5.38 Policy SD2 (Climate Change) states that the region's contribution to climate change will be reduced by reducing greenhouse gas emissions at least in line with the current national target of 30% by 2026 (compared to 1990 levels). In addition, the region will adapt to the anticipated changes in climate by, amongst other things, avoiding the need for development in flood risk areas and incorporating measures in design and construction to reduce the effects of flooding, and by 'future proofing' development activity for its susceptibility to climate change.

4.5.39 Policy SD3 (The Environment and Natural Resources) seeks to protect and enhance the region's environment and natural resources by:

- ensuring that development respects landscape and ecological thresholds of settlements;
- reducing the environmental impact of the economy, transport and development;
- positively planning to enhance natural environments through development, taking a holistic approach based on landscape or ecosystem scale planning;
- planning and design of development to reduce pollution and contamination and to maintain tranquillity;
- positive planning and design to set development within, and to enhance, local character (including setting development within the landscape of the historic environment), and bringing historic buildings back into viable economic use and supporting regeneration; and
- contributing to regional biodiversity targets through the restoration, creation, improvement and management of habitats.

4.5.40 Policy SD4 (Sustainable Communities) states that growth and development will be planned and managed positively to create and maintain Sustainable Communities throughout the region by, amongst other things:

- realising the economic prosperity of the South West and reducing disparity;
- linking the provision of homes, jobs and services based on role and function so that cities, towns and villages and groups of places have the potential to become more self contained and the need to travel is reduced;

- encouraging business activity and particularly small businesses and their contribution to the region's prosperity, including through promoting regional sourcing;
- making adequate and affordable housing available for all residents, including the provision of a range and mixture of different housing types to accommodate the requirements of local communities;
- making the best use of existing infrastructure and ensuring that supporting infrastructure is delivered in step with development; and
- supporting social and economic progress by enhancing education, skills development and training.

j) The Core Spatial Strategy

4.5.41 Policy CSS (Core Spatial Strategy) states that, across the region, provision will be made to meet identified housing and community needs; improve connectivity, accessibility and the functional efficiency of places; and enhance economic prosperity within environmental limits.

k) Scale and Location of Development

4.5.42 Development Policy A (Development at Strategically Significant Cities and Towns) states that the primary focus for development in the South West will be the SSCTs, including Bridgwater.

4.5.43 Development Policy D (Infrastructure) states that the planning and delivery of development should ensure efficient and effective use of existing infrastructure and should provide for the delivery of new or improved transport, education, health, culture, sport and recreation and green infrastructure in step with development.

4.5.44 Development Policy E (High Quality Design) states that all development should deliver the highest possible standards of design, both in terms of urban form and sustainability criteria.

4.5.45 Development Policy F (Master Planning and delivery of major development) states that major developments, including urban extensions and regeneration, should be planned on a comprehensive and integrated basis to ensure that they contribute to the delivery of sustainable communities and a high quality of life by providing for:

- high standards of design and access and the lowest practicable levels of energy and car use;
- public transport, cultural, leisure, retail, health care, education and other services and facilities commensurate with the needs of the expected population of the area and delivered in step with growth of that population;
- sustainable transport links between urban extensions and city/town centres, with an emphasis on public transport, cycling and walking;
- amenity space and green infrastructure that meets community needs and supports improved biodiversity; and
- a range of housing types and tenures.

4.5.46 Development Policy G (Sustainable Construction) states that local planning authorities should promote best practice in sustainable construction and help to achieve the national timetable for reducing carbon emissions from residential and non-residential buildings. This will include:

- consideration of how all aspects of development form can contribute to securing high standards of energy and water efficiency;
- the use of sustainable drainage systems to minimise flood risk, manage surface water and encourage natural drainage and ground water recharge where appropriate; and
- designing for flexible use and adaptation to reflect changing lifestyles and needs and the principle of 'whole life costing'.

4.5.47 Development Policy H (Re-using Land) states that the full potential of previously used land will be taken into account in providing for new development, whilst recognising that previously developed land may not always be in the most sustainable locations and that development may not necessarily always be the most sustainable land use.

l) Regional Approach to Transport

4.5.48 Policy RTS1 (Corridor Management) states that, in order to improve the reliability and resilience of journey times, to develop opportunities to facilitate a modal shift and support growth at the SSCTs, provision will be made to manage the demand for long distance journeys and reduce the impacts of local trips on corridors of national and regional importance.

4.5.49 Policy RTS2 (Demand Management and Sustainable Travel Measures at the SSCTs) states that demand management measures should be introduced progressively at the SSCTs to reduce the growth of road traffic levels and congestion. This should be accompanied by a 'step change' in the prioritisation of sustainable travel measures serving these places.

4.5.50 Policy RTS3 (Parking) states that parking measures should be implemented to reduce reliance on the car and encourage the use of sustainable transport modes.

m) Enhancing Distinctive Environments and Cultural Life

4.5.51 Policy ENV1 (Protecting and Enhancing the Region's Natural and Historic Environment) states that, where development and changes in land use are planned which would affect the natural and historic environment, local authorities will first seek to avoid loss of or damage to the assets, then mitigate any unavoidable damage, and compensate for loss or damage through offsetting actions.

4.5.52 This policy also states that any development that could have any negative effect on the integrity and conservation objectives of a N2K site (i.e. Natura 2000 site) would not be in accordance with the development plan. Further assessment of the implications for N2K sites is required at subsequent levels including Local Development Documents (LDDs), and any development that would be likely to have a significant effect on a N2K site, either alone or in combination, will be subject to assessment at the project application stage.

4.5.53 Policy ENV3 (Protected Landscapes) states that in Dartmoor and Exmoor National Parks and the 14 AONBs in the region, the conservation and enhancement of their natural beauty, wildlife and cultural heritage will be given priority over other considerations in the determination of development proposals.

4.5.54 Policy ENV4 states that distinctive habitats and species of the South West will be maintained and enhanced in line with national targets and the South West Regional Biodiversity Action Plan. Local authorities should use the Nature Map to help map local opportunities for biodiversity enhancement in LDDs, taking into account the local distribution of habitats and species, and protecting these sites and features from harmful development.

4.5.55 Policy ENV5 (Historic Environment) states that the historic environment of the South West will be preserved and enhanced.

4.5.56 Policy CO1 (Defining the Coastal Zone) states that coastal local authorities, in partnership with other relevant agencies, will define in their LDDs the coastal zone, including developed and undeveloped coast. This policy goes on to state that within the undeveloped coast there will be a presumption against development unless it:

- does not detract from the unspoilt character and appearance of the coast;
- is essential for the benefit of the wider community; or
- is required to improve public access for informal recreation; or
- is required to support the sustainable management of fisheries; and
- cannot be accommodated reasonably outside the undeveloped coast zone.

4.5.57 Policy F1 (Flood Risk) states that, taking account of climate change and the increasing risk of coastal and river flooding, the priority is to:

- defend existing properties and, where possible, locate new development in places with little or no risk of flooding;
- protect flood plains and land liable to tidal or coastal flooding from development;
- follow a sequential approach to development in flood risk areas;
- use development to reduce the risk of flooding through location, layout and design;
- relocate existing development from areas of the coast at risk, which cannot be realistically defended; and
- identify areas of opportunity for managed realignment to reduce the risk of flooding and create new wildlife areas.

4.5.58 Policy RE1 (Renewable Electricity Targets: 2010 and 2020) of the draft RSS sets renewable electricity targets for the region, consistent with the 2003 Energy White Paper (Ref. 4.63) and states that LDDs will include positive policies to enable the achievement of the following targets:

- by 2010 a minimum target of 509 to 611MWe installed generating capacity, from a range of onshore renewable electricity technologies; and

- by 2020 a minimum cumulative target of 850 MWe installed generating capacity from a range of onshore renewable electricity technologies.

4.5.59 Policy RE4 (Meeting the Targets Through Development of New Resources) states that, when considering individual applications for development of renewable energy facilities, local planning authorities will take into account the wider environmental, community and economic benefits of proposals, whatever their scale, and should be mindful that schemes should not have a cumulative negative impact. Proposals in protected areas should be of an appropriate scale and not compromise the objectives of designation.

4.5.60 Policy RE5 (Decentralised Energy to Supply New Development) states that local planning authorities should set targets in their DPDs for the energy to be used in new development to come from decentralised and renewable or low-carbon energy sources where it is feasible and viable, and the development thresholds to which such targets would apply. In the interim, before targets are set in DPDs, at least 10% of the energy to be used in new development of more than 10 dwellings or 1000m^2 of non-residential floorspace should come from decentralised and renewable or low-carbon sources, unless, having regard to the type of development involved and its design, this is not feasible or viable.

4.5.61 Policy RE6 (Water Resources) states that the region's network of ground, surface and coastal waters and associated ecosystems will be protected and enhanced; surface and groundwater pollution risks must be minimised so that environmental quality standards are achieved and where possible exceeded; and local planning authorities must ensure that rates of planned development do not exceed the capacity of existing water supply and wastewater treatment systems and do not proceed ahead of essential planned improvements to these systems.

4.5.62 Policy RE8 (Woodlands and Forests) states that local authorities and other bodies will support the implementation of the Regional Woodland and Forestry Framework, ensuring the environmental, social and economic value and character of the region's trees, woods and forests are protected and enhanced in a sustainable way. Woodland areas, including ancient and semi-natural woodland should be maintained at least at 2005 levels and expanded where possible to provide a buffer to core areas of woodland. Ancient or veteran trees should be protected against loss. Where woodland is unavoidably lost through development it should be replaced with appropriate new woodland on at least the same scale.

4.5.63 Policy RE9 (Air Quality) states that the impacts of development proposals on air quality must be taken into account and local authorities should ensure, through LDDs, that new development will not exacerbate air quality problems in existing and potential AQMAs. This should include consideration of the potential impacts of new developments and increased traffic levels on internationally designated nature conservation sites, and adopt mitigation measures to address these impacts.

n) Somerset & Exmoor National Park Joint Structure Plan Review 1991-2001 (2000) (Saved Policies)

4.5.64 The Structure Plan provides the strategic base for all land use planning in the combined area covered by Somerset and the Exmoor National Park for the period up to 2011.

4.5.65 The Structure Plan has three main functions:

- to provide a framework of strategic policies for local planning and development control decisions;
- to ensure that the provision for development is realistic and consistent with national and regional policy; and
- to secure consistency between local plans.

4.5.66 As explained above (see paragraph 4.5.8), it is the Government's intention to revoke Regional Strategies. Notwithstanding this, the following Structure Plan policies are considered to be of some potential relevance in the sense explained above:

o) Strategic Policies

4.5.67 Policy STR1 (Sustainable Development) states that development in Somerset and the Exmoor National Park should:

- be of high quality, good design and reflect local distinctiveness;
- develop a pattern of land use and transport which minimises the length of journeys and the need to travel and maximises the potential for the use of public transport, cycling and walking;
- minimise the use of non-renewable resources;
- conserve biodiversity and environmental assets, particularly nationally and internationally designated areas;
- ensure access to housing, employment and services;
- give priority to the continued use of previously developed land and buildings; and
- enable access for people with disabilities.

4.5.68 Policy STR6 (Development Outside Towns, Rural Centres and Villages) states that development outside Towns, Rural Centres and Villages should be strictly controlled and restricted to that which benefits economic activity, maintains or enhances the environment and does not foster growth in the need to travel.

4.5.69 Policy STR7 (Implementation of the Strategy) states that, to ensure that development in Somerset and the Exmoor National Park is implemented in a way that meets the sustainable development aims of the strategy, development should fairly and reasonably contribute towards the provision of relevant community services and facilities, environmental improvements and infrastructure, that are directly related to and necessary for the development to proceed.

p) Nature Conservation

4.5.70 Policy 1 (Nature Conservation) states that the biodiversity of Somerset and the Exmoor National Park should be maintained and enhanced. The greatest protection will be afforded to nature conservation sites of international and national importance. In addition, Local Plans should include policies to maintain and enhance sites and features of local nature conservation importance including landscape features which provide wildlife corridors, links or stepping stones between habitats.

4.5.71 Policy 5 (Landscape Character) states that the distinctive character of the countryside of Somerset and the Exmoor National Park should be safeguarded for its own sake. Particular regard should be had to the distinctive features of the countryside in landscape, cultural heritage and nature conservation terms in the provision for development.

4.5.72 Policy 7 (Agricultural Land) states that, subject to the overall aims of the strategy, provision should not be made for permanent development, excluding forestry and agriculture, involving the best and most versatile agricultural land (Grades 1, 2 and 3a) unless there are no alternative sites on lower quality agricultural land and there is an overriding need for the development in that location. Where land in Grades 1, 2 and 3a does need to be developed and there is a choice between different grades, development should be directed towards land of the lowest grade.

4.5.73 Policy 9 (The Built Historic Environment) states that the setting, local distinctiveness and variety of buildings and structures of architectural or historic interest should be maintained and where possible be enhanced. The character or appearance of Conservation Areas should be preserved or enhanced.

4.5.74 Policy 11 (Areas of High Archaeological Potential) states that development proposals should take account of identified Areas of High Archaeological Potential or, elsewhere where there is reason to believe that important remains exist, so that appropriate assessment and necessary protection can be afforded to any archaeological remains identified.

4.5.75 Policy 12 (Nationally Important Archaeological Remains) states that there should be a presumption in favour of the physical preservation in situ of nationally important archaeological remains. The setting and amenity value of the archaeological remains should be protected.

4.5.76 Policy 13 (Locally Important Archaeological Remains) states that development proposals which affect locally important archaeological remains should take account of the relative importance of the remains. If the preservation in situ of the archaeological remains cannot be justified, arrangements should be sought to record those parts of the site that would be destroyed or altered.

4.5.77 Policy 15 (Coastal Development) states that provision for any development along the coast, including the Exmoor Heritage Coast, should be made within Towns, Rural Centres and Villages. Where development requires an undeveloped coastal location it should respect the natural beauty, biodiversity and geology of the coast and be essential in that location. New coastal developments should minimise the risk of flooding, erosion and landslip.

q) Transport and Infrastructure

4.5.78 Policy 39 (Transport and Development) states that proposals for development should be considered having regard to:

- the management of demand for transport;
- achieving a shift in transport modes to alternatives to the private car and lorry wherever possible; and
- the need for improvements to transport infrastructure.

4.5.79 Policy 45 (Bus) states that facilities for buses should be improved. This should include measures to give priority to buses and to introduce park and ride systems where these are the most sustainable option.

4.5.80 Policy 48 (Access and Parking) states that developments which generate significant transport movements should be located where provision may be made for access by walking, cycling and public transport. The level of parking provision in settlements should reflect their functions, the potential for the use of alternatives to the private car and the need to prevent harmful competitive provision of parking. The level of car parking provision associated with new development should first take account of the potential for access and provide for alternatives to the private car, and then should be no more than is necessary to enable development to proceed.

4.5.81 Policy 49 (Transport Requirements of New Development) states that proposals for development should be compatible with the existing transport infrastructure or, if not, provision should be made for improvements to infrastructure to enable development to proceed. In particular development should:

- provide access for pedestrians, people with disabilities, cyclists and public transport;
- provide safe access to roads of adequate standard within the route hierarchy and, unless the special need for and benefit of a particular development would warrant an exception, not derive access directly from a National Primary or County Route; and
- in the case of development which will generate significant freight traffic, be located close to rail facilities and/or National Primary Routes or suitable County Routes subject to satisfying other Structure Plan policy requirements.

4.5.82 Policy 52 (Freight Traffic (Lorries in the Environment)) states that traffic, and particularly lorries, should be encouraged to use National Primary Routes wherever possible through appropriate measures such as positive signing and by discouraging the use of unsuitable roads through traffic management schemes.

4.5.83 Policy 54 (Transport Proposals and the Environment) states that new transport proposals and improvements, particularly road schemes, must take into account the need to: minimise the impact of proposals through mitigation and compensation measures; improve or conserve the natural and built environment; avoid the risk of pollution to the water environment, including water resources; minimise the consumption of resources both in construction and operation; and, minimise conflict with adjoining land uses.

4.5.84 Policy 58 (Ports and Wharves) states that existing port and wharf facilities should be safeguarded from development which would prejudice their potential in the transport network. Any proposals for new facilities should be within or related to settlements.

4.5.85 Policy 59 (Safeguarding Water Resources) states that protection will be afforded to all surface, underground and marine water resources from development which could harm their quality or quantity.

4.5.86 Policy 60 (Floodplain Protection) states that areas vulnerable to flooding should continue to be protected from development which would cause a net loss of flood

storage area or interrupt the free flow of water or adversely affect their environmental or ecological value. In allocating land for development in local plans, consideration must be given to measures to mitigate the impact on the existing land drainage regime to avoid exacerbating flooding problems.

4.5.87 Policy 61 (Development in Areas Liable to Marine Flooding) states that provision should only be made for development in areas vulnerable to marine or tidal flooding where the development is needed in that location, no alternative location exists for the development and adequate measures exist or can be readily provided to protect the development.

4.5.88 Policy 63 (Utilities Development) states that provision should be made for utility developments where they respect the environment in which they are located in terms of their scale, location and design.

4.5.89 Policy 64 (Renewable Energy) states that provision should be made, where environmentally acceptable, for the development of renewable energy resources.

r) Other Regional Planning Documents

4.5.90 In addition to the DPDs identified above, the following regional planning documents are considered to be of some potential relevance to the HPC Project:

- Somerset Future Transport Plan 2011-2026 (2011) (Ref. 4.64) – This document sets out Somerset County Council's transport objectives for the period between 2011 and 2026.
- The Sustainable Community Strategy for Somerset 2008-2026 (2009) (Ref. 4.65) – This document sets out the Somerset Strategic Partnership's long term vision for Somerset in 2026.

4.5.91 These documents are considered in greater detail, where relevant, in the HPC development site and off-site associated developments introductory chapters and technical assessment chapters of this ES.

4.6 Local Planning Policy Context

4.6.1 The HPC development site is located within the administrative area of West Somerset Council (WSC), along with one of the off-site associated development sites. The other off-site associated development sites are located within the administrative area of Sedgemoor District Council (SDC).

4.6.2 As stated above, however, the Planning Act 2008 provides a different regime for NSIPs and it is NPS EN-1, when combined with NPS EN-6, which provides the primary basis for decisions by the IPC on applications for nuclear power generation developments that fall within the scope of the NPSs.

4.6.3 Notwithstanding this, the IPC may consider other matters that are both important and relevant to its decision-making. This could include Development Plan documents or other documents in the LDF, although, if there is a conflict between these and the NPS, the NPS prevails for the purposes of IPC decision making.

4.6.4 Further, the Act provides that the IPC must, in making its decision on an application, have regard to any LIR prepared by relevant local authorities. It is anticipated that the

LIRs will rely in part on local policy to provide a context for their assessment. On this basis, regard has been given to the current and emerging local policy documents relevant to the HPC Project which are likely to inform the LIRs prepared by the relevant local authorities.

4.6.5 More detailed consideration of the current and emerging local policies is set out within the HPC development site and off-site associated developments introductory chapters as well as the technical assessment chapters of this ES.

a) Local Planning Policy – West Somerset Council

4.6.6 The WSC Local Plan was adopted in April 2006 (with relevant policies 'saved' from 17 April 2009) (Ref. 4.66). The Local Plan relates to the administrative area of West Somerset, excluding Exmoor National Park. The Local Plan provides policies on settlement hierarchy, employment and housing, and landscape conservation. However, it predates the identification of Hinkley Point in NPS EN-6 as a potentially suitable location for a nuclear power station and, in that important respect, it is out of date.

4.6.7 Given that Local Plan Policy EN/5 (Nuclear Energy Developments) was not saved beyond April 2009, WSC determined that a statement outlining its position with regard to new nuclear energy development was necessary to provide clarity on the matter.

4.6.8 A position statement on major energy generation projects and their associated infrastructure was considered and approved by WSC's Full Council on 23 March 2011. The position statement is as follows:

> *"This Authority recognises the requirement for continued safe supply of electricity to meet the nation's varied energy needs. It will endeavour to facilitate major energy generating development proposals within its area where it can be clearly demonstrated that;*
>
> - *it makes an essential contribution to the nation's energy needs,*
> - *it respects the local natural environment in which it is located,*
> - *it respects the positive economic and social characteristics of communities affected especially those neighbouring it, and,*
> - *adequate measures are taken to mitigate the cultural, economic, environmental and social impact of any related development on the communities affected, both in the short and the longer term. "*

4.6.9 The officer's report to the Full Council states that, whilst it is recognised that the position statement cannot make policy, it has been produced to facilitate WSC's role in the decision-making process in respect of specific related development proposals within West Somerset.

4.6.10 In December 2009, WSC adopted Planning Obligations SPD (Ref. 4. 67) which sets out the Council's priorities in seeking planning contributions from developers and provides a clear methodology for how and when planning obligations will be sought. The SPD covers five key topic areas: Affordable Housing for Local Needs, Safe and

Sustainable Travel and Access, Community Infrastructure and Local Natural Environment, Education and Flooding.

4.6.11 In accordance with the Planning and Compulsory Purchase Act 2004, West Somerset Council is in the process of producing its LDF, which, once adopted, will replace the Local Plan and form part of the Development Plan for the site.

4.6.12 In January 2010, WSC published its Core Strategy Options Paper (Ref. 4.68) which is a material consideration for determining planning applications, although the weight attached to this document will be limited, given that it is at a relatively early stage of preparation.

4.6.13 The Core Strategy Options Paper presents three overall strategy options, as follows:

- Strategy Option 1 involves concentrating new development at the three main settlements of Minehead, Watchet and Williton, with the largest allocation(s) being at Minehead.
- Strategy Option 2 involves concentrating new development at four main settlements, including the upgrading of Stogursey to a 'Policy C' (or Local Service Centre). This option is a variation of Option 1 which, in addition, enhances Stogursey's function to a 'Policy C' settlement to serve the part of the district to the east of the Quantocks. This option is considered to respond to the likely strategic impact of the proposed HPC Project on surrounding communities.
- Strategy Option 3 involves a more dispersed pattern of development, which would still provide for the majority of population growth at the larger settlements (but at a somewhat lower level than for Strategy Options 1 and 2).

4.6.14 The Core Strategy will be supported by a Proposals Map which will identify where the proposals and designations in the Core Strategy will apply. In addition, there are a number of SPDs that will directly support the implementation of the Core Strategy.

4.6.15 On 16 February 2011, the Consultation Draft version of the Hinkley Point C Project Supplementary Planning Document (Ref. 4.69) ("draft HPC SPD") (prepared jointly with SDC) was presented to WSC's Full Council. The Full Council resolved that the commencement of public consultation on the draft HPC SPD be approved. Public consultation on the draft HPC SPD commenced on 1 March 2011 and concluded on 12 April 2011. EDF Energy has submitted representations which object to the draft HPC SPD. At the time of drafting this policy review chapter of the Environmental Statement, it is not yet known how the District Council intends to take forward the SPD. As it is the role of the NPSs, rather than local policy, to set tests for the consideration of NSIPs, however, the weight to be attached to the SPD must be very limited in any circumstances. As the SPD may be relied upon by some stakeholders, however, its contents have been set out at paragraph 4.6.35 below.

4.6.16 On 23 March 2011, the Williton Village Masterplan: Draft for Public Consultation (Ref. 4.70) ("draft Williton Village Masterplan") was presented to WSC's Full Council. The Full Council resolved to approve the publication of the draft Williton Village Masterplan for public consultation in May 2011. Public consultation on the draft Williton Village Masterplan commenced on 10 June 2011 and concluded on 22 July 2011. EDF Energy has submitted representations setting out its comments on the draft Williton Village Masterplan.

4.6.17 Section 5.3 of the draft Williton Village Masterplan sets out a number of suggested objectives for a spatial strategy for Williton, including, amongst other things:

- secure the role of the village centre as a continuing focus for the village and surrounding rural communities;
- encourage development in the village centre in the first instance which complements uses and activity in the village centre. Where further capacity is required effective links and relationships with the village centre should be explored;
- encourage village growth in order that facilities and activities enjoyed currently within the village are sustained;
- provide improved and varied employment near to the village centre in new small scale commercial development, or improvements at the Long Street Industrial Estate;
- new development and village centre improvements should work to support the delivery of an integrated flood management system for the whole village, including the use of sustainable drainage systems; and
- any new park and ride facility in or close to Williton proposed as part of the HPC Project should be developed with due regard to the function of Williton village and any opportunities for delivery of beneficial legacy to compensate for local impacts.

4.6.18 Consideration of the relevant current and emerging local planning policies is set out within the HPC development site and off-site associated developments introductory chapters as well as, where appropriate, the technical assessment chapters of this ES.

b) Local Planning Policy – Sedgemoor District Council

4.6.19 The Sedgemoor District Local Plan 1991-2011 was adopted in September 2004 (with relevant policies 'saved' from 27 September 2007) (Ref. 4.71). Again, it predates the identification of Hinkley Point as potentially suitable location for a new nuclear power station. The key objective of the Local Plan is to deliver a focussed approach to locating new development, which: concentrates new development in the towns; maximises the use of brownfield land and existing buildings and minimises the use of greenfield sites; creates opportunities to use and develop sustainable forms of transport, particularly walking, cycling and public transport; does not cause material harm to the environmental characteristics of those towns; does not overload the capacity of the facilities and services of those towns; and does not prejudice the vitality of other settlements and rural areas to provide for a range of development opportunities to meet the defined needs of those who live and work there.

4.6.20 The Local Plan includes policies and proposals for development and other use of land, and measures for the improvement of the natural and built environment and the management of transport. It also identifies land for development and provides a framework within which other development proposals will be considered.

4.6.21 In September 2003, SDC adopted the Sedgemoor Landscape Assessment and Countryside Design Summary (Ref. 4.72) as an SPD. The SPD sets out guidance on how the character areas identified by the Countryside Commission and English Nature in The Character of England (1996) (Ref. 4.73) have been interpreted locally.

The aim of this guidance has been to provide a better understanding of the varied character of the English landscape and in particular to foster recognition of the elements which create a sense of place or local distinctiveness.

4.6.22 In February 2009, SDC adopted the North East Bridgwater Design Principles Report (Ref. 4.74) as an SPD. The SPD relates to the "area of search" to the north east of Bridgwater identified in the Draft Revised RSS for the South West where it is proposed to provide significant housing and employment growth as part of a major mixed use extension to the town. The report sets an overall vision for the site, a detailed analysis of the constraints and opportunities, illustrative material suggesting design responses to these, and clear objectives.

4.6.23 In September 2009, SDC adopted the Bridgwater Strategic Flood Defence Tariff SPD (Ref. 4.75) that sets out a funding mechanism to deliver strategic flood defences for Bridgwater. Specifically, this sets out the mechanism to seek contributions from new development toward the capital costs of the "Parrett Barrier", a tidal surge barrier that is the preferred long term flood defence solution for the town.

4.6.24 On 30 March 2011, SDC's Full Council adopted the Bridgwater Gateway Design Principles as planning guidance. This document is intended to establish the design principles and concepts as part of an overarching framework that can be used to guide and assess future proposals for the Bridgwater Gateway site.

4.6.25 In accordance with the Planning and Compulsory Purchase Act 2004, SDC is in the process of producing its LDF, which, once adopted, will replace the Local Plan and form part of the Development Plan.

4.6.26 The Sedgemoor LDF Core Strategy (Proposed Submission) (Ref. 4.76) was consulted on from September to November 2010 and sets out the spatial strategy and spatial policies for accommodating growth and supporting infrastructure within Sedgemoor district. An addendum to the Core Strategy was subject to a further consultation from 23 November 2010 until 18 January 2011. Changes prior to submission proposed as a result of the consultation process were endorsed by SDC's Executive Committee on 9 February 2011.

4.6.27 The Core Strategy (Proposed Submission) was submitted to the Secretary of State on 3 March 2011 and an Examination in Public (EiP) was held in May 2011. EDF Energy submitted representations objecting to the Core Strategy (Proposed Submission), relating to Chapter 4 'Major Infrastructure Projects' (and policies MIP1 (Major Infrastructure Proposals), MIP2 (Hinkley Point C Associated and Ancillary Development and Employment) and MIP3 (Hinkley Point C: Compensation and Mitigation) contained in that chapter) and those sections relating to housing and Hinkley Point. EDF Energy also participated at the relevant EiP hearings.

4.6.28 At the close of the hearing sessions on 26 May 2011, the Inspector agreed with SDC and EDF Energy that, in an attempt to reach agreement on the disputed Chapter 4, SDC would re-draft Chapter 4 and EDF Energy would have the opportunity to respond. The position of both parties in relation to the re-drafted Chapter 4 was set out in correspondence between SDC, EDF Energy and the Inspector. As a result of the correspondence invited by the Inspector, SDC has agreed to further changes to the Core Strategy which make clear that the Core Strategy does not set any policies, tests or requirements for the IPC to apply in deciding whether any element of the

development comprised in an application for development consent is acceptable, nor the basis on which any such application should be approved. Instead, the Chapter is to set out those matters which SDC may take into account in preparing its LIR for the Hinkley Point C DCO application. These, therefore, represent aspirations of the Council, rather than formal planning policy for the Hinkley Point C DCO application. This was confirmed in the Inspector's binding report of the EiP, published on 27 September 2011. It is expected that the Core Strategy will be adopted in October 2011.

4.6.29 The Core Strategy seeks to deliver regeneration and transformational change to Bridgwater through the positive management of housing and employment growth. Burnham and Highbridge also have key roles in delivering town centre improvements, additional brownfield growth, and enhanced employment opportunities. The strategy for the rural areas recommends seventeen key rural centres that will provide local services and facilities, as well as modest future growth.

4.6.30 The Core Strategy will be supported by a Proposals Map which will identify where the proposals and designations in the Core Strategy will apply. In addition, there are a range of SPDs that will directly support the implementation of the Core Strategy.

4.6.31 SDC is currently preparing the following SPDs (as set out in the Sedgemoor Local Development Scheme (Fourth Revision) (February 2011) (likely publication dates for public consultation are shown in square brackets):

- Draft HPC SPD (prepared jointly with WSC – see below) [March – April 2011].
- Planning Obligations and Affordable Housing [March – April 2011].
- Royal Ordnance factory, Puriton Masterplan [February – March 2011].
- Bridgwater Gateway Masterplan [February – March 2011] – see paragraph 4.6.24 above.
- The Meads Ecological Park [March – April 2011].
- Travel Plans [March – April 2011].
- Local Economic Growth [March – April 2011].
- Burnham-on-Sea & Highbridge [November – December 2011].
- Design Guidance (Part 1) [November – December 2011].
- Design Guidance (Part 2) [September - October 2012].
- Community Infrastructure Levy Charging Schedule [April - May 2013].
- Brean/Berrow Coastal Strip [March - April 2013]

4.6.32 On 23 February 2011, the draft HPC SPD was presented to SDC's Executive Committee. The Executive Committee resolved to agree to commence public consultation on the draft HPC SPD for a period of six weeks from late February 2011. Public consultation on the draft HPC SPD commenced on 1 March 2011 and concluded on 12 April 2011. EDF Energy submitted representations which object to the draft HPC SPD.

4.6.33 Following the Sedgemoor Core Strategy EiP and subsequent correspondence with the Inspector, it is clear that the SPD cannot set tests, policies or requirements for

the IPC to apply to the consideration of the Hinkley Point C project. If the Councils continue with the SPD preparation, its text will need to be considered in this light and it could not carry any significant weight in the determination of the DCO application. As it may be relied upon by some stakeholders, however, the principal contents of the draft SPD have been set out below and reviewed in the DCO application documents, including this Environmental Statement.

4.6.34 The Planning Statement explains the weight which EDF Energy considers should be attached to the draft SPD.

4.6.35 The draft HPC SPD is intended to guide the HPC Project promoter in preparing a DCO application and any related planning applications submitted to WSC and SDC and to inform decision making bodies on important local considerations. The draft HPC SPD sets out supplementary advice in relation to the project-wide issues of Climate Change, Economic Development, Transport, Housing, Tourism, Leisure and Sports, and Nuclear Waste. The SPD confirms the approach of WSC and SDC in relation to the project proposals in a number of respects, including expectations that there will be:

- permanent associated development with a legacy for local communities, including permanent housing (with a proportion of affordable housing);
- consideration of climate change (both mitigation and adaptation) in the siting and design of new development;
- early support from the HPC Project promoter to facilitate local resident labour participation;
- support for the establishment of a Heart of Somerset Low Carbon Cluster (centred on Bridgwater);
- the minimisation of road traffic associated with the project and promotion of sustainable transport modes including public transport, walking and cycling;
- a requirement for full New Approach to Transport Appraisal assessments of highways, covering the need for a full options appraisal of bypass options;
- an approach to providing construction worker accommodation in proportions that reflect the local settlement hierarchy, with minimal temporary worker accommodation at Hinkley Point, and a higher proportion of accommodation at a range of sites in Bridgwater (avoiding very high concentrations in a single part of the town);
- contributions to an affordable housing delivery fund;
- protection of the tourism economy and maximisation of potential benefits, such as those presented by the proposed Hinkley Visitor Centre; and
- a partnership approach to delivering sports facilities for shared construction worker and community use.

4.6.36 The draft HPC SPD also sets out supplementary advice and design considerations for sites in Sedgemoor that have been identified as potential locations for associated development as well as supplementary advice on planning obligations and a proposed Community Benefits and Compensation Scheme.

4.6.37 Further consideration of the relevant current and emerging local planning policies is set out within the HPC development site and off-site associated developments introductory chapters as well as the technical assessment chapters of this ES.

c) Other Local Planning Documents

4.6.38 In addition to the DPDs identified above, the following local planning documents are considered to be of some potential relevance to the HPC Project:

4.6.39 The Sedgemoor Economic Masterplan 2008-2026 (SEM) (Ref. 4.77) is SDC's economic development strategy and is intended to complement other strategies, including the Sedgemoor LDF, Corporate Plan and Sustainable Community Strategy. The SEM outlines SDC's approach to economic regeneration in the district and how it considers the economy should grow in a sustainable manner into the future. The SEM recognises the importance of the HPC Project to SDC's economy and the benefits and opportunities offered by the nuclear energy sector.

4.6.40 Bridgwater Vision (2009) (Ref. 4.78), published by SDC, sets out a regeneration framework for Bridgwater, comprising a 50 year vision and seven transformational themes for the town:

- a town with a strong identity which promotes a positive and friendly image to both investors and visitors;
- an environmentally conscious, vibrant and contemporary town based on sustainable growth;
- a town of education, enterprise and innovation;
- a culturally rich, colourful and historic Bridgwater;
- an accessible and well-connected Bridgwater;
- a diverse, socially conscious town, with a strong sense of civic pride and local community; and
- a town which promotes opportunities that are financially deliverable and realisable in the long term.

4.6.41 A series of catalyst projects have also been identified, through which transformational change is to be promoted within the town centre.

4.6.42 The document sets out the following specific points that are considered to be of some potential relevance to the HPC Project:

- construction of a new Hinkley Point power station could provide opportunities for higher skilled construction jobs, and support to the sector in terms of training and retaining the workforce during the current economic crisis. This is of great importance to Bridgwater as the ability of its economy to capture the benefits from this project is dependent on it (page 21);
- there are potential opportunities presented by nuclear energy development at Hinkley Point to secure funding to contribute to the regeneration of Bridgwater through planning mitigation and community benefit (page 22);

- a national investment of this scale must positively contribute to local place shaping if it is to have long term benefits, rather than short term negative impacts during construction (page 44);
- due to the high complexity of decommissioning, construction, and operation of a nuclear power station Hinkley Point is a catalyst for a higher skilled workforce and could have a more significant positive impact on the structure of the local economy and the community if the proposal is designed in such a way to maximise real community benefit (page 44);
- the planned construction of a new nuclear power station will not only bring many jobs, but also will require local businesses to improve their skills in order to prepare for future bidding, which in its own turn should contribute to the development of a knowledge economy (page 44);
- it will also be essential to evaluate the environmental impact of proposals and the impact on local communities, both in construction and post construction. This may include for example, noise and disturbance from traffic and construction, the impact of abnormal loads, and the possible development of Combwich Wharf. It will also be important to assess the impact of the proposals on strong existing economic sectors such as tourism, where compensatory mitigation may be required to support the sector (page 44-45); and
- the potential for road improvements to Hinkley from junction 23 which may require a new link road running from the Dunball roundabout travelling west across the River Parrett towards Hinkley (page 106).

4.6.43 The document makes specific reference to Hinkley Point as a strategic project and acknowledges the opportunities and challenges such development will have on the area.

4.6.44 The document is considered in greater detail, where relevant, in the HPC development site and off-site associated development introductory chapters and technical assessment chapters of this ES.

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CHAPTER 5: HINKLEY POINT C PROJECT ALTERNATIVES

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TABLES

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5. HINKLEY POINT C PROJECT ALTERNATIVES

5.1 Introduction

5.1.1 In accordance with Article 5 of the Environmental Impact Assessment (EIA) Directive 85/337/EEC (as amended) and Regulation 2(1) and Schedule 4 to the Infrastructure Planning Commission (Environmental Impact Assessment) Regulations 2009 (the EIA Regulations) (Ref. 5.1), the **Environmental Statement (ES)** to be submitted with the Development Consent Order (DCO) application should outline the main alternatives considered by the applicant, and present the main reasons for the applicant's choice taking into account the environmental effects.

5.1.2 As described earlier in this volume, the Hinkley Point C (HPC) Project comprises the new HPC nuclear power station and associated development to facilitate the construction, and in some instances the operation of HPC; each of which are described and assessed in individual volumes. Each volume includes a site-specific alternatives chapter which describes the alternative site considerations; alternative sizing of the proposed developments; and the design iterations. This chapter therefore describes:

- the Government's alternative considerations in the strategic siting of a new nuclear power station at Hinkley Point (which included a study of potential environmental and sustainability effects); and
- the strategic associated development selection process as informed by transport and accommodation requirements.

5.1.3 This chapter also provides details on the supporting studies that have informed EDF Energy's final choice of associated development, taking into account the environmental, social and economic effects where relevant. For further information refer to the **Alternative Site Assessment** appended to the **Planning Statement,** which identifies the principal strategies which have been put in place by EDF Energy to ensure the HPC construction phase is consistent with the declared Vision for the HPC Project, and also describes the alternative site options that have been considered in selecting the proposed off-site associated development sites.

5.2 Hinkley Point Strategic Site Selection

5.2.1 Although the European Directive and the EIA Regulations do not expressly require the applicant to study in detail the alternatives, the nature of certain developments and their location may make the study of alternative sites a material consideration. The Circular on Environmental Impact Assessment (02/99) (Ref. 5.2) advises that in such cases an ES must record the consideration of alternative sites. However, given that the Government's policy on nationally significant energy infrastructure, in particular the Nuclear NPS (EN-6) (Ref. 5.3), considers the need for and siting of new nuclear power stations at a strategic level, the requirement on the applicant to provide a comprehensive study of alternative sites is reduced.

5.2.2 The sites listed in the NPS have been assessed by way of a Strategic Siting Assessment (SSA) for new nuclear power stations in the UK and an Appraisal of Sustainability (AoS), which has assessed the sustainability of the NPS on nuclear power generation, taking account of potential alternative strategies and the potential impacts of nominated sites. The SSA criteria for site assessment were based upon selected exclusionary and discretionary criteria. Exclusionary criteria were those which, if breached, would categorically exclude all or part of a site from further consideration (for example demographic risk or proximity to certain military activities). Discretionary criteria were those criteria that the Government considered, for various reasons, could, either singly or in combination, make all or part of a site unsuitable for a new nuclear power station but which needed to be carefully considered in order to come to a conclusion as to the site's strategic suitability (for example, flood risk and proximity to hazardous facilities).

5.2.3 Originally, 11 potential sites were nominated to the SSA. Of these, only Dungeness was excluded from the first draft Nuclear NPS published in November 2009, on the grounds of inability to mitigate impacts on ecologically sensitive areas. Following updated site assessments, Braystones and Kirksanton were also excluded in October 2010 because they could not be developed quickly enough and risked adverse effects for the Lake District National Park. The updated assessments focused on the likelihood of the sites being suitable for the deployment of a nuclear power station by 2025. The Government now considers eight of the original 11 sites to be suitable, including:

- Bradwell;
- Hartlepool;
- Heysham;
- Hinkley Point;
- Oldbury;
- Sellafield;
- Sizewell; and
- Wylfa.

5.2.4 The AoS concluded that the preferred approach should be a Nuclear NPS, based on the case for nuclear in relation to other alternatives (para. S.8.7). The AoS reviewed the sustainability characteristics of the potentially suitable new nuclear sites then proposed to be identified in the draft NPS and identified key issues that were recommended to be identified for the IPC to consider when determining individual applications for nuclear power stations. For Hinkley Point, its findings were consistent with those of the SSA. Of particular relevance, the AoS identified:

- there is some potential for adverse effects on the settings of four national and internationally protected sites, on water quality and on fish/shellfish populations;
- potential adverse effects on views from the Quantock Hills Area of Outstanding Natural Beauty (AONB), which would be difficult to mitigate; and
- likely positive long term economic and employment effects in the region.

5.2.5 **Table 5.1** below provides a summary of the analyses and conclusions drawn against the SSA criteria for the proposed Hinkley Point site.

Table 5.1: Hinkley Point Nuclear Power Station Location Assessment

SSA Criteria	Summary of Suitability against SSA Criteria
Demographics	The site does not exceed the 'semi-urban' criterion set by the Government as the upper bound restraint on population density around any site proposed for a new nuclear power station.
Proximity to military activities	The site does not occupy any Ministry of Defence (MoD) areas; it is not in proximity to any MoD assets or activities; and would not adversely affect armed forces training and operations in the area. Furthermore the proposed power station development can be protected against the risk of external hazards created by neighbouring military activities throughout its lifetime.
Flooding	There is a low risk of flooding at this site (although parts of the site to be used for temporary construction purposes are in flood zone 3), and based on the advice of the Environment Agency and the findings of the AoS, it is reasonable to conclude that a proposed new nuclear power station on the site could potentially be protected against flood risk throughout its operational lifetime, including any potential effects of climate change, storm surge and tsunami. The site has passed the PPS25 sequential test undertaken by the Government.
Coastal process	The Environment Agency has advised that the site could potentially be developed in a manner that could avoid or mitigate the effects of coastal erosion or other landscape change scenarios throughout its operational lifetime, including potential effects of climate change.
Proximity to hazardous industrial facilities	The site is not in the vicinity of any COMAH establishments, however the Health and Safety Executive advises that countermeasures to protect nuclear operations from any hazards and risks from any nearby notified major hazard pipelines would need to be taken into account.
Proximity to civil aircraft movements	The Civil Aviation Authority has advised that any proposed power station within the site can be protected against risks from civil air craft movement through a Restricted Area covering a radius of two nautical miles from the site. Furthermore the effect on air traffic and aerodrome can be potentially mitigated.
Internationally designated sites of ecological importance	The site lies in close proximity to a number of internationally designated sites of ecological importance, and that as a result there is the potential for adverse effects on the integrity of five European sites including the Severn Estuary SAC, SPA, Ramsar and the River Wye SAC and River Usk SAC. Despite this, the Government has concluded that there is an Imperative Reason of Overriding Public Interest that favours the inclusion of the Hinkley Point site in the Nuclear NPS.
Nationally designated sites of ecological importance	There is the potential for adverse effects on sites and species considered to be of UK nature conservation importance (including Bridgwater Bay National Nature Reserve (NNR) and a number if SSSIs. Despite this the Government recognises there is scope to avoid or mitigate the potential impacts.
Areas of amenity, cultural heritage and landscape value	Development of a new nuclear power station at the site could have potential adverse effects on features of monuments of national heritage significance, and cultural heritage assets however there is the potential for impacts to be mitigated or restricted. Furthermore, there is the potential for adverse effects on the surrounding

SSA Criteria	Summary of Suitability against SSA Criteria
	landscape and on the setting and views from Areas of Outstanding Natural Beauty (AONBs), but it is recognised that there is scope for minimisation, avoidance or mitigation of adverse impacts.
Size of site to accommodate operation	There is adequate land to safely and securely operate at least one new power station, including safe storage of all the spent fuel and Intermediate Level Waste produced through operation, and from decommissioning, on site until it can be sent for disposal in a geological disposal facility.
Access to suitable sources of cooling	There is access to suitable sources of cooling at the site, however should direct cooling be the preferred option then there is the potential for the cooling water abstraction process to impact on important fish species. The Government recognises that it may be possible to mitigate such potential impacts.

5.3 Associated Development Strategy

5.3.1 As described in **Chapter 3** of this volume, a number of associated developments are proposed to facilitate the construction, and in some instances the operation of HPC to help reduce any potential environmental impacts associated with the project. The associated developments include accommodation campuses; park and ride facilities; freight management facilities; an induction centre; consolidation facility for postal/courier deliveries; a bypass around the village of Cannington; the refurbishment and extension of the existing Combwich Wharf facility; and highway improvements.

5.3.2 EDF Energy has developed a project Vision which would guide the development and implementation of the HPC Project. The Vision was consulted on as part of the Stage 2 consultation and it has now been adopted by EDF Energy. Part of the Vision seeks:

> *"To ensure that any significant adverse effects of the construction, operation or decommissioning of the power station are appropriately mitigated in a way which is environmentally responsible and sensitive both to the needs of the community and to the strategies of the relevant authorities"*

5.3.3 To ensure that in the delivery of the HPC Project adverse effects of the construction and operation of the power station would be appropriately mitigated. The environmentally responsible project Vision informs the way in which the project would be delivered. This vision has been translated into themed strategies, which will ensure that the logistical challenge of the construction project can be carried out as efficiently and sustainably as possible.

i. Accommodation Strategy

5.3.4 Throughout the construction of HPC, the construction workforce is expected to rise gradually to reach an anticipated peak of 5,600 in 2016 and then would then fall gradually over time to an operational workforce of 900 when both units are operational and the construction of HPC complete.

5.3.5 EDF Energy has examined the breakdown of the construction workforce and the capacity of the local labour market to meet the workforce requirements of the HPC Project. This assessment has considered the type of construction jobs; the degree of specialisation required; information on local labour skills and supply; experience from previous nuclear construction projects; and EDF Energy's vision to maximise local employment opportunities.

5.3.6 The role and scope of education and training programmes, together with other initiatives to maximise local recruitment and skilling, has also been taken into account in this analysis. Further details about the employment, skills and training strategy are described in the **Volume 2, Chapter 9** of this ES.

5.3.7 On this basis, it is estimated that at peak construction the proportion of the workforce that would be home-based (i.e. already living locally) would be approximately 34% (1,900 workers) and the proportion of non-home-based (i.e. moving into the area) would be approximately 66% (3,700 workers).

5.3.8 EDF Energy has developed an **Accommodation Strategy** which provides a framework within which the necessary accommodation infrastructure to manage the demand generated from the HPC construction phase would be delivered. EDF Energy has undertaken a significant amount of research into the estimated number of construction jobs that would be generated by the HPC Project, and on accommodation opportunities within the local market, including the capacity of and demand for the owner occupied sector, private rented accommodation, tourist accommodation and latent accommodation (i.e. spare rooms within homes which local residents would be willing to rent out to workers). In addition, experience from the construction of the nuclear power station at Sizewell B, combined with engagement with principal contractors, has confirmed the need for a base load of campus accommodation for construction workers.

5.3.9 The types of accommodation sought by the construction workforce would depend on the nature of their role and the length of time for which they are employed. This would vary considerably. The majority of those employed, however, would be civil, mechanical and electrical operatives who are typically more likely to work on the HPC Project for periods of months or low numbers of years (one or two). These workers are more likely to move to the area without their partners or families and would (typically) seek more temporary forms of accommodation in the local area.

5.3.10 The **Accommodation Strategy** considers the existing bedspace capacity in the area including the open housing market, the private rented sector, tourist accommodation and latent supply. Analysis has estimated that there would be 4,200 vacant bedspaces available locally at peak. However, some assumptions have been made relating to the likelihood/ability for non-home-based construction workers to take up accommodation in different sectors, for example affordability of tourist accommodation. It is important that existing accommodation sources are not used beyond their capacity or in ways that deliver detrimental impacts for the local tourism sector or local communities. In this regard, a conservative approach to assessing existing supply has been adopted. The provision of substantial campus accommodation would act as a buffer against the risk of adverse impacts from too much pressure on existing accommodation.

5.3.11 Furthermore, there are clear operational requirements for the provision of purpose-built accommodation campuses, not only to mitigate against the risk of negative local impacts, but also deliver significant operational benefits in terms of the delivery of the construction programme and the management of the workforce.

5.3.12 The benefits of purpose-built accommodation campuses include the following:

- the ability to meet the needs of construction workers, for example, with catering, laundry, bar and sports facilities;
- flexibility for workers coming to the area for short periods of time;
- enables shuttle bus services to the HPC development site, thereby reducing additional traffic on the local road network;
- provide the best means of managing large numbers of workers to ensure high standards of behaviour. This would help to mitigate any potential impact on the local community from the influx of construction workers; and
- provision of workforce close to site (i.e. the HPC campus) reducing worker trips on the local road network, minimising travel times to site thus increasing the productivity and efficiency of the workforce, as well as ensuring a rapid and effective response to any on-site issues or incidents.

5.3.13 Taking all of these factors into account, it has been concluded that 1,510 bedspaces within accommodation campuses would need to be made available to the construction workforce to ensure all workers can be appropriately accommodated locally during the construction phase and to provide a good supply of accommodation for workers.

5.3.14 The sites on which the proposed developments would be located have been selected in consultation with stakeholders as part of the pre-application consultation process, with consideration to environmental impacts. It is proposed that there would be one accommodation campus at the HPC development site (see **Volume 2** of this ES) and two campuses in Bridgwater (see **Volumes 3** and **4**). Details of the site selection and consideration of alternatives, as well as the design evolution process for each of the proposed developments is described in the Alternative chapter of the relevant volumes of this ES.

ii. Induction Strategy

5.3.15 To provide the necessary induction facilities that would be needed to support the construction phase of the HPC Project, EDF Energy has developed an induction strategy in consultation with stakeholders, both at the formal and informal stages. It has had regard to the characteristics of the construction phase of the project; operational requirements of the workforce; existing provision in the local area; relevant planning policy and guidance; and the objectives of the HPC Project. The strategy has informed the scale and siting of the induction centre at the Junction 23 site (see **Volume 8** of this ES).

iii. Transport Strategy

5.3.16 Approximately 7.3 million tonnes of materials will be transported to and from the HPC Project sites during the construction phase. In addition there will be a total workforce of between 20,000 and 25,000 people (of which the peak would be 5,600). To

manage the transport of material, EDF Energy has developed a transport strategy, which provides a framework to bring forward the necessary transport infrastructure to manage the freight and workforce travel demand generated from the HPC Project will be brought forward. The transport strategy is detailed in the **Transport Assessment** (see **Annex 7** of this ES).

5.3.17 This strategy has been developed in consultation with stakeholders, both at the formal and informal stages. It has had regard to the construction and operational requirements of the project, the rural nature of the site, relevant planning policy and guidance and the objectives of EDF Energy. The transport strategy has informed the scale and siting of the park and ride and freight management facilities, as well as bus and freight routes and other facilities.

5.3.18 The transport strategy objectives, as set out in the **Transport Assessment**, are to:

- minimise the volume of traffic associated with the development of the new power station so far as reasonably practicable, at all times but especially during peak hours;
- maximise the safe, efficient and sustainable movement of people (i.e. travel by non-car) and materials (i.e. delivery by non-road) required for the HPC Project so far as reasonably practicable;
- minimise the impacts both for the local community and visitors to the area using the road network so far as reasonably practicable;
- provide long-term, sustainable legacy benefits for the local community from new infrastructure, where appropriate;
- take all reasonable steps to ensure the resilience of the transport network in the event of an incident; and
- take all reasonable steps to protect the natural and built environment.

Freight Management

5.3.19 A number of management measures to control and manage the delivery and volume of freight to the HPC development site have been considered in the **Freight Management Strategy** including:

- the re-use and storage of excavated materials on the HPC development site to avoid exporting off-site;
- regulating HGVs by using a project-wide delivery management system (DMS) to regulate and track flows and move deliveries away from peak time periods;
- reducing the impact of construction traffic by providing a package of road improvements where required; and
- reducing movement by small vehicles through consolidation of postal/courier deliveries.

5.3.20 The strategy for managing freight required to construct HPC has been developed to specifically respond to the rural characteristics of Hinkley Point; making the most of its sea and motorway connections, whilst minimising impact on the rural road network. The key element of the strategy is to transport significant amounts of materials by sea, and to utilise freight management facilities for materials arriving via

the M5 motorway to limit traffic impacts on local roads, particularly in peak hours. In this regard, the freight management strategy provides for the following:

- a temporary jetty to be constructed at the HPC development site to allow the import of materials for concrete production directly to the site. It has been assumed that at least 80% (by weight) of bulk materials for on-site concrete production would be delivered via the jetty and the remaining (up to) 20% by road. Details on the alternatives considered, as well as the design evolution process for the jetty are described in **Volume 2, Chapter 6**;
- an existing wharf at Combwich to be upgraded to allow for the delivery of Abnormal Indivisible Loads (AILs) and other construction materials, equipment and plant, and a new freight laydown facility would also be provided at Combwich. Details on the alternatives considered, as well as the design evolution process for the proposed development at Combwich are described in **Volume 7, Chapter 6**; and
- freight management facilities to be developed at Junctions 23 and 24 of the M5 motorway to intercept and manage road-borne freight movements The early availability of the Junction 24 facility would enable it to offer freight management and park and ride facilities from the start of construction. Details of the site selection and consideration of alternatives, as well as the design evolution process for each of the proposed developments at Junction 23 and Junction 24 are described in **Chapter 6** of **Volumes 8** and **9** respectively.

5.3.21 Further details are provided in the **Freight Management Strategy** appended to the **Transport Assessment** (see **Annex 7**).

Workforce Management

5.3.22 The workforce during the construction phase would be made up of home-based and non-home-based workers. EDF Energy has developed a model which estimates: (i) how many workers would be home-based; (ii) how many non-home-based workers would live in the community; and (iii) how many non-home-based workers would live in purpose built accommodation campuses.

5.3.23 For all categories of the workforce, the approach is to minimise travel demand and to maximise opportunities to travel by sustainable modes where possible. This has multiple benefits: reducing carbon emissions, reducing impacts on the amenity of local people and reducing potential traffic congestion.

5.3.24 The approach involves the provision of park and ride facilities, bus and coach services and robust travel planning to reduce traffic movements on the road network. It is proposed to constrain available car parking on the HPC development site which would act to further enforce the transport strategy. The provision of dedicated park and ride facilities to serve home-based and non-home-based workers is a key part of the transport strategy, therefore it is proposed to:

- construct park and ride facilities at Junctions 23 and 24 of the M5 motorway to intercept people travelling from the wider area, including clusters of people living on the M5 motorway corridor, in settlements such as Weston-super-Mare, Burnham and Highbridge, and Taunton (see **Volumes 8** and **9**);

- construct a park and ride facility in Cannington to intercept visitors and workers living locally for whom the other park and ride facilities would be too distant to be convenient to use (see **Volume 6**);
- construct a park and ride facility in Williton to intercept workers living in Minehead, Watchet, Williton and other areas to the west of the HPC development site (see **Volume 10**);
- provide bus services from the purpose-built accommodation campuses in Bridgwater and from principal settlements to the HPC development site.

5.3.25 The locations of the four main park and ride facilities have been chosen having regard to the anticipated location of the workforce, to minimise convoluted trips on the local highway network, and to ensure the facilities provide coverage over a wide geographical area.

5.3.26 The size of each park and ride was informed by a Gravity Model (see the **Transport Assessment** for details) which assessed the likely origin of workers trips. As described above, details on site selection and consideration of alternatives, as well as the design evolution process for each of the park and ride sites are described in the **Chapter 6** of the relevant volumes of this ES.

Cannington Bypass

5.3.27 Through the EIA (see **Volume 2**) it has been identified that traffic-related impacts would arise at Cannington, and are a consequence of the higher traffic flows passing though the village as a result of the construction and operation of the HPC.

5.3.28 It is important to note that the level of traffic anticipated by the **Transport Assessment** in the construction and operation of the HPC power station can be accommodated within the existing capacity of the roads in Cannington. Nevertheless, the change in traffic flows from existing flows and the nature of that traffic would be more pronounced in the village than elsewhere. In addition, whilst statutory noise limits in the form of the Noise Insulation Regulations (1988) would not be breached in Cannington village before the bypass is operational, the EIA has shown that in the period before the bypass is operational, traffic levels in the village, and the nature of the traffic, would create an adverse impact on residential and other sensitive receptors along the High Street and the C182 (Rodway) (see **Volume 2, Chapter 11**).

5.3.29 The higher traffic flows in the village of Cannington are likely to have negative impacts on the character, cultural heritage and amenity value of the village and the amenity of people who live and work there.

5.3.30 In line with EDF Energy's vision, to ensure that any significant adverse effects of the construction, operation or decommissioning of the power station are appropriately mitigated, it is proposed that a bypass to the west of Cannington is constructed to address the impacts outlined above. This would reduce the impacts of construction traffic passing through the village and as a result of traffic diverting around Cannington, a large proportion of Cannington village would experience a reduction in road traffic noise and an enhancement in amenity. Further details on the bypass and consideration of alternative route alignments are provided in **Volume 5, Chapter 6**. It is proposed that the bypass would remain as a permanent development, diverting

future operational traffic away from the centre of the village, and would be available for public use.

Highway Improvements

5.3.31 The transport strategy aims to minimise the impact of traffic associated with the HPC Project on the road network. Nevertheless, the temporary increase in journeys on the network in some cases justifies specific mitigation to relieve potential problems at particular junctions. In this regard, a package of highway improvements has been developed for implementation within the urban areas of Bridgwater and Cannington and elsewhere on the local highway network. As detailed in **Volume 2** of this ES, these include junction improvements, traffic management, speed reduction measures and safety enhancements, developed in conjunction with the relevant stakeholders. These works would be permanent, i.e. they would not be removed following completion of the construction of the HPC power station.

Bridgwater Bypass Improvements

5.3.32 The potential for providing a bypass around Bridgwater has been assessed as part of the transport strategy in response to suggestions through consultation for a northern bypass. EDF Energy has considered whether the impact of the HPC Project's traffic justifies the need for this.

5.3.33 In Bridgwater, the extensive road network means that traffic would be dispersed across the network. Most travel by private vehicles would be intercepted by the park and ride facilities off the M5 motorway, whilst heavy and light goods vehicles (HGVs and LGVs) would be intercepted, controlled and held at the freight management facilities at Junctions 23 and 24 of the M5 motorway and the consolidation facility for postal/courier deliveries at Junction 23 of the M5 motorway, to be regulated and released outside peak traffic hours. This strategy, together with maximising the use of sea transport through the jetty and Combwich Wharf combine to significantly reduce the impact that would otherwise be felt through Bridgwater. A number of highway improvements (as detailed above) are also proposed within Bridgwater to ease traffic effects and to leave enhanced highway infrastructure.

5.3.34 EDF Energy's DCO application does not include a proposal for a Bridgwater bypass. The **Transport Assessment** has concluded that the additional traffic generated during the construction phase of the HPC Project could be accommodated on the existing road network, subject to a number of junction improvements, taking into account any additional traffic identified to be generated by permitted, unimplemented planning permissions and planning policy allocations.

5.3.35 Taking into account Government guidance in PPG13 (January 2011) (Ref. 5.4) that a full range of alternative solutions (for example, alternative traffic management measures or improvements to existing roads) should be explored before considering new transport infrastructure (Annex C, paragraph C4), it is considered that the provision of a new Bridgwater bypass would be both unnecessary and contrary to Government guidance. Notwithstanding this, the Bridgwater bypass study (appended to the **Transport Assessment**) has explained whether there is any necessity or requirement for a Bridgwater bypass.

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CHAPTER 6: ENABLING AND PRELIMINARY WORKS

CONTENTS

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6. ENABLING AND PRELIMINARY WORKS

6.1 Introduction

6.1.1 As identified in **Chapter 1** of this volume, EDF Energy has recently undertaken or is in the process of undertaking a series of works (referred to as 'enabling works') at the HPC development site. As detailed below these include remediation of the north-eastern part of the site, construction of a car park serving Hinkley Point B (HPB), retention of two trenches for testing purposes and construction of a bat barn.

6.1.2 EDF Energy has also submitted two applications to undertake further works collectively entitled "Preliminary Works" to facilitate the construction of a new nuclear power station at HPC, comprising:

- site preparation works to prepare the site for the construction of HPC;
- the construction and operation of a temporary jetty, providing the infrastructure needed to import construction materials, especially bulk materials such as aggregate and cement, directly to site by sea.

6.1.3 The application for the former was made to West Somerset Council (WSC) and the latter to the Marine Management Organisation (MMO) and the Secretary of State for Energy and Climate Change. The applications were made in advance of the application for a DCO for HPC, in order to expedite the construction programme so that the new power station can be operational as soon as possible. Both applications were subject to their own Environmental Impact Assessments (EIAs). This chapter provides an overview of the enabling works and preliminary works and their status. Details on how these have been considered within the Environment Statement (ES) are provided in **Chapter 7** of this volume.

6.2 Enabling Works

The enabling works which have been undertaken, or are in the process of being undertaken, at the HPC development site have been subject to a series of individual applications in 2010 and 2011 as detailed below:

a) BDAE Remediation Project

6.2.1 In August 2010, EDF Energy submitted an application to Somerset County Council (SCC) for the remediation of an area of land to the west of the existing Hinkley Point A (HPA) station and in the north-east of the HPC development site known as the 'Built Development Area East' (BDAE). EDF Energy received planning permission from SCC on 6 January 2011 (planning application reference 3/32/10/025). This project is referred to hereafter as the "BDAE Remediation Project".

6.2.2 The BDAE forms part of the HPB Nuclear Site Licensed Area and occupies a rectangular parcel of land of approximately 46 hectares. Part of this area was occupied by a large double-humped mounded earthworks feature and it was estimated that the mound contained around 98,000m^3 of surplus spoil which arose principally from the construction of the HPA Power Station. The mound comprised natural reworked soils and a proportion of demolition and construction material.

Extensive intrusive site investigations were undertaken in the BDAE and the assessment concluded that there were approximately 4,100m³ of un-segregated contaminated material in the mound (mainly asbestos containing material). Localised areas outside of the mound have also been identified as containing 'hotspots' of contamination. During ongoing works additional asbestos containing material (ACM) has been identified by the contractor.

6.2.3 The works that were consented under planning application 3/32/10/025 comprised:

- removal and disposal of known contaminated soils within the BDAE, apart from known hotspots under the location of the new HPB car park;
- reuse of any suitable materials sourced within the BDAE (from the mound) as fill material for the decommissioning of the HPA Station, if required;
- treatment of the mound soils where required to remove/recover unsuitable materials, e.g. wood, paper, metal and plastic etc., (by mechanical sorting) prior to reuse of the soils as fill;
- re-profile and restoration of the remaining mound materials to a lower and flatter profile;
- the creation of temporary hard standing areas for materials segregation and interim stockpiling and for the parking of plant and contractor's equipment; and
- the temporary relocation of the existing helipad which serves the HPB Power Station.

6.2.4 The BDAE Remediation Project commenced in May 2011 albeit at a slower rate than initially anticipated at the time of making the application for the remediation works. Condition 1 of the Site Remediation Planning Permission (3/32/10/025) required that the remediated materials be permanently removed from the site by 31 August 2011. Consequently it was necessary to seek an extension to the time limit allowed for HGV movements as specified in Condition 1 by a further six month period. In effect this would extend the finish date from 31 August 2011 to 29 February 2012.

6.2.5 The proposed site preparation works are anticipated to commence in October 2011 and would therefore overlap with the BDAE remediation works, but only in respect of the 'early works' during site preparation, including fencing and site clearance such as barn demolition, archaeological mitigation and removal of vegetation.

b) Bat barn construction

6.2.6 EDF Energy is proposing various land clearance works as part of the early site preparation works and this includes the demolition of three existing barns within the site. The existing barns provide potential roosts for bats, therefore EDF Energy, as a precautionary measure, sought planning permission from West Somerset Council (WSC) to construct a new roost before the barns are demolished (planning application reference 3/32/10/038). EDF Energy received planning permission from WSC on 31 March 2011 to construct the new bat barn.

6.2.7 The new bat barn was completed in August 2011 and is located in a sheltered, unlit position along the HPC development site's western boundary, off Benhole Lane; as close as possible to an existing barn and along a route that is used by commuting bats. The bat barn is located within an area to be used for soil storage (i.e. within the footprint of the soil bund that would run along the HPC development site's western boundary south of Green Lane). The soil bund would be shaped to avoid ecological constraints located within this area of the site, such as the bat barn.

c) Hinkley Point B car park

6.2.8 A car park to serve the existing HPB power station has been constructed as permitted development within the existing operational land in the north eastern area of the BDAE. Permitted development has been confirmed by a Certificate of Lawful Development from West Somerset Council (WSC) (application reference 3/32/10/034). The car park works began in February 2011 and were completed in June 2011. The topsoil was stockpiled adjacent to the existing spoil mound (i.e. within the construction fence to be erected for site preparation) and validation testing was carried out under the BDAE Remediation Project works. Contaminated topsoils were removed and disposed off-site to a suitably licensed landfill. It is intended that the remaining top-spoil will be stock piled to be used as part of the final restoration of the HPC development site.

6.2.9 Underneath this car park there are a number of asbestos hotspots and an area of shallow hydrocarbon contamination. The car park has been constructed over the identified hotspots and the resultant hard surface will act as a physical barrier, preventing both contact with contaminated soils and the generation of contaminated dusts. There will be no risk to human health during the period when the car park is in use. The areas of contamination beneath the car park will be remediated, with associated verification and validation reporting, when the car park is no longer required. A Remediation Strategy for the excavation of the contaminated material was prepared in support of the Site Remediation planning application. This took into account the construction of a new car park for HPB power station.

d) Trenching works and testing

6.2.10 In December 2009 EDF Energy submitted a planning application for two temporary trenches to be excavated for vibration testing and three trial areas for compression testing (planning application reference 3/32/09/035). The proposed works were located within the north-west part of the HPC development site. The application comprised the temporary excavation of two trenches (40m long by 25m wide by 7m deep), the temporary removal of topsoil from three areas, and the crushing of stones from the trenches to form a temporary surface for compression testing. In order to re-use the spoil generated from the main construction activities, adequate information regarding the spoil and results of the compression testing was required to enable assumptions on the re-use of material to be determined. Planning permission was granted by WSC in February 2010 and works commenced in April 2010. The planning permission was granted for a six month period up to September 2010.

6.2.11 Planning permission was extended for another six month period so that additional testing of the exposed earth could continue up to April 2011 (planning permission reference 3/32/10/028). In April 2011, EDF Energy sought another six month extension, so further visual assessment of the trenches could continue**.** Permission (planning permission reference 3/32/11/016) was granted in July 2011.

6.3 Preliminary Works

6.3.1 To facilitate the construction of a new nuclear power station at HPC, EDF Energy submitted two applications to undertake Preliminary Works at the HPC development site comprising site preparation works and the construction and operation of a temporary jetty. These applications were submitted to West Somerset Council (WSC) and the Marine Management Organisation (MMO) respectively. These applications have been made in advance of the DCO application in order to facilitate the construction programme for the HPC development.

6.3.2 In addition, the early availability of the temporary jetty development would reduce the traffic-related environmental impact of the HPC construction through a reduction of HGV construction traffic.

6.3.3 The site preparation works are designed to be reversible so that the land could be returned to its previous use in the event that development consent for the main project is refused. The temporary jetty application however, currently does not include power for its subsequent removal, on the advice of the MMO. The draft DCO however, is proposed to include a power to remove the temporary jetty when its use has ceased. If a DCO for the HPC Project is not granted, EDF would seek all necessary consents to enable the temporary jetty to be dismantled and removed and the land reinstated.

6.3.4 Consent for both the proposed site preparation works and the temporary jetty works is also being sought through the DCO application. This approach has been adopted to ensure that EDF Energy obtains consent to carry out all of the project works via the DCO in circumstances where the Preliminary Works consents are for any reason delayed, refused, legally challenged or quashed.

a) Site Preparation Works

6.3.5 The site preparation works application was submitted to WSC in November 2010 (planning application reference 3/32/10/037). The application was accompanied by an ES in line with the requirements of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended) (herein referred to as the Town and Country Planning EIA Regulations) (Ref. 6.1). The application was consulted on by WSC between December 2010 and January 2011 during which two public meetings were held.

6.3.6 In March 2011, WSC wrote to EDF Energy under Regulation 19(1) and 19 (10) requesting further information with respect of the Town and Country Planning EIA Regulations (Ref. 6.1) requesting further information in respect of the ES and other information.

6.3.7 EDF Energy responded on 26 April 2011 and WSC undertook a further consultation on this material between then and 31 May 2011. At a planning committee held on 28 July 2011, WSC resolved to grant planning permission for the site preparation works, subject to agreement of a Deed of Planning Obligation pursuant to Section 106 of the Town and County Planning Act 1990.

6.3.8 The purpose of the site preparation works is to clear the HPC development site and undertake the earthworks necessary to create the development platforms required for the subsequent construction of HPC. This will allow the construction work to be

performed from safe level platforms and will enable access around the site using suitably designed ramps between the different elevations. In addition, works would commence on the deeper excavations for the Nuclear Island building foundations.

6.3.9 The works include:

- Site establishment works, including the creation of construction compounds and associated facilities, car parks, and the laying, replacement and/or diversion of services networks.
- Erection of boundary and construction fencing.
- Site clearance, including the diversion of Public Rights of Way (PRoW) within the construction areas, demolition of existing barns within the development site; removal of existing areas of woodland and hedgerows; and vegetation clearance.
- Earthworks to create the platforms required for the construction of HPC. It is estimated that approximately 2.3 million m^3 (unbulked) of material would be excavated during the site preparation works and stockpiled on-site for re-use. The proposed stockpile areas and stockpiling methodologies are determined by the volumes and properties of the materials, requiring the different types of materials to be stored in separate stockpiles and managed accordingly. It is anticipated that on average approximately 200,000m^3 (unbulked) of material would be excavated within the application site per month throughout the site preparation works, based on the sequencing of works around the site and the transport of excavated materials. The sequence of the excavations and stockpiling is generally based on the following events:
  - removal of topsoil to storage areas;
  - removal of subsoil and overburden to storage areas, dependent upon individual properties;
  - creation of landscaped areas, using subsoil, overburden and topsoil as required;
  - removal of weathered rock to storage areas or to form platforms; and
  - removal of fresh rock as required to storage areas or to form platforms.

  All the material excavated during the earthworks is expected to remain on-site as part of the platforms, stockpiles or landscaping.
- Culverting of Holford Stream to allow for creation of a construction platform area. The culvert would be constructed off-line from a point adjacent to the western boundary of the site, across to the eastern boundary of the site, where it would return water into the existing open Holford Stream watercourse.
- Construction of a surface water drainage system outfalling into the Bridgwater Bay and Holford Stream ensuring that:
  - water is discharged at controlled rates (greenfield run-off rates being achieved for discharges into Holford Stream downstream of the site);
  - all surface water discharges meet appropriate water quality standards in terms of suspended sediments and other possible contaminants (e.g. hydrocarbons);

  - the drainage is designed using the principles of Sustainable Drainage Systems (SuDS), including water minimisation and re-use wherever possible; and
  - the design for the drainage strategy is based on a 1 in 30 year storm event occurring during the construction period.
- Dewatering of the working areas especially around the areas proposed for deeper excavations during the main construction phase. Water collected from dewatering would be discharged to the surface water drainage system described above.
- Construction of a temporary retaining wall along part of the northern edge of the main platform to retain the elevated main platform above the natural grade level (to enable landraising of the site during platform development).
- Development of a network of haulage roads to facilitate the movement of vehicles and soil and rock materials around the site, including:
  - a north-south haulage road which would allow for the transfer of excavated material to the southern part of the site;
  - a haulage road network in the northern part of the site, which would vary in location and level to suit the ongoing platform development to eventually tie into the site compounds as they are developed; and
  - a service road around the perimeter of the site within the security fence to allow security and maintenance personnel access to inspect and facilitate the construction and maintenance of the construction fence.
- Construction of site access points to the north-east of the site to provide the main site access during the site preparation works, with a second site access gate to the south-east of the site to provide access for Heavy Goods Vehicles (HGVs) and deliveries to the site. Two roundabouts would be constructed to the north-east and south-east of the site to serve these access points.
- Installation of services infrastructure, including a temporary 11kV substation.
- Installation of two batching plants, to be used only for the purpose of making trial mixes and batching concrete to be used on-site.

6.3.10 Further details of the site preparation works are provided in **Annex 2 Construction Method Statement.**

b) Temporary Jetty

6.3.11 In December 2010, EDF Energy submitted applications to the Marine Management Organisation (MMO) for a Harbour Empowerment Order (HEO) under the Harbours Act 1964 (as amended) and licences under the Food and Environment Protection Act 1985 (i.e. FEPA licences) for a jetty development at Hinkley Point, Somerset. In order to acquire the land interests it requires to construct the temporary jetty, EDF Energy also submitted in December 2010 a separate application for an Order under the Transport and Works Act 1992 to the Department of Energy and Climate Change (DECC). These applications will hereinafter be referred to as the 'jetty applications'.

i. Applications Process

6.3.12 In line with the requirements of the Harbour Works (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended) and the Marine Works (Environmental Impact Assessment) Regulations 2007, an Environmental Statement (ES) accompanied the HEO and FEPA licences applications. Since the Transport and Works Act Order, if made, would give EDF Energy powers to acquire land and interests in land only, and not for undertaking any works, there is no requirement to carry out a separate EIA or to provide a separate ES in support of this application.

6.3.13 Following consultation on the jetty applications, the MMO and DECC received various responses which were forwarded to EDF Energy. The nature of the responses was varied with some requests for further clarification on existing material contained within the ES and others for additional environmental information. In response, EDF Energy prepared an ES Addendum to address the matters raised in the consultees' responses through the provision of additional information and points of clarification (as appropriate).

6.3.14 The ES Addendum was subsequently submitted in June 2011, together with further amendments to the draft HEO and Habitats Regulations Assessment information. The draft HEO and ES Addendum were subsequently subject to a further consultation, which finished at the end of July 2011.

6.3.15 In May 2011, the MMO informed EDF Energy of the MMO's and the Secretary of State's intention to hold a conjoined public local inquiry into the jetty applications. The inquiry is scheduled to open on 15 November 2011.

6.3.16 It is anticipated that the MMO and Secretary of State will make a decision on the applications, and if positive, it is anticipated that the Orders will be made and licences granted in Q2 2012.

ii. Temporary Jetty

6.3.17 The jetty is required to provide a means for delivery of bulk construction materials (principally aggregates, sand and cement) to the HPC development site by sea. In addition to this material, it may also be possible to import other material to the site via the jetty and this could include materials such as unitised and/or pre-fabricated items such as pre-cast concrete pipeline units (e.g. for the intake and outfall structures), steel reinforcement bars (e.g. for concrete), brickwork, cabling, piping and ducting.

6.3.18 Early construction of the jetty would enable a more efficient construction programme and help facilitate an earlier completion of the nuclear power station. The jetty forms an integral part of EDF Energy's freight strategy which seeks to reduce the volume of road traffic associated within the development of HPC. Early consent is therefore sought for the jetty in order to reduce the amount of traffic on the roads at the earliest opportunity.

6.3.19 The jetty applications provide for the construction and operation of a jetty extending off the north-west coast of the HPC development site into Bridgwater Bay and include the following:

- An aggregates storage area comprising stockpile areas for stone and sand and silos for cement and/or cement replacement products, and including a surface water drainage system with a water management zone for the treatment and control of discharges.
- A rock extraction area and two soil storage areas to facilitate construction of the onshore components.
- A service road providing access to the aggregates storage area, the rock extraction area and, temporarily for the purposes of construction, to the foreshore.
- A jetty bridge constructed from tubular piles supporting horizontal crossheads and a deck, incorporating mooring infrastructure.
- A berthing pocket dredged alongside the jetty head to accommodate vessels at various states of the tide.
- Materials handling and conveyance equipment (e.g. hoppers, pipelines and conveyors) installed on the jetty's head and bridge as far as the aggregates storage area.
- A turning circle (for trucks) and a mobile crane on the jetty head and a roadway along the jetty bridge.
- Aids to navigation.

6.3.20 The jetty applications have been prepared to be standalone, i.e. it is not necessary to rely on obtaining consent for other works to implement the jetty works. Given that planning permission for site preparation works has been granted subject to agreement of a Deed of Planning Obligation (as described above), it may in fact, not be necessary to construct all of the works as set out within the jetty applications. However this is dependant upon whether there is a legal challenge to the site preparation works planning permission.

6.3.21 At the end of its operational life the jetty and associated infrastructure would be removed and the site would be restored in accordance with the landscape plan provided in **Volume 2 Chapter 2**.

c) Programme for the Preliminary Works

6.3.22 It is proposed that the site preparation works would commence in late 2011 and last for approximately 15 months. This would comprise two key phases, the first phase comprising the erection of site fencing, establishment of the perimeter access road; construction of alternative footpaths; vegetation clearance; removal of barn structures; archaeological works. The second phase includes the main earthworks; provision of earth retaining structures; deep excavations; provision and relocation of drainage infrastructure, and construction of new site access points.

6.3.23 Assuming that the temporary jetty applications are granted in the second quarter (Q2) of 2012, it is proposed that construction of the temporary jetty would commence soon after, in Q2 2012 and last for 15 months. Works would therefore progress

partly in parallel with the site preparation works and, towards the end of the jetty construction programme, in parallel with the initial HPC main site works.

6.3.24 As mentioned above, the Preliminary Works applications were prepared as standalone applications allowing for both components of the Preliminary Works to proceed in the absence of the other, should consent not be granted by the determining authority, or in the event that the proposed works are delayed due to legal challenge. The EIA for each application therefore considered the impacts associated for the proposed developments both individually and cumulatively.

6.3.25 In the event that either or both of the Preliminary Works applications are granted on the assumed timeframes, EDF Energy will commence the site preparation works in late 2011 and the jetty works in mid 2012, pursuant to the planning permission and the Harbour Empowerment Order (HEO) respectively. EDF Energy expects to complete the site preparation works pursuant to the planning permission before the DCO is granted. However, in the event that the site preparation works have not been completed by the date that the DCO is granted, those works will be capable of being continued pursuant to the DCO. The draft DCO submitted with the application includes provisions which will allow EDF Energy to serve notice on the local planning authority notifying them of the point at which construction of the site preparation works will continue under the DCO rather than the planning permission. In practice, the works carried out will be the same, but the requirements attached to the carrying out of those works under the DCO may be different from the planning permission conditions, reflecting any difference in the types of controls and mitigations which the IPC considers are appropriate in the context of the grant of consent for the wider project.

6.3.26 Consent for a temporary jetty and associated conveyor and pipeline is also being sought through Part 2 of the draft DCO. However, in the event that EDF Energy's HEO and TWAO applications for the temporary jetty are granted and safe from legal challenge, EDF Energy will withdraw its request for the IPC to grant Part 2 of the draft DCO. EDF Energy will, however, continue to seek power to close the temporary jetty via the DCO if this power is not granted in the HEO.

References

6.1 Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations (SI 1999/293). HMSO, 1999.

CHAPTER 7: ENVIRONMENTAL IMPACT ASSESSMENT APPROACH AND METHODOLOGY

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TABLES

APPENDICES

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7. ENVIRONMENTAL IMPACT ASSESSMENT APPROACH AND METHODOLOGY

7.1 Introduction

7.1.1 This chapter of the Environmental Statement (ES) describes the process and methodology which has been applied to undertake the Environmental Impact Assessment (EIA). It presents:

- the approach to the EIA in relation to the requirements of the Planning Act 2008;
- the requirements of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI 2009/2263) (herein referred to as the 'EIA Regulations');
- the consultation undertaken to engage with and receive feedback from stakeholders on the development proposals and the EIA;
- the scoping undertaken to define the requirements of the EIA;
- the approach adopted to define the baseline environment;
- the approach taken to flexibility in the DCO application;
- the approach taken to assess impacts, including the assignment of significance;
- the approach taken to the derivation of mitigation measures and the assessment of residual impacts;
- the approach taken to assessing cumulative impacts; and
- the approach taken to transboundary impacts.

7.1.2 **Table 7.1** sets out the requirements of Schedule 4 of the EIA Regulations regarding the provision of information within an ES and indicates where that information is provided herein.

Table 7.1: Location of Information within the ES (as defined by Part 1 of Schedule 4 to the EIA Regulations)

Summary of Requirements under Schedule 4, Part 1	Location of Information within the Environmental Statement
Description of Hinkley Point C (HPC) and associated development	**Volume 2, Chapters 2-5** (HPC) **Volumes 3-10, Chapters 2-5** (associated development)
An outline of the main alternatives studied and an indication of the main reasons for the applicant's choice, taking into account the environmental effects	**Volume 1, Chapter 5** (HPC) **Volumes 2-10, Chapters 6** (associated development)
A description of the aspects of the environment likely to be significantly affected by the proposed project	**Volumes 2-10** within each of the technical assessment chapters under the Baseline Environmental Characteristics section

Summary of Requirements under Schedule 4, Part 1	Location of Information within the Environmental Statement
A description of the likely significant impacts of the proposed development on the environment	**Volumes 2-10** within each of the technical assessment chapters under the Assessment of Impacts section
A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment	**Volumes 2-10** within each of the technical assessment chapters under the Mitigation of Impacts section
A non-technical summary (NTS)	Presented separately to the ES
An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.	**Volumes 2-10** within each of the technical assessment chapters under the Assessment of Impacts section
A description of the cumulative impacts of the proposed development on the environment	Site-specific cumulative impacts are considered within each of the technical assessment chapters in volumes 2-10. Project-wide and cumulative impacts with other schemes are assessed and presented in **Volume 11**

7.2 EIA Process

7.2.1 The main stages of the EIA process for the Hinkley Point C (HPC) Project were as follows:

- scoping, which identified the anticipated potential environmental issues of concern to be addressed by the EIA, the availability of relevant existing data and the requirements for additional surveys to complete an understanding of the baseline environment;
- review of existing data and undertaking of surveys within and around the development sites to establish the characteristics of the baseline environment;
- periodic consultation with stakeholders to inform them of the development proposals and the emerging findings of the EIA studies and to enable them to input into the considerations affecting the emerging project;
- iteration of the design of the proposed development to take into account the findings of baseline surveys, the impact assessment and feedback from stakeholders;
- detailed assessment of the proposed development to include the description of impacts and their significance, the requirements for impact mitigation and the description of residual impacts;
- an assessment of cumulative impacts, including assessment of any additive and interactive impacts of the proposed developments and any cumulative impacts of the HPC Project in combination with other planned developments; and
- production of the ES.

7.2.2 These stages are summarised in the following sections. It should be noted that they are not necessarily consecutive and in some cases overlap. For example, baseline data gathering and surveys commenced at a very early stage, but some have continued throughout the EIA process and been amended in scope in response to

emerging requirements (e.g. consultation input) in order to allow impact evaluation to be adequately informed.

7.3 Scoping and Consultation

7.3.1 The scoping process started in Spring 2008 with a workshop involving key stakeholders to scope the surveys and studies required to adequately describe baseline conditions and to inform the assessment of impacts. Consultation with key stakeholders has been ongoing throughout the EIA process as described below.

7.3.2 A Scoping Report was produced to accompany a request for a Scoping Opinion for the proposed HPC power station by British Energy. The report was submitted to the Department of Energy and Climate Change (DECC) in November 2008 under Regulation 7 of the Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000 (**Appendix 7A**). A Scoping Opinion was received from DECC in February 2009 (**Appendix 7B**).

7.3.3 The Planning Act 2008 provided for a new Infrastructure Planning Commission (IPC) to determine applications for major infrastructure applications of national importance, such as the HPC Project. Following the creation of the IPC, EDF Energy considered it appropriate to submit a further Scoping Report to this new body and to request a Scoping Opinion under the EIA Regulations in January 2010 (see **Appendix 7C**). This Scoping Report provided further details on baseline conditions and the initial assessment undertaken following submission of the earlier Scoping Report by British Energy. A Scoping Opinion was received from the IPC in May 2010 (see **Annex 1**).

7.3.4 A table outlining the comments received from consultees with the Scoping Opinion from the IPC in 2010 is provided in **Appendix 7D**, together with details on where these issues have been addressed within this ES or other documents supporting the DCO application.

7.3.5 One of the key elements of the new regime for Nationally Significant Infrastructure Projects (NSIPs) is the legal requirement to undertake detailed pre-application consultation. Pre-application consultation for the HPC Project is presented in the **Consultation Report** which accompanies the application for development consent.

7.3.6 The pre-application consultation fell into three broad categories:

- consultation with statutory consultees and other relevant stakeholders (other interested parties) carried out in accordance with requirements under Section 42 of the Planning Act;
- consultation with local communities living in the vicinity of the HPC development site carried out in accordance with requirements under Section 47 of the Act; and
- consultation with the general public under Section 48 of the Act.

7.3.7 As set out in the Department for Communities and Local Government's (CLG's) Guidance on Pre-Application Consultation document published in September 2009 (Ref. 7.1), the primary aim of such consultation is to engage early with local communities, local authorities and statutory consultees in order to:

- allow members of the public to influence the way the proposed project is developed by giving them the opportunity of providing feedback on potential

options and also to shape the way in which their community may be influenced by the project;

- assist a better understanding of the proposed project and the implications at a local scale and resolve misunderstandings or concerns as early in the process as possible;
- obtain important information about the economic, social and environmental impacts of the proposed project from consultees in order to help identify project options which are unsuitable and not worth developing further;
- enable potential mitigating measures to be considered and, in some cases, built into the project design before an application is submitted; and
- identify ways in which the project could support wider strategic or local objectives, where appropriate.

7.3.8 The pre-application consultation was undertaken in four formal stages as detailed in the **Consultation Report**, during which the surveys and studies which had been completed at the time were presented. Details of emerging assessment outcomes and the scope of ongoing or future studies were also provided.

7.3.9 In addition to the four formal stages, separate consultation with relevant consultees on the EIA has been undertaken where appropriate (for example, with Natural England regarding ecology), and commentary on the consultation undertaken is provided within the each of the technical assessment chapters.

7.4 Structure of the Technical Chapters

7.4.1 The outcomes of the EIA process are presented within the ES in topic-specific chapters. As noted in **Chapter 1** of this volume, the ES comprises eleven volumes, where **Volume 2** presents the assessment of the proposed nuclear power station and related infrastructure at the HPC development site. **Volumes 3** to **10** present the assessment of each of the off-site associated developments and **Volume 11** considers cumulative impacts of the HPC Project as a whole and in combination with other proposed and reasonably foreseeable projects.

7.4.2 Each of the topic-specific chapters is structured to include a number of sections, which generally include the following:

- Introduction – provides details on the content of the chapter.
- Legislation and Policy – provides a summary of relevant legislation and national, regional and local planning policies.
- Methodology – provides details of the topic-specific assessment methodology which has been adopted, with reference to relevant guidelines and legislative standards. In addition, criteria used to determine the significance of the environmental impacts with respect to the topic considered are identified and described.
- Baseline Environmental Characteristics – describes the baseline environment and identifies the existing environmental receptors which have the potential to be impacted.

- Assessment of Impacts – presents and discusses the findings of the impact evaluation, with reference to the different phases of the proposed development.
- Mitigation of Impacts – provides details of the mitigation measures that have been identified to ensure that any significant potential adverse environmental impacts are either prevented, reduced or, where possible, offset.
- Residual Impacts – identifies the remaining environmental impacts, which may be either beneficial or adverse, assuming the identified mitigation measures have been implemented.
- Cumulative Impacts – identifies and describes the site-specific cumulative impacts which arise from each of the proposed HPC Project developments individually. Different aspects of each of these components may themselves have additive or interactive impacts. The assessment of combined impacts (additive or interactive) of the different HPC Project components, and the combined impacts that may occur with any other 'non-HPC Project' development, is presented in **Volume 11** of the ES.

7.5 EIA Methodology

7.5.1 The EIA Regulations require that an ES should identify, describe and assess the likely significant effects of a development on the environment. This ES presents the likely significant effects of the HPC power station and its associated developments in relation to both the proposed construction and operational phases. Where the associated developments are proposed to be temporary in nature, i.e. they are required only to facilitate the construction of the HPC power station, the removal of such development and the subsequent reinstatement of the site(s) has also been assessed. For certain temporary sites, the **Post-operational Strategy** identifies that it may be appropriate to retain all or some of the works and structures constructed under the DCO. The retention of all or some of the works and structures have been assessed but not the not the theoretical future uses of the site, because EDF Energy are not seeking consent for any future uses through the discharge of the DCO post-operational requirements.

7.5.2 The identified potential impacts have been evaluated with reference to definitive standards and legislation where available and impacts have been quantified as far as reasonably practicable. Where it has not been possible to quantify impacts, qualitative assessments have been carried out, based on available knowledge, professional judgement and good practice. As described in section 7.11 below, any assumptions made in undertaking the impact assessment are clearly stated and limitations (e.g. technical constraints) or uncertainties have been noted in the relevant technical assessment chapter. Where applicable, details are provided as to how any assumptions which have been made affect the certainty of, or margins of error in the assessment.

a) Study Area

7.5.3 The geographical extent of the study area varies depending on the environmental topic and specific receptors under consideration for that topic. For each topic the study area is of sufficient size to encompass the spatial extent over which impacts relevant to that topic and the related receptors may operate. Some environmental impacts are confined within the boundaries of the development sites, whilst others,

such as noise and visual effects, extend beyond the boundaries. The geographical scope of each assessment is set out in the topic-specific assessment chapters.

b) Definition of Current Baseline

7.5.4 Baseline environmental conditions need to be established to enable an accurate assessment of potential changes to such conditions that may occur and to assess the resultant environmental impacts of the proposed development. Understanding baseline conditions also assists in the identification of the most appropriate mitigation which could be employed to minimise any significant impacts. A wide range of baseline information has been gathered to define and describe the existing environmental characteristics and receptors for each environmental topic. Sources of such information include, but are not limited to:

- desk-based review of existing published data;
- data provided by Statutory and Non-Statutory consultees;
- field survey information (most of which has been commissioned by EDF Energy specifically for the HPC Project) related to, for example, ecological features (habitat and species surveys), landscape character, background noise levels and traffic levels on the road network; and
- intrusive site investigations, for example, contaminated land and archaeological trial trenching to establish sub-surface conditions.

7.5.5 Typically, the baseline condition for the assessments is defined as the condition at each of the development sites at the present time (2011), as represented by the most recent baseline survey information and other relevant input data. For each development site, a general description of the baseline is provided within **Chapter 1** of **Volumes 2** to **10**, with more detailed information being provided in each topic-specific chapter as appropriate.

7.5.6 The characterisation of the baseline environment for the HPC development site assumes that the proposed Preliminary Works (comprising the site preparation works and the temporary jetty) have not been undertaken. Therefore impacts of the Preliminary Works have been assessed as part of the EIA of the HPC Project. The principal reasons for the inclusion of the Preliminary Works are as follows:

- The Preliminary Works are essential to the construction of a new nuclear power station at HPC and their inclusion enables a more coherent assessment to be provided for the full construction phase of the HPC Project.
- At the time of preparing this EIA, neither element of the Preliminary Works has commenced.
- Whilst the Preliminary Works are likely to have commenced development at the time the DCO application is examined and determined, their progressive development would create a constantly changing baseline. A more coherent assessment is possible if the Preliminary works are assessed as part of the overall HPC project.

7.5.7 Prior to commencement of the Preliminary Works, a package of ‘enabling works’ was undertaken on the HPC development site, including:

- Construction of a replacement car-park serving Hinkley Point B power station located on existing operational land.
- Remediation of an area of land to the west of the Hinkley Point A Station known as the 'Built Development Area East'.
- Construction of a bat barn along the site's south-western boundary, off Benhole Lane.

7.5.8 These works are well underway at the time of preparing this EIA and their completion has been assumed as part of baseline. Further details of these works, which were undertaken in spring-autumn 2011, are provided in **Volume 2, Chapter 1**. It has been assumed for the purposes of the EIA, therefore, that the baseline environment within the HPC development site is that which exists following completion of the enabling works.

c) Assessment of Potential Impacts

7.5.9 The ES therefore presents an assessment of the likely significant effects of the HPC Project including:

- the site preparation works;
- construction, operation and dismantling and removal of the temporary jetty;
- construction and operation of the HPC power station;
- construction and operation of the off-site associated developments;
- off site highway works;
- landscaping of the HPC development site following the completion of construction activities; and
- the post-operational phase of the off-site associated development sites.

7.5.10 HPC will have an operational life of 60 years, after which it will be decommissioned. The decommissioning process cannot be accurately detailed at the current time due to likely changes in legislative requirements controlling the decommissioning process and advancements in technology which may change the way in which decommissioning is performed in the future. However, before decommissioning can take place, there is a requirement for the operator to obtain consent from the Health and Safety Executive (HSE) under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (EIADR 99). This requires the submission of an ES following an EIA and a period of public consultation. For the HPC UK EPR reactor units this would take place immediately prior to the 'end of generation', i.e. at the cessation of energy generation at HPC, and would consider fully the environmental impacts of decommissioning. The potential environmental impacts associated with decommissioning are, therefore, only addressed in a qualitative manner herein, as presented in **Volume 2, Chapter 5**.

7.5.11 The environmental assessment reported in this ES has evaluated impacts for the key assessment years for the HPC Project. The assessment years are based on the principal project phases and periods when there will be a peak in development activity upon receptor being assessed. It should be noted, however, that the peak years with regard to proposed activities and/or potential impacts may differ between

development sites and topic areas. Further details on the assessment years considered are provided in the relevant site-specific volumes and topic-specific chapters.

7.5.12 The EIA Regulations require that an ES should identify and describe the likely significant impacts of the proposals on the environment. This requires consideration of:

- whether the impacts are beneficial or adverse;
- impact duration (short, medium or long term);
- impact nature (direct or indirect effects, reversible or irreversible);
- whether the impacts are permanent or temporary;
- the extent, magnitude and complexity of the impact; and
- whether a particular impact occurs in isolation or is cumulative or interactive with another impact.

7.5.13 As outlined above, when undertaking an EIA, environmental impacts are classified as either permanent or temporary. Permanent impacts are those which result in an irreversible change to baseline conditions (for example the removal of archaeological features present in the ground due to the need to excavate soils and rock for the proposed power station) or will last for the foreseeable future (for example noise from the operation of the power station which will continue for 60 years). In the context of the development proposals, temporary impacts are those which occur over shorter time periods and which are associated mainly with the construction, dismantling and removal phases of the HPC Project. In general the durations of temporary impacts are categorised as follows:

- short-term – less than one year;
- medium-term – one to five years; and
- long-term – greater than five years.

7.5.14 For some receptors these generic temporary timeframes may not be applicable, for example some ecological receptors may have a lifecycle shorter than the proposed timeframe. Where this is the case, appropriate timeframes have been applied and the justification for it is explained in the relevant topic chapters.

7.6 Evaluation of Significance

7.6.1 This ES is based on a clear approach to the assessment of significance. In particular, the potential significance of predicted impacts has been determined by reference to relevant criteria for each assessment topic. Broadly, the significance of the impact is determined with reference to the magnitude of the potential impact, the value or sensitivity of the receiving environment or receptor, the likelihood of the impact occurring, its duration and the extent to which it is reversible. In order to provide a consistent approach to expressing the outcomes of each of the assessments undertaken, the terminology described below has been used to assist in determining the significance of the identified impacts. An Impact Assessment Matrix (IAM) has been developed and this has been used to enable, where appropriate, a consistent approach to setting the level of impact significance across

the different EIA topics. Where necessary, the evaluation of impacts has been informed and moderated by professional judgement.

a) Magnitude

7.6.2 The magnitude of a potential impact refers to the extent of change, which is defined in terms of the area over which the impact occurs, the duration (i.e. the time for which the impact is expected to last prior to recovery or replacement of the resource or receptor), the likelihood (i.e. the chance that the impact will occur) and reversibility. An irreversible (permanent) impact is one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it.

7.6.3 In order to help define the impact magnitude, the following guidelines (see **Table 7.2**) have been adopted for the purposes of this EIA. It is considered that this range takes account of the wide variation of potential change that could occur. While this table provides guidelines of a generic nature, it should be noted that more specific guidelines in relation to impact magnitude have been adopted for the topics assessed where considered necessary.

Table 7.2: Generic Guidelines for the Assessment of Magnitude

Magnitude	Guidelines
High	Very significant, permanent/irreversible changes, over the whole development area and potentially beyond (i.e. off-site), to key characteristics or features of the particular environmental aspect's character or distinctiveness. Impact certain or likely to occur.
Medium	Significant, permanent/irreversible changes, over the majority of the development area and potentially beyond, to key characteristics or features of the particular environmental aspect's character or distinctiveness. Impact certain or likely to occur.
Low	Noticeable, temporary (during the project duration) change, over a partial area, to key characteristics or features of the particular environmental aspect's character or distinctiveness. Impact would possibly occur.
Very Low	Noticeable, temporary (for part of the project duration) change, or barely discernible changes for any length of time, over a small area, to key characteristics or features of the particular environmental aspect's character or distinctiveness. Impact unlikely or rarely to occur.

7.6.4 The adopted guidelines have been phrased to cover the range of change and duration of impact that might be expected, from very significant through to barely discernible. However, as with all of the steps in the impact assessment process, there is scope for the application of professional judgement in the assignment of assessed magnitude, such that further qualification might be used in determining the magnitude level.

b) Receptor Value or Sensitivity

7.6.5 The value of the receptor is a function of a range of factors (e.g. biodiversity value, social/community value and economic value). The value or potential value of a resource or feature can be determined within a defined geographical context. For example, the following hierarchy to describe value is recommended by the Institute of

Ecology and Environmental Management (IEEM) (2006) (Ref. 7.2) with respect to ecological receptors:

- International.
- UK.
- National (i.e. England/Northern Ireland/Scotland/Wales).
- Regional.
- County (or Metropolitan – e.g. in London).
- District (or Unitary Authority, City, or Borough).
- Local or Parish.
- Within zone of influence only (which might be the project site or a larger area).

7.6.6 The sensitivity of an environmental receptor is a function of its capacity to accommodate changes in baseline conditions resulting from the development and/or as a result of ongoing natural processes and also reflects its capacity to recover if it is affected.

7.6.7 In order to help define the value and sensitivity of receptors, the following guidelines (shown in **Table 7.3** below) have been adopted in this EIA. It should be noted that the value and sensitivity criterion is a composite one. In some instances, the inherent value of a receptor has been recognised by the expert community and Governmental bodies by means of designation, and the 'value' element of the composite criterion, in turn, recognises and gives weight in the assessment to that designation. Irrespective of recognised value, all receptors will exhibit a greater or lesser degree of sensitivity to the changes brought about by the proposed development, and the 'sensitivity' element of the criterion ensures that this characteristic of each receptor is brought into the assessment also; weighting being a matter of judgement applied by the expert assessor. The precise form which these indicators take in each case will vary according to subject matter, but by following the generic methodology explained in this Chapter, the assessors responsible for each of the topic-specific assessments have ensured that these factors have been taken into account within their subject areas. These impact significance ratings provide initial guidance to the assessor who then applies expert professional judgement to reach a balanced conclusion on the ultimate significance of a particular impact.

Table 7.3: Generic Guidelines for the Assessment of Value and Sensitivity

Value/ Sensitivity	Description
High	Value: Feature/receptor possesses key characteristics which contribute significantly to the distinctiveness, rarity and character of the site/receptor (e.g. designated features of international/national importance, such as Special Areas of Conservation (SACs), Special Protection Area (SPAs), Ramsar sites, Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), UK Biodiversity Action Plan (BAP), etc.). Sensitivity: Feature/receptor has a very low capacity to accommodate the proposed change.

Value/ Sensitivity	Description
Medium	Value: Feature/receptor possesses key characteristics which contribute significantly to the distinctiveness and character of the site/receptor (e.g. designated features of regional or county importance, such as County Wildlife Sites (CWSs), Local BAP, etc.) Sensitivity: Feature/receptor has a low capacity to accommodate the proposed change
Low	Value: Feature/receptor only possess characteristics which are locally significant. Feature/receptor not designated or only designated at a district or local level (e.g. local nature reserve). Sensitivity: Feature/receptor has some tolerance to accommodate the proposed change
Very Low	Value: Feature/receptor characteristics do not make a significant contribution to local character or distinctiveness. Feature/receptor not designated. Sensitivity: Feature/receptor is generally tolerant and can accommodate the proposed change

c) Significance

7.6.8 The concept of 'significance' is central to the assessment process. The classification of significance aids the identification of the principal environmental impacts of the proposed development and assists in determining what weight should be given to these impacts.

7.6.9 There is no statutory definition of what constitutes a significant impact and guidance is of a generic nature. However, it is widely recognised that 'significance' reflects the relationship between the magnitude of an impact and the value/sensitivity of the affected resource or receptor.

7.6.10 To assist in the assessment process, an impact assessment matrix (IAM) has been used in determining the level of impact significance (see **Table 7.4**). It should be noted that while the matrix provides an appropriate framework for the consistent assessment of impacts across all environmental topics, there is still an important role for expert judgement and further objective assessment to play in moderating the significance of an impact. Given that the criteria represent levels on a continuum (or continuous gradation), professional judgement and awareness of the relative balance of importance between value/sensitivity and magnitude is required.

Table 7.4: Impact Assessment Matrix

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

7.6.11 For the purpose of this impact assessment, statutory designations and any potential breaches of environmental legislation take precedence in determining significance, because the protection afforded to a particular receptor or resource has already been established as a matter of law. Thus, using the defined criteria and IAM, features to which designations apply have automatically been determined to be of high value (or of a higher value than non-designated features), and as a result any impact tends to be of a greater significance than an impact on features to which no designation applies. Hence, for designated features, the use of the value criteria leads to an initial presumption that impacts will be of a high significance. Information on sensitivity can then be used to modify or maintain this initial assessment as appropriate.

7.6.12 In practice, and given the role of informed professional judgement in the assessment process, there may be some variation between subject areas in the significance rating process. This may be as a result of limited information on the sensitivity of features and/or the complexity of interactions that require assessment in determining the magnitude of change. However, the significance ratings derived through the assessment process and set out in **Table 7.4** can also generally be described in a generic manner as shown in **Table 7.5**.

7.6.13 The descriptors for the various significance ratings can also be used as a framework for confirmation (or not as the case may be) of the ratings gained through use of the matrix approach. The generic descriptions also provide a greater understanding of the nature, scale and type of determined impact.

Table 7.5: Generic Description of Significance Ratings

Level of Significant	Description
Major	Very large or large change in environmental or socio-economic conditions. Effects, both adverse and beneficial, which are likely to be important considerations at a national to regional level because they contribute to achieving national/regional objectives, or, which are likely to result in exceedance of statutory objectives and/or breaches of legislation.
Moderate	Intermediate change in environmental or socio-economic conditions. Effects that are likely to be important considerations at a regional and local level.
Minor	Small change in environmental or socio-economic conditions. These effects may be raised as local issues but are unlikely to be of importance in the decision making process.
Negligible	No discernable change in environmental or socio-economic conditions. An effect that is likely to have a negligible or neutral influence, irrespective of other effects.

7.7 Mitigation Measures

7.7.1 Following the impact assessment, careful consideration has been given by the assessors for each topic to the potential mitigation measures which could be used to ensure that the significant adverse environmental impacts, i.e. those impacts which are of moderate or major adverse significance, are minimised.

7.7.2 The design process for the HPC Project has been undertaken in parallel with the EIA and has taken into account emerging assessment outcomes. Therefore, wherever possible, measures to eliminate or minimise adverse significant environmental impacts associated with the project constitute an integral component of the overall

design. Further details are provided within the development descriptions and the alternatives chapters which describe the design options that have been considered with respect to identified environmental impacts.

7.7.3 Where significant environmental impacts have been identified, a commitment has been made by EDF Energy to implement mitigation measures (including monitoring and management) where possible at the appropriate time, either during construction or once the development is complete and operational.

7.7.4 The principles of mitigation adopted for this EIA are consistent with the guidance provided within the document EIA: A Guide to Good Practice and Procedures (Ref. 7.3) produced by the DCLG. The preferred hierarchy of mitigation, as described below, is prevention first, then minimisation and only as a last resort, compensation or remediation:

- Prevention: making changes to the project's design (or potential location) to avoid adverse effects on an environmental feature. This is considered to be the most acceptable form of mitigation.
- Reduction: where prevention is not possible, adverse effects can be reduced through sensitive environmental treatments/design; and
- Compensation: where prevention or reduction measures are not available, it may be appropriate in some circumstances to provide compensatory measures. Such circumstances are generally limited to the compensatory provision of new or enhanced habitats to replace losses of particular significance. It should be noted that compensatory measures do not eliminate the original adverse effect; they merely seek to offset it with a comparable positive one.

7.7.5 Beneficial effects and consequences do not need to be mitigated but may present opportunities for further enhancement and thus to provide added value to the outcomes of the project.

7.8 Residual Impacts and Conclusions

7.8.1 An assessment of the significance of any potential residual effect, namely that which remains after the implementation of mitigation measures has been incorporated has been identified.

7.9 Cumulative Impact Assessment

7.9.1 The EIA Regulations require that the likely cumulative impacts of the proposed development(s) are assessed. The Institute of Environmental Management and Assessment (IEMA) defines cumulative impacts as:

> *"…the impacts on the environment which result from incremental impacts of the action when added to other past, present and reasonably foreseeable future actions…"*

7.9.2 The cumulative impact assessment (CIA) process for the HPC Project has been designed to ensure that it covers all of the following:

- **Site-specific cumulative impacts** which arise from each of the HPC Project components individually (either the HPC main site or any of the associated developments). Different aspects of each of these components may themselves have additive or interactive impacts.
- **Project-wide cumulative impacts** which arise from the combined impacts (additive or interactive) of the full HPC Project, that is, the cumulative impacts of any part of the HPC Project with another component(s).
- **Wider cumulative impacts** which are the combined impacts (additive or interactive) that may occur between any component(s) of the HPC Project and any other 'non-HPC Project' developments that do not form part of the HPC Project (referred to in this CIA as non-HPC Project developments).

7.9.3 To inform the cumulative impact assessment, the maximum geographical area around the HPC development site and off-site associated development sites, where there is potential for impacts to occur is identified through the derivation a Zone of Influence (ZOI) for each environmental topic area. To identify the non-HPC Project developments that potentially needed to be considered within the cumulative impact assessment, all submitted planning applications for major developments, specifically those which have been consented within the last three years and also any that are still pending determination, that fall within the ZOI for any of the environmental topics have been identified through a planning search. Furthermore, minor applications that exist within a 1km radius of each of the HPC Project development sites were also identified.

7.9.4 Following this, a scoping exercise was undertaken whereby developments with the potential to interact with the HPC Project developments were either scoped 'in' or 'out' of the detailed impact assessment. The scoping exercise involved the following stages:

- **Initial high level scoping out of developments (non-HPC Project developments only)**: There are certain types of development that were considered to be so minor in nature and scale that there could never be the potential for them to contribute to significant cumulative impacts. These were scoped out from further assessment. This allowed a 'master list' of 'scoped in' developments to be compiled.
- **Detailed information gathering (non-HPC Project developments only):** For those developments on the master list an information gathering exercise was undertaken to collect relevant data, such as scheme design, or relevant environmental data that would allow a technically focussed scoping exercise and, if appropriate, a detailed cumulative impact assessment to be undertaken. Once this information had been gathered it was established whether any phase of a non-HPC Project development had the potential to overlap temporally with a HPC Project development. If no temporal overlap existed the non-HPC Project development was scoped out from the remainder of cumulative impact assessment process.
- **Detailed technically focused scoping out of developments:** This scoping exercise was undertaken by the EIA technical topic area experts and focussed particularly on identifying whether the development of a non HPC Project development had the potential, with a HPC Project development, to cause a significant cumulative impact(s) to occur. For the most part it was professional

judgement that was applied to determine the potential for such 'likely significant cumulative impacts' to occur. In applying professional judgement technical experts considered the following criteria:

- Whether the changes associated with a non HPC and a HPC Project development could result in environmental impacts of a similar nature to occur, e.g. both developments could, at the construction stage, generate dust.
- Whether the changes associated with a non HPC and a HPC Project development could result in environmental impacts occurring that, although not of a similar nature, could combine to cumulatively impact a receptor, e.g. one development could, through land take, cause foraging habitat for a species of importance to be lost whereas another could, through the noise it generates, affect the same species' ability to breed.
- Whether there could be, specifically related to impact being considered, both temporal and spatial overlap so that cumulative impacts could occur, e.g. construction for both developments will occur at the same time and the zones of influence within which dust will occur overlaps.
- That the magnitude of an impact on its own, and as has been defined before considering cumulative impacts, whether for a non HPC or a HPC Project development, is of a scale that could contribute to a significant cumulative impact.

7.9.5 For each topic area, and for those projects scoped in following the process described above, a detailed cumulative impact assessment was then undertaken to determine the likelihood of significant cumulative impacts at both the 'project-wide' and wider 'non-HPC Project' levels. The methodology used for the cumulative impact assessment (that is, in defining impact significance) was the same as that used for undertaking the impact assessment in each of the topic specific chapters of the ES. Further details on the cumulative impact assessment methodology are provided in **Volume 11, Chapter 2**.

7.9.6 The assessment of site-specific cumulative impacts is documented within the appropriate technical topic chapters for each site (e.g. the cumulative impact of both thermal and chemical discharges to the marine environment upon ecological receptors are assessed in the Marine Ecology chapter).

7.9.7 Generally, the project-wide and wider cumulative impact assessments are documented in **Volume 11.** For some environmental impacts, notably transport, traffic related air quality and noise impacts, and for elements of the socio-economic assessment, the assessment of project-wide and wider cumulative impacts has been undertaken as part of the main assessment and therefore is documented in the relevant topic chapter of the ES. The reason for this is because the inclusion of foreseeable projects that may act in combination with the development being considered is an inherent part of the modelling components of these assessments (i.e. for transport and traffic-related air and noise) or, in the case of socio-economics, the nature of the study areas for some impacts (e.g. impact on regional health services) requires HPC Project components to be assessed together whilst also considering the impact of other 'non HPC Project' development. Further details are provided in the methodology section of the relevant chapters.

7.10 Transboundary Impacts

7.10.1 Under regulation 24 of EIA Regulations and the Espoo Convention and EU Directive 85/337/EEC on the Assessment of the Effects of Certain Private and Public Projects on the Environment (as amended by EC Directive 97/11) (the EIA Directive), the IPC is obliged to form a view on the potential for transboundary impacts and consult with relevant European Member States.

7.10.2 EIA Directive implemented new requirements on transboundary consultation and requires that all significant transboundary issues set out in the EIA Directive must be addressed throughout the EIA process. The IPC Advice Note 12 (June 2011) provides further information on the requirements, and sets out how the IPC will meet its obligations in this regard. A wide range of activities are listed in Annexe 1 of the Espoo Convention, which includes all thermal power stations with a heat output of 300 megawatts and all nuclear power stations. As such, it is necessary to consider whether the development is likely to have a significant transboundary impact.

7.10.3 As detailed in **Appendix 7E**, EDF Energy have undertaken a screening exercise to determine the potential for transboundary impacts based upon the outcomes of the EIA and other relevant documents, and concluded that no such impacts are likely.

7.11 EIA Assumptions, Uncertainties and Limitations

7.11.1 The EIA Regulations require the ES to provide an indication of any difficulties (technical deficiencies or lack of know-how) encountered in compiling the required information. Due to the scale and complexity of the HPC Project, it is inevitable that some limitations exists. Any such technical difficulties are set out in the relevant topic chapters of the ES.

7.11.2 In addition, as recognised in the Overarching National Policy Statement (NPS) for Energy (Ref. 7.4), in some instances it may not be possible at the time of the application for development consent for all aspects of the proposed development to be available in a high level of detail and where this is the case, the applicant should explain in its application which elements of the proposed development have yet to be finalised, and the reasons why this is the case. Accordingly,

> *'4.2.8 Where some details are still to be finalised the ES should set out, to the best of the applicant's knowledge, what the maximum extent of the proposed development may be in terms of site and plant specifications, and assess, on that basis, the effects which the project could have to ensure that the impacts of the project as it may be constructed have been properly assessed.'* (Ref. 7.4)

7.11.3 In recognition of the need for projects to retain some flexibility, a recent advice note prepared by the IPC, 'Advice note 9: Using the 'Rochdale Envelope''(Ref. 7.55), the IPC has provided guidance on the way in which flexibility can be provided for within an application for a NSIP under the 2008 Act regime. The advice note confirms that the DCO can be drafted in such a way to allow some flexibility in the project, whilst ensuring a robust EIA can be undertaken. The note advises that:

'the permission (whether in the nature of the application or achieved through 'masterplan' conditions) must create 'clearly defined parameters' within which the framework of development must take place….';

'taken with those defined parameters of the project, the level of detail of the proposals must be such as to enable a proper assessment of the likely environmental effects, and necessary mitigation – if necessary considering a range of possibilities', and

'The assessment may conclude that a particular effect may fall within a fairly wide range. In assessing the 'likely' effects, it is entirely consistent with the objectives of the Directive to adopt a cautious 'worst case' approach. Such an approach will then feed through into the mitigation measures envisaged…. It is important that these should be adequate to deal with the worst case, in order to optimise the effects of the development on the environment.'

7.11.4 Accordingly, the ES and accompanying DCO documents define the proposed HPC Project parameters. As advised in the IPC advice note, the potential variations should be clearly defined and compliant with paragraph 17 of Schedule 4 Part 1 of the EIA Regulations.

7.11.5 This ES has been undertaken in accordance with the requirements of the EIA Regulations, and ensures that the assessments undertaken in the relevant topic chapters and cumulatively have given due consideration to all potentially significant impacts that may arise as a result of the project, taking account of the flexibility provided by the project's parameters. This section provides an overview of the approach which has been taken to defining project parameters, under the following headings:

- the programme;
- the scale and intensity of construction activity; and
- the scale and design of buildings.

a) HPC Project Programme

7.11.6 As described above, a programme has been developed describing the most likely timescale and phasing of the HPC project. To help public understanding, indicative dates have been ascribed to individual construction activities. The construction programme includes all elements of the project, including:

- Site preparation works.
- Construction and subsequent operation of the temporary jetty.
- Construction of a sea wall.
- Construction of the HPC power station, including the nuclear island, cooling water intake and outfall structures and associated tunnels, conventional island, the balance of plant, ancillary buildings, the National Grid sub-station and the temporary on-site worker accommodation campus.
- Construction and operation of the associated developments, including the accommodation campuses, Cannington bypass, Combwich Wharf refurbishment

and extension and freight laydown facility, park and ride facilities, freight management facilities, postal/courier consolidation facilities and an induction centre.

- Alterations as necessary to provide for post-operational uses of the off-site associated development sites.
- Dismantling and removal of the temporary jetty, following construction of HPC.
- Landscaping post-construction of the HPC development site.

7.11.7 The construction and subsequent operation of HPC and each of the off-site associated developments will inevitably be phased. The indicative programme anticipates that the construction of the HPC Project is likely to take approximately nine years, commencing with the site preparation works in Autumn 2011 and, assuming the application for the DCO is granted consent in autumn 2012, the main construction works would commence in early 2013, following discharge of conditions. The main construction works for HPC would end when both UK EPR reactor units are operational. The first UK EPR reactor unit is anticipated to commence operation in 2019, and the second 18 months later in 2020. The construction of the Interim Spent Fuel Store (ISFS) would continue beyond the operation of both units. It is anticipated that the landscape restoration of the HPC development site would also be phased and would be completed once HPC is fully operational and the civils construction works associated with the ISFS have been completed.

7.11.8 HPC will have an operational life of approximately 60 years after which it will be decommissioned.

7.11.9 The construction of the associated developments would commence once the DCO has been granted. This includes the construction of accommodation campuses; Cannington bypass; Combwich Wharf and laydown area; park and ride sites; freight management facilities; postal consolidation facilities and an induction training centre. Once Hinkley Point C is operational, the associated developments that will not be retained for a post-operational use (i.e. excluding Cannington bypass and Combwich Wharf which will be retained) will be removed and the land reinstated or subject to alternative uses as part of the **Post-operational Strategy**.

7.11.10 The detail of the anticipated construction programme for the HPC Project is provided in **Volume 2, Chapter 3** and the **Construction Method Statement** (see **Annex 2**).

7.11.11 As detailed in section 7.5, the EIA assumes that the proposed site preparation works and construction of the temporary jetty have not been undertaken and therefore this ES details the assessment of impacts of the project as a whole. The site preparation works are assumed to commence in late 2011 under the consent granted by WSC. These works are assumed to last approximately 15 months. The programme also assumes consent for the temporary jetty as provided for in the application submitted to the Marine Management Organisation (MMO) in December 2010. The Jetty application is subject to an inquiry scheduled for November 2011 and, assuming consent is granted, the construction of the temporary jetty is anticipated to commence in Q2 2012. These assumptions are factored into the indicative programme.

7.11.12 The assessment has been undertaken against the assumed construction programme, which identifies the key phases and activities, which are detailed in the

overarching **Construction Method Statement** and the construction chapters for each of the proposed sites. The construction programme provides a set of consistent assumptions against which the impacts of the project can be assessed.

7.11.13 As noted above, however, the scale and complexity of the HPC Project, means there is the potential for variation in the construction programme. On a project of this scale and complexity, any number of factors could arise which would alter the dates or timescales indicatively shown in the programme. The potential implications of changes in timescales and the intensity of activity are considered further below but, subject to these, the conclusions of this ES would not be significantly affected by variations in the construction programme. As described below, controls or limitations are proposed on the nature of construction activity, with the consequence that the principal effect of any changes to the construction assumptions would be a prolonged construction period (i.e. the effects which are identified and assessed in the ES would last for longer, but they would be effects of the same nature and impact). Where duration is important to the significance of an effect, this is identified within the relevant topic chapters, along with the significance of any prolonged impact. In relation to the nature of the construction impacts, the principal effects of construction activity are regulated and limited by a series of project requirements. These include requirements obliging the construction activity to be undertaken in accord with a series of Management Plans and requirements limiting the effects of the construction activity, such a noise limits at site boundaries, discharge limits etc. For these reasons, the principal construction impacts can be anticipated and assessed with confidence.

b) The scale and intensity of construction activity

7.11.14 Whilst the effects of the construction works themselves can be regulated and assessed, the level of employment or traffic which the construction phase may generate are necessarily estimates which are subject to potential change. Every effort has been made to base the EIA on robust and agreed estimates of construction materials, workforce, payloads etc but these remain estimates. The implications of variations in these factors are considered in the relevant chapters of the ES and the approach taken has the principal characteristics described below.

7.11.15 The workforce profile for HPC has been determined through experience of other similar scale nuclear power station projects, taking into account the workforce requirements to build a new nuclear power station with two UK EPR reactor units (namely the civils and, mechanical and electrical construction workforce). The anticipated workforce profile comprises a curve that peaks at 5,600 in 2016 -2017 towards the end of the civil construction works and beginning of the mechanical and electrical construction workforce.

7.11.16 Full details of the assumptions are provided in the socio-economic chapter (**Volume 2, Chapter 9**) but the key points are:

- The workforce is broken down between different contracts and skill types – civils, mechanical and electrical, professional, managerial, administrative and other, and operational staff;
- A workforce build up from July 2011 commencing with the enabling works, with a step up after the site preparation and jetty construction works following development consent;

- The inclusion of associated development (AD) works within the "civils" curve. Individual details for each site, including operations, are dealt with in the socio-economic chapter for each associated development site;
- The numbers give an average daily workforce for each month expressed as Full Time Equivalents and based on the proposed shift patterns;
- Given the nature of the construction programme most operatives are likely to be full time; although there is likely to be a significant turnover of workforce over the construction programme reflecting the requirement for specialist contractors and skill types. This means that throughout the construction phase the total workforce required is likely to be at least 20,000 to 25,000; and
- This workforce profile has underpinned the workforce-related strategies, including the Construction Workforce Development Strategy.

7.11.17 The socio-economic chapters of the ES volumes consider the implications of the project attracting more or fewer workers. This includes consideration of whether project impacts and mitigation strategies would need to alter. In the majority of cases, mitigation strategies (and therefore impacts) inherently address the effects of change. For instance, impacts on local health services are effectively linear in nature, with more or fewer workers generating a greater or lesser financial contribution to health services. Education impacts are slightly more sophisticated, because it is necessary to have regard to the potential effects of local bottlenecks, shortages or capacity thresholds. Sufficient baseline information is available, however, for this to be done and the consequences are set out in the socio-economic chapters of the ES. A similar approach is taken to the other headings within the socio-economic chapters.

7.11.18 A change in workforce numbers could lead to a change in the assessed requirements for and impacts on the accommodation sector. The ES is based upon a central assumption of workforce numbers and their distribution based on a Gravity model informed by a detailed local accommodation database. More workers or a different distribution, however, would have different effects and could generate higher local impacts. As the socio-economic chapters explain, this possibility has been assessed and its potential adverse effects are proposed to be regulated through a monitoring and mitigation regime, as part of the HPC **Accommodation Strategy.** Any greater local effects that might arise would trigger additional mitigation, so that impacts would remain within the bounds of the assessment.

7.11.19 A different approach has been taken to the potential transport effects of greater traffic generation than that assessed in the central case. In particular, as the Transport chapters explain:

- Every effort has been taken to assess the transport implications of the construction activity. As detailed in the **Freight Management Strategy**, it is estimated that 7.3 million tonnes of material will be transported to and from the HPC Project sites throughout the construction phase, including approximately 5.4 million tonnes for the construction of HPC, and approximately two million tonnes for the associated development sites (including any dismantling and removal at the end of their operational life).
- A detailed **Transport Strategy** (see **Annex 7 Transport Assessment**) is proposed through which, for instance, EDF Energy has committed to deliver a

minimum of 80% (by weight) of materials for on-site concrete production via the jetty (once available) and 100% of the largest AILs to Combwich Wharf. Freight management sites are proposed at Junctions 23 and 24 of the M5 to hold and regulate HGV traffic to limit impacts during the peak hours.

- Car parking is heavily restricted at the main site and a bus based strategy using four strategically located park and ride sites is proposed to limit and control the scale of non-delivery traffic.
- Advance mitigation is proposed for certain local junction improvements and the scale of overall network improvements proposed is such that the improvements would be sufficient to cater for the impact of significantly increased traffic levels. Nevertheless, monitoring is proposed and an additional contingent network enhancement fund is also proposed to be used in the event that further improvements are necessary to limit impacts.
- A Cannington bypass is proposed to limit construction and operational impacts on the village and limits are proposed through requirements on the level of HGV traffic permitted through Cannington in given time periods in advance of the construction of the bypass. As all construction traffic passes through Cannington, this amounts to a series of limitations on the overall scale of construction traffic, thereby bringing certainty to the assessment.

7.11.20 In this way, a series of parameters or limits are proposed to bring certainty to the maximum potential scale of impacts of the project.

c) Scale and Design of Buildings

7.11.21 Detailed plans and elevations are provided for each building enabling full deemed planning consent to be granted by the DCO. The proposed designs represent the culmination of extensive design development, consultation and engagement with a wide range of stakeholders including nuclear regulators. At the date of submission of the DCO, EDF Energy expects to construct the buildings as they have been designed and drawn. Accordingly, it is anticipated that a requirement will be attached to the DCO allowing the buildings to be constructed in accordance with the approved plans without the need for further approval. In order to generate the confidence to apply for the buildings in detail, EDF Energy has undertaken a number of internal reviews of the robustness of the proposed designs, including an initial safety review following the incidents at Fukushima in Japan. Up to date learning from the construction of reference plants at Flamanville in France and Taishan in China has also been fully taken into account. EDF Energy's assumption is that the designs proposed for individual buildings are, and will remain appropriate. On approval of the relevant plans through the DCO, therefore, construction of those buildings can simply proceed in accordance with the approved plans, without the requirement to submit further details. The EIA, in particular the landscape and visual assessment assesses the impact of the buildings in accordance with the submitted plans.

7.11.22 Nevertheless, some uncertainties are always likely to remain up to the point of commissioning construction of individual buildings. This is common in all developments, although there are particular circumstances in this case which mean that EDF Energy will need to test the building designs again prior to letting contracts for their construction. Those considerations include any changes arising from the final outcome of HM Chief Inspector of Nuclear Installation's review of the Japanese earthquake and tsunami, and any implications for the UK Nuclear Industry and also

any final changes arising from the Generic Design Assessment (GDA) expected at the end of 2011, the ongoing site specific safety case development work, any changes in regulatory requirements, any learning from the contractors and any specific requirements from the plant operator. There is therefore, a necessity to allow for some flexibility and the reservation of some details to be provided later at the same time as ensuring that all planning, legal and environmental assessment requirements of the relevant legislation are met. This requires a particular approach to different elements of the project. That approach is described in each of the site specific Design and Access Statements and in the **Planning Statement**, as well as on the submitted DCO application drawings.

i. Nuclear and Conventional Island Buildings

7.11.23 The detailed design of the buildings has anticipated the potential for any change in light of safety reviews and other considerations. As such the submitted detailed drawings represent the maximum envelope within which buildings will be constructed, i.e. the designs represent not only the detail of the most likely option but also a maximum parameter. It is possible that some of the buildings may be able to be constructed smaller than the detailed design. In those cases, a requirement is proposed that will allow the submission of alternative designs for approval within a set of clearly defined parameters. The extent to which the buildings may be reduced in scale, however, is relatively limited and is defined by reference to the design of the buildings which was current prior to the safety and other reviews referred to above. This can be regarded as the minimum parameter.

7.11.24 Parameter plans are submitted and identify both the maximum and minimum parameters. These parameter plans also identify the potential for minor variations in the siting of buildings from the positions shown on the site layout plan provided in **Volume 2, Chapter 2** (see Figures 2.1 and 2.3 for the Site Layout Plan and details of the parameters, respectively), within a defined tolerance, e.g. if the Safeguard Building (buildings 4 on the HPC Site Parameter Plan) for both units 1 and 2 reduce in length by 3m, the consequential change will be that the turbine halls (and associated linked buildings, which include the power transmission platforms, non-classified electrical buildings and the Operational Service Centre) may move 3m southwards.

ii. Other Permanent Buildings

7.11.25 Other permanent buildings and structures necessary to support the operation of HPC within the permanent main development site have also been the subject of continual review and design development and are also submitted for full, detailed approval (with the exception of those referred to below). For similar reasons, some flexibility is required.

7.11.26 Therefore, the DCO provides detailed drawings representing the maximum scale for each building, and identifies minimum parameters together with the potential for defined minor variations in their siting from the positions defined on the site layout plan.

iii. Parameter Buildings

7.11.27 As noted above, there are some buildings/structures on the HPC permanent development site that are subject to greater uncertainty with regards to their detailed scale and design. These include the:

- Interim Spent Fuel Store.
- Access Control Building, which is associated with the Interim Spent Fuel Store.
- Auxiliary Feedwater Storage buildings.
- Service Access Buildings.
- Meteorological Station Mast.
- Sewage Treatment Plant.

7.11.28 These buildings are not required to be commenced at the beginning of the construction process and they are subject to further design development, particularly as a result of work required as part of the GDA or other regulatory processes.

7.11.29 The parameter plans for these buildings identify maximum and minimum dimensions and parameters for their siting. These buildings cannot be constructed without the submission and approval of detailed designs which are consistent with the proposed parameters.

iv. Minor and Ancillary Structures

7.11.30 So far as they can be anticipated at this stage, all minor and ancillary structures are shown on the submitted drawings. The implementation of these elements is to be achieved as follows:

i) **Construction Phase**: The DCO application includes application for temporary land uses including buildings, structures and other uses such as laydown of materials required temporarily in connection with the construction phase and the **Construction Method Statement** (see **Annex 2**) describes the proposed nature of the construction activity by reference to a works description and a construction parameter plan.

ii) **Operational Phase**: Additional structures or enclosures, etc. may emerge as necessary through the detailed design development and review, such as street furniture, street lighting, plant enclosures, masts, antennae and signage. Where such works amount to development requiring consent, a draft requirement of the DCO obliges the applicant to submit details of such structures for the approval of the authority prior to the commencement of development. As with any other development, a requirement will oblige such development to be consistent with the Design Principles of the Design and Access Statement (DAS). Illustrative drawings appended to the DAS indicate the likely scale and extent of such ancillary development. These have been taken into account in the relevant ES assessments.

v. Consideration of Parameters in the ES

7.11.31 This ES assesses the HPC development site and the associated developments as detailed in the submitted drawings, which provide both detailed designs and

alternative maximum and minimum parameters. The potential for flexibility described above is not anticipated to generate any major change in the characteristics of the development or to have a significant impact on any of the assessment topics; in so far as the submitted drawings define maximum envelopes for buildings, thus representing a worst case scenario. The landscape and visual assessment also includes an allowance of 3m above the stated building and structure heights to permit additional roof plant or machinery to be secured, if required. The material quantities assumed in the transport assessment, for example, consider the maximum parameters and thus the maximum materials quantities.

7.11.32 The landscape and visual impact assessment considers the maximum parameters and the Verified Visual Images (VVIs) are prepared to inform the assessment and to consider its maximum likely impact.

References

7.1 CLG. Planning Act 2008: Guidance on pre-application consultation. HMSO, 2009

7.2 Institute of Ecology and Environmental Management (IEEM). Guidelines for Ecological Impact Assessment. 2006.

7.3 CLG. Environmental Impact Assessment – A guide to good practice and procedures, a consultation paper. HMSO, 2006.

7.4 DECC. Revised Draft Overarching National Policy Statement for Energy (EN-1). HMSO, 2010.

7.5 IPC. Using the “Rochdale Envelope”. Advice note nine: Rochdale Envelope. HMSO, 2011.

APPENDIX 1A: GLOSSARY OF TERMS AND ABBREVIATIONS

APPENDIX 1A: GLOSSARY OF TERMS AND ABBREVIATIONS

Term	Definition
85th Percentile Speed	This is the speed up to which 85% of the traffic is measured as travelling on a particular road in a particular direction using a speed gun or pneumatic tubes. It is a parameter used to consider the geometry of a road, like the safe level of forward visibility along a road and the appropriate visibility splays either side of a junction. It is accepted that 15% of the traffic will be travelling faster than this speed.
Abnormal Indivisible Loads (AILs)	Large loads to be delivered to the site which by their nature cannot be broken into smaller multiple deliveries. Wherever possible, AILs are to be brought in by sea, with any transport to the site by road delivered on a low loader with a Police escort.
Activated Waste	Activated waste products are created when stable chemical elements are bombarded by neutrons, or any subatomic particles, and turned into radioactive versions (isotopes) of the element.
Agricultural Land Classification (ALC)	The Department for Environment, Food and Rural Affairs classifies all agricultural land in England and Wales according to its quality and agricultural versatility. The classifications range from Grade 1 (the best and most versatile), through Grades 2, 3a, 3b, 3c and 4, down to Grade 5 (the least versatile). Also see Best and Most Versatile Land (BMVL).
Airborne Sound	Sound which is transmitted from the source via the surrounding air, as distinct from energy transmission through the ground.
Alpha Activity	Alpha activity takes the form of particles (helium nuclei comprising two protons and two neutrons) ejected from a decaying (radioactive) atom. The particles have a very short range in air (typically about 5cm). Alpha particles present in materials outside of the body are prevented from doing biological damage by the outer layer of skin cells, but can cause ionisation and damage in biological tissue if inhaled or swallowed.
Ambient Noise	Background noise level in a given situation at a given time usually composite of sounds from many sources near and far.
Ancient Woodlands	Ancient woodlands are those which have had continuous woodland cover since at least 1600 AD to the present day. Clearance at some time for underwood or timber production does not exclude a wood from this category.
Annual Average Daily Traffic Flow (AADT)	24 hour traffic count data averaged for all the days in the year: i.e. the total traffic flow on a road for a year divided by 365.
Annual Average Weekday Traffic Flow (AAWT)	24 hour traffic count data averaged for just the weekdays (Monday to Friday).
Annual Exceedance Probability (AEP)	The Annual Exceedance Probability (AEP) is used as a mechanism to measure the likelihood of a flood event. A flood with a 1 in 100 chance of occurring is said to have a 1% AEP of occurring. The probability is calculated by representing the chance as a fraction and multiplying by 100 to obtain a percentage. For example, a 1 in 5 chance becomes 1/5*100 = 20%.
Application Site	Land area and location of the proposed site works.

Term	Definition
Appropriate Assessment (AA)	An assessment required by the EC Habitats Directive of the impacts of a plan, programme or project on the integrity of a Natura 2000 site (i.e. Special Protection Area (SPA), Special Area of Conservation (SAC) or a Ramsar Site).
Aquifer	A geological stratum (or rock layer) that bears water.
ARCADY	Assessment of Roundabout Capacity and Delay – software tool for assessing the capacity, traffic movement, accident risk and delay around traffic roundabouts.
Area of Great Historic Value (AGHV)	Areas where the extent of survival and the sheer density of archaeological sites is such as to merit special designation.
Area of Great Landscape Value (AGLV)	Areas that are designated to conserve the natural beauty of landscapes of county importance.
Area of Great Scientific Value (AGSV)	Areas designed to act as 'buffers' around the most important and sensitive nature conservation sites. They can provide links between protected sites which facilitate the movement of wildlife and emphasise the most important areas for nature conservation where resources for management and enhancement of wildlife will be concentrated.
Area of Outstanding Natural Beauty (AONB)	Areas of Outstanding Natural Beauty (AONBs) were formally designated under the National Parks and Access to the Countryside Act of 1949 to protect areas of the countryside of high scenic quality that cannot be selected for National Park status due to their lack of opportunities for outdoor recreation (an essential objective of National Parks).
As Low As is Reasonably Achievable (ALARA)	As Low as Reasonably Achievable (social and economic factors being taken into account). This requires that all be reasonably done to lower radiation exposures below Dose Limits. It requires the employer to provide systems to reduce the radiation dose until or unless the cost of implementing those measures is considered to be greater than the risk averted.
As Low as is Reasonably Practicable (ALARP)	The ALARP (As Low As Reasonable Practicable) principle requires the employer to provide systems (engineered, management etc.) to reduce the radiation dose until or unless the cost of implementing those measures is considered to be grossly disproportionate to the risk averted. In practice this requires the employer to go beyond the requirements of the ALARA principle in reducing dose.
Assignment and Distribution	Trip distribution and assignment are terms used to describe how generated traffic is likely to use the local road network. Within a Transport Assessment, the proposed development can act as the origin and/or destination in terms of assignment. In the case of retail development, it is important that these match the assumptions made in the Retail Impact Study.
Associated Development	Development which is associated with a Nationally Significant Infrastructure Project (NSIP), as defined in the Planning Act 2008. It should be subordinate to and necessary for the development and effective operation of the NSIP that is subject of the application.
Attenuation (sound)	A reduction in the intensity of a sound signal.
Attenuation Pond	A pond that is used to store surface water run off from specific rainfall events and discharge at a controlled rate during and after the specific event.
Automatic Number Plate Recognition (ANPR)	Automatic Number Plate Recognition, a computerised system which records vehicle number plates and can be used for counting and monitoring routing of vehicles.

Term	Definition
Automatic Traffic Count (ATC)	These can be conducted by placing pneumatic tubes across the road, often for periods of one week or more, to record the number of vehicles travelling in each direction. Permanent monitoring sites are also in place around the UK recording traffic passing over induction loops cut into the road surface. In addition to the total traffic flow, it is possible for an ATC to record more specific data, including individual vehicle speeds and vehicle types.
Basic Noise Level (BNL)	The basic noise level (BNL) is a parameter used in the Department of Transport Guidance document 'Calculation of Road Traffic Noise'. It is determined at a reference distance of 10 m away from the nearside carriageway edge based upon the traffic flow, the speed of the traffic, the composition of the traffic, the gradient of the road and the road surface.
Batching Plant	An arrangement of equipment which is used to mix the constituent materials of concrete and load batches for onward transport to specific locations on site.
Bathymetry	Representation of natural and artificial features of the seabed.
Becquerel (Bq)	The standard international unit of radioactivity is equal to one atomic decay per second. Becquerels are abbreviated to Bq. Multiples of becquerels commonly used to define radioactive waste activity are: kilobecquerels (kBq) equal to 1 thousand Bq; megabecquerels (MBq) equal to 1 million Bq; gigabecquerels (GBq) equal to 1 thousand million Bq.
BEEMS	An integrated programme of marine environmental evidence-based scientific studies designed and maintained in order to support a consideration of NNB at coastal sites in the UK, initiated by British Energy and continued by EDF Energy.
Benefit/Cost Ratio (BCR)	As a rule of thumb a transport scheme needs to achieve a ratio of 3:1. This ratio is used to compare between options of the same scheme and between different schemes.
Benthic Invertebrates	Invertebrate animals (animals without backbones, e.g. marine worms and shrimps) that live in or attached to the seabed material.
Benthic Organisms	Organisms associated with the bottom or substratum of aquatic systems.
Best and Most Versatile Land (BMVL)	Defined as Agricultural Land Classification (ALC) Grades 1, 2 and 3a.
Best Available Techniques/Best Available Technology (BAT)	Best Available Techniques describe the most effective economically and technically viable technology and methods designed to prevent, and where this is not practicable to reduce, emissions and their impacts on the environment as a whole.
Best Practicable Environmental Option (BPEO)	This was defined by the 12th Report of the Royal Commission on Environmental Pollution as "the outcome of a systematic and consultative decision making process that establishes, for a given set of objectives, the option (e.g. for radioactive waste management) that provides the most benefit or least damage to the environment as a whole at acceptable cost in the long term and short-term as well."
Best Practicable Means (BPM)	A term used by the Environment Agencies requiring operators to take all reasonably practicable measures in the design and management of their facilities to minimise discharges and disposals of radioactive waste so as to achieve a high standard of environmental protection of the environment and the public.

Term	Definition
Beta activity	Beta activity takes the form of particles (electrons) emitted during radioactive decay from the nucleus of an atom. Beta particles cause ionisation in biological tissues which may lead to damage. Most beta particles can pass through the skin and penetrate the body, but a few millimetres of light materials, such as aluminium, would generally shield against them.
Biodiversity Action Plan (BAP)	An agreed plan for a habitat or species, which forms part of the UK's commitment to biodiversity. Further information is provided on the BAP website: http://www.ukbap.org.uk
Biotope	An area that is uniform in environmental conditions and in its distribution of animal and plant life.
Birds Directive	European Community Directive (79/409/EEC) on the conservation of wild birds. Implemented in the UK as the Conservation (Natural Habitats, etc.) Regulations (1994). For information is provided on the website: http://www.hmso.gov.uk/si/si1994/Uksi_19942716_en_1.htm
Bivalve	Marine or freshwater mollusc whose body is enclosed between two shells hinged together by a ligament on the dorsal side of the body.
Blackwater	Waste water from toilets.
British Energy (BE)	British Energy delisted from the London Stock Exchange on 3 February 2009 and is now part of EDF Energy. The combination of EDF Energy and British Energy forms one of the UK's largest energy providers.
Brownfield Site (BS)	Land which has been previously developed and is potentially available for re-use.
Build-up of radionuclides	The accumulation of radionuclides in the environment Longer lived radionuclides such as Cs137 may accumulate in the soil as a result of continuous discharges over a prolonged period of time.
Built Development Area (East and West)	The boundary of the footprint of the proposed power station.
Bulk Earthworks	The earthworks associated with the creation of the development platforms and terraces during the site preparation works.
Calibration	The process used to build a traffic model so that it reflects local circumstances.
Capacity restraint	The ability for transport models to model congestion.
Catchment	A surface water catchment is the total area that drains into a river. A groundwater catchment is the total area that contributes to the groundwater component of the river flow.
COBA	Cost-Benefit analysis program used for the economic appraisal of road schemes. Criteria taken into account are (a) journey time savings, (b) vehicle operating cost savings and (c) accident savings all of which are expressed as monetary values.
Collective dose	The collective dose is the summated individual exposures to a population group from a specified source within a specified time period.
Comment Category	The middle tier of comment categorisation in the schedule of responses in the Consultation Report.
Comment Theme	The upper tier of comment categorisation in the schedule of responses in the Consultation Report on a site by site or strategic level basis.
Comment Topic	The lowest tier of comment categorisation in the schedule of responses in the Consultation Report.

Term	Definition
Conditioned Waste	Radioactive waste prepared and packaged for interim storage and/or disposal in a solid and stable form.
Cone of Depression	The volumetric shape created in the ground by the dewatering pumps when the groundwater is pumped from the deep dewatering well.
Conservation Areas	Formally designated areas of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance.
Construction Method Statement (CMS)	Construction Method Statements are documents which describe the processes and controls involved in constructing the specified facility.
Construction Phase	The construction phase is when the relevant facility is under going any necessary preparatory or construction work to complete the facility.
Consultation Response	The complete/full response received from consultees during formal stages of consultation.
Consultation Strategy	A strategy setting out EDF Energy's approach to and programme of public consultation.
Consultee Comment	An identified comment extracted from the Consultation Response and placed in the Schedule of Responses in the Consultation Report.
Contaminated Land	Covers all cases where the actual or suspected presence of substances in, on or under the land that may cause risks to people, property, human activities or the environment, regardless of whether or not the land meets the statutory definition in Part IIA of the Environmental Protection Act.
Contaminated Waste	Radioactive contamination is caused by radioactive material being deposited on the surface of, or within, objects. The radioactivity may be deposited from airborne sources, from waterborne sources, or from physical contact. Radioactive contamination is generally located on or near the surface of materials like metal or high-density concrete or painted walls. Radioactive contamination can usually be removed from surfaces by washing, scrubbing, spraying, or by removing the outer surface of the contaminated objects.
Controlled Waters	Waters defined and protected under the Water Resources Act 1991.
Conventional Island	The Conventional Island comprises the Turbine Hall with its associated electrical buildings for the export and distribution of electrical power. HPC is configured with two Conventional Islands, one per UK EPR reactor unit.
Countryside Agency	Government-funded advisory and promotional body in England for landscape, rural economies and access to the countryside which functioned from 1 April 1999 until 1 October 2006. It was succeeded by Natural England on 2 October 2006.
Countryside Council for Wales (CCW)	A Government funded organisation promoting the conservation of Welsh wildlife and natural features and is responsible for designating National Nature Reserves, identifying Sites of Special Scientific Interest, and for advising a wide range of bodies and individuals including the Government on matters affecting nature conservation.
County Wildlife Site (CWS)	Designated at a local level by being included within local or unitary development plans for their regional or local conservation interest. Local Authorities usually adopt them for planning but have no statutory protection.
Critical group	A group of members of the public which is reasonably homogeneous with respect to its exposure for a given radiation source and given exposure pathway and is typical of individuals receiving the highest effective dose or equivalent dose (as applicable) by the given exposure pathway from the given source.

Term	Definition
Critical rates	Habits (intakes and occupancies) that members of the critical group undergo. For example consumption at 97.5th percentile of national habit data.
Culvert	A covered structure that conveys the flow of surface water below ground (e.g. a drainage channel or pipeline beneath a road).
Cumulative Impact	The additive and/or interactive impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.
Cycle Time	At a signalised junction the cycle time is the period required for all approaches at the signals to run. This is measured as the time which elapses between the start of an approach and the point at which that particular approach starts again. Typically a cycle time may be up to a maximum of 120 seconds.
dB L_A	The dB L_A figure is used to relate better to the loudness of the sound heard. The dB L_A figure corrects for the variation in the ear's ability to hear different frequencies and provides a good representation of how loud a sound is perceived.
Decibel (dB)	Measure of the total amount of acoustic energy in a sound which does not take any account of the ear's ability to hear certain frequencies more readily than others.
Decommissioning phase	The final phase in the life cycle of a nuclear power station covering all activities from shutdown and removal of fissile material to environmental restoration of the site.
Degree of Saturation (DoS)	Degree of Saturation (DoS) is the ratio of the actual traffic flow to the maximum flow, and indicates how much demand a lane/or lanes can take or approach is experiencing compared to its total capacity. A DoS of 90% on an approach to signals indicates that it is approaching its theoretical capacity and a value of above 100% indicates that it has exceeded its absolute capacity. See also RFC.
Delicensing	The "ending of the period of responsibility under the Nuclear Installations Act". This is defined in section 5 of the Nuclear Installations Act and can only happen when the HSE gives notice in writing to the licensee that in its opinion there has "ceased to be any danger from ionising radiations from anything on the site or, as the case may be, on that part thereof".
Demand Management	The management of traffic flows to and from the site arising from constrained car parking.
Design Manual for Roads and Bridges (DMRB)	The DMRB is a Stationery Office publication containing current Standards, Advice Notes and other guidance documents relating to the maintenance, operation and improvement of motorways and trunk roads. It is often applied by highway authorities to non-trunk roads, however, greater flexibility may be appropriate in these cases.
Development Consent Order (DCO)	A DCO is the form by which the Infrastructure Planning Commission grants consent for development applied for under the Planning Act 2008. A DCO will combine a grant of planning permission with a range of other separate consents, such as listed building consent.
Development Plan Documents (DPD)	A local development framework must include development plan documents (DPDs), which outline the key development goals of the local development framework. Development plan documents taken together are broadly equivalent to the old-style local plans.
Development Platform	The platform levels created by the earthworks undertaken during the Site Preparation Works.

Term	Definition
Direct radiation	Ionising radiation emitted directly by processes or operations on premises and not as a result of discharges of radioactive substances to the environment. Mostly consisting of gamma photons that are attenuated to varying degrees by distance or structures such as walls and other barriers.
Disposal	In the context of solid waste, disposal is the emplacement of waste in a suitable facility without intent to retrieve it at a later date. Disposal may also refer to the release of airborne or liquid waste to the environment (i.e. emissions and discharges).
Dissolved Oxygen (DO)	Oxygen dissolved in the water column of a water body. Adequate dissolved oxygen concentrations are essential to most higher forms of marine and river life.
Distributor Roads	Distributor roads cater for long and medium distance traffic with an origin/destination. Together with primary roads, they form the bulk of the highway network in the County giving access to and from major population, industrial and commercial centres. They also distribute long and medium distance traffic between adjoining Districts and to smaller towns and settlements, and provide access to those places.
Disturbance	A perturbation in the system which may be biological (e.g. predation) or physical (e.g. storm events) which alters the nature of the biological community.
Diverted Trips	Diverted Trips are where vehicles use new or improved facilities in place of existing, previously used facilities. The trips are already present on the local road network but not the road from which the site access is to be taken and will divert from their existing route to access the site.
Do Nothing Scenario	Continued change/evolution of the environment in the absence of a proposed development.
Dust	Particles typically in the size range 1 to 75 µm in diameter.
Dynamic assignment	In transport modelling, the trips assigned to the network calculate the route taken through the network based upon information on network conditions received at regular intervals.
Ebb tide	The tidal flow towards the sea as the tide is ‘going out’.
Ecological Succession	A predictable ordering of a dominance of a species or groups of species following the opening of an environment to biological colonisation.
EDF Energy	The UK subsidiary of EDF Group, is one of the UK's largest energy companies and the UK's largest producer of electricity.
EDF Energy Response	EDF Energy’s response to the issues raised by consultees in the Consultation Report.
EDF Group	EDF Group is one of the world's largest energy companies and safely operates the world's largest fleet of nuclear power plants.
Elastic assignment	In traffic modelling, the means by which forecast demand for trips is reduced to the capacity of the network.
Elasticity	The degree to which an outcome is as a result of a change in a variable. For example, petrol is very elastic as it takes a large change in price to affect the amount people drive.
Enabling Works	Enabling works is the term used to describe a series of developments at the Hinkley Point C Site such as remediation of the north-eastern part of the site, construction of a new car-park serving Hinkley Point B and construction of a bat barn.

Term	Definition
English Heritage	A Government Agency which promotes conservation and understanding of the historic environment in England. It advises the Government on the selection of listed buildings and scheduled monuments for protection and provides grant aid for the maintenance of historic buildings and monuments.
Environment Agency (EA)	A Government Agency responsible for matters relating to contaminated land, waste management, permitted radioactive discharges, surface water drainage and discharges, flood risk management and water quality in England and Wales. Its stated aims are to protect and improve the environment, and to promote sustainable development.
Environmental Impact Assessment (EIA)	A method or procedure for predicting the effects on the environment of a proposal, either for an individual project or a higher-level "strategy" (a policy, plan or programme), with the aim of taking account of these effects in decision-making. The term "Environmental Impact Assessment" (EIA) is used, as in European Directive 337/85/EEC, for assessments of projects.
Environmental Management and Monitoring Plan (EMMP)	The EMMP sets out a route map to the supporting Subject Specific Management Plans and provides the framework for the Environmental Management System. It describes the overall management procedures relating to the monitoring and environmental controls.
Environmental Management System (EMS)	The EMS is the system used to ensure that the HPC construction works are implemented in accordance with the Environmental Statement and other relevant legal or regulatory standards or requirements. The EMS will be a "live" process that evolves as the construction works progress, monitoring and controlling environmental effects arising from the construction works, ensuring that appropriate working practices and required environmental mitigation measures are implemented. The EMS will be undertaken throughout construction works.
Environmental Scoping Report	The scoping report is produced prior to an ES to outline the key issues associated with a project and helps to assist the relevant regulator in providing an EIA scoping opinion on the development proposals.
Environmental Statement	The document reporting the process and outcomes of the EIA.
Ephemeral	Transitory, existing only briefly.
Epifauna	Species living on the surface of the sediment.
Equilibrium	In transport models, the point at which supply (the capacity of the network) matches demand (the number of trips making a journey). In general, it is the point at which Wardrop's first principle is fulfilled which is when no driver receives an advantage in terms of reducing journey cost and/or time by taking another route.
Estuary	Downstream part of a river where it widens to enter the sea, often with significant freshwater influence and predominantly comprising sediment habitats.
European Landscape Convention (ELC)	European and first international convention to focus specifically on landscape issues which was signed by the UK in 2007 and became binding in 2007.
European Pressurised Water Reactor (EPR)	The EPR design is derived from the latest generations of reactors built in France and Germany, combining the safety experience and knowledge acquired from operating reactors. The proposed safety options also benefit from the results of research and development, in particular in the area of severe accidents.
Fission Products	Radioactive materials formed in nuclear fuel as a result of fission in a nuclear reactor and the production of heat and useful energy.

Term	Definition
Flood Tide	The tidal flow moving inland as the tide is 'coming in'. Also used to indicate the time at which the tide turns to start flowing inland.
Fluvial	Pertaining to rivers.
Framework Travel Plan	Considers the management and movement of people associated with the development. The Framework Travel Plan sets out the key sustainable travel techniques and principles that will provide a basis for the sustainable movement of workers.
Gamma Activity	An electromagnetic radiation similar to x-rays, but with higher frequency. Gamma rays cause ionisations in biological tissue which may lead to damage. Gamma rays are very penetrating and are attenuated only by shields of metal or concrete depending on their energy. Their emission during radioactive decay is usually accompanied by particle emission (beta or alpha activity).
Generalised cost	A term to denote that more than one criterion is used: in transport modelling this generalised cost is typically a function of the length of time taken to traverse a route and the distance travelled.
Generic Design Assessment (GDA)	In this process, companies submit information on their reactor designs to the UK's Nuclear Regulators, who assess this information before a full application is made to build a nuclear power station at a particular site. The process involves a rigorous and structured examination of detailed design information by the Regulators. At the end of their assessment (and at key stages during it), the Regulators will issue reports on their findings, confirming whether they judge a design to be satisfactory.
Geological Disposal	A long-term management option involving the emplacement of radioactive waste in an engineered underground geological disposal facility where the geology (rock structure) provides a barrier against the escape of radioactivity and there is no intention to retrieve the waste once the facility is closed.
Gray (Gy)	The Gray is a unit used to measure a quantity called absorbed dose. This relates to the amount of energy actually absorbed in some material, and is used for any type of radiation and any material. One Gray is equal to one joule of energy deposited in one kg of a material. The unit Gray can be used for any type of radiation, but it does not describe the biological effects of the different radiations.
Greenfield Run-off Rate	The surface water run-off regime from a site before development.
Greenfield Site	A field or area where building development has not previously taken place (e.g. farmland).
Greywater	Waste water from showers, sinks, domestic appliances etc.
Groundwater	Water occurring below ground in natural formations (typically rocks, gravels and sands).
Guidance on Methodology for Multi-Modal Studies (GOMMMS)	Transport appraisal methodology, recommended by Department for Transport, against five objectives: Environment, safety, accessibility, integration and economy.
Habitats Directive	The Habitats Directive (more formally known as Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora) is a European Union directive adopted in 1992 as an EU response to the Berne Convention. It is one of the EU's two directives in relation to wildlife and nature conservation (the other being the Birds Directive). It aims to protect some 220 habitats and approximately 1,000 species listed in the Directive's Annexes.

Term	Definition
Habitats Regulations Assessment (HRA)	The Conservation Natural Habitat and Special Regulation 2010 provided for protection of European Sites, Special Areas of Conservation (habitats) and Special Protection Areas (birds).
Half-Life	The radioactivity of all nuclear waste decays with time. Each radionuclide contained in the waste has a half-life (the time taken for half of its atoms to decay and thus for it to lose half of its radioactivity).
Haul Road	The major routes used by construction traffic on the site.
Heavy Goods Vehicle (HGV)	Goods vehicle >3.5 tonnes gross vehicle weight.
High Level Radioactive Waste (HLW)	Waste containing high concentrations of alpha/beta/gamma emitting radionuclides such that it generates heat. HLW only arises from nuclear fuel reprocessing operations and therefore would not be generated during operations at HPC.
Highest Astronomic Tide (HAT)	The highest tide that can occur due solely to the arrangement of the moon, sun and planets.
Highway Authority	The responsibility for the maintenance and improvement of the highways within the District is split between the Department for Transport represented by the Highways Agency, which is are responsible for the strategic road network and Somerset County Council which is the local highway authority.
Highways Agency (HA)	The Government agency responsible for Strategic Road Network (SRN) building, maintenance and operation and has the power to direct a refusal of a planning application which it believes would adversely affect the operation or safety of an SRN.
Hinkley Point A (HPA)	A Magnox Generation Power Station. Commissioned in 1965 and closed in 2000. Currently being decommissioned which is expected to be completed around 2100.
Hinkley Point B (HPB)	An Advanced Gas Cooled Reactor (AGR) commissioned in 1976. The current scheduled closure date is 2016, although this may be extended.
Hinkley Point C (HPC)	The proposed new nuclear power station.
Hinkley Point C Development Site	The Hinkley Point C development site comprises land required for the permanent power station development together with construction areas. The total land take is 175.2 Ha.
Hinkley Point C Project	The overall proposed development of the Hinkley Point C new nuclear power station and all on-site and off-site associated development.
Hinkley Point Power Station Complex	The collective term used when referring to the existing Hinkley Point A and B power stations.
Historic Battlefields	Fields identified by English Heritage upon which significant battles were fought and where there is sufficient documentary evidence and physical on site evidence of its occurrence.
Historic Environment Record (HER)	Formerly the Sites and Monuments Record (SMR), the HER is a register of known archaeological sites, monuments and finds.
Historic Parks and Gardens	Parks and gardens identified by English Heritage as being of particular interest and quality by reasons of their historic layout, features and architectural ornaments. Like listed buildings they are graded I, II* and II.
Historic Settlements	Those places that had achieved Borough status before AD1600. The historic boundaries are defined by Somerset County Council.

Term	Definition
HPC permanent development site	Forming part of the HPC development site which contains the proposed UK EPR reactor units and associated structures/buildings and ancillary plant. The HPC permanent development site is adjacent to the existing Hinkley Point Power Station Complex.
Immobilise/Immobilised/ Immobilisation	Conversion of radioactive waste into a less mobile or non-mobile form by solidification, embedding or encapsulation to reduce migration or dispersion of radionuclides during handling, transport, storage and disposal.
Impact Magnitude	This is the scale of change which the impact may cause compared to the baseline and how this change relates to accepted thresholds and standards.
Impact Significance	The level of significance is defined by the magnitude of impact in relation to the sensitivity/value of the environmental receptor.
Index of Multiple Deprivation (IMD)	Provides a useful tool for highlighting pockets of deprivation on a spatial basis. Average levels of deprivation across districts are indicated by their rank position relative to all other English local authority districts.
Indicative Development Boundary	The boundary within which the proposed site preparation works will take place.
Infauna	Species living within sediment.
Informal engagement	Consultation undertaken by EDF Energy outside of the formal consultation periods.
Informal Recreation	Leisure activities which are not undertaken on a formal, organised basis and are generally carried out by individuals or small groups on an intermittent basis with a minimal requirement for supporting facilities.
Infrastructure	Roads, drainage and other apparatus and structures that are required to provide essential services before development can take place.
Infrastructure Planning Commission (IPC)	The Infrastructure Planning Commission is the independent body that examines applications for nationally significant infrastructure projects, such as the proposed Hinkley Point C Project. The IPC will become part of the Planning Inspectorate when the Localism Bill is enacted.
Inheritance Tax Exemption Site	Tax exemption available for land of outstanding scenic, historic and scientific interest (assessed by Natural England).
Institute of Environmental Management and Assessment (IEMA)	Non-profit membership organisation established to promote best practice standards in environmental management, auditing and assessment.
Interim Storage	Storage of radioactive waste, or spent fuel, within a robust engineered facility pending the availability of a geological disposal facility or alternative management route. An interim store would provide protection for waste packages, or spent fuel assemblies, and will maintain containment of radioactivity and prevention of releases which could impact upon the outside environment.
Intermediate Level Waste (ILW)	Radioactive Waste containing higher concentrations of beta/gamma contamination and sometimes alpha emitters. Such waste comes from routine power station maintenance operations, for example used ion exchange resin and filter cartridges. In the UK, ILW is defined as waste with a radioactive content exceeding that of LLW but which does not require heat dissipation to be taken into account in the design of storage or disposal facilities.

Term	Definition
International Atomic Energy Agency (IAEA)	The International Atomic Energy Agency is the UN Agency for co-operation in the nuclear field. Set up as the world´s "Atoms for Peace" organisation in 1957 within the United Nations. The Agency works with Member States and multiple partners worldwide to promote safe, secure and peaceful nuclear technologie.
International Commission on Radiological Protection (ICRP)	An independent Registered Charity, established to advance for the public benefit the science of radiological protection, in particular by providing recommendations and guidance on all aspects of protection against ionising radiation.
Intertidal	The area of land between mean high water and mean low water.
Invertebrates	Animals without backbones.
Isotope	One of two or more atoms having the same atomic number but different mass numbers.
Journey time	The length of time it takes to undertake a certain route or part of a route.
Killed or Seriously Injured (KSI)	Number of people killed or seriously injured in road traffic accidents.
L_{AE} SEL	Sound Exposure Level. A parameter closely related to L_{Aeq} for assessment of events that have similar characteristics but are of different duration. The L_{AE} value contains the same amount of acoustic energy over a 'normalised' one second period as the actual noise event under consideration.
L_{Aeq}	As almost all sounds vary or fluctuate with time it is helpful, instead of having an instantaneous value to describe the noise event, to have an average of the total acoustic energy experienced over its duration. The L_{Aeq}, 07:00-19:00 for example, describes the equivalent continuous noise level over the 12 hour period between 07:00 and 19:00. In the assessment of proposed industrial equipment or machinery noise, this is referred to as 'specific noise level'.
L_{Amax}	The L_{Amax} is the loudest instantaneous noise level. This is usually the loudest 125 milliseconds measured during any given period of time.
L_{An}	Method of describing with a single value a noise level which varies over a given time period, is to consider the average amount of acoustic energy and the length of time for which a particular noise level is exceeded. If a level of *x* dB L_A is exceed for 6 minutes within one hour, that level can be described as being exceeded for 10% of the measurement period. This is denoted as the $L_{A10\ (1\text{-}hour)}$ = x dB. The L_{A10} index is often used to describe road traffic noise whilst the L_{A90}, the noise level exceeded for 90% of the time, is the usual descriptor of the underlying background noise. L_{A1} in addition to L_{Amax} are common descriptors of construction noise.
Land Use	Modification of natural environment or wilderness into built environment such as fields, pastures, and settlements.
Landform	Combinations of slope and elevation that produce the shape and form of the land.
Landscape Character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.
Landscape Character Area	Single, unique geographical areas of a particular landscape type.
Landscape Character Type	Distinct types of landscape that are relatively homogeneous in character.
Landscape Elements	Individual components which make up the landscape, such as trees and hedges.
Landscape Features	Particularly prominent or eye-catching elements, like tree clumps, church towers, or wooded skylines.

Term	Definition
Landscape Institute (LI)	Royal Chartered body for landscape architects.
Landscape restoration	Refers to the process of restoring the wider development site once it is no longer required for construction purposes. The restoration proposal has been developed in co-ordination with statutory consultees.
Landscaping	A general term used for the means by which, where appropriate, development is made to fit visually into its surroundings by control of siting and layout and use of trees, shrubs or grass (soft landscaping) and/or fences, walls or paving (hard landscaping).
$L_{Ar,T}$	The rating level, $L_{Ar,T}$, is the specific noise level from proposed industrial plant or machinery plus any adjustment for the characteristic features of the noise.
Light Detection and Ranging (LiDAR)	Light Direction And Ranging – use of reflected light to make accurate measurements of distance making use of the known wavelength of the light beam, used in aerial surveys to map visible ground levels.
Light Duty Vehicle (LDV)	Road vehicle <3.5 tonnes gross vehicle weight.
Light Goods Vehicles (LGV)	Goods vehicles <3.5 tonnes gross vehicle weight.
Link capacity	The flow of traffic that can be accommodated on a particular stretch of road/road type. The capacity of a link is expressed in terms of a Congestion Reference Flow (CRF) and can be illustrated graphically using a speed flow curve.
Linked Trips	Examples include trips between food and non-food retail developments and adjacent sites or an established town centre.
LINSIG	LinSig is a helpful tool to aid the traffic engineer in designing new traffic signal junctions as well as assessing the effects of modifying existing designs. It is a computer program used to predict Practical Reserve Capacity (PRC), delays, and queuing. It can be used to model individual junctions as well as small networks.
Listed Buildings	Buildings and structures which have been identified as being of special architectural or historic interest and whose protection and maintenance are the subject of special legislation. Their curtilage and setting is also protected. Listed Building Consent is required before any works are carried out on a listed building.
Local Biodiversity Action Plan (LBAP)	A local agenda (produced by the local authority) with plans and targets to protect and enhance biodiversity and achieve sustainable development. Statutory Consultees and Local Authorities are committed to Biodiversity Action Plans and work with central government (Rio Earth Summit, 1992) to realise LBAP objectives.
Local Development Framework (LDF)	Local authority documents containing planning policies for the district.
Local Distributor Roads	These roads distribute traffic within environmental areas, providing links to the County Distributor Road network for traffic near the beginning or end of their trips. Together with access roads, these distributors serve a local function.
Local Planning Authority (LPA)	The level of government responsible for planning within a given administrative area. Within the study area this is West Somerset Council and Sedgemoor District Council. Somerset County Council is the responsible authority in respect of strategic planning matters and highways, minerals and waste disposal.

Term	Definition
Low Level Radioactive Waste (LLW)	Materials with primarily low concentrations of beta/gamma contamination, but may include small amounts of alpha contaminated material. In the UK LLW may be treated and disposed of through a variety of routes including the national LLW Repository (the LLWR), via commercial incinerators, other treatment facilities, or in certain cases to specific approved landfill.
Local Transport Plan (LTP)	An Local Transport Plan is a plan produced by strategic transport authorities (county councils, unitary authorities, passenger transport authorities and local councils) that should provide advice to the local planning authority on highway and transport matters. An LTP should outline the current baseline with regard to transport, accessibility and pollution, before setting out objectives that should be reached, along with a programme for achieving these objectives. It is expected to be a forward-looking plan covering a number of years (typically five years), which is then presented to the Department for Transport (DfT). It can then be used as a 'material consideration' when a local planning authority or the Secretary of State determines a planning application.
Main River	The principle or arterial watercourses in an area and are designated as such on maps held by DEFRA and the Environment Agency.
Managing Radioactive Waste Safely (MRWS)	A phrase covering the whole process of public consultation, work by CoRWM, and subsequent actions by Government, to identify and implement the option, or combination of options, for the long-term management of the UK's higher activity radioactive waste.
Mean high water neap tides (MHWN)	Mean high water neap tides, which is the average throughout a year of the heights of two successive high waters during those periods of 24 hours (approximately once a fortnight) when the tidal range is least.
Mean high water spring tides (MHWS)	Mean high water spring tides, which is the average throughout a year of the heights of two successive high waters during those periods of 24 hours (approximately once a fortnight) when the tidal range is greatest.
Mean High Water Springs (MHWS)	The average of high water heights occurring at the time of spring tides.
Mean Max Queue	The mean maximum queue measured in PCUs is an approximate average of the maximum queues likely to be encountered at a junction in a modelled network, and it will therefore be exceeded 50% of the time. The queue represents the average distance of the vehicle furthest from the stop line in each cycle.
Medium Goods Vehicle (MGV)	Goods vehicle with a gross vehicle weight between 3.5 tonnes and 7.5 tonnes.
Megawatt (MW)	A unit of electrical power, equal to a million watts or thousand kilowatts
Microprocessor Optimised Vehicle Actuation (MOVA)	Technology involving a series of loops cut into the road surface which feed vehicle data back to the automatic traffic signal controller. MOVA signal timings respond to traffic conditions and generate its own signal timings cycle-by-cycle, varying continuously with traffic conditions, both in the short term (hour to hour, day to day) and in the long term following annual trends and longer term traffic growth. This innovative method of signal control is found to be effective in reducing delays and reducing accident levels at a particular signalised junction.

Term	Definition
Microsimulation	Microsimulation software can provide a virtual model of transportation infrastructure in order to simulate the interactions of road traffic and other forms of transportation. The software treats each vehicle, bus, train, tram, cyclist, pedestrian etc. in the model as a unique entity with its own goals and behavioural characterises; each possessing the ability to interact with other entities in the model and can be used to predict the impact of a development on an existing highway and test proposed improvements. PARAMICS and VISSIM are two software packages which are often used dependent upon the Highway Authority. The visual output from these packages can be used to great effect at exhibitions and presentations.
Milli-Sievert (m Sv)	1/1000 th of the standard radioactive dose unit of a Sievert.
Mitigation	Measures recommended through the EIA process and applied through the regulatory approvals process to avoid, reduce or offset significant adverse effects on the environment.
Most exposed members of the public	Synonymous to critical group but may be related to individual members of the public or a single source/pathway of exposure.
National Grid	The National Grid is the company which owns and operates the high-voltage electric power transmission network in Great Britain, connecting power stations and major substations and ensuring that electricity generated anywhere in Great Britain can be used to satisfy demand elsewhere.
National Nature Reserve (NNR)	National Nature Reserves are designated under the National Parks and Access to the Countryside Act 1949 or the Wildlife and Countryside Act 1981 (as amended) primarily for nature conservation, but can also include sites with special geological of physiographic features. They were established to protect the most important areas of wildlife habitat and geological formations in Britain, and as places for scientific research. All NNRs are “nationally important” and are best examples of a particular habitat/ecosystem. NNRs receive SSSI designation under The Countryside and Rights of Way Act 2000 and The Wildlife and Countryside Act 1981 (as amended).
National Policy Statement (NPS)	National Policy Statements set out national policy against which proposals for major infrastructure projects will be assessed and decided on by the Infrastructure Planning Commission.
National Trust (NT)	An independent charity promoting the permanent preservation of land with outstanding natural features, and buildings of beauty and historic interest.
National Trip End Model (NTEM)	Tool used to project future travel demand and forecast traffic growth.
Nationally Significant Infrastructure Project (NSIP)	Term within the Planning Act for a major infrastructure project.
Natura 2000 Sites	Sites designated under the Birds Directive (Special Protection Areas; SPAs) for birds and under the Habitats Directive (i.e. Special Areas of Conservation; SACs) for other species and for habitats which together make up the Natura 2000 network.
Natural England	A Government Agency promoting the conservation of England's wildlife and natural features and is responsible for designating National Nature Reserves, identifying Sites of Special Scientific Interest, and for advising a wide range of bodies and individuals including the Government on matters affecting nature conservation.
Neap tide	Neap tides occur when the moon is in the first or third quarter – when the sun, earth and moon form a right angle. The lunar high tide coincides with the solar low tide and they partly cancel out, giving a small total tide.

Term	Definition
New Approach To Appraisal (NATA)	New Approach to Appraisal is the Department for Transport system that is used to assess the potential impacts of new road proposals on the environment, safety, economy, accessibility and integration.
NNB Generation Company Limited (NNB)	NNB Generation Company Limited, part of EDF Energy, is the Company that will be the licensee for the development at HPC.
Not Always Afloat But Safely Aground (NAABSA)	Not Always Afloat But Safely Aground – used to refer to a ship berth where the vessel can take the ground safely at low tide.
National Road Traffic Forecasts (NRTF)	National Road Traffic Forecasts (Great Britain) is a document produced by the Department of the Environment, Transport and the Regions which sets out the expected growth in the volume of motor traffic on roads in Great Britain until the year 2031. The document was published in 1997 but is still valid for obtaining national growth data.
Nuclear Island	The reactor building, with its associated annexed buildings containing the safety systems, fuel handling systems and access facilities, together with the adjacent emergency diesel generator buildings, form the Nuclear Island. HPC has two Nuclear Islands, one per UK EPR reactor unit.
Office for Nuclear Regulation (ONR)	Department responsible for regulating nuclear industry, part of the Health and Safety Executive and formerly known as the Nuclear Installations Inspectorate.
OGV1	HGV with 2 or 3 axles.
OGV2	HGV with 4 or more axles.
On-site associated development	Development which is associated with the HPC NSIP (see Associated Development) and located within the HPC development site boundary.
Open Space	An area of land, regardless of ownership, which is not used for agriculture and upon which no significant built development has taken place or from which such development has been removed. Areas of open water and woodland are also included.
Operational capacity	As a rough guide, the operational capacity of a road is often taken as being 50% higher than the design capacity (or design flow). When designing a new road design flows are used to ensure that new roads operate free from congestion for a reasonable period after opening. The operational capacity depends on a number of factors such as, road width and alignment, traffic composition, bus tops and parking, pedestrian activity, weather conditions. When traffic builds up to operational capacity, conditions deteriorate: speeds drop, delays become more frequent, accidents increase, and the overloaded road becomes increasingly congested.
Operational phase	The operational phase is when the relevant facility is complete and is being used for its intended purpose.
Ordinary Watercourse	Comprise all watercourses that are not Main Rivers. These include all tributaries, streams, rhynes, ditches, and those watercourses that have been culverted or piped.
Ordnance Datum (OD)	A vertical datum point used by the Ordnance Survey as a reference point for the level or altitude of any point. Ordnance Datum is based on the mean sea level at Newlyn in Cornwall between 1915 and 1921 but measurements are today made using satellite systems.
Ordnance Survey (OS)	Great Britain's national mapping agency.
Paramics	Paramics is a transport modelling software package that enables a wide range of real world traffic and transportation problems to be simulated. It can help to assess both individual transport schemes and broad transport strategy options for the city.

Term	Definition
Parking Accumulation	A profile of measured or predicted total car park occupation, normally reported as the number of occupied parking spaces on an hourly basis.
Pascal (Pa)	Unit of pressure equal to one Newton per square metre ($1N/m^2$).
Passage plan	A risk management based approach to planning a vessel's passage in advance of its voyage or a part of its voyage. The passage plan for vessels visiting Bridgwater Port normally includes the characteristics of the vessel or vessel combination (in terms of propulsion systems, steering systems etc), pilotage arrangements, expected tidal streams, known hazards, berthing plan, procedures for aborting approach or berthing, etc.
Passenger Car Unit (PCU)	PCU, or Passenger Car Unit, is a term used to represent the traffic flow on a road for various vehicle types. It is acknowledged that different types of vehicles will have different effects on traffic flow, and the PCU provides a consistent dimension. Individual vehicle classes are given different PCU values, with a car having the base PCU value of 1 and an HGV a PCU value of 2.3 (a HGV has the potential to cause an impact more than two times greater than a car).
Passive Safety	The maintenance of safety by minimising the need for active safety systems, monitoring or prompt human intervention.
Peak Particle Velocity (PPV)	The Peak Particle Velocity (PPV) is the maximum velocity which is recorded during a particular event and can refer to a particular orientation (vertical or horizontal) or to the maximum (units: mm/s).
Pedestrian Crossings/Pelican Crossing	A pelican crossing is a type of pedestrian crossing featuring a standard set of traffic lights with a push button and two coloured lamps for pedestrians using the crossing. The "green man" shown to the pedestrians is on the opposite side of the road. The green man is followed by a 'flashing green man/ flashing amber' which gives some flexibility to the movement of pedestrians and traffic.
Pedestrian Crossings/Puffin Crossing	A puffin crossing differs from a pelican crossing in that the lights controlling the pedestrians are on the near side of the road in such a position that makes the pedestrian face towards the closest lane of oncoming traffic. The system also utilises detectors which sense the presence of pedestrians waiting at the crossing, and as they cross the road, such that the lights will not stop traffic if the pedestrian has already crossed.
Pedestrian Crossings/Toucan Crossing	A toucan crossing is a combined pedestrian/cycle crossing that allows bicycles to be ridden across. The originator's attempt at humour was to suggest that since two-can cross together, the name Toucan was chosen. The pedestrian/cyclist signal lights may be on the near side of the crossing (like a puffin crossing), or on the opposite side of the road (like a pelican crossing).
Pedestrian Crossings/Zebra Pedestrian Crossing	A zebra pedestrian crossing is characterised by alternating longitudinal black and white stripes (hence the term, named after the zebra) on the road, parallel to the flow of the traffic.
Pedestrian Environment Review Software (PERS)	A software package to model walk routes through an area.
Pelagic fish	Fish that live mainly at mid-water depths, rather than close to the seabed.
Per Caput Dose	Collective dose averaged over all the individuals in the population over which the collective dose was estimated.
PIA	Personal Injury Accident. These are accidents which involve personal injury to a driver or other road users.

Term	Definition
PICADY	Priority Intersection Capacity and Delay – A software package that models the capacity, queue length and delays at non-signalised junctions. PICADY is a helpful tool to aid the traffic engineer in designing new major/minor priority junctions as well as assessing the effects of modifying existing designs. The model predicts capacities, queue lengths and delays.
Piling	The installation of bored and driven piles and the effecting of ground treatments by vibratory dynamic and other methods of ground stabilisation.
Pill	The local name around the Severn Estuary and Bristol Channel for a small estuary or tidal inlet.
Plan Period	The period during which the policies in a Structure Plan or Local Plan are expected to apply.
Plankton	Organisms suspended in the water column and incapable of moving against water currents.
Planning Act 2008 (The Act)	National legislation for Nationally Significant Infrastructure Projects (among other provisions).
Planning Conditions	Planning permission for development may be conditional on other works or undertakings being carried out by the developer, provided they are reasonable and justifiable in planning terms.
Planning Performance Agreement (PPA)	Framework agreed between local planning authority and planning applicant for the management of complex development proposals.
Planning Policy Statements (PPSs)	A series of advisory statements produced by the Government covering a wide range of planning issues. PPSs are the principal source of Government policy guidance on planning matters. PPSs are now replacing PPGs (Planning Policy Guidance).
Post-operational phase	This phase would apply to the off site associated development sites and would commence once EDF Energy no longer requires the site to support construction of the HPC power station and would commence where appropriate. Any works to facilitate the future use of the site are described in the Environmental Statement and the Post-operational Strategy.
Planning Policy Guidance (PPG)	Planning Policy Guidance notes covering various aspects of the planning system are published by the ODPM, and due weight must be given to them when considering individual planning applications as they are material factors in their determination.
PPS Planning Policy Statement	Issued by central government to replace the existing PPG notes in order to provide greater clarity, and to remove from national policy, advice on practical implementation, which is better expressed as guidance rather than policy.
Peak Particle Velocity (PPV)	The Peak Particle Velocity (PPV) is the maximum velocity which is recorded during a particular event and can refer to a particular orientation (vertical or horizontal) or to the maximum (units: mm/s).
Pre-construction Environmental Report (PCER)	Report produced by EDF (or other prospective site operators or plant designers) as part of the GDA (Generic Design Assessment) submissions.
Pre-Strategic Siting Assessment Nomination consultation (Pre-SSA Nomination consultation)	Informal consultation undertaken by EDF Energy prior to the nomination of the HPC site in March 2009 to the Strategic Siting Assessment.
Primary Route Network	Caters for traffic of more than local significance.

Term	Definition
Process and Information Document (PID)	A document drawn up by the Environment Agency requesting interested parties of new nuclear power station designs to provide information on a range of issues relating specifically to areas regulated by the agency (notably radioactive waste and discharges under RSA 93).
Proposed Changes to the Preferred Proposals including M5 Junction 24 and Highway Improvements in the Bridgwater Area consultation (Junction 24 and Highway Improvements consultation)	Formal title of consultation undertaken by EDF Energy July 2011 to August 2011.
Public Access	Permitted use of land by members of the public. Access can be allowed by a variety of means including; public rights of way (e.g. footpath, bridleway, byway); Acts of Parliament; the granting of conditional access by landowners (e.g. National Trust); custom or tradition.
Public Right of Way (PROW)	A Public Right of Way is a footpath or track over which the public have a right of access along a linear route.
Queue length	The length of a stationary queue of traffic usually expressed in PCU units.
Queue Loop	A queue loop is a detector used to identify the presence of a queue of traffic on any approach to a traffic signal junction and calls a special series of timings to clear the queue.
Radioactive Waste	Any material contaminated by or incorporating radioactivity above certain thresholds defined in legislation, and for which no further use is envisaged, is known as radioactive waste.
Ramsar	The Convention on Wetlands (Ramsar, Iran, 1971) - called the "Ramsar Convention" - is an intergovernmental treaty that embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance and to plan for the "wise use", or sustainable use, of all of the wetlands in their territories.
Raw Waste or Unconditioned Waste	Radioactive waste in its initially generated state, prior to its preparation and packaging for longer term storage and/or disposal in a solid and stable form.
Regional spatial strategies (RSS)	Regional spatial strategies (RSS) provided regional level planning frameworks for the regions of England outside London. (In London, spatial planning is the responsibility of the mayor.) They were introduced in 2004. Their revocation was announced by the new Conservative/Liberal Democrat government on 6 July 2010.
Remediation	The removal of pollution or contaminants from land (including sediments in waterways) for the general protection of the environment.
Reprocessing	A physical or chemical separation operation, the purpose of which is to extract uranium or plutonium for re-use from spent nuclear fuel.
Residual Impact	The perceived impact to a receptor after mitigation and management measures have been implemented.
Restoration phase	The restoration phase is when the relevant facility has completed decommissioning and the land is being restored to its final stage.
Radio of Flow Capacity (RFC)	An RFC is a measure used in traffic engineering to indicate how much demand a junction or road is experiencing compared to its total theoretical capacity. The design threshold value for capacity is usually 0.85. An RFC value in excess of 0.85 indicates that the entry arm is performing at a level beyond its ideal operational capacity. A value of 1.00 represents the junction being at capacity. See also Degree of Saturation.

Term	Definition
Rhyne	The local name in Somerset and Gloucestershire (reen in south Wales) for a drainage ditch used for water management in low lying agricultural areas, that usually has water in it at all times.
Run-off	Rainfall that is not absorbed by soil and flows into a drainage system.
Salinity	A measure related to the concentration of salts dissolved in the water, measured in standard salinity units by measuring electrical conductivity. Fresh water usually has a salinity of less than one unit; sea water off the coast of the UK outside the influence of major freshwater inputs typically has salinity of between 34 and 35 units.
Salmonid fish	A group of fish including Atlantic salmon, sea trout, brown trout and grayling.
Saltmarsh	An environment in the upper intertidal zone which is inundated periodically by saline or brackish water and is dominated by salt-tolerant plants, including herbaceous plants, grasses and small shrubs.
SATURN	Simulation & Assignment of Traffic to Urban Road Network – this is a flexible network simulation application that can be used to model a range of different types of traffic network from individual junctions to major infrastructure.
Scheduled Monument	A feature of national historical or archaeological importance, either above or below the ground, which is included in the schedule of monuments as identified by the Secretary of State. Not all nationally important archaeological remains are scheduled and sites of lesser importance may still merit protection.
Section 106 Agreement (Formally Section 52)	Section 106 of the Town and Country Planning Act 1990 allows a local planning authority (LPA) to enter into a legally-binding agreement or planning obligation with a land developer over a related issue. The obligation is often termed as a 'Section 106 Agreement'. Section 106 Agreements can be used to "enhance the quality of development and enable proposals to go ahead which might otherwise be refused".
Section 116 - Highways Stopping Up Order (Highways Act 1980)	The enables the magistrates' court to authorise the stopping up or diversion of a highway if it is deemed that the highway is either: (a) unnecessary; (b) able to be diverted so as to make it nearer or more commodious to the public. The key differences in comparison to the Section 247 (Planning Act) process are that the stopping up process under the Highways Act is generally more exposed to objection whereas the Section 116 process does not require proof that the highway closure is necessary to enable development.
Section 278 Agreement (Highways Act 1980)	Where a development requires works to be carried out on the existing adopted highway an Agreement will need to be completed between the developer and the highway authority under Section 278 of the Highways Act 1980. Examples of such works could be the construction of new access junction or improvement of an existing junction. Similarly, works such as traffic calming or improved facilities for pedestrians and cyclists could fall within a Section 278. Under the Section 278 Agreement, the highway authority may provide the works at the developer's expense, or may allow the developer to provide the works directly, subject to an approval and inspection process.

Term	Definition
Section 38 (Highways Act 1980)	A common way of creating new highways is by an agreement between developers and the local Highway Authority under Section 38 of the Highways Act 1980. These agreements are most often made with housing developers who agree to build the roads to standards laid down by the Highway Authority, which then adopt and maintain the road.
Section 42 (of the Planning Act) (s42)	Section of the Planning Act 2008 specifically covering statutory consultees.
Section 42 consultees (s42 consultees)	Statutory stakeholders as defined by the Planning Act 2008.
Section 47 (of the Planning Act) (s47)	Section of the Planning Act 2008 specifically covering the Local Community.
Section 47 consultees (s47 consultees)	Local community consultees as defined by the Planning Act 2008.
Section 48 (of the Planning Act) (s48)	Section of the Planning Act 2008 specifically covering the General Public.
Section 48 consultees (s48 consultees)	General public consultees as defined by the Planning Act 2008.
Sedgemoor District Council (SDC)	Local planning authority for the district including Bridgwater, Cannington and Combwich where Associated Developments are proposed.
Shoreline Management Plan (SMP)	Non-statutory plans to provide sustainable coastal defence policies (to prevent erosion by the sea and flooding of low-lying coastal land), and to set objectives for the future management of the shoreline. They are prepared by the Environment Agency and maritime local authorities, acting individually or as part of coastal defence groups.
Short-term dose	Dose incurred due to short-term releases of a significant proportion of the 12-month discharge limit, can occur as a result of variations in site operations. For assessment purposes the duration of a release is typically assumed to be 30 minutes or 24 hours.
Sievert (Sv)	The Sievert is a unit used to derive equivalent dose. This relates the absorbed dose in human tissue to the effective biological damage of the radiation. To determine equivalent dose (Sv), you multiply absorbed dose (Gy) by a quality factor (Q) that is unique to the type of incident radiation. Doses to humans are usually expressed in Sieverts.
Significant Wave Height	Average height of the highest one third of wave heights in a random train.
Site of Special Scientific Interest (SSSI)	Statutory designated sites where features of nature conservation importance are at their best and/or most concentrated. They include geological interest as well as flora and fauna. SSSIs are designated by Natural England (formerly English Nature) under the Wildlife and Countryside Act (1981).
Site Preparation Works	The site preparation works are part of the preliminary works that are proposed to facilitate the construction of Hinkley Point C should it be consented. The works would involve fencing, site clearance, earthworks to level and terrace the site and the installation of construction drainage.
Somerset County Council (SCC)	County planning authority for the land area including Hinkley Point and the application site for the site preparation works.
Sound Level	Sound level, in decibels, is the weighted sound pressure level obtained by use of a sound-level meter. The reference pressure is 20 µPa, unless otherwise stated.
Sound power level (Lw)	The sound power level is the fundamental measure of the total sound energy radiated by a source per unit time.

Term	Definition
Sound pressure level (Lp)	The level of the pressure of the sound above the internationally accepted reference value of 20 µPa (2x10-5N/m2), which corresponds to the pressure of the quietest sound an average person can hear at the frequency of 1000 Hz. It is a quantity that can be measured, thus the intensity of a sound can be derived from it.
Source Protection Zones (SPZs)	Are defined by the Environment Agency for groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk.
Southern Construction Phase Area	An area of land to the south of the Built Development Area intended to support the construction phase works (including stockpiling of soils, a campus, etc.).
Special Area of Conservation (SAC)	For rare or otherwise special sites and species, the EEC Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC), requires the designation of SACS. This designation requires Member States to take measures to maintain or restore natural habitats and wild species as well as ensure planning and related legislation accords with all the relevant requirements of the Directive.
Special Protection Area (SPA)	Area designated under Article 4 of the European Communities Council Directive of April 1979 on Conservation of Wild Birds to protect the habitats of threatened and migratory birds.
Spent Fuel	Spent fuel is nuclear fuel that has been irradiated in and permanently removed from a reactor core. Due to the long half-life of a proportion of the radionuclides contained within spent fuel, its level of activity (and the fact this means it produces heat for long periods) and its fissile content (meaning it has the potential to be recycled and also raises security issues) means that the management of spent fuel is an important issue for the design of any new nuclear power station. The characteristics of spent fuel mean that it is managed in a similar way to HLW due to the high activity and heat generating characteristics.
Split Cycle Offset Optimisation Technique (SCOOT)	A form of UTC (See below). Loops cut into each approach feed traffic information back to the central computer which carries out three calculations based on all the information it receives. It optimises the split which is the stage times for each junction, it optimises the cycle time for the whole network and it looks at the offset between the junctions. By the combination of relatively small changes to traffic signal timings SCOOT can respond to short term local peaks in traffic demand, as well as following trends over time and maintaining constant coordination of the signal network.
Spring tide	Tides occurring approximately once a fortnight when the range of the tide is greatest.
Stage 1 Initial Proposals and Options consultation (Stage 1 consultation)	Formal consultation undertaken by EDF Energy November 2009 to January 2010.
Stage 2 Preferred Proposals consultation (Stage 2 consultation)	Formal consultation undertaken by EDF Energy July 2010 to October 2010.
Statement of Community Consultation (SOCC)	A statement published by EDF Energy prior to each stage of formal consultation, as required by the Planning Act 2008, and following consultation with the relevant authorities.
Statements of Community Involvement (SCI)	Local authority policy on public engagement around planning which recommends that Statements of Community Involvement are prepared.

Term	Definition
Statutory Organisations	Government bodies and other organisations which have a legislative duty in dealing with specific matters, e.g. Environment Agency, Natural England, English Heritage, etc.
Stochastic assignment	In transport modelling, the trips assigned to the network calculate the route taken through the network based upon information on network conditions received at the start of the journey only.
Strategic Environmental Assessment (SEA)	The application of environmental assessment to earlier, more strategic, tiers of decision-making policies, plans and programmes.
Strategic Flood Risk Assessment (SFRA)	A broad scale assessment of flood risk carried out by a unitary authority or district council.
Stress (highways)	The degree of stress the highway network or particular highway links are under, calculated by comparing the traffic flow with the CRF – e.g. if the traffic flow on a particular link is the same as the CRF, the link will be at 100% stress.
Structure Plan	Strategic planning policy for Somerset is set out in the Somerset County Structure Plan. The Structure Plan sets out the broad levels of growth and change for the County as a whole, but does not identify specific sites for development nor the precise boundaries of areas to be protected. One of the important tasks of the Local Planning Authorities is to apply that strategy at the local level.
Subject Specific Management Plan (SSMP)	The SSMPs set out a series of measures that will be used in the construction of the project and have informed the scheme that has been assessed as part of the environmental impact assessment process, ensuring that potential significant impacts associated with the project are minimised. The Environmental Statement is supported by subject specific management plans.
Subtidal	The seabed and sea below the level of low tide.
Suspended solids	Non-soluble particles, such as sand grains and silt particles, carried in suspension in the water.
Sustainable Drainage Systems (SuDS)	A sequence of management practices and control structures designed to drain surface water in a more sustainable fashion than some conventional techniques (may also be referred to as sustainable drainage techniques).
Sound Power Level	Sound Power Level (L_w) is the sound power measured on a decibel scale: $Lp = 10 \text{ Log } (W/W0)$, where W0 is the reference value of sound power, 10-12 Watts.
Task Lighting	Task lighting is specific, directional lighting that is focused on a particular area for a specific purpose.
Taxa	A group of species which are related by virtue of possessing similar morphological or physiological features which may be used in their identification.
Temporary Jetty	The temporary jetty comprises a 500m structure extending from the Hinkley Point C construction site to Bridgwater Bay. The temporary jetty will allow for material required for the construction of Hinkley Point C, predominantly cement based products, to be transported to the site via sea rather than road.
TEMPRO	Department for Transport National Trip End program, used to adjust NRTF to locality. The programme presents growth forecasts in local planning data and car ownership in order to forecast trip-making growth for different forms of transport.
Tidal range	The difference in water surface levels between high tide and low tide.

Term	Definition
Tool Box Talks	Regular on-site training on relevant site topics and issues for all the workforce.
Topography	The configuration of a land surface, including its relief and the position of its natural and manmade features.
Train Operating Company (TOC)	Private company that operates rail services on the national network (e.g. South West Trains, Connex).
TRADS	Traffic flow data system – a central database for 15 minute and hourly based traffic flow data. Contains data from around 1,500 sites across the Strategic Road Network (SRN) and is maintained on behalf of the Highways Agency (HA).
Traffic Management	The promotion of a more effective movement of traffic within a given street system by appropriate measures such as redistribution of traffic flows, controlling junctions and regulating the location and duration of parking.
Traffic Regulation Order (TRO)	A Traffic Regulation Order (TRO) is the statutory legal document necessary to support any enforceable traffic or highway measure within the public highway. TROs are required for a range of restrictions including: waiting and loading, one way streets, speed limits, weight and width restrictions, access and turning restrictions, road and footway closures, cycle and bus lanes and high-occupancy vehicle (HOV) lanes.
Transport Assessment	Where a new development is likely to have significant transport implications, a Transport Assessment (TA) should be prepared and submitted with a planning application for the development. It will then be used to determine whether the impact of the development on transport is acceptable. A TA tends to include local network modelling.
Transyt	A computer program used to predict degrees of saturation (DoS), queues and delays on networks of traffic signal junctions and priority junctions. Queues shown are Mean Max Queues and are not measured at a set time within the cycle time but are measured when the queue reaches its maximum point.
Travel Plan (TP)	A TP accompanies a Transport Assessment and is aimed at reducing reliance on private car use over time. Targets should be set and the development monitored against these.
Trip Rate Information Computer System (TRICS)	Trip Rate Information Computer System: a database for land use types and new developments allowing trip rate information to be calculated. It is the only national trip generation and analysis database and contains trip generation and site information for over 2800 sites and numerous land uses.
Trip distribution	The process to assess where trips come from and where they go to.
Trip generation	The process to forecast how many trips will be made.
Tritium	A radioactive isotope of hydrogen formed in a nuclear reactor via a range of processes. Most appears as tritiated water that has predominantly the same physical and chemical properties of water so behaves in the same way in the environment.
Trunk Road	A highway for through traffic forming part of the national system of routes managed by the HA.
Turbidity	The cloudiness in water caused by scattering of light by suspended particles, which may include both non-biological components (e.g. sand and silt) and biological components (e.g. algae and bacteria).

Term	Definition
UK European Pressurised Reactor (EPR)	The third generation Pressurised Water Reactor (PWR) design. It has been designed and developed mainly in France and Germany. In Europe this reactor design was called the European Pressurised Reactor, but is now referred to as EPR.
Update on and Proposed Changes to the Preferred Proposals consultation (Stage 2 Update consultation)	Formal consultation undertaken by EDF Energy February 2011 – March 2011.
Uranium	A heavy, naturally occurring and weakly radioactive element, commercially extracted from uranium ores. By nuclear fission (the nucleus splitting into two or more nuclei and releasing energy) it is used as a fuel in nuclear reactors to generate heat.
Validation	Following the calibration stage, this is the process used to check that a transport model reflects local circumstances.
Vehicle Actuated	Vehicle actuated signal control differs from fixed-timed signal control in that it requires "actuation" by a vehicle or pedestrian in order for certain traffic movements to be serviced. Actuation is achieved by vehicle detectors or pedestrian push buttons.
Very Low Level Waste (VLLW)	A sub-set of LLW which consists of the least radioactive component of the LLW category and may therefore be suitable for alternative disposal or treatment routes including disposal to approved landfill sites.
Viewed rhyne	Viewed Rhynes are Ordinary Watercourses (open or culverted) that undertake a significant function in the drainage or irrigation of an area. The term also includes any structures in the bed or banks for controlling or regulating the flow of these watercourses.
Visibility Splay	A Visibility Splay is a diagram indicating the area adjacent to a road junction or access which should be free from obstruction to motorists and pedestrians. There are varying standards for visibility splays depending on the speed of traffic on the roads.
Visual Amenity	The value of a particular area or view in terms of what is seen.
Variable Message Signs (VMS)	Variable Message Signs, is an electronic traffic sign often used on roads to give information. Such signs warn of traffic congestion, accidents, incidents, roadwork zones, or speed limits on a specific highway or area. In urban areas VMS can be used to indicate available capacity within car parks around a town centre, for example.
Waste Hierarchy	This concept proposes that minimisation of the creation of waste is the best way to reduce waste, re-use the second best option, followed by recovery (e.g. recycling) and as a last resort disposal.
Water Framework Directive (WFD)	European Community Directive (2000/60/EC) on integrated river basin management. The WFD sets out environmental objectives for water status based on: ecological and chemical parameters; common monitoring and assessment strategies; arrangements for river basin administration and planning; and a programme of measures in order to meet the objectives. For further detail consult the European Commission website: http://europa.eu.int
Waterfowl	Waders and wildfowl (ducks and geese).
WEBTAG	Department for Transport web-based guidance on transport appraisal and analysis.
West Somerset Council (WSC)	Local planning authority for the land area including Hinkley Point and the application site for the site preparation works.

Term	Definition
Wetlands Bird Survey (WeBS)	The WeBS programme is a system of co-ordinated counts of waterfowl around the UK estuaries and some inland waterbodies.
Windrow	A long low ridge or line of soil, designed to achieve the best conditions for drying, in order to maintain the soil integrity.
Zone of Theoretical Visibility (ZTV)	Digital representation of earth surface used in determining the visibility of an object (development or study area) in the surrounding landscape.

ABBREVIATIONS

Abbreviation	Term
ΔT	Temperature differential
AADT	Annual Average Daily Traffic flows
ADCP	Acoustic Doppler Current Profile
AFD	Acoustic Fish Deterrence
AFDW	Ash Free Dry Weight
AIL	Abnormal Indivisible Load
AOD	Above Ordnance Datum
AoS	Appraisal of Sustainability
APIS	Air Pollution Information System
AST	Appraisal Summary Table
AQ	Air Quality
AQAP	Air Quality Action Plan
AQG	Air Quality Guideline
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Air Quality Strategy for England, Scotland, Wales and Northern Ireland
ASHP	Air Source Heat Pumps
BDAE	Built Development Area East
BDAW	Built Development Area West
BEEMS	British EDF Estuarine & Marine Studies
BRE	Building Research Establishment (now known only as BRE)
BREEAM	Building Research Establishment Environmental Assessment Method
BRI-A	Bridgwater A Accommodation Site
BRI-C	Bridgwater C Accommodation Site
CBPs	Chlorination Byproducts
CCC	Committee on Climate Change
CCS	Carbon Capture and Storage
CCS	Considerate Constructors Scheme
CD	Chart Datum
CDCZ	Construction Daily Commuting Zone
CEA	Contractors Environmental Appendices
CEEQUAL	Civil Engineering Environmental Quality Award
CEGB	Central Electricity Generating Board
CEMP	Construction Environmental Management Plan

Abbreviation	Term
CERC	Cambridge Environmental Research Consultants
CERL	Central Electricity Research Laboratories
CESP	Community Energy Saving Programme
CFMP	Catchment Flood Management Plan (Environment Agency)
CHaMP	Coastal Habitat Management Plan
CHP	Combined Heat and Power
CIBSE	Chartered Institution of Building Services Engineers
CIMP	Comprehensive Impingement Monitoring Programme
CIRIA	Construction Industry Research and Information Association
CITES	Convention on International Trade in Endangered Species
CL	Conservation Limit
CL: AIRE	Contaminated Land: Applications in Rural Environments
CLG	Department for Communities and Local Government
CO	Carbon monoxide
COSHH	Control of Substances Hazardous to Health
CPUE	Catch Per Unit Effort
CREP	Corporate Responsibility and Environmental Panel
CRoW	Countryside & Rights of Way Act 2000
DBA	Desk-Based Assessment
DDF	Depth Duration Frequency
DECC	Department of Energy and Climate Change
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DF	Dispersion Factor
DMRB	Design Manual for Roads and Bridges
DPF	Diesel Particulate Filter
DWS	Drinking Water Standard
EAL	Environmental Assessment Level
EAV	Equivalent Adult Value
Ebsubstance	Environmental Benchmark for a substance
ECoW	Ecological Clerk of Works
EGR	Exhaust Gas Recirculation
EHO	Environmental Health Officer
EMU	Entrainment Mimic Unit
EPAQS	Expert Panel on Air Quality Standards
EPD	Environment Product Declaration
EPR	European Pressurised Water Reactor

Abbreviation	Term
EPR 2010	The Environmental Permitting Regulations, brought into force in 2010.
EQS	Environmental Quality Standard
ES	Environmental Statement (reporting outcome of EIA)
ETSU	Energy Technology Support Unit
EU ETS	European Union Emissions Trading Scheme
EUFG	Ecological Use Functional Guild
FARL	Fawley Aquatic Research Laboratory
FDP	Funded Decommissioning Programme
FEH	Flood Estimation Handbook
FEPA	Food & Environmental Protection Act
FRA	Flood Risk Assessment
FRM	Flood Risk Management
FRR	Fish Recovery and Return
FSC	Forestry Stewardship Council
FSR	Flood Studies Report
FTU	Formazin Turbidity Units
FZ1	Environment Agency Flood Zone 1
FZ2	Environment Agency Flood Zone 2
FZ3	Environment Agency Flood Zone 3
FZ3a	Environment Agency Flood Zone 3a
FZ3b	Environment Agency Flood Zone 3b, also known as ‘Functional Floodplain’
GETM	General Estuarine Transport Model
GIS	Geographical Information Systems
GLA	Greater London Authority
GOMMMS	Guidance on the Methodology for Multi-Modal Studies
GWP	Global Warming Potential
Ha	Hectares
HAT	Highest Astronomical Tide level
HGV	Heavy Goods Vehicle
HIA	Health Impact Assessment
HIMP	Health Improvement and Modernisation Plan
HMWB	Heavily Modified Water Body
HPA	Health Protection Agency
HPC	Hinkley Point C
HPCDD	Hinkley Point C Drainage Ditch
HRA	Habitats Regulations Assessment
HRW	Hydraulics Research Wallingford

Abbreviation	Term
HSE	Health and Safety Executive
IAEA	The International Atomic Energy Agency
IAM	Impact Assessment Matrix
ICES	International Council for the Exploration of the Seas
IDB	Internal Drainage Board (Parrett)
IECS	Institute of Estuarine & Coastal Studies
IH124	Institute of Hydrology Report No. 124: Flood Estimation for Small Catchments (June1994)
IHT	Institution of Highways and Transportation
ILW	Intermediate Level Waste
IMD	Integrated Multiple Domain
IOS	Institute of Oceanographic Sciences
IT	Interim Target
IUCN	International Union for the Conservation of Nature
JNCC	Joint Nature Conservancy Council
JSP	Joint Structure Plan
Km	Kilometres
KPI	Key Performance Indicator
kWh	Kilo-Watt Hour
LA	Local Authority
LAA	Local Area Agreement
LAQM	Local Air Quality Management
LAT	Lowest Astronomical Tide
LATS	London Area Transport Study
LC	London Convention
LCA	Life Cycle Assessment
LCTP	Low Carbon Transition Plan
LDD	Local Development Document
LGV	Light Goods Vehicle
LIDAR	Light Detection and Ranging
LIR	Local Impact Report
LLW	Low Level Waste
LMVR	Local Model Validation Report
LSO	Local Site Operator
LTP	Local Transport Plan
LVA	Landscape and Visual Amenity
LVIA	Landscape and Visual Impact Assessment
LVSE	Low Velocity Side Entry intake

Abbreviation	Term
MAFF	Ministry of Agriculture, Fisheries and Food
MALG	Marine Authorities Liaison Group
MarLIN	Marine Life Network
MCZ	Marine Conservation Zone
ME	Marine Ecology
MEM	Micro-Erosion Measurements
MHW	Mean High Water tide level
MHWN	Mean High Water Neap
MHWS	Mean High Water Spring
MHWS	Mean High Water Spring tide level
ML	Monitoring Location
MLS	Minimum Landing Size
MLWS	Mean Low Water Spring tide level
MMO	Marine Management Organisation
MMP	Materials Management Plan
MOSES	Met Office Surface Exchange System
MPA	Marine Protected Area
MPB	Microphytobenthos
MPH	Miles per hour
MSFD	Marine Strategy Framework Directive
Mt	Million Tonnes
NAEI	National Atmospheric Emissions Inventory
NDA	Nuclear Decommissioning Authority
NFCDD	National Flood Coastal Defence Database
NGO	Non-Governmental Organisation
NGR	National Grid Reference
NH_3	Ammonia
NNR	National Nature Reserve
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NOx	Nitrogen Oxides
NRMM	Non-Road Mobile Machinery
NSIP	Nationally Significant Infrastructure Project
NSL	Nuclear Site Licence
NTEM	National Trip End Model
NTS	National Travel Survey
NTSLF	UK National Tidal Sea Level Facility

Abbreviation	Term
NV	Noise and Vibration
O_3	Ozone
OCRA	Outline Contingency Response Arrangement
ODN	Ordnance Datum (Newlyn)
ODPM	Office of the Deputy Prime Minister
OFRAR	Overarching Flood Risk Assessment
OSGR	Ordnance Survey Grid Reference
OSPAR	Oslo and Paris Convention
PC_{air}	Process Contribution to air
PECM	Planning and Environmental Commitments Manager (EDF Role)
PFA	Pulverised Fuel Ash
PIC	Public Information Centre
PM_{10}	Particulate matter of less than 10 microns average diameter
$PM_{2.5}$	Particulate matter of less than 2.5 microns average diameter
PNEC	Predicted No Effect Concentration
PPC	Pollution Prevention and Control
PPG	Planning Policy Guidance
PPS	Planning Policy Statement
PPS25	Planning Policy Statement 25: Development and Flood Risk
PQQ	Pre Qualification Questionnaires
PRoW	Public Right of Way
PSMSL	UK Permanent Service for Mean Sea level
PSR	Periodic Safety Review
PUA	Principal Urban Area
PWR	Pressurised Water Reactor
Q	Discharge
Q_{BAR}	The (arithmetic) mean annual maximum flood (m^3/s) (1 in 2.33 year return period)
RBD	River Basin District
REACH	Registration, Evaluation, Authorisation and Restriction of Chemical Substances
ReFH	FEH Revitalised Runoff Hydrograph
RES	Regional Economic Strategy
Ro-Ro	Roll-on Roll-off Facility
RPF	Regional Planning Framework
RPG	Regional Planning Guidance
RR	Release Rate of substance
RSL	Relative Sea Level
RSS	Regional Spatial Strategy

Abbreviation	Term
RTS	Regional Transport Strategy
SA/SEA	Sustainability Appraisal incorporating Strategic Environmental Assessment
SAAR	Standard-Period Average Annual Rainfall
SAFFA	Salmon and Freshwater Fisheries Act
SAR	Scientific Advisory Report
SBA	Savell Bird and Axon
SCI	Statements of Community Involvement
SDBC	Somerset Drainage Board Consortium
SEA	Strategic Environmental Assessment
SEDS	Severn Estuary Data Set
SFC	Sea Fisheries Committee
SFRA	Strategic Flood Risk Assessment
SL	Screening Level
SLG	Sustainability Leadership Group
SLU	Soils and Land Use
SMD	Soil Moisture Deficit
SMP	Soil Management Plan
SMRU	Sea Mammal Research Unit
SO_2	Sulphur Dioxide
SOCC	Statement of Community Consultation
SPaM	Standardisation, Prefabrication and Modularisation techniques
SPRHOST	Standard Percentage Run-off derived using the Hydrology of Soil Types
SPZ	Source Protection Zone
SRN	Strategic Road Network
SSA	Strategic Siting Assessment
SSB	Spawning Stock Biomass
SSEW	Soil Survey of England and Wales
SSMP	Subject Specific Management Plan
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
SWL or Lw	Sound Power Level
SWMP	Site Waste Management Plan
SWRA	South West Regional Assembly
SWRDA	South West Regional Development Agency
TA	Transport Assessment
TE	Terrestrial Ecology
TPA	Total Prey Availability

Abbreviation	Term
TPC	Total Particulate Carbon
TRaC	Transitional and Coastal Waters
TRO	Total Residual Oxidant
TT	Traffic and Transport
UDP	Unitary Development Plan
UKAQA	UK Air Quality Archive
UKCIP	UK Climate Impacts Programme
UKTAG	UK Technical Assessment Group
ULSD	Ultra Low Sulphur Diesel
VLLW	Very Low Level Waste (VLLW)
VOC	Volatile Organic Compound
WeBS	Wetlands Bird Survey
WFD	Water Framework Directive
WHO	World Health Organisation
WMZ	Water Management Zone
WQ	Water Quality
WRAP	Waste and Resources Action Programme
WSC	West Somerset Council
WSMP	Water and Sediment Management Plan
ZTV	Zone of Theoretical Visibility

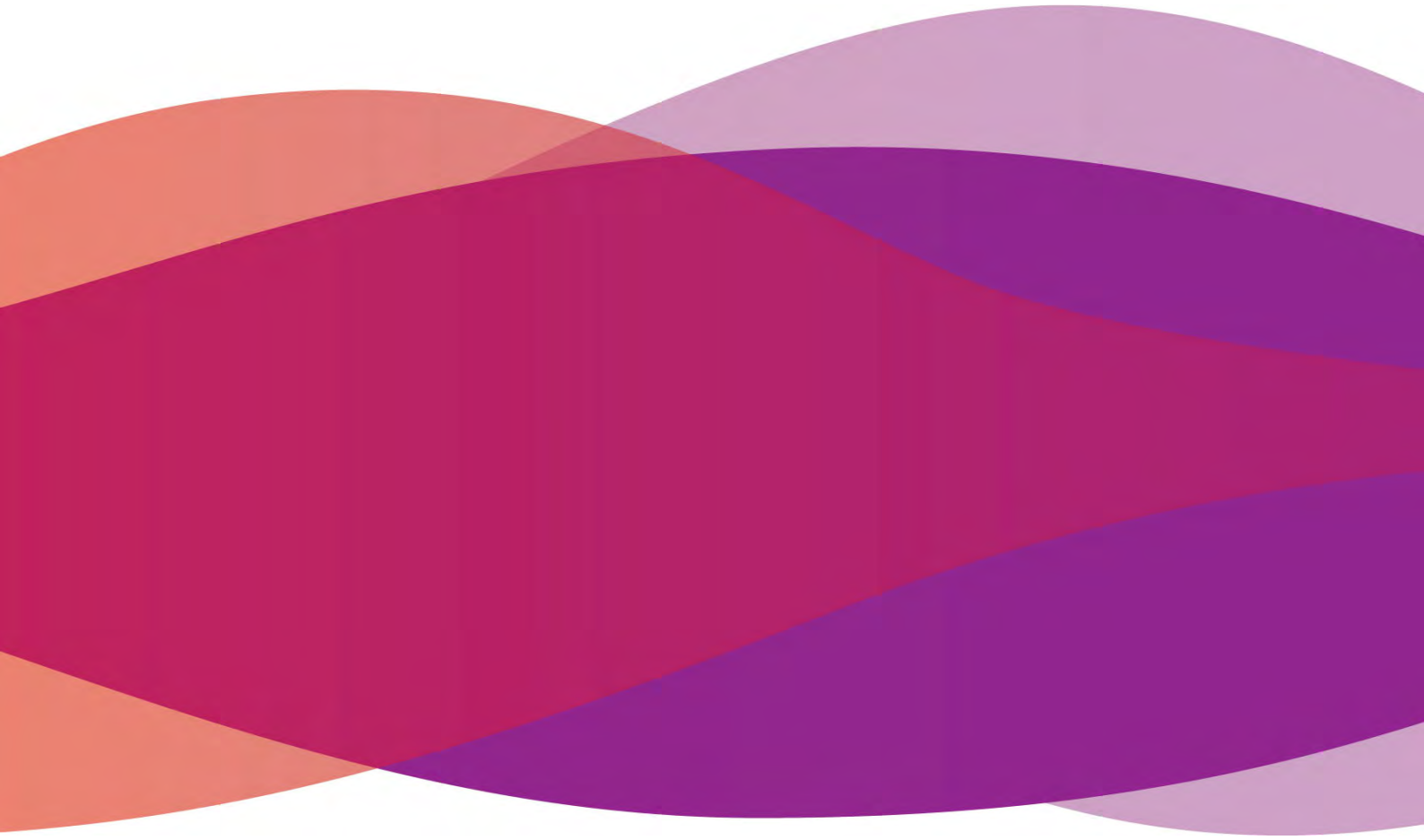
APPENDIX 7A: ENVIRONMENTAL IMPACT ASSESSMENT SCOPING REPORT, BRITISH ENERGY, NOVEMBER 2008

ROYAL HASKONING

British Energy

Proposed Nuclear Development at Hinkley Point

Environmental Scoping Report



Powering the low carbon generation

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This information is intended to assist with scoping the requirements of environmental impact assessment for a potential new nuclear power station development at Hinkley.

This document does not imply any intention or commitment on the part of British Energy to proceed with development or any order of preference regarding either candidate locations or candidate designs on behalf of British Energy.

CONTENTS

Appendices

Glossary of Acronyms and Abbreviations

Acronym/ abbreviation	Full term
AA	Appropriate Assessment
ALARP	As Low As Reasonably Practicable
AONB	Area of Natural Beauty
BAT	Best Available Technique
BE	British Energy
CCW	Countryside Council for Wales
CDCZ	Construction Daily Commuting Zone
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CPA	Coastal Protection Act 1949
CRoW	Countryside and Rights of Way Act 2000
BERR	Department for Business, Enterprise and Regulatory Reform
DCLG	Department of Community and Local Government
DfT	Department for Transport
DECC	Department of Energy and Climate Change
EA	Environment Agency
EC	European Community
EIA	Environmental Impact Assessment
ELMR	Economic & Labour Market Review
EMR	European Marine Reserve
ES	Environmental Statement
EU	European Union
FEPA	Food and Environmental Protection Act 1985
GDA	Generic Design Assessment
HER	Historic Environment Record
HGV	Heavy Goods Vehicle
HMSO	Her Majesty's Stationary Office
HSE	Health and Safety Executive
IAEA	International Atomic Energy Agency
IEMA	Institute of Environmental Management and Assessment
IPC	Infrastructure Planning Commission
IPPC	Integrated Pollution Prevention and Control Directive
JPO	Joint Programme Office
LPA	Local Planning Authority
MFA	Marine and Fisheries Agency
MHWS	Mean High Water Springs
MoD	Ministry of Defence
ND	Nuclear Directorate
NDA	Nuclear Decommissioning Authority
NE	Natural England
NIA	Noise Impact Assessment
NII	Nuclear Installation's Inspectorate
NNR	National Nature Reserve
NOMIS	National Online Manpower Information Services
NPS	National Policy Statement
OCNS	Office for Civil Nuclear Security
ODPM	Office of the Deputy Prime Minister
ODZ	Operational Development Zone

Acronym/ abbreviation	Full term
ONS	Office for National Statistics
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PM10	Particulates of less than ten microns average diameter
PPC	Pollution Prevention and Control (England and Wales) Regulations 2000 (as amended)
PPS	Planning Policy Statement
RDSL	Radiological District Survey Laboratory
RH	Royal Haskoning
RSA	Radioactive Substance Act 1993
RSLR	Relative Sea Level Rise
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SMR	Sites and Monuments Record
SPA	Special Protection Area
STA	Strategic Transport Assessment
SSA	Strategic Siting Assessment
SSSI	Site of Special Scientific Interest
UK	United Kingdom

1 INTRODUCTION

1.1 Background

Land to the west and south of the Hinkley Point Power Stations has been identified by British Energy (BE) as having the potential to accommodate nuclear new build, should this be supported by Government. The proposed permanent site boundary covers an area of approximately 94 hectares (ha) and is referred to in this document as 'the Hinkley C site', in addition, land will be required for temporary works during construction. The potential area available for both permanent and temporary works is approximately 219ha. The total area for temporary and permanent works is outlined with a broken red line on **Figure HP 01** (see **Appendix 1** for all figures); and land required for permanent works alone is shown as the pink shaded area on **Figure HP 03**. However, the study area is not limited to these boundaries. Some development impacts will occur further away from the Hinkley C site and **Figure 1.1** presents the wider study area (also refer to **Section 1.3.2**).

The Hinkley C site is situated on the Somerset coast, east of Minehead and north of Bridgwater. The nearest towns are Watchet and Bridgwater. Two nuclear power stations, Hinkley 'A' and 'B', form the existing Hinkley Power Station complex. Hinkley 'A' operated between 1965 and 2000, and Hinkley 'B' has operated since 1976 and is scheduled to continue operating until at least 2016.

New nuclear development at Hinkley would be expected to include the following components (further details are provided in **Section 2**):

- A power station development incorporating two nuclear reactors. The expected output of the power station will be between 1100 and 1650 megawatts (MW) per unit;
- Construction of a sea wall along the coastal frontage of the Hinkley C site;
- Construction stage areas and facilities;
- Infrastructure and facilities related to the operation of a nuclear power station;
- New permanent access road in the south of the Hinkley C site;
- Transmission and cooling water infrastructure; and
- Interim waste storage facilities.

The proposed development may also include highway and rail improvements as well as a marine landing facility (options to be assessed could include upgrading of facilities at Combwich Wharf). The requirement for related infrastructure away from the main site is currently the subject of detailed feasibility studies. Sites for related infrastructure will be included in the study area once identified.

Should this proposal be progressed, it would be subject to Environmental Impact Assessment (EIA) under The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000 (SI 2000/1927), as amended (see **Section 1.2.2**); the findings of which would be reported in an Environmental Statement (ES). This report represents the first stage of the assessment process; Environmental Scoping (see **Section 1.3**).

A previous EIA was undertaken in relation to a proposed 'C' station at Hinkley Point in 1987, which received planning permission in 1990. Whilst the ES for the previous 'C' station planning application provides a useful background to the British Energy Estate, much of the content is now dated.

1.2 Legislative and Planning Context

1.2.1 Strategic Background

The legislative and policy context for nuclear new build is complex and is currently under review by Government. A brief summary is provided below. Further detail would be provided in the ES.

Following consultations in 2007 on the Energy White Paper and the future of nuclear power[1], the Government, on the 10th January 2008, stated in its policy document (CM7296) *"Meeting the Energy Challenge: A White Paper on Nuclear Power"* that:

> *"…new nuclear power stations should have a role to play in this country's future energy mix alongside other low carbon sources; that it would be in the public interest to allow energy companies the option of investing in new nuclear power stations and that the Government should take active steps to open up the way to the construction of new nuclear power stations"*

It was also announced that a Strategic Siting Assessment (SSA) will be carried out to decide on the strategic suitability of potential sites for new nuclear build. The assessment is currently subject to a public consultation process on the siting criteria to be used for the selection and nomination of sites.

In addition, in April 2008, the principal nuclear regulators - the Health and Safety Executive (HSE) including the Office for Civil Nuclear Security (OCNS) and the Environment Agency (EA)- completed their initial assessment of four candidate nuclear power station designs as part of a Generic Design Assessment (GDA) process. The regulators concluded that they could see no shortfalls at that stage - in terms of safety, security or environmental impact - which would prevent any of the designs from ultimately being constructed on a licensed site in the UK. More detailed assessment of three of the designs is currently being carried out in the next steps of the GDA. The administration of this GDA process is being coordinated by a Joint Programme Office (JPO) on behalf of the principal nuclear regulators, with the remaining detailed assessment due to take two to three years. **Figures GEN 01** and **02** contain illustrations of the plan layout and elevations of these designs.

[1] Meeting the Energy Challenge - A White Paper on Energy CM7124 May 2007.
The Future of Nuclear Power - The Role of Nuclear Power in a Low Carbon UK Economy Consultation Document May 2007.
The Future of Nuclear Power - The Role of Nuclear Power in a Low Carbon UK Economy - Consultations on the proposed processes for Justification and Strategic Siting Assessment May 2007.

A "Justification Assessment" will also be undertaken in accordance with the requirements of the EURATOM Treaty[2] and the Justification of Practices Involving Ionising Radiation Regulations 2004[3]. The UK Secretary of State for the Department of Energy and Climate Change (DECC) is the "Justifying Authority" for civil nuclear power.

1.2.2 Current Legislation

Primary Consent

The construction and operation of power stations in England and Wales with a capacity in excess of 50MW requires consent from the Secretary of State for DECC under Section 36 of the Electricity Act 1989. This and the regulation of the development of new nuclear stations requires EIA under The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000 (SI 2000/1927) and The Electricity Works (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2007 (SI 2007/1977). Pursuant to Regulation 7 of the 2000 EIA Regulations, an application for a scoping opinion should be made to the Secretary of State for DECC.

In addition, compliance with relevant European Directives is imperative, particularly the Habitats Directive 92/43/EEC (transposed into UK law through the Conservation (Natural Habitats &c.) Regulations 1994) and any associated requirement for Appropriate Assessment (AA) under Article 6 (Regulation 48(1)). A requirement for increased public consultation has also been introduced by recent amendments to the EIA regulations to incorporate the requirements of the Public Participation Directive (2003/35/EC).

Planning Consent

Approval under Section 36 of the Electricity Act 1989 allows for deemed planning consent under Section 90 of the Town and Country Planning Act 1990. Thereby, in granting consent, the Secretary of State may direct that planning permission also be deemed to be granted. Development Plans (and others) are considered to be material considerations in this respect and the ES will provide a full list of relevant plan policies and their relationship with the proposal.

[2] Euratom Article 37 requirements concern the impact of nuclear sites on other EU Member States. Each Member State shall provide the Commission with such general data relating to any plan for the disposal of radioactive waste in whatever form as will make it possible to determine whether the implementation of such plans is liable to result in the radioactive contamination of the water, soil or airspace of another Member state. Article 41 refers to an economic justification for the promotion of nuclear power. These obligations would be applicable at both the national policy level as well as the site specific project level.

[3] The Justification of Practices Involving Ionising Radiation Regulations 2004 [SI 2004/1769] has the effect that a new class or type of practice involving exposure to ionising radiation may only be carried out if it has found to be "justified" by its economic, social or other benefits in relation to the health detriment it may cause.

The relevant plans are likely to include the (draft) Regional Spatial Strategy for the South West 2006 – 2026 (2007), Somerset and Exmoor Joint Structure Plan 1991 - 2011, Sedgemoor District Local Plan (2004) with the Sedgemoor District Local Development Framework in preparation, West Somerset Council Local Plan (2006) with the West Somerset Local Development Framework in preparation, Somerset County Council Local Transport Plan (2006), Somerset County Council Waste Local Plan (2005), and their associated Strategic Environmental Assessments (SEA) and Appropriate Assessments (as required). Drawing on the relevant polices contained within these (and other supporting) documents, the ES will also include a 'sustainability assessment' of the proposals.

Public Inquiry

A public inquiry may be required before consent can be given under Section 36 of the Electricity Act 1989. New inquiry rules for applications to construct large power stations and overhead lines under the Electricity Act 1989 (The Electricity Generating Stations and Overhead Lines (Inquiries Procedure) (England and Wales) Rules 2007) were proposed in the 2006 Energy Review Report "*The Energy Challenge*". The new rules will take account of the relevant best practice introduced by Government in 2005 for major projects granted consent under the Town and Country Planning Act (Major Infrastructure Project Inquiries Procedures) (England) Rules [SI 2005/2115].

> Note: inquiry procedures will be the subject of the planning reforms referred to in **Section 1.2.3** below.

Grid Connection

Section 37 of the Electricity Act 1990 requires consent for the installation of overhead power lines. It is envisaged that this would be the subject of a separate application by the operator, National Grid, and that requirements for an EIA would be the subject of screening and scoping opinions from the Department of DECC. Relevant details, however, would be considered in the EIA for the power station development, particularly with respect to any potential in-combination or cumulative effects.

Licensing

The licensing requirements for nuclear sites are set out in the Nuclear Installations Act 1965 (as amended) (NIA) and the Nuclear Installations' Regulations 1971 [SI 1971/381]. The Nuclear Directorate (ND) of the HSE is responsible for nuclear safety and issues nuclear site licences on behalf of the HSE. The Nuclear Installations' Inspectorate (NII) is part of the ND.

The NII will not grant a licence until it is satisfied that design, organisational arrangements and safety issues are appropriately addressed. In addition, an application for a site licence must be supported by (amongst other things) a safety management prospectus, adequate safety cases and licence condition compliance statements.

The ND establishes a series of conditions which are attached to a site licence and which set out the general safety requirements to address risks on the nuclear site. There are 36 standard licensing conditions and consent is required to progress along pre-defined points of the construction process. A similar approach is adopted for commissioning, whereby test results and consents are issued on a stage-by-stage basis under the Nuclear Site Licence.

The Office for Civil Nuclear Security (OCNS), another part of the HSE ND, is the Regulator of security at all civil nuclear sites and is concerned with physical security of nuclear material, information security, security of nuclear material in transit, and the vetting of people to access nuclear sites. OCNS require the holder of the nuclear site licence to submit a site security plan to be approved before nuclear material arrives on site.

Other licensing

In addition to special licensing requirements to manage the health and safety risks of nuclear power stations, a range of additional licenses and consents is required.

In England and Wales, the EA is responsible for granting the majority of these licenses and consents. Consent under the Radioactive Substances Act 1993 (RSA), for example, is required for all disposals of radioactive waste from nuclear sites in England and Wales.

An activity may be controlled by Environmental Permitting and the RSA. Environmental Permitting is covered by the Environmental Permitting (England and Wales) Regulations 2007 [SI 2007/3538]. Environmental Permits are issued by the EA and may encompass consents for a number of activities. The permits issued by the EA can cover:

- Operation of specific non-nuclear activities on nuclear power stations;
- Abstraction from, and discharges to, controlled waters, including estuaries, the sea and groundwater;
- Treatment, keeping or disposal of non-radioactive waste (in addition to RSA control over radioactive waste); and
- Discharges to air.

In addition, the EA exercises non-permit based influence or control over:

- Contaminated land assessment and remediation; and
- Flood management and flood defences.

Other consents for the Hinkley C site will be required to allow works below Mean High Water Spring Tide, and include both a consent under the Coast Protection Act 1949 (CPA), and a licence under the Food and Environment Protection Act 1985 (FEPA).

A range of other specific licenses or planning permissions may be required, for example for the development of both onshore and offshore aggregate workings. A full list of these, their timing and interaction with other consents and licenses, will be described in the ES, see **Section 5.1**.

Interaction between licences and the planning process

Approvals under sections 36 and 37 of the Electricity Act constitute deemed planning consent and, therefore, separate planning consents are not required for the construction and operation of the power station and installation of overhead power lines. However, notice of any application submitted under section 36 or 37 will be served on the planning authority and the planning authority will have the ability to object to the application. If they do object and their objection is not withdrawn a public inquiry will be held. The Secretary of State may also choose to hold a public inquiry regardless of an objection from the planning authority.

Before granting an Electricity Act consent, the Secretary of State will assess relevant factors. These will vary from case to case but could include Government policy, planning considerations, environmental issues, local issues and views of the planning authority and local people. The Secretary of State is entitled to assume that matters covered by other statutes, such as safety and discharges to the environment, will be adequately addressed elsewhere and will not need to be assessed within the Electricity Act consent process. Safety issues, for example, will be assessed under the Nuclear Installations Act 1965 and Nuclear Installations' Regulations 1971 regimes and discharges to the environment under the environmental permitting process.

It should be noted that the licences listed in the section "Other licensing" above are unlikely to be approved until the section 36 consent under the Electricity Act has been approved and the NII have granted a site licence.

1.2.3 Proposed Legislation

As outlined in *The* White Paper (CM 7120): *"Planning for a Sustainable Future"*, significant reforms are proposed to the legislative and planning context. These are intended to streamline the consenting process for nationally significant infrastructure projects, with the consenting authority being an independent body known as the Infrastructure Planning Commission (IPC). It is envisaged that they will pass into law in 2008.

In summary, the reforms are expected to:

1. Ensure that the overriding policy for the development of nuclear energy in the UK is decided at the Parliamentary level, using a Strategic Environmental Assessment (SEA) process to help develop National Policy Statements (NPS).

2. Fix the status of the NPS in the decision making process.

3. Establish an independent IPC as the decision maker and describe its role in relation to EIA.

4. Allow the IPC to approve any application if it is consistent with policy, unless adverse local consequences outweigh the benefits, including national benefits identified in the NPS.

5. Streamline the consenting procedures for infrastructure projects of national significance by rationalising the different development consent regimes for electricity generating stations and overhead power lines.

There are also proposals set out in the Energy Bill and subsequent consultation documents which will require the approval of detailed decommissioning plans by the Secretary of State prior to the start of construction. Information contained in the plans will assist the planning process by providing detailed information on key decommissioning parameters including timescales.

A summary table of the legislative and planning context for this proposal, based on the proposed planning reforms, is provided in **Appendix 2**. This does not include the Energy Bill proposals for approval of decommissioning plans referred to above.

1.3 Environmental Scoping

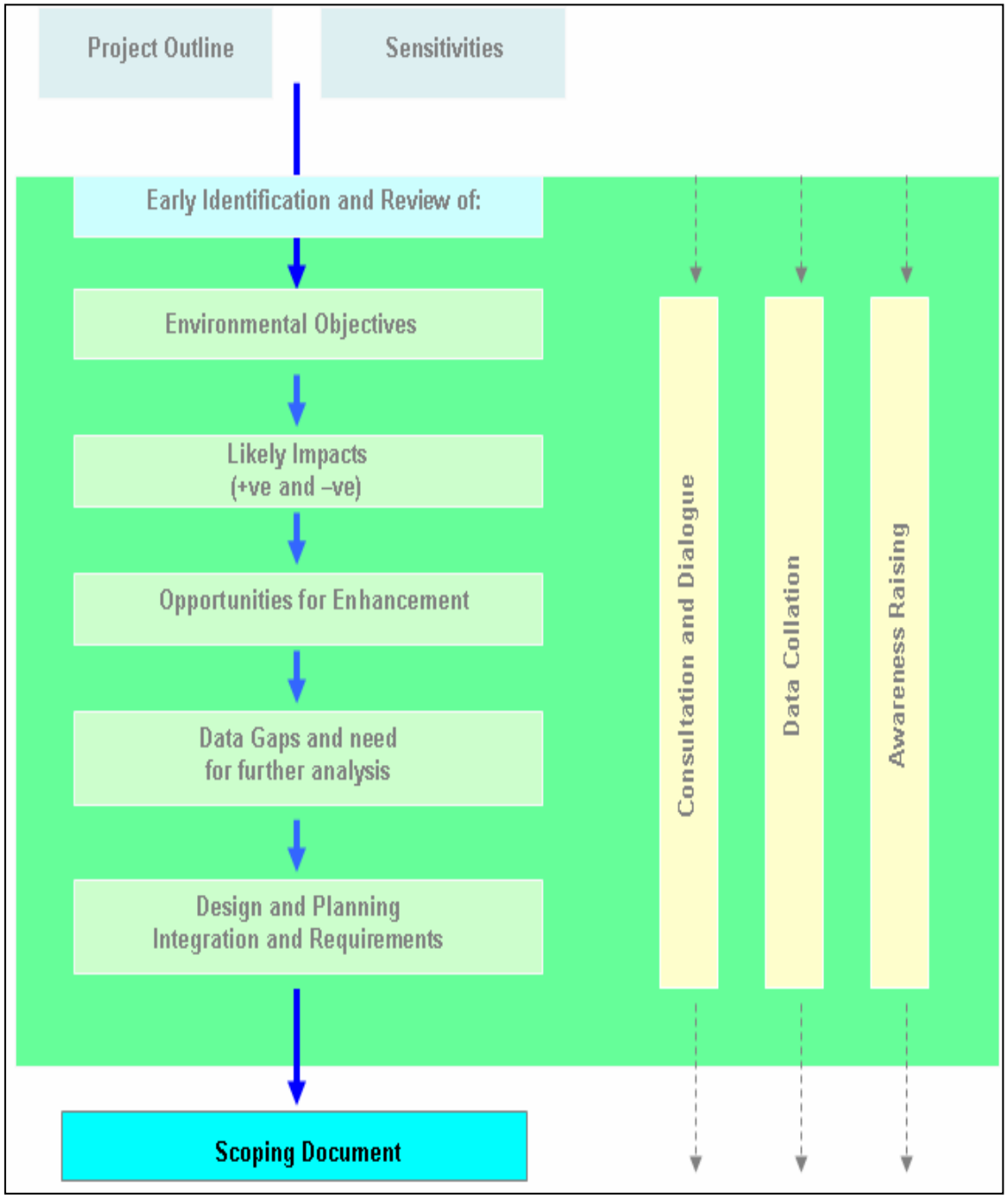
1.3.1 Objectives

The main objective of the scoping phase (i.e. as part of the planning process) is to initiate the EIA and provide a focused 'road map' for the future interrogation of the environmental implications of the proposed development.

As illustrated in **Figure 1.2** overleaf, the principal objective can be further expanded upon to include the following aims:

- To provide the competent authority and key stakeholders with an initial understanding of the development characteristics (i.e. purpose, layout and specifications) and the relevant environmental sensitivities within the study area;
- To engage key stakeholders and members of the public through:
    - Raising awareness of the development;
    - Collation of relevant data;
    - Identifying, recording and acknowledging stakeholder views, and likely issues and requirements; and
    - Promotion of an open and informed assessment process.
- To outline the regulatory context for the development consents and the statutory regimes that might be relevant;
- To establish a baseline and provide early acknowledgement of the types of impacts likely to be encountered;
- To identify the level and availability of secondary data for use in the EIA. Most importantly, to identify data gaps and the type of future research required to fill these gaps and to resolve any uncertainties;
- To identify the way forward for subsequent stages of the EIA process, in particular, with respect to the consideration of alternatives, the consultation programme, the level of quantitative and/or qualitative assessment required, the methodology of assessment with respect to significant effects, and the identification of mitigation and compensation measures;
- To provide a document that reports on the scoping phase and provides the initial terms of reference for the EIA process; and
- To provide sufficient information to the competent authority and key stakeholders such that a scoping opinion can be provided with regard to the subsequent phases of the EIA process.

Figure 1.2 Scoping of key issues



The EIA will consider the potential impacts associated with the proposed development for its construction, operational and decommissioning phases. Although the decommissioning phase (with a 20 year duration some 70 years hence) will be subject to a separate EIA regulatory process before it is commenced, the EIA which is now proposed will consider the likely environmental effects of decommissioning to the extent they can be assessed at this point in time.

In order to assess the effects of the development through its construction, operational and decommissioning phases, the baseline against which an effect is assessed will be the predicted state and condition of the environment during that timeline if the development did not at that time exist.

1.3.2 Implications of Legislative Change

The proposed legislative change described in **Section 1.2.3** above, would have two main implications for environmental scoping in this case:

- The IPC would become the key authority for the provision and coordination of scoping opinions, providing the necessary advice and guidance to promoters and other interested parties; and
- The establishment of NPSs will embrace the key planning considerations of need and strategic siting leaving the EIA scoping process to concentrate principally on local and regional impacts.

1.3.3 Study Area Definition

Clear definition of the study area for the EIA is a key part of the process. The study area must encompass the area over which the impacts of the proposed scheme may be detected. Consequently, the study area for each of the environmental parameters included in the EIA may be different.

Figure HP 01 presents the potential development footprint of the Hinkley C site within the black broken line. This represents the 'immediate' study area and includes the permanent works and the temporary works area associated with the new nuclear build. The boundary of the development footprint will not be affected by the alternative plot configurations associated with the alternative designs of power station buildings under consideration (as indicated in **Figures GEN 01** and **GEN 02**).

There is a probable requirement for cooling water culverts and a marine landing facility extending into the coastal zone. An indicative location only has been provided at this stage for the cooling water culverts, as the final details are subject to further assessment. Not shown on the figure is the possible marine landing facility. Both the culverts and the marine landing facility (including approaches) will be included within the study area when their locations, currently subject to detailed study, are determined. The consideration of possible configurations of culverts and dredging works will also be reported within the ES.

Details of the work that would be undertaken during the construction phase have been provided in **Section 2**. Clearly, construction and operational impacts could extend outside the immediate study area (such as cooling water discharges into the surrounding sea). Hence, **Figure 1.1** provides an indication of the 'wider' study area. Consideration of each of the parameters being addressed in the EIA will lead to the formal definition of a wider study area, such that an entire zone of potential impact influences is considered during the assessment process, allowing the context and significance of impacts to be determined. Consequently, the study area for each of the environmental parameters included in the EIA may be different.

For example, it is expected that transport impacts would need to consider links back to the M5, approximately 12km east of the Hinkley C site, as well as the impact of any physical improvements to the wider highway and rail network associated with the development. The study area relevant to each key parameter will be described in the ES.

1.4 The Project Team

Royal Haskoning (RH) (the environmental "consultant") is working on behalf of British Energy (BE) (the "proponent") to undertake a comprehensive and robust EIA for the development at Hinkley. At the time of writing (i.e. this list will be expanded upon as the EIA progresses), the project team also includes the Centre for Environment, Fisheries and Aquaculture Science (Cefas) and Entec UK. Cefas and Entec are providing integral data for the "coastal and marine" and "terrestrial environments" respectively, as appropriate to the study area. **Table 1.1** identifies the key contacts within the above organisations.

Table 1.1 Hinkley C - Key Contacts within the EIA team

Organisation and Name	Role
British Energy	
Ian Bryant	Planning and Environment Manager
David Norfolk	Authorisations Manager – regulatory Issues
Hugh Hutton	Technical Manager – project design, vendor and EPC
Colin Taylor	Marine / Coastal – CEFAS contract manager
Christine Blythe	British Energy Estates – Entec contract manager
Royal Haskoning	
Steve Challinor	Principal EIA Expert and Project Manager
Pete Thornton	Senior Environmental Consultant and EIA Lead
Caroline James	Environmental Consultant and EIA Team Member
Paul Hanafin	Transport Consultant
John Drabble	Air and Noise Consultant
Eric Huyskes	RH Project Director for EIA Partnership
Lyall Seale	RH Project Manager for EIA Partnership
CEFAS	
Dr David Morris	Marine manager - scientific data and services
Entec UK	
Owain Gabb	Terrestrial ecology / ornithology lead
Independent	
Professor John Glasson	Socio-economics consultant

1.5 Structure of Report

This document is structured into five sections, which provide a stepped approach to the scoping of environmental impacts at Hinkley. This introduction forms **Section One**.

Section Two provides details of the proposed development.

Section Three provides information on the key sensitivities of the study area, and identifies constraints and opportunities within the following broad topic areas:

- Geology, hydrogeology, hydrology and soils;
- Hydrodynamics and coastal geomorphology;
- Flora and fauna;
- Fisheries and other marine ecology;
- Traffic and transport;
- Noise and air quality;
- Landscape and visual amenity;
- Cultural, architectural and archaeological heritage; and
- Human activity.

Data gaps and information uncertainties are also identified within **Section Three**.

Section Four provides information of the future assessment and studies required to inform the EIA and address the gaps identified.

Finally, **Section Five** provides information on the 'way forward' (i.e. what is predicted to occur in the next stages of the EIA).

2 PROJECT DETAILS

2.1 Main Development Parameters

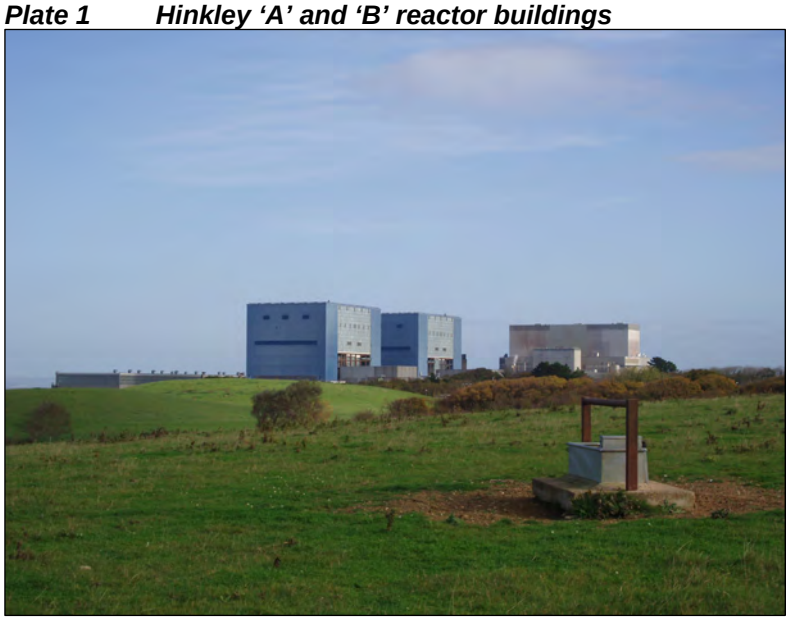
A power station development comprising two nuclear reactors and ancillary works is proposed to be located west of Hinkley Point 'A' station (see **Figure HP 03**). The expected output of the power station will be between 1100 and 1650 MW per unit. Based on BE's experience, the guiding design principles are:

- Impacts on areas of environmental sensitivity will be kept to a minimum;
- Proposals to take into consideration existing planning precedent for nuclear development at Hinkley;
- Standard designs will be adopted;
- A phased approach to unit construction will be adopted with an estimated 12 - 24 month stagger of construction start dates between the two units; and
- Plant will probably be direct cooled with no requirement for cooling towers.

The choice of design for the power station is the subject of detailed safety, technical, commercial and environmental assessment (**see Section 1.2.1**). An outline of the physical characteristics of the three design options that are currently the subject of the Generic Design Assessment are shown on **Figures GEN 01** and **02**. For reference purposes, layout and elevation details of Hinkley 'A' and 'B' stations are shown **in Figure HP 04** and an indicative landward elevation of the 'A' and 'B' stations, together with the three design options, is shown in **Figure HP 05**.

The view looking east toward the existing 'A' an 'B' power stations is shown in **Plate 1**.

Plate 1 Hinkley 'A' and 'B' reactor buildings



Land for temporary construction works will be located within the broad footprint shown on **Figure HP 01**. Within this boundary, specific proposals for temporary work areas will be established taking account of local sensitivities, such as hedgerows and watercourses. Proposals will also be developed to ensure that environmental impacts on surrounding land, especially residential areas, are kept to a minimum. Apart from works necessary to construct a sea wall, install cooling water culverts and (potentially) accommodate a marine off-loading facility, the intention is not to use the foreshore area during construction.

In terms of layout and massing, the physical characteristics of the three design options are broadly similar. Hence the principal elements of the design options have been taken into account in this scoping study. The EIA will be undertaken against a specific design.

All options considered for temporary construction use and permanent facilities will be reported within the ES, together with a description of why the preferred options have been selected. The ES will then be prepared on the basis of the preferred options.

2.2 Access

The existing road into the Hinkley Point power stations will be used to access the proposed development. It is also proposed that a new radial road within the boundary of the Hinkley C site will be constructed to access the western end of the development.

It is expected that heavy and large modular items, for the construction of the plant, will need to be delivered by sea. The means by which this is achieved will be subject to construction and operational requirements together with a detailed assessment of coastal processes, ecology and amenity/access considerations. The use of BE's existing facility at Combwich Wharf (see Plate 2) will be included in the assessment. Consideration of the options will be reported within the ES. The ES will then be prepared on the basis of the preferred option.

Any other ancillary development away from the main site, such as road modifications, will be assessed and incorporated into the EIA. This will include development subject to separate consent, for example, under the Town and Country Planning Act 1990.

Plate 2 Combwich Wharf and surroundings

2.3 Transmission, Cooling Water Infrastructure and Coastal Protection

Output from the power station would be connected to the National Grid to the south of the B station. The existing National Grid lines and towers are shown on **Figure HP 01**. The connection is likely to involve the erection of four new towers from a sub-station within the Hinkley Point C site to the existing overhead lines (see **Figure HP 03**).

Any grid development associated with the proposed power station would be the subject of a separate consenting process to be undertaken by the National Grid. BE will work closely with the National Grid to ensure that any in-combination and cumulative impacts are assessed as part of the EIA for the power station development. It is also expected that any consent application and ES for grid development would be available for consideration at the same time as the power station development proposal.

Cooling water infrastructure would be connected to the Hinkley C site by means of buried culverts, the design of which is subject to detailed engineering and environmental assessment. All options considered for its location, design and use will be reported within the ES. The ES will then be prepared on the basis of the preferred option for the culverts.

It is expected that the existing sea wall, necessary to maintain the integrity of the existing Hinkley Point A and B power stations, will be extended along the cliff face in front of the proposed power station on the Hinkley Point C site. This will be subject to detailed assessment.

2.4 Waste Storage

It is expected that intermediate level nuclear waste and spent fuel arisings would be temporarily accommodated on the Hinkley Point C site during the operational life of the power station (expected to be 60 years), pending final off-site disposal, which is currently under consideration by the Government. Waste arisings would be stored in purpose built facilities. Low level nuclear waste will be sent off-site to the national low level waste disposal facility, currently located at Drigg in Cumbria.

The Government's policy (as set out in the White Paper on Nuclear Power) is that before development consents for new nuclear power stations are granted, it will need to be satisfied that effective arrangements exist or will exist to manage and dispose of the waste the new nuclear power stations will create. The Government considers that it will be technically feasible to dispose of waste, including spent fuel, from new nuclear power stations in the same geological disposal facilities as legacy waste and that this should be explored through the Managing Radioactive Waste Safely programme. Until a geological facility becomes available, the new waste should be stored in safe and secure interim storage facilities.

Throughout this process, BE will monitor the Government's strategy for delivering a policy on off-site radioactive waste disposal and, to the extent that it is practicable, the environmental consequences of the disposal of waste from the Hinkley Point C power station in accordance with this strategy will be assessed.

2.5 Permanent Development Boundaries

On completion of the proposed development, the intention would be to restore and landscape any construction land and land around the periphery of the Hinkley Point C site.

2.6 Outline of Construction Activities

The construction of the proposed development is expected to take in the region of 6 - 7 years with a stagger between the commencement of the build for each unit of 1 - 2 years. Workforce numbers will depend upon the approach to construction which is dependent on the design selected. Lower workforce numbers would occur where modular construction techniques are adopted and fabrication work takes place predominantly off site. The employment profile for the proposed development is not yet known. For the twin-unit plant, for all three possible designs under consideration, the peak is expected be within the peak workforce of up to 5,000 utilised on the construction of Sizewell B. The ES will assess effects based on the full range of construction workforce numbers associated with the preferred design.

The Hinkley Point C site will be levelled to provide a platform at about 15m AOD (Above Ordnance Datum) which is the approximate average existing level. Seaward of the Hinkley Point C site, works will be necessary to install cooling water culverts and possibly to accommodate a marine off-loading facility. The intention is not to use any foreshore area for temporary laydown purposes during construction.

2.7 Operational and Decommissioning Timescales

The power station would be expected to operate for 60 years. The ES will assess effects based on the full range of operational workforce numbers associated with the preferred design. Decommissioning will take a further 20 years.

2.8 Consideration of Alternatives

Alternatives will be considered at various levels and stages in the process. At the highest level, the Governments' Strategic Siting Assessment will consider the suitability of potential sites nominated for nuclear new build (see **Section 1.2.1** above), the outcomes of which will be reported in the ES. Beyond this, BE will test the supposition that Hinkley is an appropriate location for nuclear new build, through the consideration of alternatives sites for nuclear development.

In addition, a Generic Design Assessment of the potential reactor designs is being undertaken. The outcomes from this process will enable the developer to select a preferred design based on relevant safety, security, technical, commercial and environmental criteria; this process will be summarised in the ES.

Once this selection is made there will be limited scope for modification of the arrangement of the core buildings. However, there will be scope for alternative architectural treatment of the buildings and of the arrangement of ancillary buildings within the confines of the Hinkley Point C site boundaries. In addition, detailed engineering and environmental studies will be carried out to determine the most appropriate locations and arrangements for the cooling water intake and outfall, marine landing facility, local grid connection and, should they be required, transport improvements.

In line with the EIA Directive [85/337/EEC as amended by 97/11/EC and 2003/35/EC] and Circular 02/99 [Environmental Impact Assessment], all alternatives considered (including alternative sites, design and process alternatives and construction phasing alternatives) will be described in the ES and a justification provided for the selection of a preferred option.

The consideration of 'alternative solutions', including a no development option, will also be relevant if Appropriate Assessment (under the Habitats Regulations) determines, in due course, that the works would adversely affect the integrity of a European site. In this context the assessment of alternatives in the ES should consider the case for nuclear new build, alternative energy generating options and alternative sites.

3 SENSITIVITIES, OPPORTUNITIES AND CONSTRAINTS

3.1 Introduction

This Section provides a summary description of the study area and the environmental sensitivities of the Hinkley Point C site. Information is provided on the key sensitivities and potential constraints and opportunities associated with nuclear new build, within the following broad topics:

- Geology, hydrogeology, hydrology and soils;
- Hydrodynamics and coastal geomorphology;
- Flora and fauna;
- Fisheries and other marine ecology;
- Traffic and transport;
- Noise and air quality;
- Landscape and visual amenity;
- Cultural, architectural and archaeological heritage; and
- Human activity.

In each case, the baseline environment is described and data gaps are identified. However, the information provided is not exhaustive and merely represents the level of knowledge at the time of writing, prior to requesting a scoping opinion from DECC.

As an overarching point, given that the choice of design for the power station is the subject of a Generic Design Assessment, there are variations in our current understanding of the construction phase. For example, an accurate number of workers, the expected transport requirements and the requirement / extent of permanent offsite facilities, etc. This will, however, be resolved as the development progresses. The consideration of design options will be reported within the ES. The ES will then be prepared on the basis of the preferred option.

Studies and other data were collected for each of the EIA topic areas considered within this report, in preparation for the 1987 Hinkley Point C station consent application and as ongoing monitoring of the Hinkley Point A and B stations. This information will be re-visited and updated to ensure that any subsequent submission is based on the latest and most robust data.

In broad terms, in the EIA, the predicted consequences of the proposed development will be compared to the baseline environment described and (as far as possible) anticipated during the lifetime (construction, operation and decommissioning) of the development. This will include taking account of other relevant projects and initiatives within the study area, as well as natural process change (such as the evolution of the shoreline). However, at this stage, no major changes are expected to occur to the natural and built environment in the vicinity of the proposed development other than the decommissioning of neighbouring Hinkley Point A and B power stations.

The ES will contain a separate section considering the sustainability of the development proposals in respect of each of the topic areas above. This will fulfil the planning requirement for a “sustainability assessment.”

3.2 Geology, Hydrogeology, Hydrology and Soils

3.2.1 Baseline Environment

Hinkley Point lies on the southern margin of the Bristol Channel sedimentary basin. The basin comprises Mesozoic sediments which were deposited in a synclinal trough, with an increase in sediment thickness towards the centre of the basin. Known as the Somerset Basin, it is floored by rocks of the Devonian and Carboniferous age, which are exposed in the Quantock Hills in the south west and in the South Wales Carboniferous massif to the north. West of the Hinkley Point C site, Mesozoic rocks of Jurassic and Triassic age are exposed along the cliff line towards Watchet, whilst to the east of the Hinkley Point C site the Lower Lias cliff line gives way to the flat low-lying ground of the River Parrett estuary which forms an extensive area of Quaternary sedimentation known as the Somerset Levels.

The existing 'B' station is underlain by up to 5m of made ground, largely composed of Lias limestones and shales excavated from the deeper foundations. This covers 50m - 70m of Jurassic Lower Lias mudstones with subordinate bands and lenses of limestone that dip gently to the north. These Lower Lias rocks outcrop on the foreshore to the north of the station. On the low land to the east of the 'B' station there is a superficial covering of up to 5m of estuarine organic clays overlying 2-5m of glacio-fluvial sands.

The fields in the vicinity of the Hinkley Point C site are drained by a series of small freshwater rhynes that run along the field boundaries into the sea. Surface water drains into these rhynes and away from the agricultural fields. The overall trend in surface freshwater quality in West Somerset suggests very good status, and the area has a minor to intermediate vulnerability to groundwater pollution (EA, 2007). There are no groundwater source protection zones within the West Somerset area.

The location of facilities for the proposed new station beyond the cliff, is a typical outer estuarine site that will experience a moderate variation in salinity regime throughout the tidal cycle. Due to its extremely high tidal range, it is in most other senses atypical. A significant feature is associated with the Neap / Spring tidal cycle, where fine silts are deposited widely across the rock platform during Neaps, and remobilised at higher tidal ranges (known as 'liquid mud'); this is a significant and distinctive feature of the Severn Estuary. A significant influence on water quality is the nearby Parrett Estuary, a large sub-estuary of the Severn.

3.2.2 Data Gaps

Data is not held with respect to the following in a sufficiently quantified or spatial form (or more data is required to inform the EIA):

- Detailed geological sequence of the cliffs fronting the Hinkley Point C site;
- Groundwater levels and flows; and
- The presence or absence of contaminated soil.

3.2.3 Constraints and opportunities

Hydrology / Hydrogeology
Extensive earthworks will be required in preparation for construction of the new power station. This has the potential to significantly alter the existing drainage system on the Hinkley Point C site and in the temporary works area, and this will need to be taken into consideration in the design stage. It may also be necessary to monitor water quality in the area to ensure that any rhynes left *in-situ* are not adversely impacted by construction / operation.

The thermal climate within the adjacent estuary could be subject to variance due to exposure and thermal gain both on the fronting wave cut platform and the nearby Steart Flats to the east. This will have implications for the ecology interests of the estuary, as described in **Section 3.5**.

Contaminated land
A brief review of *Proposed Hinkley Point 'C' PWR Power Station*: *Environmental Statement* (1987) indicates that a suitable assessment of the risks associated with contaminated land has not been undertaken previously. It is, therefore, proposed that a Phase I desk study is undertaken as part of a tiered risk based assessment.

3.3 Hydrodynamics and Coastal Geomorphology

3.3.1 Baseline Environment

Hinkley Point is a headland on the south coast of Bridgwater Bay and is a natural boundary between two distinct coastal process units, namely:

- Lilstock to Hinkley Point cliffs - a series of cliffs formed of Lower Lias limestones and mudstones, 25m high at Lilstock but reducing to around 3m along the front of the existing power stations. At Hinkley Point, the cliff is formed in friable limestones and shales interbedded with mudstones. The beach fronting the cliff is narrow and consists mainly of 0.1-0.3m diameter cobbles formed from the limestones apparently derived from *in situ* erosion. Numerous slope failures occur along the line of the cliff forming shallow trenches. The cliff recession rate is estimated to be 0.6m per year (1888-1957; Halcrow 1998). The shoreline fronting the Hinkley Point site consists of a wide (500m) shore platform composed of Lias limestones, dipping to the north with superficial cobbles and boulders. This provides an important wave energy dissipation protection for the station. Evidence from similar platforms around the UK suggests that the lowering rates of such a platform could be around 0.05m / year (Lee and Clark, 2002).

- The outer Parrett estuary - consisting of estuarine and marine Holocene deposits and now characterised by reclaimed coastal marshes and mudflats. Immediately east of Hinkley Point this extensive alluvial plain is interrupted by a ridge formed of head deposits overlying Liassic limestones that project into the nearshore. Between the existing power stations and Stolford, the alluvial land runs inland along the line of a valley that forms the southern boundary of the Hinkley Point promontory so that the Hinkley Point site is bounded on both the east and south by low lying land.

The mid to lower inter-tidal zone between Hinkley Point and Steart Point consists of a wide mudflat extending up to 3km seaward from the high water mark. A saltmarsh zone marks the upper inter-tidal, and this is bounded on the landward margin by a series of sand dunes and shingle ridges.

Over the next 100 years, climate change will impose a number of important modifications to the energy regime along the Somerset coast, including:

- Relative sea level rise expected to be between 0.2m and 0.8m by the 2080s (UKCIP, 2006);
- Increase in extreme wave height ~ 7% is predicted by 2105 (Met Office, 2004); and
- Increase in the 1 in 50 year storm surge levels of between 0.07m and 0.53m (Met Office, 2007).

It is expected that the effects of climate change will act to accelerate existing trends within the Lilstock to Hinkley Point and outer Parrett estuary process units. Without the addition of new coastal protection, as is intended here, continued cliff recession would result in outflanking of the western margin of the Hinkley Point C site.

Combwich Wharf lies in excess of 7km up the mouth of the River Parrett, which flows north between Steart Island and Burnham on Sea. The Parrett flood delta is the Lark Spit which lies immediately west of Burnham. The extent of the ebb tide delta is of particular importance to the upper shore between Steart Island and Hinkley Point, since the protection provided by the delta determines the type and extent of upper shore habitat. Any sea level rise and associated shoreline retreat has the potential to impact on the lower reaches of the River Parrett.

This evolution of these coastal / estuarine systems will need to be taken into account in predicting the potential implications of development within the coastal / estuarine zone.

3.3.2 Data Gaps

Data is not held with respect to the following in a quantified or sufficient spatial form, or more data is required to inform the EIA (a survey programme is underway to address these gaps, refer to **Section 4.3**):

- Geomorphology;
- Wave and tidal current regime;
- Thermal plume and dilution of existing cooling water outfall;
- Coastal water quality;
- Bathymetry
- Sea level rise; and
- Sediment transport.

3.3.3 Constraints and opportunities

The integrity of the wave cut platform is important for dissipating wave energy before reaching the sea defences. New cooling water infrastructure would be required for the proposed development and this would involve cutting into or drilling through this platform. Considerable care will be applied to developing an engineering and access management approach that would be sympathetic to local geomorphological needs. Extension of the sea wall will also need to be undertaken with appropriate care in the design and construction phases and based on an examination of the potential geomorphological (and habitat) implications.

The probability of flooding between Hinkley Point and Stolford would increase if the inter-tidal mudflats were to suffer deterioration, leading to an increase in wave penetration into the Hinkley Point-Stolford Bay. Flood risk is considered further in **Sections 3.10** and **4.10**.

In addition, any improvements to the existing facility at Combwich would need to take into consideration any predicted rise in sea level and its associated impacts.

3.4 Flora and Fauna

3.4.1 Baseline Environment

Main Habitats

The dominant habitats of the Hinkley Point C site and its surrounding area are arable and pasture fields, most of which are of limited conservation interest (although some are included within an area of nature conservation designation, detailed below). A number of hedgerows are present within the Hinkley Point C site, and it is possible that some of these are important under The Hedgerows Regulations 1997. There are also five areas of patchy woodland and scrub that may act as important foraging habitats for certain species, although they are not connected. A series of small rhynes are present within the Hinkley Point C site, which could provide habitat for water vole and access for otters, although early survey results consider this to be unlikely. In addition there are a number of larger water bodies along the south-eastern boundary, including the Burn Brook, which are hydrologically connected to areas known to support water vole, e.g. the River Parrett to the east.

The seaward edge of the study area comprises maritime cliff and slope (approximately 3ha), and beyond this a wave-cut platform extends for approximately 500m. The proposed pylons and transmission lines extend into the lowland meadows to the south-east of the existing Hinkley power stations, although the permanent footprint of these will be limited to the actual base of the pylons (and subject to a separate application). As noted in **Section 1.2.2** it is likely that any grid connection applications subject to public inquiry would be co-joined with the main power station consideration.

An Integrated Land Management Plan (ILMP) has been in place since 2000 (ADAS, 2000), and this has achieved visible results with respect to conservation. Grassland and hedgerow management has been particularly successful, and has resulted in increased native plant species and improved habitat for butterflies. Ancient or species rich hedgerows are a recognised Biodiversity Action Plan (BAP) habitat and are known to support song thrush (*Turdus philomelos*); 4 pairs are recorded as having bred successfully on the BE Estate in 2006. Whilst not considered a BAP habitat, the areas of scrubland have also benefited from successful management. Nightingale (*Luscinia megarhynchos*), another BAP species, had three territories in 2006 (ADAS & BE, 2006/07) in the area of scrubland south of the electricity sub-stations, and outside the area of the proposed development. The continued management of the Estate will be considered in the EIA as part of the baseline assessment.

It is expected that habitat enhancement will have had an associated benefit for a wide range of plant and animal species, including those listed on the UK and West Somerset or Sedgemoor District BAP. A wide range of habitats and species monitoring is carried out on the BE Estate, with some being commissioned directly by BE, and some being carried out independently by wildlife groups e.g. the Somerset Bat Group. As well as informing the EIA, this monitoring provides input to national programmes, such as Wetland Bird Surveys (WeBS) and bat surveys, and also meets statutory duties in respect of managing the land.

Designated Sites

International and national nature conservation designations surround (to the north, east and south) the Hinkley Point C site and lie east of the temporary works area. They include a Ramsar site, Special Protection Area (SPA), candidate Special Area of Conservation (cSAC) and Sites of Special Scientific Interest (SSSI) within 5km of the Hinkley Point C site boundary (as defined by consulting various published sources and the website http://www.magic.gov.uk - a website operated by six government organisations who have responsibility for rural policy making and services - in November 2007). The Hinkley Point C site is also adjacent to a locally designated County Wildlife Site. A brief summary of the features of each designation are provided in **Table 3.1** and their positions in relation to the existing power stations are illustrated in **Figures HP 02** and **HP 03**. The foreshore is illustrated in **Plate 3**.

International/European designations:

- Special Protection Areas (SPAs) are designated under the EC Wild Birds Directive 79/409/EEC;
- Special Areas of Conservation (SACs) are designated under the EC Habitats Directive 92/43/EEC; and
- Ramsar Sites are designated under the Convention of Wetlands.

National designations

- Site of Special Scientific Interest (SSSIs) are designated under the Wildlife and Countryside Act 1981.

Table 3.1 Summary of designated sites

Designated site	Main features	Proximity to Hinkley C site boundary
Ramsar sites		
Severn Estuary	Extensive inter-tidal mudflats provide important habitats for passage and wintering wildfowl. Important species include Bewick swans, white-fronted geese, shelduck, gadwall, dunlin, and redshank. Migratory birds can number upwards of 20,000 wildfowl and waders in a wintering period.	Small encroachment into designated foreshore

Designated site	Main features	Proximity to Hinkley C site boundary
Special Protection Areas		
Severn Estuary	The large tidal regime results in plant and animal communities typical of extreme physical conditions of liquid mud and tide swept sand and rock. The unique physical environment gives rise to sparse benthic communities. Supporting features are considered important at a European level, e.g. sub-tidal *Sabellaria* reef. The SPA is also designated for its bird interest, as described for the Ramsar site.	Small encroachment into designated foreshore
Candidate Special Areas of Conservation		
Severn Estuary	Nominated for the immersed sandbanks, extensive mudflats, and Atlantic salt meadows.	Small encroachment into designated foreshore
Sites of Special Scientific Interest		
Bridgwater Bay	Comprises a succession of habitats ranging through inter-tidal mudflats, saltmarsh, shingle beaches, and grazing marsh. The area is intersected by a complex network of freshwater and brackish ditches known as rhynes. Contains one of the largest areas of saltmarsh in Somerset, and one of the most extensive common cord-grass swards in the Severn Estuary. The SSSI supports nationally rare plants, invertebrates, and significant numbers of wintering and passage waders and wildfowl.	Small encroachment into designated foreshore
Blue Anchor to Lilstock Coast	A geological SSSI, this site was designated for the following features: some of the best Lias sequences in NW Europe, the complete Rhaetian succession, Pleistocene sediments, and shore platforms.	1.7km west
Areas of Outstanding Natural Beauty		
Quantock Hills	Extending from the Vale of Taunton Deane to Bristol Channel Coast (covering 99km^2). Consists of large amounts of heathland, oak woodlands, ancient parklands, and agricultural land.	7.5km west

Designated site	Main features	Proximity to Hinkley C site boundary
National Nature Reserve		
Bridgwater Bay National Nature Reserve (NNR)	The reserve consists of largely inter-tidal mudflats, with saltmarsh, sandflats, and shingle ridges, some of which are vegetated. It supports an important bird population with approximately 190 species recorded on the reserve. Vegetation on the reserve is an important food source for some birds, and parts of the saltmarsh are grazed by sheep to maintain a palatable source for wigeon. Approximately 3ha of the NNR is covered by the proposed footprint of the new power station.	Small encroachment into designated foreshore
County Wildlife Site		
Hinkley County Wildlife Site (CWS)	Nine CWS are present within 3km of the proposed new build area. Hinkley CWS would be directly impacted by the new build and this was designated on the basis of its mosaic of species-rich scrub, coastal grassland, broad-leaved woodland, with ponds and areas of improved grassland. The areas of scrubland outside the development area support a locally important population of nightingale.	Within

Plate 3 Foreshore fronting the Hinkley C site

Protected Species

Birds

The Severn Estuary SPA and Ramsar site lies along the northern edge of the Hinkley Point C site boundary. This site was classified under the EU Birds Directive on the basis of its wintering and migratory bird interest. Qualifying features of the SPA are the wintering numbers of Bewick's swan, curlew, redshank, dunlin, pintail, and shelduck, and the large numbers of ringed plover that use the area on passage. The SPA also qualifies by regularly supporting an assemblage of over 20,000 waterfowl.

Terrestrial birds are also found on the BE Estate, including some key BAP species, i.e. nightingale, song thrush, bullfinch, linnet, and reed bunting. Populations and breeding pairs of these birds are recorded annually as part of the Common Bird Census and the wildlife monitoring that takes place in accordance with the ILMP.

Other species

The BE Estate at Hinkley Point is known to support other protected species, and details of these are provided below:

- Badgers – Some badger activity has been recorded and the small areas of woodland and pasture that occur throughout the Hinkley Point C site provide potential habitat for badger setts. Previous surveys have indicated the presence of two or more badger clans indicating the importance of the area for foraging.
- Dormice – There is no recorded history of dormice on the Hinkley Point C site but the hedgerow, scrub, and woodland habitats within the Hinkley Point C site are well connected and provide a fairly extensive network of suitable habitat.
- Great Crested Newt – Historical records indicate the presence of great crested newts on the Hinkley Point site at Pixie's Pond (Somerset Environmental Records Centre (SERC), 1993-1995) although surveys carried out in 2006 and 2007 did not record any.
- Bats – Very few potential roosting sites exist within the Hinkley Point C site boundary and foraging potential appears limited. Regular bat surveys have not been undertaken although common species such as pipistrelles and noctule are known to occur from *ad hoc* survey work carried out by the site warden and the local bat group. Historic records indicated the presence of common pipstrelle, noctule, and serotine bats on the existing BE Estate next to the Hinkley Point C site and the adjacent Branland Copse respectively (SERC, 2007). Grey long-eared bat, which has a restricted national distribution, was recorded at the Hinkley 'A' station in 1992, 1993, 1995 and 1996, although this is likely to be sightings of an individual bat rather than reflective of a population using the area.
- Butterflies – 30 of Britain's 56 species of butterfly were recorded in the grounds around Hinkley in 2006; their conservation forms part of the ILMP (ADAS & BE, 2006-07).
- Water vole – the rhynes within northern part of the Hinkley C site appear unsuitable to support water vole or otter. However, the Burn Brook runs adjacent to the southern boundary of the site, and a number of other ditches run through or adjacent to the southern part of the site, all of which are hydrologically connected to areas known to support water vole, e.g. the River Parrett to the east. In addition, signs of both otter and water vole were recorded in 2006 (ADAS & BE, 2006/07.

Most of the habitats within the study area are unlikely to support reptiles, with the limited areas of coastal grassland and areas of semi-improved neutral grassland providing greatest potential.

3.4.2 Data Gaps

Data is not held with respect to the following in a quantified or sufficient spatial form, or more data is required to inform the EIA (a survey programme is underway to address these gaps, refer to **Section 4.4):**

- Botanical interest;
- Bird activity (namely breeding birds, overwintering and feeding birds on both the terrestrial and intertidal habitats)
- Badgers;
- Dormice;
- Great-crested newts;
- Bats;
- Water voles;
- Otter; and
- Reptiles.

3.4.3 Constraints and opportunities

Designated Sites

The key potential ecological effects associated within the development are those that could affect European and nationally designated sites. Impacts could occur due to the direct loss of habitat through the construction of cooling water culverts, a new sea wall and a potential marine landing facility. Construction of these could result in potential loss of wave-cut platform and subtidal habitats within the SPA and cSAC. There could also be impacts within the SPA to the south of the Hinkley Point site, resulting from the erection of transmission towers, and east of the temporary works area.

The potential exists for birds associated with the nearby Severn Estuary SPA and Ramsar site and the Bridgwater Bay SSSI (all of which are immediately adjacent to the Hinkley Point C site) to be displaced and disturbed from wetland areas, arable and coastal habitats that contribute to the designated status of the area. In addition, if the Combwich Wharf facility is to be used to transport heavy and abnormal loads, there could be the potential to disturb birds feeding on the nearby mudflats.

The numbers and distribution of breeding, feeding, and roosting birds in relation to the new build area will, therefore, need to be established to determine a baseline for the prediction of effects. The position of the Hinkley Point C site within a network of habitats in the wider area will also need to be considered, as there may be effects on dispersing birds and animals and species moving between designations.

In addition, any disturbance to other protected species[2], or loss / fragmentation of habitat, could potentially lead to significant negative impacts.

[2] Protected species / groups felt to be present within the site or the surrounding area are listed within Section 3.3. A fuller consideration of the ecological scope is provided within ENTEC (2007).

It will also be necessary to assess impacts on ecology in connection with development proposals outwith the Hinkley Point C site in respect of both the permanent and temporary works, in particular for any road modifications.

Protected Species

Birds
The main effects that have the potential to impact on the bird interest of the designated sites, are increased levels of lighting, noise and vibration resulting from the construction phase. Disturbance of this nature can result in birds flying away from their chosen roosting / feeding site using energy that would otherwise have been retained, thus directly impacting on their overall chances of survival.

Within the landside footprint of the Hinkley Point C site, the necessary earthworks could result in the loss of habitat utilised by birds for nesting or foraging. Whilst this is not part of a designated site, a number of key and BAP species are known to be present on the BE Estate and therefore could also be present within the area proposed for construction. Full terrestrial bird surveys have commenced to establish the importance of these habitats.

Other species

- Bats – The status of bat species within the Estate is unclear - if there are roosts present this would be important from a national perspective;
- Badgers – The use of land within the Estate by badgers is not fully established - if there are setts present within the Hinkley Point C site they have national protected status;
- Great Crested Newt – Historic records indicate the presence of these internationally protected newts on the Estate - should they be present relocation will be necessary; and
- Otter / Water vole – While early survey results indicate an absence of otters and water voles in the vicinity, should either of these species be found within the development footprint, relocation will be necessary.

3.5 Fisheries and other Marine Ecology

3.5.1 Baseline Environment

Fish and Fisheries
The fish assemblage common to the area around Hinkley Point is well known through continuing long-term study, are highly diverse, and include many species of commercial and potential conservation significance. The potential impact in relation to commercial, sporting, and conservation fish and fishery interests are currently being reviewed and updated (CEFAS, 2007).

Combwich Wharf is located on the River Parrett which is an important migration route for eel and elver. Licensed trapping takes place between January and May (Black & Veatch, 2006). There is also a small but significant run of salmon in the River Parrett to the spawning grounds on the River Tone. Should use of the wharf be required for the construction phase, it may be necessary to develop the existing facilities at Combwich. In this instance, any potential impacts to these fishery interests would need to be considered.

Marine Communities

As described in **Section 3.4.1**, there are local cSAC and SPA interests on shores both fronting and adjacent to the proposed development area. The middle shore has a partial covering of brown algae, although the rocky shores to the east of the A / B stations cooling water outfall are relatively devoid of species. The lower shore to the west of the cooling water outfall is heavily colonised by *Sabellaria* reefs, aligned with the ebb tidal stream. There is a coincidence between the presence of this feature and the low water slack to mid ebb tide cooling water plume itself.

Another interest feature, apparently unrecorded elsewhere, is the presence of fans of *Corallina* sward associated with a high diversity of other species on the outer faces of the dipping mud / sandstone beds that lie across the shore. Some of these features have historically been present along the wave-cut rocky platform fronting the Hinkley Point C site, and may occur in the area of the proposed sea wall, potential marine land facility, and route of the cooling water infrastructure.

3.5.2 Data Gaps

Data is not held with respect to the following in a quantified or sufficient spatial form, or more data is required to inform the EIA (a survey programme is underway to address these gaps, refer to **Section 4.5**):

- Fish and fisheries interest;
- Plankton; and
- Intertidal and subtidal habitat and species (particularly *Sabellaria* reefs and *Corallina* swards).

3.5.3 Constraints and opportunities

The construction methods for installing cooling water infrastructure will be the subject of a detailed feasibility study. The potential marine landing facility could cause some disruption over the intertidal and subtidal area. However, given the relatively poor diversity of the epifauna on the wave-cut platform, these impacts are unlikely to be severe.

The operation of the power station has implications associated with impingement of fish on the cooling water intake screens, and also entrainment of fish eggs and larvae (ichthyoplankton). The opportunity for fish protection measures associated with the proposed new cooling water intake is likely to be limited due to its probable seabed location.

The presence of *Sabellaria* in the subtidal zones local to the Hinkley Point C site cannot be precluded. The presence of this species and associated reefs may have conservation importance. This feature, and the *Corallina* swards present on the fronting wave-cut platform, could potentially be disturbed by cross-shore construction work. There is a possibility, however, that *Corallina* could be re-created elsewhere, if necessary.

3.6 Traffic and Transport

3.6.1 Baseline Environment

The traffic and transport section of the environmental statement for the previous Hinkley 'C' planning application was widely scoped and discussed with the local Highway Authority. It will be a key input to the new study to ensure that wide levels of consultation are again carried out with Somerset County Council and the Highways Agency. Whilst the previous ES scoping will still be relevant in a number of areas, it is important to update these in line with both local and national policies and guidance developed or adopted since the previous work. The detailed consultation exercise will also contribute to the scoping of the transport work.

Road
Access to Hinkley Point by road is limited and the main routes through this part of Somerset (M5, A38 & A39) experience peak period congestion, particularly at weekends and during the summer months. From the M5, the A38 links the motorway north and south of Bridgwater at junctions 23 and 24 respectively. At Bridgwater the A38 joins the A39 and the route continues west along the A39 to Cannington. The A39 bypass southeast of Cannington has provided relief for that village. However, traffic associated with Hinkley Point still have to travel through the centre of the village to reach the C182 (the only road out to the BE Estate).

Rail
The nearest effective railhead is at Bridgwater approximately 16km from the Hinkley Point C site. This is on the main twin-track Bristol to Taunton line, close to the town centre. Travel from Bridgwater to Hinkley Point would have to be completed using local roads (A39 and C182).

As part of the EIA, any proposed future road (and rail) improvements that could influence the study area will also be considered.

Sea
British Energy owns a small roll-on roll-off (RoRo) facility in Combwich on the River Parrett. This is used periodically to receive delivery of very heavy or large plant which arrives via the Severn Estuary. Combwich is a very small village with narrow streets which are not suitable for the passage of large vehicles. Deliveries arriving at Combwich are transported to Hinkley Point along the private access road, which connects to the C182, that BE's predecessors built to bypass the village.

3.6.2 Data Gaps

The following data gaps have been identified:

- Details of construction workforce;
- Increased traffic associated with delivery of construction materials;
- Local highway network proposals;
- Local public transport proposals;
- Existing traffic flows; and
- Assessment of existing roads and bridges to consider the need for alterations / improvements.

Further information will be gathered as part of the baseline studies for the Transport Assessment in order to fill these gaps (see **Section 4.7**).

3.6.3 Constraints and opportunities

The construction of the Hinkley Point C development would involve a considerable workforce (potentially peaking at up to 5,000) travelling to site, together with movements of large quantities of construction materials. The final numbers of workers expected and quantities of materials that would be brought to site and by what means are not yet known. However, it is reasonable to assume that the construction of the proposed development could potentially result in traffic delays particularly to Bridgwater and Cannington traffic on the existing road network at peak hours. The ES will assess effects based on the full range of construction workforce numbers associated with the preferred design.

A Strategic Transport Assessment, considering the range of transportation options, has been consulted on for the proposed development, Detailed surveys will be undertaken to establish the baseline position, and an assessment of the likely impact of the development on the local transport network will be undertaken. As a result of these surveys and assessments, and depending on the level of impact, it may be necessary to implement modifications to the road network. Consultation with the local Highway Authority and the Highways Agency (as appropriate) will take place at all stages of the transport assessment.

To relieve pressure on local roads it would be preferable for a modal split of transport to and from site, although use of rail and sea are constrained by the requirement for 'double-handling' of the deliveries, as the final leg of the journey can only be completed by road. Use of the private access road from the BE wharf at Combwich is controlled by planning conditions. Unless agreed in advance by the Planning Authority, transport of materials is limited to specified times.

3.7 Noise and Air Quality

3.7.1 Baseline Environment

Noise

Background noise surveys were undertaken in the Hinkley Point Area between June 1983 and June 1984 in relation to the previous Hinkley 'C' planning application. That 'C' station was approximately:

- 6km from a major road (A39);
- 11km from major industry and the rail routes in Bridgwater; and
- 27km from the nearest airport at Rhoose.

The noise measurements at the time generally showed levels typical of that expected in a rural community, i.e. noise from distant traffic, agricultural activities, wind in the trees and bird song. The potential noise receptors in the context of the new development proposal are largely the nearby farmsteads and hamlets/villages as well as along the transport routes

Air

With regard to air quality, the following substances are considered a potential issue with respect to pollution on human health and are governed by national air quality standards and objectives:

- Oxides of nitrogen, with specific reference to nitrogen dioxide
- Sulphur dioxide
- Lead
- Benzene
- 1,3 Butadeine
- Carbon monoxide
- Particulates of less than 10 microns average diameter
- Polycyclic Aromatic Hydrocarbons (PAH)*
- Ozone*.

Improvements are expected with respect to these during the lifetime of the proposed development. In addition, there are suggested air quality objectives for the protection of vegetation and ecosystems for the following substances:

- Nitrogen dioxide*
- Sulphur dioxide*
- Ozone*.

* these substances are not currently included in the Regulations.

In any major construction project there is likely to be increased air emissions associated with increased numbers of construction workers commuting to site and also the generation and re-suspension of general dust and sand.

Such fugitive dust releases cannot be accurately quantified by modelling, as their generation and locality can be so variable, but there is a potential for general nuisance to be created at properties in the vicinity of the activities. However, a large proportion of such particulate matter is generally in the 'coarse' size range and tends to rapidly fall from the airstream. The direct impacts are likely to be on-site, although wind speed and direction would affect dispersal, and the potential effects at the nearest residential properties (in excess of 1000m) would need to be considered. In recent years, the focus for health-based assessments and controls has been on the PM_{10} fraction of the airborne particulate, but policy developments in the EU and the latest UK air quality strategy have highlighted concerns over the finer $PM_{2.5}$ fraction. Consequently, the potential construction dust impact assessment will need to consider the latest assessment approaches.

3.7.2 Data Gaps

The following data gaps have been identified with respect to noise and air quality and appropriate baseline surveys will be undertaken to address them (refer to **Section 4.7** for further details):

- Details of construction activities:
  - Daily construction traffic movements;
  - Daily worker travel arrangements;
  - Rail movements; and
  - Marine-based equipment transport
- Potential changes in key receptors since 1987 application (e.g. new properties).

3.7.3 Constraints and opportunities

Noise

During construction, a large quantity of mobile plant will be deployed; owing to the type and nature of the operation, it is not possible to control this noise as effectively as for fixed installations. The locations of the work areas over the Hinkley Point C site are also likely to be subject to change in accordance with the work demands of the construction programme.

In addition, noise will emanate from the temporary construction site and there is expected to be a significant increase in traffic during construction. The local roads most likely to be affected during this period are:

- A39 Bridgwater to Minehead Road;
- Cannington High Street;
- Rodway; and
- Withycombe Hill.

The primary consideration in respect of noise impact during the 6-7 year construction period will be the nearest residential properties to the Hinkley Point C site, to the construction site and to the selected haul routes. The extent of the impact upon these access routes will depend on the vendor and hence construction approach adopted. It is likely that a travel plan will be required, which would be agreed with the Local Planning Authority in order to minimise this daily traffic impact, which in turn will control to a certain degree the effects of noise and exhaust emissions.

Air

The Environment Act 1995 introduced a framework for Local Air Quality Management and placed a duty on local authorities to formally assess air quality in their area. The current air quality objectives are detailed within The Air Quality (England) Regulations 2000 as amended by the Air Quality (England) (Amendment) Regulations 2002.

It is likely that the majority of equipment and material transportation will use road routes to the power stations site and this gives rise to the potential for increases in emissions from HGVs on the local road network. Whilst consideration of transportation via rail and sea would potentially reduce the need to use the local roads, the emissions associated with diesel freight haulage and from sea vessels might also need to be considered.

3.8 Landscape and Visual Amenity

3.8.1 Baseline Environment

Hinkley Point is situated in a clearly defined geographical region of North Somerset bounded by the Severn Estuary to the north, the Quantock Hills to the south and west, and the Polden Hills to the east. Within the valley formed by these hills lies the River Parrett, on which is situated the market town of Bridgwater, some 13km from the Hinkley Point C site to the south east. The Quantock Hills, which form the western boundary to the region, extend to the coastline at Quantoxhead. They reach heights of 350m and offer commanding views of the surrounding countryside. BE's Hinkley Estate lies within the Vale of Taunton and Quantock Fringes landscape character area which extends from the foot of the Blackdown Hills to the Bristol Channel coast. The main settlements within this character area lie away from the sea; and the land ends in low cliffs, mainly of Blue Lias, which is locally folded and faulted.

The Quantocks have been designated as an Area of Outstanding Natural Beauty (AONB) and are mostly wooded, although the foothills are gently undulating and used for agriculture. In contrast, the River Parrett flood plain is flat and low-lying.

Within the hinterland of Hinkley Point are a number of small villages and hamlets widely dispersed around a network of minor roads leading off the A39 Bridgwater-Minehead road. The character of the area is similar to that of the Somerset Levels generally with old red sandstone and other local stone used in many of the buildings.

Parts of the coastline are remote and rather bleak, with Hinkley Point Power Station prominent in the east, but with fine views past Steep Holm and Flat Holm to the Welsh Coast.

From Vale of Taunton and Quantock Fringes Character Area description (www.naturalengland.org).

The village of Combwich is a small settlement with low-rise residential buildings. The existing quay RoRo facility is also small, and faces across the River Parrett to the lowland meadows beyond.

3.8.2 Data Gaps

Data is not held with respect to the following in a quantified or sufficient spatial form, or more data is required to inform the EIA:

- Landscape character of the surrounding area;
- Zone of visual influence; and
- Relevant viewpoints.

Appropriate baseline surveys will be undertaken to address these gaps (refer to **Section 4.8** for further details).

3.8.3 Constraints and opportunities

The proposed development has the potential to change the character and appearance of the coastline and cliff top, i.e. cause landscape and visual effects. These are defined in the Landscape Institute and Institute of Environmental Assessment (2002) as:

Landscape effects
These are changes 'in the elements, characteristics, character and qualities of the landscape as a result of development. These effects can be positive or negative'.

Visual effects
These are changes 'in the appearance of the landscape as a result of development. This can be positive or negative'.

The specific height and shape of the core buildings will be particular to the reactor design, which has not yet been determined. Although it is not yet clear which new build design will be selected for the proposed Hinkley C development, they are similar enough in bulk (see **Figures GEN 02** and **HP 05**). Consequently, it is expected that the view points are likely to be similar to those used in the previous ES.

'Massing' on the site will be an important consideration in terms of potential landscape effects. It will be essential that alternatives for locating non-essential buildings (e.g. administration buildings) are fully explored. Ancillary development 'clutter' around the buildings will also need to be minimised to reduce the impact on the surrounding landscape and the temporary works site should be well managed to reduce visual disturbance.

During the construction phase there will be increased lighting (potentially from both the permanent development and temporary construction areas of the site), which may impact on surrounding residential areas and natural environment. There will be similar impacts during operation, but to a much lesser degree. Changes to the existing lighting regime will need to be carefully considered. Where appropriate, shielding will be used to reduce this impact as much as possible.

An extensive ILMP embracing a range of key environmental and operational objectives is currently in use to manage British Energy's Hinkley Point Estate. The plan is reviewed annually and a record kept of any changes which may affect the likelihood of achieving its objective in relation to landscape.

3.9 Cultural, Architectural and Archaeological Heritage

3.9.1 Baseline Environment

Hinkley Point lies within Stogursey parish, which used to include a substantial village and the former borough of Stogursey (with its associated castle and priory). Evidence has been found for prehistoric, Bronze Age, Roman, and Medieval occupation within the parish.

Widespread occupation appears to have occurred from the 1st to the 4th century AD, possibly dominated by a small town or port at Combwich on the river Parrett. A Roman British cemetery at Cannington indicates that settlement in the area continued into the post-Roman period.

There are a number of registered archaeological sites within the Hinkley Point C site and these are listed in **Table 3.2**.

A field evaluation was undertaken in relation to the previous Hinkley 'C' planning application and archaeological features were found in two trenches out of four indicating areas of high potential extended across 2.5 hectares to the west of the proposed Hinkley Point C site. The deposits encountered represented the remains of a Romano-British settlement site, probably a small farmstead, occupied in the later 3rd or 4th century AD. Whilst the upper levels have been affected by ploughing, generally well-preserved deposits were found to be present beneath an overburden of plough soil and subsoil (360-620mm depth). Mesolithic flints have also been found scattered within the area (Somerset Historical Records Centre, 2007).

Table 3.2 Registered archaeological sites in the proposed development area

Registered site no.	Description of site	Grid reference
44937	Roman settlement	ST 199 456
35434	Roman settlement	ST 209 456
34892	Late Saxon / early Medieval settlement	ST 200 456
34079	Benhole Farm, possible early Modern	ST 1929 4591
34065	Late Roman refuse tip	ST 20810 45470
34064	St. Sidwells Well – possibly early Iron Age	ST 20830 45560
34063	Pixie's Mound – Neolithic barrow with Roman finds (SAM)	ST 20900 45570
22890	Possible limekiln	ST 1961 4612
22752	Post-medieval water meadow	ST 193 455
22974	Post-medieval water meadow system	ST 194 446
22975	Post-medieval water meadow system	ST 198 449
22976	Post-medieval water meadow system	ST 197 451
35091	Deserted Farm	ST 20410 46610
35504	Cropmark enclosures and boundaries	ST 202 447

3.9.2 Data Gaps

Data is not held with respect to the following in a quantified or sufficient spatial form, or more data is required to inform the EIA:

- The presence or absence of potential historic environment assets; and
- The extent of known sites and their state of preservation.

A programme of work will be developed in conjunction with the relevant local authority archaeologists and English Heritage to address these data gaps.

3.9.3 Constraints and opportunities

Although detailed investigations, including walkover survey, geophysical survey and trial trenching, have taken place as part of the assessment of the previous Hinkley C planning application, there is the potential for further sites and finds to be identified within the wider study area (including the temporary works areas to the south). Appropriate recovery of the sites could provide additional information regarding the historic periods for this area.

The development will have to take sufficient care with respect to its potential implications for Pixie's Mound. Any impacts on this SAM will need to be avoided and its preservation ensured. Similarly, further information is required about the importance of the other registered archaeological sites, within both the permanent and temporary footprint..

Any development associated with the transport facilities at Combwich Wharf and elsewhere will need to carefully assess the potential for disturbance to archaeology.

3.10 Human Activity

3.10.1 Baseline Environment

The Study Area

Hinkley Point lies approximately 1km from the nearest settlements at Burton, Shurton, Wick, and Stolford. The nearest large urban area is Bridgwater which lies approximately 11km from Hinkley Point, and the M5 motorway runs past this town. Combwich Wharf is approximately 6km south-east of Hinkley Point within the small village of Combwich, on the River Parrett. The study area includes two local authority areas (West Somerset District and Sedgemoor District), both of which are in the County of Somerset.

Hinkley Point A Power Station was shut down in 2000 and is now being decomissioned. During its 35 years of operation it generated more than 103TWh of electricity. Hinkley Point B Power Station has a design capacity of 1250MW but since 2006 has been running at only 70% of this. It was scheduled to operate until 2011, but in 2007 British Energy was given the go ahead to extend its operational life to 2016.

Navigation

Navigation around Hinkley Point and into the River Parrett is managed by the Port of Bridgwater. As well as the Ro-Ro berth owned by BE at Combwich, Hanson Aggregates manage the sand wharf at Dunball. The cargo berth at Dunball Wharf has recently been taken over by River Bulk Shipping and their operations are due to commence shortly (www.sedgemoor.gov.uk). Vessel usage within the area managed by the Port of Bridgwater is fairly small scale with 59 coastal vessels recorded in 2006. Recreational moorings within the port limits are located mainly in the River Brue Estuary and Combwich Pill, although recreational activity tends to be focussed around Burnham-on-Sea.

Recreation

The study area is well served by a network of public footpaths and bridleways (Public Rights of Way, PRoW). This includes the South West Coastal Path, which runs along the low cliff edge to the west of the Hinkley Point C site frontage and on along the shoreline to the east of the existing power stations. Recreation is generally informal, and predominantly consists of walking and bird watching.

Recreation and access within BE's Hinkley Estate is provided by a network of public and permissive footpaths and bridle ways, including a nature trail established and maintained as part of the Estate by BE (Hinkley Point ILMP, 2000).

Flood risk

The existing power stations are protected from coastal flooding and erosion by defences along their seaward frontage, consisting of a mass concrete structure topped with additional gabions directly in front of the stations. The shoreline fronting the Hinkley Point C site consists of a wide (500m) shore platform which provides an important wave energy dissipation protection for the station. The cooling water outfall from the power station runs across this platform, the outer section of which is in a trench cut into the limestone. It may be that this trench allows wave penetration across the platform and thus increases its vulnerability to erosion (Halcrow, 2007). The coastal area around Hinkley Point is included in the Bridgwater Bay to Bideford Shoreline Management Plan (SMP), which indicates that the current policies applicable to this area of coastline are ‘Do nothing’ and ‘Hold the line’. It is, therefore, considered to be at low risk from coastal flooding (EA, 2007a).

Hinkley Point falls into the West Somerset Catchment Flood Management Plan (CFMP) as written by the EA in 2007. This catchment area is predominantly rural with approximately 4% being urban (Minehead being the largest settlement). The annual average flood damage in this catchment is approximately £14.7 million, although there are no records of fluvial flooding affecting the immediate area of Hinkley Point (specifically the Holford Stream catchment). As a result, a policy of 'No active intervention' has been recommended by the EA, which includes no flood warning or maintenance regime.

The watercourses covered by the West Somerset CFMP are all relatively short and fall steeply through their upper reaches before flowing gently to the sea over flat coastal plains. This steepness, combined with the impermeability of the local geology, generates high run-off from the land causing rivers to respond rapidly to rainfall. Modelling has been carried out for the area to estimate the potential flood zones. Flood Zone 2 is defined as land with a 0.1 per cent (1 in 1,000 years) or higher annual probability of being flooded from rivers and the sea. Flood Zone 3 shows areas with a 1 per cent (1 in 100 years) or higher annual probability of being flooded by freshwater or a 0.5 per cent (1 in 200 years) or higher probability of being flooded by salt water. Both Flood Zone 2 and 3 are very small in the Holford Stream catchment and Hinkley Point is not affected by either. The nearest predicted flooding is likely to affect Kilve (approximately 18km from Hinkley Point), with economic damage limited to agricultural land and residential properties (EA, 2007a).

Infrastructure

Infrastructure around the Hinkley Point C site is dominated by that associated with the existing Hinkley 'A' and Hinkley 'B' stations. There is only one road leading to the existing power stations (Wick Moor Drove), although this does not extend into the Hinkley Point C site.

To the south east of the power stations is a sewage treatment works and to the west is a small amount of infrastructure associated with the visitor centre.

Electricity pylons and lines extend out from the sub-station to the east of the Hinkley Point C site, ten of which are present on Wick Moor. The capacity of these pylons and lines is 450kV, with the exception of those providing transmission into Bridgwater which have a capacity of 250kV.

Socio-economics

Socio-economic effects involve the "people" effects and socio-economic impact assessment involves a systematic appraisal of the impacts on the day to day quality of life of people and communities when the environment is affected by a development. As such, sensitivities can be defined in terms of the various groups and agencies likely to be affected by the proposed development. These are likely to include: local workforce and employees (job opportunities), local employers (business opportunities and also competition for resources), local services (increased demand), local population (changes in level of local activity / traffic / housing demand etc), and local authorities / agencies at various levels of governance.

Construction stage employment for Sizewell 'B' peaked at over 5,000, making it one of the largest construction projects in Europe at the time. For much of the construction period, the local proportion of employment (from within the Construction Daily Commuting Zone) was near to 50%, only falling off as the mechanical / electrical stages of the project worked through. The employment profile for the proposed development is not yet known. It is likely to be a twin reactor development, and peak construction employment could be higher than for Sizewell 'B' – partly depending on the amount of pre-fabrication / off-site construction, phasing of reactors construction, etc. Operational workforce numbers will be between 600 and 900, depending on the design of the plant, and may be well over 1,000 when taken in combination with the decommissioning work at the Hinkley 'A', and employment at Hinkley 'B'.

Local expenditure by the workforce, the placing of orders / business by the developer and the operator, can have important local impacts depending on the location and distribution of such expenditure.

The West Somerset Community Plan 2004 – 2007 (Exmoor Coast and Countryside Partnership, 2003) describes the current situation regarding communities and the local economy in West Somerset. Over 95 per cent of workers in West Somerset are within 'micro' businesses (under nine employees, European Union definition). Wage rates are 75 per cent of the UK national average (1999), with the trend being for this gap to increase. The workforce is under-skilled and there is limited over-16 education available in the district. The largest economic sector is tourism, the second largest sector is agriculture, where structural issues predominate and reflect a national decline in employment and earnings. **Table 3.3** indicates the population structure for the districts of West Somerset and Sedgemoor from the 2001 population census.

Table 3.3 Population data for West Somerset and Sedgemoor districts

District	Population	No. Males	No. Females	Population change since 1991	People per hectare
West Somerset	35,000	16,600	18,400	+3,200	0.5
Sedgemoor	105,800	51,500	54,300	+6,500	0.2

The nearest large urban centre to Hinkley Point is Bridgwater, and data pertaining to the economic structure of this town is provided in **Table 3.4**. In the 2001 Census, Bridgwater had a population of 35,800.

Table 3.4 Economic data for Bridgwater

Ward of Bridgwater	Population	No. people working age	No. people economically active
Bower	6277	4184	3554
Eastover	4090	2640	2146
Hamp	6971	4159	3080
Quantock	6145	3406	2777
Sydenham	6618	3815	2844
Victoria	4768	2805	2119

3.10.2 Data Gaps

Data is not held with respect to the following in a quantified or sufficient spatial form, or more data is required to inform the EIA (details of the studies proposed to address these gaps are provided in **Section 4.10**):

- Extent of recreational activity (i.e. numbers of people using PROWs and coastal anglers);
- Vessel numbers within the Parrett Estuary;
- Coastal flood risk; and
- Socio-economic statistics (employment, education, skills, population and age structure, hotel and other accommodation capacity, local service capacity).

3.10.3 Constraints and opportunities

Safety

Any operator of a nuclear power station must comply with the general health and safety requirements of the Health and Safety at Work Act 1974 and related regulations. Operators must also comply with the NIA, which requires the potential operator to have a licence from the Nuclear Installations Inspectorate (NII) before constructing a nuclear power station. Before issuing a licence, the NII must be satisfied that the power station can be built, operated and decommissioned safely, with risks being kept "as low as reasonably practicable" (ALARP principle) at all times. The licence will carry conditions that allow NII to ensure that the operator controls risks throughout the whole life of the installation.

The NII's Safety Assessment Principles – there are more than 500 in total – reflect the guidance and standards of the International Atomic Energy Agency (IAEA). These principles describe what the NII looks for when it is considering the safety of a nuclear facility.

Nuclear power stations must be designed to cope with a wide range of potential failures of equipment or of operation. Operators must be able to demonstrate that, in all such events, off-site radiological doses will not exceed stringent specified limits. Operators must also demonstrate that the predicted frequency of such accidents is low and within acceptable limits. These limits become more onerous the higher the predicted radiological impacts, i.e. an accident with a large off-site release of radioactivity must have a very low probability of happening.

Security

The UK has a comprehensive legal and regulatory framework, enforced by the OCNS, which is part of the HSE, to ensure the security of nuclear installations and nuclear materials in transport which fully meets the requirements of the Convention on the Physical Protection of Nuclear Material.

Each civil licensed nuclear site has a site-specific security plan which must be approved by the OCNS and which is subject to regular review. Licensees are then required to comply with the standards, procedures and arrangements described in this approved plan.

For any new nuclear power stations the OCNS would be involved in the generic design assessment stage with a view to security being built-into the design, rather than being retrofitted.

The OCNS requires site operators to develop security plans according to the "defence in depth" principle, with several layers and methods of protection that have to be overcome or circumvented, thereby providing appropriate detection, assessment, delay, and response to malicious acts.

Radioactive discharges from Nuclear Power Stations

The UK has a strict regulatory framework to restrict routine discharges from nuclear power stations and direct radiation exposures to workers and the general public (waste storage is addressed in **Section 2.5**). The aim is to minimise potential health impacts and ensure that radiation doses are well within internationally agreed limits.

Any new nuclear power stations would need authorisation, under the RSA, from the relevant environment agency before making any discharges of radioactivity into the environment or disposals of radioactive waste.

The Government and nuclear industry have an emergency preparedness framework in place to mitigate health effects in the unlikely event of major accidental releases of radiation into the environment. This framework includes detailed site-specific plans for each nuclear facility. The plans are tested regularly through exercises, some of which involve the Government and simulated media involvement.

The HSE and EA is responsible for ensuring that new nuclear power station designs can meet high environmental standards and use the best available techniques (BAT) to achieve this, as required by the OSPAR Convention. Through the Generic Design Assessment process, the HSE and EA will ensure that operators consider this requirement at an early stage. This ensures that the most modern techniques to minimise radioactive waste discharges can be incorporated into the designs of the stations. The application of BAT would ensure that discharges from new nuclear power stations constructed in the UK would not exceed the levels of comparable power stations across the world.

Recreation

The seaward edge of the Hinkley Point C site is accessible to public via the South West Coastal Path. This is a popular PRoW, often busy in the summer months. It is likely that a diversion to this route will be necessary for the duration of construction. This will need to be advertised well in advance, and be clearly signposted. A number of other footpaths cross the study area, and some of these will need to be closed / diverted. West Somerset DC and Somerset CC will be fully consulted on any proposals to close or divert PRoW.

Navigation

In order to facilitate the delivery of bulk material to Hinkley Point during construction, it may be necessary to build a marine landing facility on the foreshore adjacent to the Hinkley Point C site (see **Section 2.1.2**). Tidal navigation in this location will be constrained by the large tidal ranges experienced in the Severn Estuary (up to 12m on Springs). Consideration will need to be given to the influence of tidal regime in this location, including tidal range and current speed in order to understand the potential constraints on the operation of a marine jetty.

Flood risk

Coastal protection measures will be established seaward of the cliff line and the flood defences brought to an appropriate standard to satisfy existing and developing reviews of extreme water levels.

Given the nature of the catchment area in which the Hinkley Point C site is located, it is important that the drainage is sufficient to prevent fluvial flooding. The local geology is impermeable and, therefore, run-off from agricultural land en-route to the sea could impact on the new power station. A Flood Risk Assessment (FRA) will be necessary to investigate the likelihood of future flooding.

Infrastructure

The construction of Hinkley Point C would result in further infrastructure in the area, with potential improvements required to some existing infrastructure. The approach road would need to be extended to facilitate access to the west of the Hinkley Point C site, and construction of a marine landing facility may also be necessary.

Four additional pylons are proposed as part of the new development to link the 'C' station to the National Grid. It may be necessary to upgrade the transmission capacity of the existing lines, particularly those going into Bridgwater. This development will be subject to a separate application; however, as noted in **Section 1.2.2,** it is likely that any grid connection applications subject to public inquiry would be co-joined with the main power station consideration.

Socio-economics

The construction of the power station is expected to take in the region of 6 - 7 years. The employment profile for the proposed Hinkley C site will depend upon the design selected. Lower workforce numbers would occur where the design incorporates more modular construction techniques, so that fabrication work takes place predominantly off site. Further work is required to provide firm estimates on peak workforce numbers.

There is expected to be a distinction between the impacts arising during the construction and operation phases, including varying spatial scales; the impact zone will be larger during the construction phase than the operational phase. There will be direct and indirect, positive and negative impacts (e.g. increasing employment and expenditure within the area, employee movements between companies and the potential for local wage inflation). Expenditure within the area will be important and could work towards offsetting the closures of the A and B Stations. All issues need to be managed, monitored and mitigated, as they will alter the socio-economic makeup of the area.

More specifically, development changes in the locality have the potential to generate a wide range of socio-economic impacts, including:

- ***Demographic change***: changes in the local population level and structure caused by the influx of the development's workforce;
- ***Direct and indirect employment change***: changes in direct site employment levels will result in changes to employment levels in the local economy and in the local employment structure. These will depend on both the development's characteristics and associated policies;
- ***Local expenditure effects***: expenditure by the workforce and from the development's contracts / payments will lead to changes in spending in the local economy;
- ***Wider economic effects***: there could be potential effects on key economic sectors (e.g. construction, tourism) and on the development potential or image of the area. The adjacent Somerset and Devon coastal areas, particularly Exmoor National Park and the Quantock Hills are very significant areas for tourism;

- ***Accommodation pressures and development***: there may be pressure on both temporary and permanent local accommodation supply (e.g. B&B, caravan sites, housing), with some implications for prices and residential property values;
- ***Pressures on local social conditions and associated services (e.g. education; health; crime; travel)***: development related demographic changes have the potential for impacts on local social conditions and associated services. For example, during construction there could be pressure on local health, school and policing services, partly depending on the associated policies; and
- ***Other less tangible socio-cultural change: e.g. quality of life; community character / cohesion; distributional effects***: sections of the local community may be differentially affected by the development; some towns / villages may have much larger impacts than others; and there could be a shift in the character of some communities (especially those close / on key routes to the development).

4 FURTHER STUDIES AND ASSESSMENT

4.1 Introduction

This section expands upon the review of sensitivities, constraints, opportunities and data gaps presented in **Section 3**. It identifies the next stage of data collation and assessment that is required to further our knowledge of the study area and the potential implications of the proposed development upon it. Those further studies identified to date are summarised in **Table 4.1** (see **Section 4.11**).

Cefas and Entec have already been commissioned by BE to undertake significant survey and assessment work in the marine, coastal, and terrestrial environs. The specifications of this survey work will be discussed with the competent authority and other relevant stakeholders as appropriate.

In addition to the subject areas considered below, the ES will also include a **sustainability assessment** with respect to the potential implications of the proposed development on the use of energy, the use of natural resources and waste, amongst other things. Issues of sustainability, particularly in the context of utilising sustainable construction materials, will be important in progressing this development. Examples might include the ways in which transport for workers and deliveries are organised or using waste materials to improve sea defences.

4.2 Geology, Hydrogeology, Hydrology and Soils

Geology

Due to the limited detail of the specific solid geology of the cliffs fronting the Hinkley Point C site, a study will be commissioned to better define the solid geology. This information would ensure that any potential geological importance is taken into account.

Hydrology / hydrogeology

In order to address the potential impacts that the development will have on the local hydrogeological regime, it will be necessary to gather sufficient information to understand local geology, hydrogeology and hydrology. This would be undertaken initially as part of a desk based assessment, through the use of publicly available information such as that published by the British Geological Survey, EA, etc. Reference will also be made to work carried out in connection with the assessment of the previously proposed Hinkley 'C' power station. Drilling of exploratory holes would then be undertaken, and groundwater monitoring points installed to enable monitoring of the groundwater levels, estimation of groundwater flow direction, potential tidal influence, etc. This information would form the basis of an assessment to determine the impacts of the development, in addition to the use of numerical modelling techniques where required.

Contaminated land

The Government's guidance on land affected by contamination is set out in Planning Policy Statement 23 (PPS23) on Planning and Pollution Control Annex 2: Development on Land Affected by contamination (ODPM, 2004). The requirements follow the risk-based framework adopted in the Government guidance document Model Procedures for the Management of Land Contamination (CLR 11), which can be found on the EA's website.

PPS23 requires that an assessment of risk is carried out by the applicant where development is proposed on land that is, or may be, affected by land contamination. This assessment must form part of the planning application for consideration by the Local Planning Authority (LPA), before the application is determined. As a minimum, the applicant should provide a desk study and site walkover report in support of their planning application.

A desk study, which represents a crucial first phase in the assessment of land contamination, will be undertaken and is expected to comprise the collation of relevant environmental information, a walkover survey / site reconnaissance, a preliminary conceptual model (which supports the identification and assessment of pollutant linkages) and a preliminary risk assessment.

The desk study and site walkover will assist in determining the need for and scope of further investigation, the potential need for remediation (where this can be identified at this stage) and whether remediation can be secured by means of planning conditions. Further investigation(s) and risk assessment will be required where the initial assessment does not clearly and reliably demonstrate that the risk from contamination is acceptable.

4.3 Hydrodynamics and Coastal Geomorphology

The consequences of changes to coastal and marine processes have a direct linkage to a number of environmental parameters that need to be assessed within the EIA. Changes to system hydrodynamics link to changes in geomorphology that can have important ramifications for other receptors, such as sediment size and quality, fisheries, marine organisms, bird usage, flood risk (to landward), erosion risk and so on. The changes that potentially occur to the physical environment thus underpin many of the other environmental impacts. Flood risk (for example) is considered in **Section 4.10**.

In order to provide robust data for the EIA, an extensive suite of survey work has been commissioned and is being progressed by Cefas:

- Updated bathymetric (seabed level) information is being gathered over a wide area, using single beam, sidescan and swathe sonar;
- Updated intertidal topographic data is being obtained where necessary;
- Data on the direction and amplitude of waves, surge and more extreme events (incorporating climate change effects) is being obtained from long term offshore ('Waverider') instrument packages and calibrated using shallower water, shorter term, installations inshore;
- Hydrographic surveys are being completed using both fixed and towed doppler-profiling current measurement systems combined with multiple drogue releases; and
- Sediment particle size data is being gathered on both seabed and intertidal areas.

In general, the geographical scope of the survey work has been determined by an assessment of the projected scale of influence of the development and sampling effort has been appropriately weighted within that domain, both towards sources of impact and potential sensitivities. A judgement has also been made of the degree of sufficiency of existing information.

The information obtained from the above surveys, in conjunction with data already held and long term historical review, will then be interrogated and used to inform a series of detailed analytical models, including wave, current, plume and sediment transport models.

4.4 Flora and Fauna

The proposed development has the potential to impact on a number of designated sites and protected species. Of specific concern are the potential impacts upon the bird populations of the adjacent European sites. The numbers and distribution of breeding, feeding, and roosting birds in relation to the new build area will, therefore, need to be established to determine a baseline for the prediction of effects. The position of the Hinkley Point C site within a network of habitats in the wider area will also need to be considered, as there may be effects on dispersing birds and animals and species moving between designations.

A full suite of ecological surveys has been commissioned that will establish the baseline conditions of the Hinkley Point C site, and its importance to a number of faunal groups. The surveys will cover the following features (and will also assess the likelihood of any other (currently unknown) protected species being present):

- Breeding birds;
- Inter-tidal and inshore birds;
- Wintering birds;
- Botanical interest (Extended Phase 1 Habitat Survey and NVC of semi-natural grassland);
- Badgers;
- Dormice;
- Great crested newts;
- Bats;
- Water voles / Otter;
- Reptiles; and
- Invertebrates.

Continued consultation with key stakeholders, including Natural England, the EA, Somerset Wildlife Trust and the RSPB, will help to refine the survey programme and to establish the baseline conditions.

4.5 Fisheries and other Marine Ecology

In order to fully assess any potential impacts associated with fisheries and other marine ecology, a survey programme has been commissioned that will include the following:

- Subtidal and intertidal habitat mapping;
- Fish return system / fish and benthic assemblage entrainment studies;
- Thermal surveys are being completed using both fixed networks of recording sensors and towed stringers;
- Intake and outfall location studies;
- Water quality monitoring;

- Fish deterrence system; and
- Plankton studies.

All options considered for cooling water infrastructure as well as any potential marine landing facility (i.e. location, design and use) will be reported within the ES. The ES will then be prepared on the basis of the preferred options.

Continued consultation with key stakeholders, including Natural England, the EA, CEFAS, and Defra, will help to refine the survey programme.

4.6 Traffic and Transport

A Strategic Transport Masterplan is being developed in consultation with key statutory consultees. The strategy will examine all the key issues including scope, aspirations, and impacts of the development scenarios.

Workshops will be held between British Energy, its transport advisors and transport specialists from the Highway Authorities. These workshops / consultations will consider the opportunities and constraints of all transport options, and indicate the specific way forward.

The Strategic Transport Masterplan will inform the Transport Assessment, which will be carried out in accordance with the guidelines described in the recently published DfT document '*Transport Assessment – Guidelines'* and, where appropriate, the Institute of Environmental Management and Assessment (IEMA) document entitled '*Guidelines for the Environmental Assessment of Road Traffic*'.

The transport team will identify, through consultation with the Highway Authorities, Somerset County Council, and the Highways Agency, the extent of the highway network to be included in the assessment. In the first instance this will include the M5, A38, A39 and C182 through Dunball, Bridgwater, Cannington, and Combwich).

For each of these routes, up-to-date traffic data will be collected using automatic traffic counters (ATC) that will identify the mix of light vehicles and heavy vehicles on a daily basis during the appropriate time of year. At junctions, vehicle turning movements will be counted along with the length of traffic queues. Once all the base data has been collected, appropriate growth factors (as agreed with the Highway Authorities) will be included in order to represent the baseline background traffic growth on the network, before any additional construction or operational traffic is added on.

The baseline traffic flows will allow the transport team to audit the local highway network to check the operational capacity of the roads and, critically, the junctions, in order to determine whether highway improvements will be required during the construction phases or operational life of the power station. Part of this analysis will include a review of any potential highway improvement schemes that might already form part of the Highway Authorities' future planning.

A further assessment of the highway network will involve an analysis of the accident statistics and a review of whether there are any intrinsic safety issues on the local roads that might be exacerbated should traffic flows increase during the construction or operational phases of the new power station.

The study will also identify travel modes by more sustainable means such as rail, bus and cycling, e.g. a review of the potential to construct a new railway line to Hinkley Point. All public transport options will be identified and, if appropriate, the options to enhance the provision or facilities will be considered. As with the Highway Authorities' future highway proposals, it will be an important part of the study to identify whether any public transport schemes might be brought forward in relation to the proposed development at Hinkley Point.

The transport strategy will present the best feasibly practicable environmental option and will be taken forward to inform the EIA as the basis for impact assessment and the development of mitigation strategies.

4.7 Noise and Air Quality

Noise

A number of locations were monitored for background noise during 1983-84 as part of a previous planning application. In addition, a measuring point located 525m due south from the south face of the turbine hall for the 'C' station, then proposed, was used as the reference location for measuring noise from the operation of that station.

As part of the Noise Impact Assessment, representative sites (i.e. those most likely to be affected by all construction and operational noise) will be selected and ambient noise surveys carried out to provide an updated baseline. The noise monitoring locations used during the previous Hinkley 'C' planning application will represent a good starting point, but a review of the proposed activities may highlight other properties and locations which may be affected. The previous monitoring locations and any others will be re-assessed during the EIA, in close consultation with the Local Planning Authority.

The assessment of noise impact upon this updated baseline will require predictive calculations and modelling based on information which will be required to be provided by BE and its contractors. The information requirements would include a detailed construction programme to identify site plant and on-times, daily construction traffic movements, daily worker travel arrangements, and any marine-based equipment transport, i.e. movements to and from the Combwich Ro-Ro facility.

Appropriate measures for mitigation will be determined based on the findings of this assessment approach. Clearly all site equipment, plant and vehicles will be required to meet noise performance standards pertinent at the time of construction period, and the Local Planning Authority may require conditions to control aspects of night-time and weekend working. Off-site impacts (beyond the construction site) are likely to be based on a detailed transport assessment, which will address mitigation of local effects of traffic movements.

Air

An assessment of the potential air quality impact of emissions from construction and daily worker traffic on access roads will need to be undertaken. As is the case for the noise impact assessment of traffic, a construction programme which details daily Heavy Goods Vehicle (HGV) and worker commuting movements would need to be compiled, from which an assessment of the air quality impact at roadside properties along those routes would be made.

The construction programme would also identify the extent of proposed rail and marine transportation routes, and at that stage the scope of any assessment of the air quality impact of emissions associated with these routes would be determined. It might be that such methods of transport would be so infrequent that a qualitative assessment would suffice, but detailed dispersion modelling of such emissions to predict the impact at receptors around the construction site and routes might be required. In such a circumstance, there would need to be close liaison with the Local Planning Authority to agree the modelling methodology and scope.

4.8 Landscape and Visual Amenity

The potential visibility (zone of visual influence) of the development will need to be mapped using contour plans and aerial photographs, as well as field assessment. This will encompass both permanent and temporary construction areas. The sensitivity of visual receptors to changes in the landscape is a function of the location and context of that viewpoint, and the expectations and activity of the receptor. Consultation with the local authorities as well as other key stakeholders will provide key information in determining the sensitivity of receptors.

A number of different view points will be established to assess the visual impact from a variety of locations. The assessment carried out for the 1987 Hinkley Point C application included:

- Distant views from the South Wales coast;
- Middle distance views from the Quantock Hills;
- View from the C182 linking Cannington to the Hinkley Point C site;
- Views from Stolford;
- Views from Burton;
- Views from Stogursey; and
- Views from Stockland Bristol.

View points included in the previous assessment were effectively the geographical extent of the area visually affected by the existing power stations. Although it is not yet clear which new build design will be selected for the proposed Hinkley Point C development, they are similar enough in bulk (see **Figures GEN 02** and **HP 05**) for this approach to be appropriate for determining the zone of visual influence and, selection of view points. Consequently, it is expected that the view points are likely to be similar to those used in the previous ES.

Additional viewpoints have been identified, namely:

- Burnham-on-Sea;
- Brean Down;
- Minehead; and
- the Mendips.

The closest public views are from the South West Coastal Path, which runs along the seaward front of the Hinkley Point C site. From here, it will be possible to appreciate the detailed form, colour, and texture of the buildings and their associated surrounding landscape treatment.

Information including landscape context, character, existing levels of light pollution, and quality of the study area will be collated and described through desk studies and site surveys. This will be followed by identification and assessment of landscape and visual effects of the proposed power station (taking account of different designs) as well as off-site buildings. The sensitivity of the landscape, scale / magnitude, and the nature of the effect will be taken into account.

Visual impact assessment will identify the key potential impacts of the development, both beneficial and adverse. The impact upon the baseline landscape and receptor groups' views of the landscape will be identified and assessed at several points in time (including the construction phase). Proposals for mitigation measures to reduce potential adverse effects will also be prepared.

The methodology used will conform to the *Guidelines for Landscape and Visual Impact Assessment* produced by the Landscape Institute and the Institute of Environmental Management and Assessment (2002).

4.9 Cultural, Architectural and Archaeological Heritage

The extent of archaeological and heritage interest will be identified, through desk study and consultation with English Heritage and the local authority archaeologists (for West Somerset District Council, Somerset County Council, and Sedgemoor District Council). A staged approach incorporating an initial archaeological desk-based assessment would draw on the previous field surveys carried out for the 1987 Hinkley Point C proposal, and extend to a sufficiently wide study area to ascertain the known and potential historic environment resource for the Hinkley Point C site, the construction site, the pylon locations and any access route(s) to them, and any remote developments associated with transport modifications. Where aspects associated with the development (such as construction adjacent to Pixie's Mound or the building of new roads) may impact upon this resource, appropriate measures for mitigation will be considered.

Following the desk-based assessment, and subject to discussion with English Heritage and the local authority archaeologist, further investigatory works may be required, including geophysical surveys, trial trenching, etc., to ensure that the presence or absence of archaeological sites and finds is confirmed, and where present, sufficient information is available to ensure that appropriate mitigation measures can be refined.

4.10 Human Activity

Safety and security

Section 1.2.2 provides details of the other licensing processes that specifically deal with health and safety.

Navigation
In order to provide a detailed description of current navigational activities, data on vessel operations off the coast of Hinkley Point and within the River Parrett will be sought from the Port of Bridgwater. In addition, information regarding key navigation routes around the UK will be obtained from the Marine and Coastguard Agency (MCA). The influence of the tidal range and current speeds will also be taken in account to inform the optioneering exercise undertaken in relation to the proposed marine jetty.

Recreation
An indication of the extent of use of the various footpaths within the Hinkley Point C site will inform the evaluation of significance of potential impact from closure and likely redirection of routes. The indication of extent of sea angling off the foreshore fronting the Hinkley Point C site will enable the evaluation of significance of any access issues during construction and in relation to siting of the cooling water intake and outfall.

Flood risk
A flood risk assessment, in line with the requirements of Planning Policy Statement (PPS) 25, will be undertaken early on in the next phase of the EIA process (as a precursor to this, flooding will be considered as part of the SSA). In order to fully assess any potential impacts associated with flood risk, a survey programme has been commissioned that includes the assessment of coastal flood risk, including sea level rise due to climate change. Further studies will be commissioned in 2008 specifically considering pluvial flood risk at the Hinkley C site.

Socio-economics
An important distinction is made between the construction and the operational stages of the development, as previous experience has shown that there are marked differences in socio-economic impacts between these two stages. Socio-economic effects are partly determined by the nature of the development (e.g. a twin reactor power station); the nature of the locality (e.g. relevant employment / skills structure); and policy decisions taken by key stakeholders (e.g. the developer's policy on accommodation / local recruitment / training etc). These determinants need to be investigated thoroughly to clarify the likely set of key impacts.

Socio-economic effects will be apparent at *various spatial scales*, including for example a Construction Daily Commuting Zone and a more local Operational Development Zone. The former could extend up to 40-50 miles around the development depending on the developer's policies; the latter will be generally within a 25 mile zone around the site, embracing adjacent settlements such as Bridgwater and Cannington.

Data on the local socio-economic baseline will be derived largely from published statistical information, including, *inter alia*:

- Office for National Statistics (ONS), including Neighbourhood Statistics Service;
- National Online Manpower Information Services (NOMIS);
- Economic & Labour Market Review (ELMR) and New Earnings Survey;
- Department of Community and local Government (DCLG);
- Small Business Service;
- East of England Tourist Board;
- EA / Countryside Agency (e.g. Rural Services Series data);
- Department for Education and Science;

- Learning and Skills Councils: West of England / Somerset;
- Land Registry; and
- Somerset County Council and District Councils (especially Sedgemoor District).

Data on the nature of the proposed development, and especially the employment characteristics and associated policies, for the various stages of the development will also help inform the assessment. This will involve, for example, anticipated labour curves by workforce category at different stages of the development (e.g. peak construction; full operation); any local employment / training policies; any plans for worker accommodation provision; likely power station contracts and purchases, etc.

It will also be important to liaise with local stakeholders with respect to local information and perceived impacts. This will include liaison with:

- Somerset County Council, West Somerset District Council and Sedgemoor District Council, on in-house sources of local socio-economic information (e.g. recent studies, and data on local services), and views on perceived impact issues; and

- BE and any potential contractors for information on the anticipated socio-economic characteristics of the various stages of the proposed development, plus information / policies on the relationship with the current Hinkley 'A' and 'B' stations.

4.11 Summary

Table 4.1 Summary of surveys / studies proposed to inform any subsequent EIA

Topic	Proposed surveys / studies
Geology, hydrology, soils	• Geological survey and classification of the cliff; • Hydrological and hydro-geological studies; and • Phase 1 contaminated land desk study.
Hydrodynamics and coastal geomorphology	• Wave studies; • Extreme water levels and surges; • Hydrographic surveys; • Topographic and bathymetric surveys; • Sediment particle size; and • Sediment transport studies.
Flora and fauna	• Breeding birds; • Inter-tidal and inshore marine birds; • Wintering birds; • Botanical interest; • Badgers; • Great crested newts; • Bats; • Water voles; • Otters; • Reptiles.
Fisheries and marine ecology	• Subtidal / intertidal habitat mapping; • Fish and benthic assemblage baseline studies; • Fish return system / fish and benthic assemblage entrainment studies;

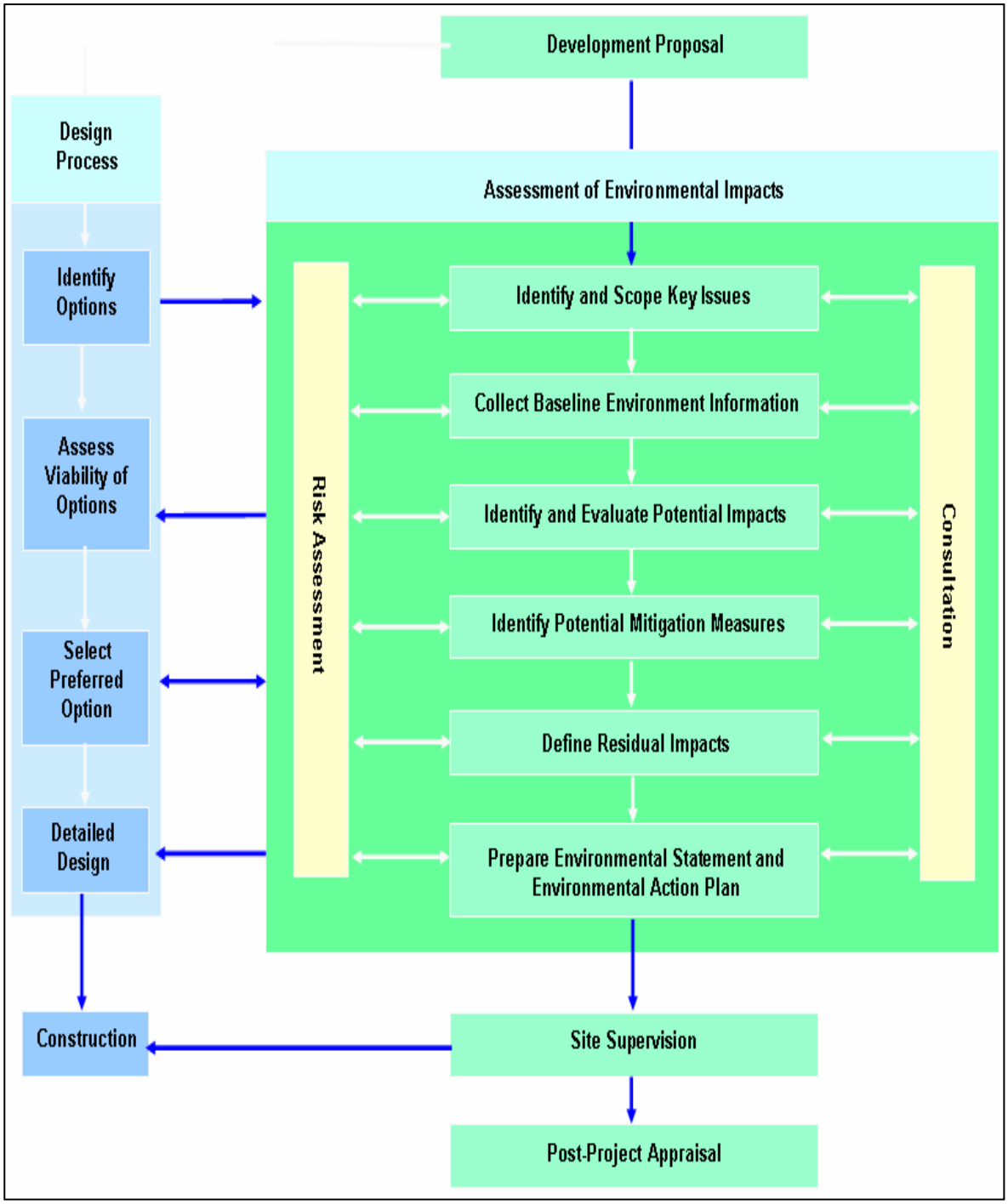
Topic	Proposed surveys / studies
	• Thermal surveys / modelling; • Fish deterrence system; and • Plankton studies.
Traffic and transport	• Construction workforce study; • Transport Impact Assessment; and • Transport strategy.
Noise and air	• Noise impact assessment; and • Air impact assessment.
Landscape and visual amenity	• Landscape and visual impact assessment.
Cultural, architectural and archaeological heritage	• Archaeological desk study; and • Field evaluation.
Human Activity	• Marine transport studies / navigation risk assessment; • Footpath and sea angler counts; • Coastal flood risk; and • Socio-economic impact assessment.

5 WAY FORWARD

5.1 Environmental Impact Assessment

The information presented in this report is intended to identify the way forward for the assessment of the potential environmental impacts associated with any new nuclear power station development at Hinkley Point. As the EIA is taken forward, the general steps in the process that will be followed are shown below in **Figure 5.1**.

Figure 5.1 EIA process



In order to address the expected data requirements of any subsequent EIA, the further work described in **Section 4** is either underway or in the process of being commissioned. The majority of these surveys / studies are scheduled to begin in 2008, although some terrestrial ecological survey work was undertaken during summer 2007. An extensive suite of marine studies have been commissioned and will be undertaken by Cefas, and a suite of terrestrial ecological surveys are being undertaken by Entec. The entire survey programmes is being directed by BE and RH, therefore, should refinement of the proposed surveys be required, as a result of stakeholder engagement, this will be taken accommodated. In addition, BE hold an extensive database containing studies and survey work to address the requirements for the previous planning application submitted in 1987, and the monitoring requirements attached to the previous Hinkley 'C' consent.

Given the extent of many of the relevant topics to this development identified within **Section 3**, specific 'topic managers' will be assigned for the lifetime of the EIA. The topic manager will lead a team and/or specialist subcontractor and will be responsible for managing that topic; reporting to the overall EIA manager. Key areas that we anticipate will warrant a topic manager include:

- Flora and fauna (Entec);
- Marine ecology (Cefas);
- Coastal and marine processes;
- Transport;
- Socio-economics;
- Landscape;
- Noise and air;
- Archaeology; and
- Hydrology / hydrogeology / contaminated land.

However, it is acknowledged that it is important for parameters such as ecology, landscape and hydrology to be studied together, as many key elements and indeed solutions to potential impacts in these areas can overlap. Examples of this are biodiversity, landscape enhancements, public access and guided walks/events. The EIA will investigate, assess and then develop solutions in these areas (and others, e.g. transport) in an integrated manner.

The EIA will adhere to the relevant Regulations and conform to any requirements that emerge as a result of the proposed legislative reforms outlined in The White Paper - *Planning for a Sustainable Future* (CM 7120). It will consider the potential implications of the proposals for the environment of the study area in each of its construction, operation and decommissioning phases.

Ultimately, the ES (reporting the findings of the EIA process) will be one central document, supported by a series of technical appendices providing additional information on the topic areas described above.

5.2 Appropriate Assessment

Plans or projects that are likely to have a significant effect on a European site (i.e. a SPA or SAC) require 'Appropriate Assessment' (AA) to be undertaken in accordance with Regulation 48(1) of the Habitats Regulations 1994 (meeting the requirements of Article 6(3) of the Habitats Directive). Natural England, as statutory advisors to Government on nature conservation, will advise on the need or otherwise for Appropriate Assessment, which then has

to be undertaken by all "competent authorities" as a separate exercise to consideration of the ES. Such an assessment considers the implications of the proposals in view of the conservation objectives of relevant designated sites (including potential SPAs and candidate SACs), and aims to determine whether an adverse effect on site integrity would arise. Should this be the case, then the project would only be able to proceed if it could be demonstrated to the Secretary of State that no alternative solutions exist and that the project must be carried out for imperative reasons of overriding public interest.

Several European Sites occur within the potential zone of influence of the proposed new build area (see **Section 3**); hence it is likely that an AA will be required in this case. For the Hinkley Point C site the requirement for and content of any AA would be considered in close consultation with key stakeholders, including Natural England, the EA and the RSPB.

Should AA be required, it is intended that all information necessary to assist the competent authorities in undertaking this assessment will be provided and will be identified separately from the main ES (although it will draw on, relevant data and findings of the ES). This will include **in-combination assessment** of the proposed development with other plans or projects, as required by Article 6(3) of the Habitats Directive. The aim of this assessment is to determine whether the combined impact of the proposals could potentially have an adverse impact on integrity of the designated sites. It is, therefore, necessary to consider the potential impacts of past, present and future plans or projects for which sufficient information is available.

Schemes that have already been constructed will be taken into account in describing the baseline environment. The in-combination assessment will then consider those plans or projects for which information is in the public domain.

The following provides a short list of potentially relevant projects or initiatives that have come to light during initial discussions with consultees:

- Hinkley Point A decommissioning;
- Hinkley Point B decommissioning;
- Possible managed realignment on the Steart Flats (under consideration by the Bristol Port Company);
- Residential and commercial growth in Bridgwater, as identified in the Regional Spatial Strategy;
- Possible new North Cannington Bypass;
- Bridgwater Inner Distributor Road;
- Bridgwater Outer Northern Road;
- Investment from the "Building Schools for the Future" in the Bridgwater northern area.

Additionally, other plans or projects may come to light during the process and will be given due consideration with respect to their potential interactions with the proposed development.

If compensatory measures are likely to be required due to the predicted effects of the proposed development on a European Site, the ES will describe the measures which are proposed to fulfil this requirement.

5.3 Cumulative assessment

Regardless of whether Appropriate Assessment (incorporating in-combination assessment) is required, cumulative assessment will form an important part of the EIA. This will consider the potential implications of the development in conjunction with other foreseeable and associated developments, in line with best practice, across all relevant environmental parameters.

5.4 Consultation

We have consulted key statutory stakeholders and others as appropriate in the preparation of this report. Stakeholder engagement is an essential part of the EIA process and will help to inform the requirement for, and focus of, specialist surveys, the assessment of impacts and the development of mitigation measures.

Looking forward, our approach to consultation will be flexible in order to allow engagement with stakeholders as and when key issues arise. In order to avoid consultation fatigue, we are developing a communication strategy to co-ordinate communication activities and to ensure that a consistent approach is adopted.

Consultation with key statutory and non-statutory stakeholders, including local communities, will be developed throughout the EIA process (and where information is required to support an Appropriate Assessment). This currently involves regular meetings with Planning Officials from the relevant Local Authorities, along with Councillor briefings. Engagement with a wider group of stakeholders will take place as the EIA process evolves.

Key statutory stakeholders consulted in the preparation of this report include:

- Somerset County Council
- West Somerset District Council
- Sedgemoor District Council
- Environment Agency
- Natural England

In addition, a public meeting was held in Cannington in April 2008, to provide the local community with background information on the outline power station designs being considered within the GDA. Further public engagement meetings at Nether Stowey, Cannington, Bridgwater, and Otterhampton took place in October 2008.

5.5 Next Steps

This Scoping Report is intended to set out the proposed approach to assessing the potential environmental impacts of any new nuclear power station development at Hinkley Point. A formal Scoping Opinion from DECC is sought to provide the direction for the EIA.

The views of key stakeholders were identified during a workshop held on 5th March 2008 at the Hinkley Power Station Training Building, which has provided additional steer on the baseline data collection requirements detailed in **Section 4**. Stakeholder opinions have been incorporated, where appropriate, in the Scoping Report and will be addressed in the EIA

The subsequent steps of the EIA process are set out in **Figure 5.1**. The process of EIA is an iterative and evolutionary one that builds up layers of data as the assessment progresses. The approach will need to be very comprehensive and well-organised because of the variety of technical specialists involved, the need to integrate many of the environmental and social issues. Furthermore, the EIA needs to incorporate the concerns, issues and local knowledge highlighted by a wide range of statutory and non-statutory stakeholders, as well as the input of the local community and region.

Hence the EIA will be progressed on an agreed basis and an ES will be procured. Within the ES, in all cases where significant impacts are identified, appropriate mitigation measures will be developed and details provided. The residual impact will then be assessed and the ES submitted for formal consultation in due course.

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APPENDIX 1

Figures

APPENDIX 2

Legislation and Planning Context

APPENDIX 7B: ENVIRONMENTAL IMPACT ASSESSMENT SCOPING OPINION. DECC, FEBRUARY 2009

Department of Energy and Climate Change

10 February 2009

cc: Sedgemoor District Council
Somerset County Council
West Somerset District Council
The Environment Agency
RSPB
The Learning and Skills Council
HSE NII

Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000: Environmental scoping response for proposed Nuclear Development at Hinkley Point, Somerset.

I refer to your letter of 12 November 2008 requesting a scoping opinion under regulation 7 of the Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000 enclosing a scoping report dated November 2008. The scoping report sets out the information that British Energy intend to provide in the Environmental Statement (ES) required in respect of the necessary consent application under section 36 of the Electricity Act 1989.

Further authorisations may be required to allow operations to proceed or to regulate safety issues associated with particular substances or practices or to regulate safety issues and you may have to seek prior approval from the Environment Agency and Health and Safety Executuve (NII) for these in addition to planning control. It is recommended that all elements are covered by a single ES.

1. It is understood that the proposed development will comprise of:

- A power station development incorporating two nuclear reactors. The expected output of each unit shall be between 1100 and 1650 megawatts (MW) per unit giving a total output of between 2200 and 3200 MW;
- Construction of a sea wall along the coastal frontage of the Hinkley C site;
- Construction stage areas and facilities;
- Infrastructure and facilities related to the operation of a nuclear power station;
- New permanent access road in the south of the Hinkley C site;
- Transmission and cooling water infrastructure; and
- Interim waste storage facilities.

2. The development may also include highway and rail improvements as well as a new marine landing facility; however the capacity of existing infrastructure is subject of further feasibility studies. It is recommended that any ancillary works are included within the ES.

Scoping Opinion

3. The Secretary of State considers that the key issues, which have been identified in the scoping report should properly be included in an ES in respect to the consent applications however you may have already intended to include many of these additional matters in the ES.

4. Comments are based on consultation responses and observations. Where possible, comments are directly referenced to particular sections of the scoping report. All comments are detailed under specific topic headings.

Structure of an ES

5. Criteria used to establish impact magnitude and significance should be clearly defined within the ES. Tabular presentation should be used to summarise key direct and indirect impacts. Within an ES it is important that all mitigating measures are:

    - Clearly stated;
    - Fully described with accuracy;
    - Assessed for their environmental effects;
    - Assessed for their effectiveness;
    - Their implementation should be fully described;
    - How commitments will be monitored and by whom; and
    - If necessary, how mitigation measures relate to any consents or conditions.

    Please note: '*mitigation*' and '*monitoring*' are distinct processes. Monitoring does not 'mitigate' significant environmental effects.

Comments on scoping report and content of ES

6. Section 1.2.2. Page 5. ***Other licensing***. Please note: the Marine and Fisheries Agency are responsible for determining licences under the Coast Protection Act 1949 and the Food and Environmental Protection Act 1985.

7. Section 1.2.3. Page 6. ***Proposed Legislation***. The Energy Bill became the Energy *Act* when it received Royal Ascent on the 26th November 2008.

8. Section 3. Page 19. ***Sensitivities, constraint and opportunities***. The Environment Agency noted that there will be a requirement to off-set any coastal environmental loss which is not referred to in the scoping report. They noted that the proposed adjoining Steart habitat creation project is not referred to, even through there could be implications/opportunities for any new station, or the additional proposed grid pylons.

9. Section 3.4. Page 23. ***Flora and Fauna***. Any works on or near the foreshore may have a significant impact on the Severn Estuary European site. The ES should therefore fully justify the need to construct any new infrastructure in this sensitive area and consider measures to reduce impacts such as timing of works, the scale of works, different techniques and layouts.

10. Section 4.4. Page 47. ***Flora and Fauna***. It is noted that the following surveys have not been included in the EIA report and it is believed that these surveys should be considered:

    - Surveys of spring and autumn passage migrant birds;
    - Woodland condition survey; and
    - Survey of hedgerows to ascertain whether any are 'important hedgerows' so far as the Hedgerow Regulations are concerned.

11. Section 4.9. Page 49. ***Landscape and visual amenity***. The Landscape and Visual Impact Assessment will need to assess both impacts from the construction phase of the development and also the operational phase.

12. Section 4.6. Page 4.6. ***Traffic and transport***. The EIA should consider measures to reduce traffic by providing a detailed assessment of the capacity of current non-road infrastructure.

13. If improvements to junction 23 of the M5 and to the North of Bridgwater are required, then Sedgemoor District Council will need to be a key consultee. This is not set out in the report.

14. Section 4.7. Page 49. ***Noise***. There appears to be no reference to the need to a) assess potential noise impacts on SPA waterbirds or b) to ensure full noise mitigation during both construction and operation of the proposed scheme in relation to the adjacent Severn Estuary European site.

15. Section 5.2. Page 56. ***Appropriate Assessment***. For the purposes of Habitats Regulation Assessment (HRA), it would be helpful to detail distances of designated sites from the proposed project area both in tabular and graphic format. Please note, the Severn Estuary Ramsar site and Bridgwater Bay NNR are not shown on Maps HP02 and HP03.

16. The list of projects which pose a likely incombination effect should be revised as part of the EIA to ensure the list reflects all plans and projects which present a likelihood of a significant effect incombination with the proposals at Hinkley C. Plans and projects which are operating, under construction, consented or reasonably foreseeable (i.e. in the planning process) should be considered. You are advised to liaise with Local Planning Authorities as you progress through the EIA

17. For the purposes of the HRA, please check with Natural England that up-to-date designated site information (Regulation 33 advice) is available and incorporated within the ES.

18. BE are required to provide sufficient information to inform any Habitats Regulations work.

19. Currently, DECC is the competent authority under the terms of the 'Habitats Regulations'. The Infrastructure Planning Commission (IPC) is expected to assume the role of competent authority in due course.

20. In any case, consent may only be granted if it can be shown that the development will not have an adverse effect on the integrity of a European Site or Species (Regulation 48(5)). Regulation 48(6) provides that when considering whether the proposed development will adversely affect the integrity of a European Site or Species, the competent authority can take into account measures proposed to mitigate such impacts provided those mitigation measures are *embedded* within the application[1].

General

21. The EIA and final ES will need to assess any cumulative impacts with the competing EdF proposal and other relatively close national infrastructure projects such as the proposed Severn Barrage.

22. The report needs to make reference to English Heritage under the archaeological heritage reference and not to Natural England/English Nature.

23. I would also draw your attention to the Section 36 and Combined Heat and Power (CHP) guidance and EIA guidance on the DECC (formerly BERR) website. Links are provided below.

    http://www.berr.gov.uk/files/file42017.pdf

    http://www.berr.gov.uk/files/file35728.pdf

    http://www.berr.gov.uk/files/file21857.pdf

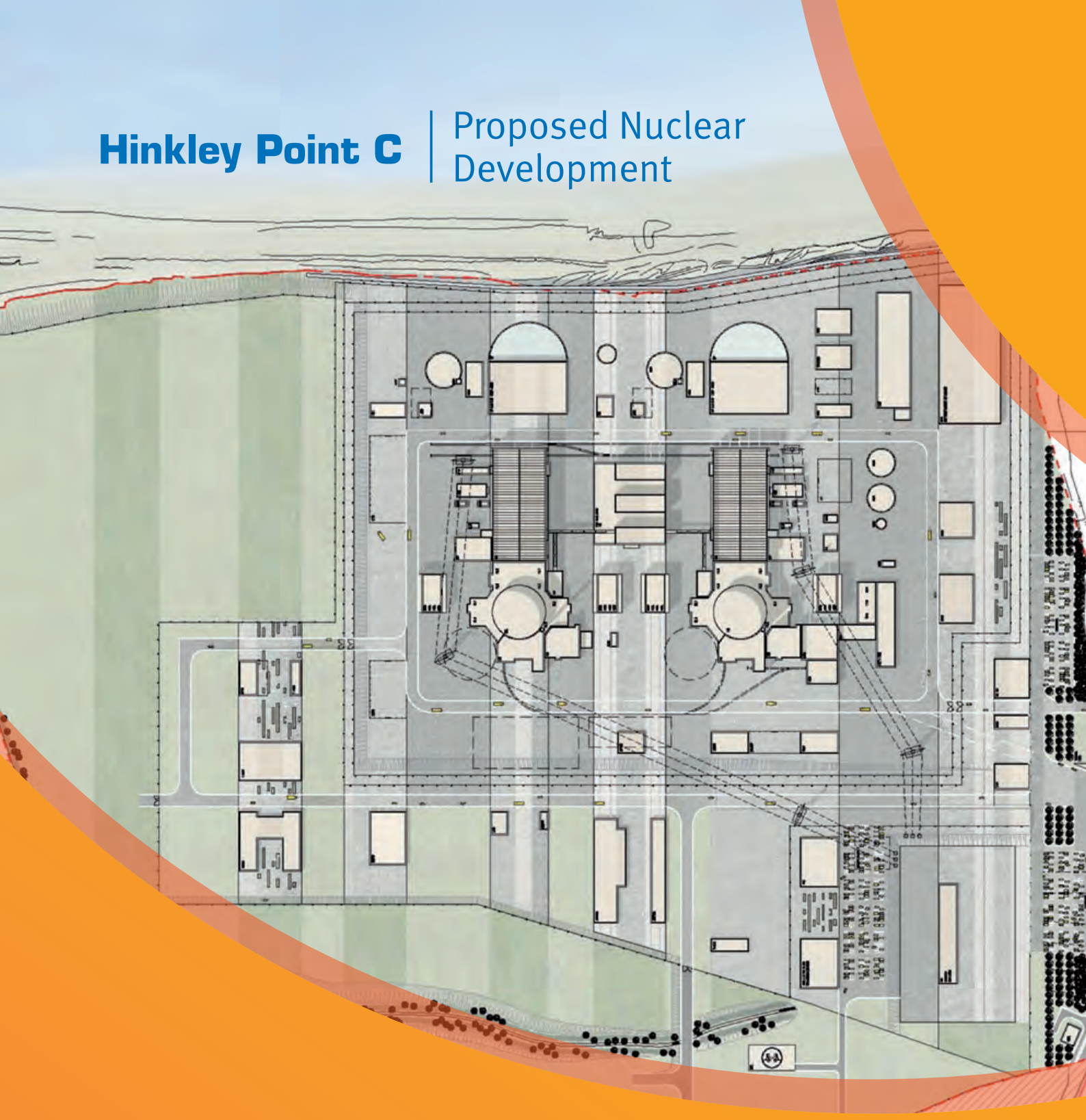
    http://www.berr.gov.uk/files/file42053.pdf

24. I am copying this letter to the consultees list above for information.

[1] 'Dilly Lane' Judgement available at http://www.bailii.org/ew/cases/EWHC/Admin/2008/1204.html (Accessed 26/01/09)

APPENDIX 7C: ENVIRONMENTAL IMPACT ASSESSMENT SCOPING REPORT, EDF ENERGY, JANUARY 2010

Hinkley Point C | Proposed Nuclear Development



ENVIRONMENTAL IMPACT ASSESSMENT
SCOPING REPORT
JANUARY 2010

EDF ENERGY

CONTENTS

FIGURES

COMMON ABBREVIATIONS

AA	Appropriate Assessment
CPA	Coast Protection Act
DCLG	Department of Communities and Local Government
DCO	Development Consent Order
DECC	Department of Energy and Climate Change
EDF	Electricité de France
EIA	Environmental Impact Assessment
ES	Environmental Statement
FEPA	Food & Environment Protection Act
IPC	Infrastructure Planning Commission
MFA	Marine & Fisheries Agency
MMO	Marine Management Organisation
SCC	Somerset County Council
SDC	Sedgemoor District Council
TCPA	Town & Country Planning Act
WSC	West Somerset Council

1 INTRODUCTION

1.1 Intention to Apply for Planning Consent at Hinkley Point

1.1.1 EDF Energy intends to submit an application for a Development Consent Order (DCO) to the Infrastructure Planning Commission (IPC) to develop a new nuclear power station at Hinkley Point, Somerset to be known as Hinkley Point C. In addition, the DCO will contain proposals, including options for associated development away from the power station site that is deemed necessary to construct and operate the plant. This category of development is defined as Off-site Associated Development (OAD). The application will comprise full details of all development proposals and will be accompanied by an Environmental Statement (ES) (conforming to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI 2009/2263)) and other documents including a statement on pre-application consultation.

1.1.2 This report sets out the proposed content, methodologies and key issues to be included in the Environmental Impact Assessment (EIA) and the resulting ES to be submitted with the application.

1.2 Site Location

1.1.3 Hinkley Point is located on the west Somerset coast, 25km to the east of Minehead and 12km to the north-west of Bridgwater. The indicative site upon which the nuclear power station is to be constructed (the Hinkley Point C site) is shown coloured red on **Figure 1**. The site is bounded to the north by Bridgwater Bay and to the west by land in agricultural production. The village of Shurton lies to the south. The permanent nuclear power station development will cover approximately 69 hectares (ha) and this is shown shaded pink. Locations of the Marine and Off-shore Works are shown in **Figure 2** and OAD in **Figure 3**.

1.1.4 Immediately to the east, the land is occupied by two nuclear power stations, Hinkley Point A and Hinkley Point B, which form the existing Hinkley Point Power Station Complex (as in **Figure 1**). Hinkley Point A operated between 1965 and 2000 and is currently undergoing decommissioning under the control of the Nuclear Decommissioning Authority (NDA). Hinkley Point B, owned by EDF Energy, has operated since 1976 and is scheduled to continue generating until at least 2016.

1.3 New Nuclear Development at Hinkley Point

a) The Need for New Nuclear Development

1.1.5 The Government's White Paper on Nuclear Power[1] and the UK Low Carbon Transition Plan[2] suggest a role for new nuclear generation as part of a low carbon energy mix,

[1] Department for Business Enterprise and Regulatory Reform (BERR) (January 2008) 'Meeting the Energy Challenge – A white paper on nuclear power'

tackling the challenges of energy security and climate change. Nuclear power is the most affordable, large-scale, low carbon generating technology currently available that can provide secure supplies of electricity for the UK. It is a technology that the UK has successfully exploited for more than 50 years for electricity generation and at its peak in 1998 accounted for 26% of UK generation. However, as the older nuclear power stations reach the end of their lives, this share has declined to below 15%.

1.1.6 The Government's draft Nuclear National Policy Statement (NPS)[3] emphasis the need for the UK to take account of the ability to develop new nuclear power stations significantly earlier than 2025 so to displace CO_s, and achieve the Government's objective of achieving an electricity supply that is almost entirely 'decarbonised' by 2050.

1.1.7 The draft Nuclear NPS considers the need for and siting of new nuclear power stations at a strategic level, identifying those sites that are in principle suitable for new nuclear power stations. These sites, including Hinkley Point, were identified through the Governement's Strategic Siting Assessment (SSA). Such sites are credible for deployment by 2025.

1.1.8 Unless action is taken now to invest in new nuclear power stations, carbon emissions from electricity generation are likely to rise and energy security will be at increased risk. It is on this fundamental basis that EDF Energy believes there is a pressing need for new nuclear development. The proposed nuclear power development at Hinkley Point C will provide more than 6% of the UK's electricity requirements. This will represent a significant contribution to the Government's energy policy aims in its own right.

b) Suitability of the Hinkley Point C Site

1.1.9 EDF Energy nominated the Hinkley Point C site into the Government's SSA process and believes the site is strategically suitable. Key attributes of the site include:

- Adjcanet to an existing nuclear operation. There has been a nuclear power station at Hinkley Point since 1965 and the community is familiar with the technology and the employment opportunities it offers;
- Planning precedent following a lengthy public enquiry. In 1990 planning consent was granted for a single reactor within the proposed site;
- Technical and safety conditions. Hinkley Point is connected to the National Grid transmission network, although upgrades and reinforcement will be required. The provision of direct cooling using water from Bridgwater Bay is established and is the preferred option for new nuclear development; and
- Ground conditions are considered suitable for development.

[2] HM Government (July 2009) 'The UK Low Carbon Transition Plan, National strategy for climate and energy'

[3] Department for Energy and Climate Change (DECC) (November 2009) 'Draft National Policy Statement for Nuclear Power Generation (EN-6)'

1.1.10 EDF Energy also reviewed potential alternative sites against a range of criteria to assist its SSA nomination and found Hinkley Point is likely to be an appropriate location for development.

1.1.11 The nominated Hinkley Point site was assessed under the SSA to be potentially suitable for the deployment of new nuclear power stations by the end of 2025. This SSA process has informed the development of the draft Nuclear NPS, which as well as setting out the Government's policy on the national strategic issues, also reduces the need, as far as possible, for the IPC to consider alternative sites. The Nuclear NPS provides overall and site-specific guidance on nuclear specific impacts and siting issues intended to aid the IPC's assessment of specific potential impacts of new nuclear power stations.

c) Proposed Development

1.1.12 The proposed development at Hinkley Point C would comprise two UK European Pressurised Reactor (EPR) units. The expected electrical output of the nuclear power station will be approximately 1,630 megawatts (MW) per unit giving a total site capacity of 3,260MW. This will meet more than 6% of the UK's electricity needs, the equivalent of supplying approximately 5 million homes.

1.4 Development Objectives

1.4.1 EDF Energy has set the following objectives for its proposed development of a new nuclear power station at the Hinkley Point C site:

- To construct two UK EPR reactor units and associated facilities on the Hinkley Point C site to the highest standards of safety, quality and operational efficiency; to have the first reactor operational by the end of 2017 and the second by 2020;
- To manage the construction in a way that maximises efficiency and minimises disruption to the local community;
- To provide positive socio-economic benefits to the local community, e.g. through opportunities for training, employment and participation in the supply chain;
- To make a positive contribution to the locality, e.g. by taking forward development in line with regional and local priorities for regeneration;
- Where possible, to create infrastructure that has a long-term, sustainable legacy benefit for the local community;
- To minimise as far as reasonably practicable any negative environmental impacts and seek opportunities for environmental enhancement; and
- To be a 'good neighbour' and ensure the needs and views of the local community are fully taken into account.

1.5 Request for Scoping Opinion

1.5.1 This Scoping Report accompanies a written request to the IPC for a Scoping Opinion in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI 2009/2263). This request for a scoping opinion is accompanied by:

- A plan sufficient to identify the site (the Hinkley Point C site, and the OAD) which is the subject of the proposed development (see **Figure 1** to **Figure 3**); and
- A brief description of the nature and purpose of the proposed development (see **Section 3**) and its potential effects on the environment (see **Sections 5** and **6**).

a) The Scoping Report

1.5.2 This EIA Scoping Report builds upon an original Scoping Report submitted to the Department of Energy and Climate Change (DECC) in November 2008 and the subsequent opinion received in February 2009 . The main purpose of requesting a further opinion is to ensure that the entirety of the development, both on and off-site has been included in the scoping process. It provides an outline description of the environmental baseline for the development areas, including all OAD, and summarises the work that has been undertaken, or that is planned to further inform this baseline. It also provides a preliminary view of the key issues associated with the proposals to help inform the scoping opinion.

b) Structure of the Scoping Report

1.5.3 This section (**Section 1**) introduces the EIA process, the proposed development site, and provides an overview of consultation carried out to date.

1.5.4 **Section 2** describes the consenting and regulatory regime determining the development.

1.5.5 **Section 3** provides more detailed information relating to the development proposals, outlining the sites and areas covered by this scoping report.

1.5.6 **Section 4** provides information on the EIA process, incorporating cumulative impact assessment, the Habitats Regulations Assessment, environmental management and the approach which will be taken towards the issue of sustainability.

1.5.7 **Sections 5** and **6** provide a summary of the baseline environmental studies and potential effects of the Hinkley Point C site and proposed OAD according to the following topics:

- Geology, soils and land use;
- Land contamination;
- Hydrogeology;
- Hydrology, drainage and flood defence;
- Fresh water quality;

- Marine water and sediment quality;
- Hydrodynamics and coastal geomorphology;
- Terrestrial flora and fauna, including ornithology;
- Marine and coastal flora and fauna;
- Transportation;
- Noise and vibration;
- Air quality;
- Radiological effects;
- Landscape and visual amenity;
- Archaeology and cultural heritage;
- Amenity and recreation; and
- Socio-economics.

1.5.8 For the Hinkley Point C site the baseline environment is summarised; studies undertaken to date to inform the impact assessment (e.g. surveys, reviews and consultation) are briefly discussed; and the proposed approach for continued assessment (e.g. further studies) is set out, where applicable.

1.5.9 For the OAD, the proposed elements have been grouped according to location, in order to facilitate more general description of the environmental baseline, the assessment approach, and an indication of likely issues.

1.5.10 Section 7 provides a brief summary of the Scoping Report and the next steps towards the DCO application.

2 LEGISLATIVE AND REGULATORY REGIME

2.1 A New Planning Process for Major Infrastructure

2.1.1 The Planning Act 2008 (the Act) introduced a new planning regime for Nationally Significant Infrastructure Projects (NSIPs), including energy projects. The objective of the new regime is to improve the process for delivering major infrastructure projects, making the process faster and fairer. Under the Act the Infrastructure Planning Commission (IPC) has been established to consider applications for NSIPs from 1 March 2010.

2.1.2 The Act also provides for Government to produce National Policy Statements (NPSs) setting out the national need for strategically significant infrastructure and helping to set the strategic policy framework within which the IPC will consider individual applications. The draft Nuclear NPS[4] sets out the Government's assessment of the need for new nuclear power. The Government's Strategic Siting Assessment (SSA) forms part of the draft Nuclear NPS.

2.1.3 A DCO authorising the project works will be subject to determination by the IPC following a detailed examination of the proposed development, including its local impacts. As part of this assessment, the IPC must have regard to the ES which EDF Energy will submit under The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 and any requirement to carry out an Appropriate Assessment under the Conservation (Natural Habitats, & c.) Regulations 1994.

2.1.4 The DCO may include consents required under a number of other licensing regimes, if the relevant licensing bodies agree. In particular, a DCO may include authorisations or permits normally issued by the Environment Agency, for instance under the Environmental Permitting (England and Wales) Regulations 2007, for activities such as standby combustion plant. A DCO may also grant deemed consent for works to be carried out at the Hinkley Point C site below Mean High Water Spring Tide (see **Section 3.3.3**). The DCO may also include powers of compulsory purchase.

2.1.5 Licensing of the proposed Hinkley Point C site under the Nuclear Installations Act 1965 will remain a separate process outside the control of the IPC. The Nuclear Installations Inspectorate (NII) is responsible for nuclear site licensing and will not grant this licence until it is satisfied that the design meets their standards and that organisational and safety issues are appropriately addressed. A process of Generic Design Assessment (GDA) is currently being carried out by the Health and Safety Executive (HSE) and the Environment Agency to assist the licensing process; the GDA is scheduled to be completed in June 2011. This process allows the generic safety, security and environmental implications of new nuclear reactor designs to be assessed before an application is made for a licence and permissions to build a

[4] Department for Energy and Climate Change (DECC) (November 2009) 'Draft National Policy Statement for Nuclear Power Generation (EN-6)'

particular design of reactor on a particular site. The UK EPR developed by AREVA and EDF Energy is currently being assessed under the GDA.

2.1.6 EDF Energy must also have a Funded Decommissioning Programme (FDP) approved by Secretary of State (SoS) under the Energy Act 2008 before it can commence the installation of the nuclear reactors. The FDP will set out the technical basis for decommissioning the nuclear power station as well as the financial and legal arrangements to ensure that operators will meet the full costs of decommissioining and their full share of waste and spent fuel management costs in the future.

2.2 Alternative Solutions to Nuclear

2.2.1 Alternative solutions to nuclear power are assessed in the Government's draft Nuclear NPS against the core objectives of energy policy, which are to maintain security and affordable supplies and to help make the transformation to a low carbon economy.

- Renewables. The Government is committed to delivering 15% of final energy consumption from renewables by 2020, a demanding target which is dependent on financial incentives. Most renewables are intermittent in terms of electricity production, which limits the proportion of electricity generation that they can provide.
- Carbon Capture and Storage. Although it may prove feasible to capture and store the carbon dioxide produced from fossil fuel-powered energy generation this technology has not yet been proven for a full scale power station and cannot be regarded as a credible short-term alternative.
- Reduction in Demand. Demand for electricity is still expected to grow overall in the medium to long-term, driven by economic growth and an increased role for electricity in providing energy for heating and transport.

2.3 The Nuclear Regulatory Regime

2.3.1 Nuclear power stations are subject to a wide range of legislation and regulation, including safety, security and environmental aspects, by the UK's nuclear regulators. EDF Energy is developing applications for a Nuclear Site Licence, a Radioactive Substances Act 1993 (RSA) discharge authorisation and other environmental consents, which will be considered in parallel with the DCO application to the IPC. Site specific information will progressively build upon that provided to the UK's nuclear regulators as part of the GDA process, which has involved a rigorous and structured examination of detailed design information by all the nuclear regulators.

2.3.2 As part of the DCO determination, the IPC will consult with the key regulators, including the HSE and the Environment Agency. Before a decision is made the IPC will need to be satisfied, in principle, that the development can proceed safely and with due consideration given to the environment as set out below:

- **Safety**. The main element of the UK nuclear regulatory framework is the Nuclear Installations Act 1965, underpinned by the more general Health and Safety at Work Act 1974. The HSE through its Nuclear Installations Inspectorate (NII) scrutinises operators' nuclear activities.
- **Security**. The HSE through its Office for Civil Nuclear Security (OCNS) is the security regulator for the UK's civil nuclear industry under the authority of the Nuclear Industries Security Regulations (NISR) 2003 (as amended). Transporters of nuclear material to or from civil nuclear licensed sites must be approved by OCNS, and security vetting is also conducted by the OCNS.
- **Environment**. Under the RSA, the Environment Agency regulates all disposals of radioactive waste (in England and Wales). The Environment Agency also regulates: abstraction from and discharges to controlled waters; operation of specific 'conventional' plant; assessment and, where necessary, clean-up of contaminated land; disposal of conventional waste; and certain flood risk management matters.
- **Emergency preparedness**. Potential for an accidental release of radioactive material from nuclear power stations can never be completely ruled out. However the operator has a legal obligation to demonstrate risks are reduced to be as low as reasonably practicable. It is a condition of a Nuclear Site Licence that an operator has in place on-site emergency arrangements, and the Radiation Emergency Preparedness and Public Information Regulations 2001 require the relevant local authority to prepare adequate off-site emergency plans (working closely with the operator).
- **Transport**. The Department for Transport (DfT) Dangerous Goods Division is the Competent Authority for the transport of all radioactive material to and from the Hinkley Point C site.

2.4 Regulatory Justification of the UK EPR Reactor Unit Design

2.4.1 In parallel with the planning process the Justification of Practices Involving Ionising Radiation Regulations 2004 (Justification Regulations, in accordance with the EURATOM Treaty) require a demonstration that the benefits of a new practice outweigh any detriment to health. The Government has already consulted on the Nuclear Industry Association (NIA) application covering the UK EPR reactor unit and expects to consult on its draft decision. A positive decision by the Justifying Authority (DECC) would enable the UK EPR design, proposed for Hinkley Point C, to be used in the UK.

3 DESCRIPTION OF PROPOSED DEVELOPMENT

3.1 Development Proposals

3.1.1 Under the Planning Act 2008 (the Act), Nationally Significant Infrastructure Project (NSIP) development is divided into two categories.

- The NSIP itself, in this case a generating station (plant and buildings involved in the generation of electricity), referred to as Hinkley Point C Nuclear Power Station; and
- Associated development, such as offices, car parking and land required on a temporary basis for construction, both on and offsite. Under Section 115 of the Act this can be included as part of the overall development proposal if it can be reasonably demonstrated that it is needed to enable construction and operation.

3.1.2 The NSIP and on-site associated development are collectively referred to as the Hinkley Point C site. For the purposes of the EIA the Hinkley Point C site has been subdivided into the Built Development Area West, Built Development Area East and the Southern Construction Area (see **Figure 4**).

3.1.3 Development located away from the nuclear power station site, such as accommodation and transport infrastructure, is referred to as Off-site Associated Development (OAD) (as shown in **Figure 3**). These three elements of the development are introduced below.

3.2 Hinkley Point C Nuclear Power Station

a) Nuclear Reactors

3.2.1 The proposed Hinkley Point C nuclear power station design will comprise two UK EPR reactor units and shared facilities. The reactor unit is a development of existing technology, is designed for a lifetime of 60 years and makes more efficient use of fuel than current designs, thus reducing the quantities of spent fuel.

3.2.2 Generated steam powers a single large turbine, directly connected to a generator capable of producing around 1,630MW of electrical power. Electricity is exported by overhead lines to the National Grid transmission network. Seawater is used to condense the steam back to water before it is returned to the steam generators.

b) Safety Systems

3.2.3 Two simple principles are applied in delivering nuclear safety:

- ‘Protective barriers’ involves placing leak-tight physical barriers between radioactive materials and the environment; and
- ‘Defence-in-depth’ involves identifying threats to the integrity of the protective barriers providing successive lines of defence to protect them from failure.

3.2.4 Diverse systems are installed for safe reactor shutdown in the event of any faults, and essential buildings are designed to withstand identified human and natural hazards.

c) Fuel and Waste

3.2.5 Operational radioactive waste from a UK EPR reactor unit arises in solid, liquid and gaseous form. New and spent fuel is handled in the fuel building adjacent to the reactor building. Spent fuel is highly radioactive and is stored underwater in a fuel pond. The waste building will provide a shared service for both proposed reactors.

d) Ancillary Buildings

3.2.6 The nuclear auxiliary building houses reactor support functions such as water treatment plant and ventilation systems. A separate building houses offices and workshops for operations and maintenance staff for both reactor units.

3.3 Associated Development

a) On-site Associated Development

3.3.1 On-site Associated Development comprises:

- All infrastructure and facilities needed to support the operation of the nuclear power station including offices, workshops, storage buildings and transport infrastructure and car parks;
- A sea wall along the frontage of the site for coastal protection;
- Interim spent fuel storage facilities;
- Interim radioactive waste storage facilities;
- Cooling water tunnels (two intake and one outfall) and associated infrastructure;
- Construction areas and facilities including a Temporary Aggregates Jetty (the jetty) for bulk aggregate delivery;
- Temporary accommodation for construction workers;
- Spoil disposal/landscape integration; and
- Transmission infrastructure from the generating station to a proposed National Grid sub-station. Although both the new sub-station and overhead lines to the existing Hinkley connection will form part of a separate DCO submission from the National Grid, the transmission infrastructure will be considered in the assessment of cumulative impacts.

b) Off-site Associated Development

3.3.2 OAD considered necessary to construct and operate the nuclear power station include:

- A Cannington bypass around the village of Cannington;
- Accommodation facilities for construction workers (campuses);
- Park and ride facilities;
- Freight consolidation/storage facilities;
- Refurbishment of Combwich Wharf and a heavy loads berthing facility;
- Temporary laydown and storage facilities on land adjacent to Combwich Wharf;
- Road improvements; and
- Spoil disposal/landscape integration.

3.3.3 Fixed options and locations for OADs will be determined following optioneering and the outcomes of the first stage of the formal consultation exercise, in order to inform the second stage of the consultation and DCO application. The location of the OAD options under consideration are illustrated in **Figure 3**.

c) Preliminary Works

3.3.4 EDF Energy intends to seek separate consent to undertake 'Preliminary Works', including preparing the Hinkley Point C site for development along with the construction of a sea wall and the jetty, ahead of the main DCO application. These will be subject to separate scoping reports and one combined ES. These preliminary works will also be included within the proposed DCO application and assessed within the accompanying ES.

3.3.5 Development consents for the relevant components of the Preliminary Works will be sought from the Department of Transport (DfT) for a Habour Empowerment order under the Harbours Act 1964 (as amended), from West Somerset Council (WSC) under the Town & Country Planning Act 1990 (TCPA) and from the future Marine Management Organisation (MMO) under the Food & Environment Protection Act 1985 (FEPA) and the Coast Protection Act 1949 (CPA). [Note: At present and before the MMO comes into effect in 2010, approvals under the FEPA and CPA are administered by the Marine and Fisheries Agency (MFA) and applications for orders under the Harbours Act are administered by the Department for Transport (DfT).]

3.3.6 Government has advised local authorities that permission can be granted on the basis that any preliminary works will be removed if the subsequent DCO application is turned down or if no application is made. Formal consultation will be undertaken by the local planning authority.

3.4 Construction Phase

3.4.1 This section outlines the main construction activities and phases together with land use requirements for the proposed new nuclear development.

a) Construction Activities

3.4.2 The two UK EPR reactor units would take approximately ten years to build, including preliminary works. The construction of these two units would be phased with the construction of the second unit commencing 18 months after the first. Workforce numbers are expected to peak at around 4,000. Construction work would fall into three phases as follows:

- Preliminary works including site preparation, construction of a new sea wall and the jetty to receive bulk aggregates.
- Construction of buildings. Material requirements during this period would be mainly sand, aggregate and cement, reinforcing steel and pipework.
- Installation of plant. Mechanical and electrical plant would begin to arrive on-site about a year after pouring of first structural concrete. Main plant erection will take place over approximately three years. During this period the construction site would be fully occupied.

b) Land Use Requirements for Construction

3.4.3 Significant areas of land will be required on a temporary basis. The way land is used necessitates careful assessment and planning, and the proposed location and use of land has been informed by a series of guiding principles. The majority of construction activity will take place in areas immediately adjacent to the permanent development site. South of the Green Lane, which approximately bisects the Hinkley Point C site east/west, land will be used generally for low level spoil storage, contractors' working areas and a workers' accommodation campus.

c) Reducing Impacts on Nearby Residential Properties

3.4.4 Careful consideration is being given to ensuring that those living relatively near to the Hinkley Point C site will be protected as far as possible from disturbance during construction. It is proposed that a substantial landscape buffer will be created along the southern perimeter of the construction site.

d) Workers' Accommodation Campus

3.4.5 **Section 6** provides information on proposals for worker accommodation off-site. EDF Energy is also proposing to erect a temporary workers' campus within the Hinkley Point C site, accommodating up to 700 workers for five years during the main phases of construction activity. EDF Energy's aim is to provide a good standard of accommodation for the workforce and include a range of services to minimise any potential adverse social impacts.

3.5 Operational Phase

3.5.1 The UK EPR reactor unit has an operational design life of 60 years. During normal operations the number of staff required on the Hinkley Point C site will be around

700. This includes those involved in support functions such as technical support, laboratory work, routine maintenance, training and procurement. Approximately 1,000 additional staff will be employed on each UK EPR reactor unit during planned refuelling and maintenance outages. A public information centre will also be opened on the site.

a) Waste Management Strategy

Radioactive and Non-radioactive Waste

3.5.2 Radioactive waste is produced by activities associated with the operation, maintenance and decommissioning of the nuclear power plant. In accordance with the Health and Safety Executive nuclear site licence conditions and the Nuclear Installations Act 1965, the nuclear reactor units will be designed to have suitable and sufficient safety systems. This includes the 'defence-in-depth' approach and 'protective barriers' to prevent the release of radioactive material; limit the severity of a release should it occur, and/or limit the consequence of the hazard should it occur and be severe.

3.5.3 The UK EPR reactor unit design applies the core principle of minimisation of the generation of radioactive and non-radioactive wastes, as far as is reasonably practicable, by application of the waste hierarchy. The waste hierarchy requires avoidance of waste in the first instance and reducing as far as possible the volume requiring disposal once the waste has been produced. The waste hierarchy gives an order of preference for waste management options to minimise the volume for disposal, including prevention (most favoured option), minimisation, reuse, recycling, energy recovery and disposal (least favoured option). Use of the waste hierarchy will be adhered to in the construction, operation and ultimate decommissioning periods of the nuclear power station.

Solid Radioactive Waste

3.5.4 Depending on the radioactivity level, solid radioactive waste will follow one of three routes for disposal in line with agreed practice. Very Low Level Waste (VLLW) will be disposed of at appropriately authorised sites and Low Level Waste (LLW) at the national Low Level Waste Repository (LLWR). These will be sent off-site promptly after they have been generated.

3.5.5 Intermediate Level Waste (ILW) will be kept on-site in a store designed to accommodate the nuclear power station's lifetime arisings and capable of lasting for at least 100 years, pending despatch to a national geological disposal facility.

Liquid and Gaseous Radioactive Waste

3.5.6 Systems and plant will be operated to reduce radioactive discharges to a minimum through the use of Best Practice Means and in a manner so as to minimise the environmental impacts of discharges. All discharges will be monitored and recorded

to demonstrate this. Very low levels of gaseous radioactivity waste will be discharged to air via a stack (up to 80m) on the reactor building. Small amounts of radioactivity will also be discharged to sea via the cooling water system.

Spent Fuel

3.5.7 Spent Fuel assemblies will be discharged from the UK EPR reactor unit and placed into the spent fuel pool to cool and to allow levels of radioactivity to decay for about ten years. Spent fuel will then be moved to an on-site storage facility, designed to accommodate the nuclear power station's lifetime spent fuel arisings and capable of storing the fuel for at least 100 years. Consistent with the Governement's long-term strategy for the management of spent fuel, it will ultimately be disposed of in a geological disposal facility.

Conventional Waste

3.5.8 Conventional wastes, including 'industrial', 'inert' and 'commercial' waste, are estimated at 1,200 tonnes per year, of which less than 20% will be classified as 'hazardous'. Using the waste hierarchy framework, the development will avoid waste in the first instance and reduce as far as possible the volume requiring disposal. The waste heirarchy will be adhered to in the construction, operation and ultimate decommissioning periods.

Impact Assessment

3.5.9 The Environmental Statement will provide information on the potential impacts of radioactive and conventional waste. The assessment of radioactive waste will give consideration to regulatory controls on radioactive waste management, identify potential sources of radioactive discharge to the environment and assess any potential radiological waste effects for the main site, including the potential effects of interim on-site storage and long-term geological disposal. The separate assessment of conventional waste will consider all non-radioactive waste both on-site and off-site.

3.6 Decommissioning

3.6.1 The EIA process for the full scheme including the Hinkley Point C site and OAD will focus on the potential impacts associated with the construction and operational phases of the development. The decommissioning period of Hinkley Point C, more than 60 years hence, will only be considered to the extent of assessing whether, in principle, there are likely to be any unacceptable environmental impacts arising from the decommissioning of the site. Decommisioning is subject to its own detailed EIA regulatory process, and there is a requirement for the operator to obtain consent from the HSE under the (Nuclear Reactors (Environmental Impact Assessment for Decommisioning) Regulations 1999), which will include a period of public consultation. For the Hinkley Point C UK EPR reactor units this will take place

immediately prior to the end of operation. EDF Energy's decommissioning strategy will meet Government policy and regulatory requirements[5].

3.6.2 The Energy Act 2008 further requires operators of new nuclear power stations to prepare a Funded Decommissioning Programme (FDP) for approval by the Secretary of State. This will set out the technical, financial and legal arrangements for decommissioning the nuclear power station and must be approved by the Secretary of State before construction.

a) Decommissioning Strategy and Activities

3.6.3 Modern PWRs incorporate design features which facilitate decommissioning. EDF Energy will be adopting a prompt decommissioning strategy. The principal elements of this are:

- Pre-closure preparatory work. Prior to the planned closure a programme of preparatory work will be initiated to ensure that the Hinkley Point C site is decommissioned as safely, efficiently and economically as possible;
- Defueling. Fuel will be removed from the core within a few weeks of the end of generation and will cool in ponds before transfer to the interim on-site storage;
- Decommissioning engineering preparatory work. Although some systems will continue to be required during decommissioning the remaining systems will be taken out of service and isolated, drained and purged or flushed and vented to make them safe; and
- Plant decommissioning. All equipment, facilities and buildings on the site, including both non-radioactive and radioactive parts and systems, will be removed. Radioactive and conventional waste materials will also be managed.

3.6.4 Decommissioning typically takes around 20-25 years. The final clearance and de-licensing of the whole of the Hinkley Point C site will only be carried out when the spent fuel is removed and the spent fuel store is fully decommissioned. Partial site clearance and de-licensing could be carried out to allow the re-use of most of the site in advance of this.

5 Government policy on decommissioning is set out in The Decommissioning of the UK Nuclear Industry's Facilities Statement (Department of Trade and Industry, September 2004)

4 APPROACH TO THE EIA AND ENVIRONMENTAL STATEMENT

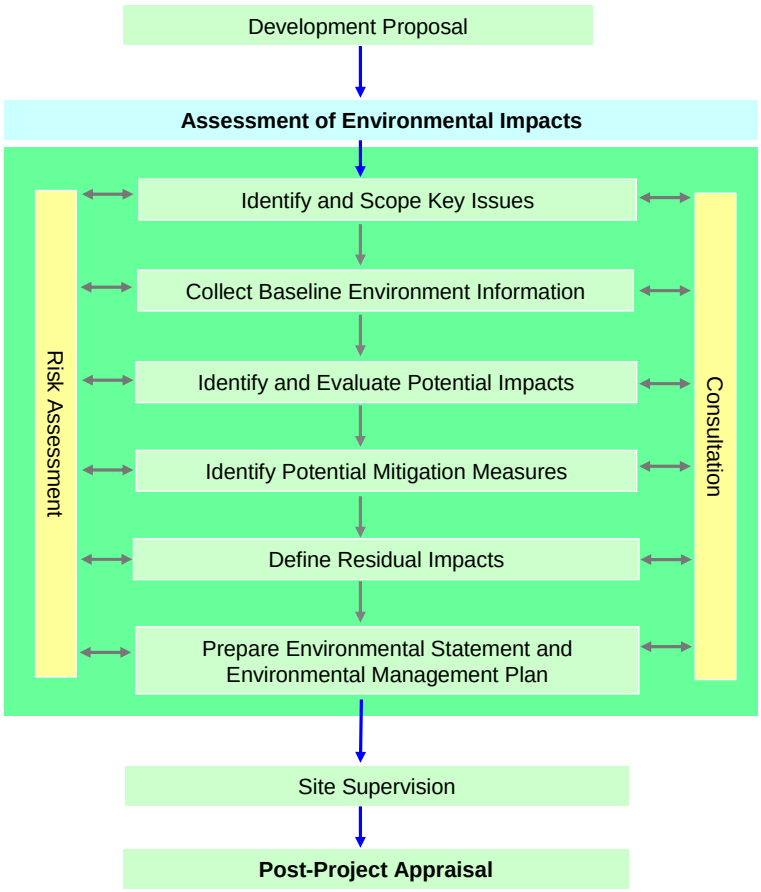
4.1 The Environmental Impact Assessment

4.1.1 The EIA for the Hinkley Point C Development will conform to the requirements of the Planning Act 2008, including the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI 2009/2263). It will consider the potential implications of the proposals for the environment during construction and operation and, in outline, during the decommissioning phase of the development. The significance of any identified impacts will be determined against a scale from major adverse, through negligible/no impact, to major positive. For the purposes of the assessments 2008/9 is taken as a baseline year, 2015 is projected to be the peak construction year (in terms of the number of site-based employees) and both new reactors are projected to be operational by 2020.

4.1.2 The information presented within this document is intended to identify the way forward for the assessment of the potential environmental impacts associated with the new nuclear power station development at Hinkley. As the EIA is taken forward, the general steps in the process that will be followed are shown below in **Diagram 1**. The process of EIA is an iterative and evolutionary one that builds up layers of data as the assessment progresses. The approach it takes needs to be comprehensive and well-organised given the variety of technical specialisms involved, as well as the need to integrate many of the environmental and social issues potentially arising. Furthermore, the EIA needs to incorporate the comments and knowledge of a wide range of statutory and non-statutory stakeholders, as well as the input of the local community.

4.1.3 In order to address the expected data requirements of the future EIA, the further work described in **Sections 5** and **6** is either underway or in the process of being commissioned. In all cases where significant impacts are identified, appropriate mitigation measures will be developed and details provided in the ES. The residual impact will then be assessed and reported. The ES will report the outcomes of the process, and technical appendices will provide additional information on relevant topic areas. The ES will also be accompanied by a separate Non-Technical Summary (NTS).

Diagram 1 The EIA process



4.2 Form of the Environmental Statement

4.2.1 The findings of the EIA will be reported in the ES and accompanying technical appendices. It is anticipated that the first section of the ES would contain the introductory chapters relating to the project as a whole. These would include a description of the project, the planning policy context, the main alternatives considered during the evolution of the project, and the construction process and programme. Information relating to the consultation process together with the overall methodology adopted for the EIA would also be provided.

4.2.2 The next section of the ES would then comprise the individual topic chapters, which would each describe the baseline environment, identify and assess the significance of potential effects of the development, set out the propoals for avoidance and/or mitigationof any potential effects, and identify any residual effects. The topics chapters will include those presented within **Sections 5** and **6** of this Scoping Report and also the assessment of waste, both radioactive and conventional.

4.2.3 Cumulative assessment will form an important part of the EIA and will be undertaken in line with best practice. It will consider the potential implications of the

development in conjunction with recent and other foreseeable plans or projects. All such effects will be considered in detail as part of the EIA process.

4.3 The Study Area

4.3.1 Clear definition of the study area for the EIA is a key part of the process. The study area must encompass the area over which the impacts of the proposed scheme may be detected. Consequently, the study area for each of the environmental parameters included in the EIA may be different. For example the study area for the Landscape and Visual Impact Assessment is larger than that for the terrestrial ecology surveys.

4.3.2 For the purposes of EIA the Hinkley Point C site has been subdivided into the Built Development Area West and the Built Development Area East (collectively known as the Built Development Area), and the Southern Construction Area (see **Figure 4**). Built Development Area East comrpises land formerly owned by British Energy and is currently used, in part, for car parking and training by the existing Hinkley Point Power Station Complex; the remainder of this area being used for cattle grazing. Built Development Area West and the Southern Construction Area comprise mostly agricultural land with islotated farm buildings and scattered waterbodies. In summary, the Built Development Areas East and West will accommodate the permanent power station development, and the Southern Construction Area is intended to support the construction phase works. Further details on each of the study areas are described in Section 5 below.

4.3.3 Study areas for the marine developments and the OAD are also shown in **Figures 2** and **3** respectively. A summary of the data collection work that has been undertaken, is ongoing or is planned for each of these areas, is provided in **Section 5**. Studies that have been completed, are ongoing or are planned with respect to OAD are summarised in **Section 6.**

4.4 Habitats Regulations Assessment (incorporating 'Appropriate Assessment')

4.4.1 Various sites of nature conservation interest designated at the European and International level surround Hinkley Point (Ramsar and Natura 2000 sites to the north, east and south). Plans or projects that are likely to have a significant effect on such internationally designated sites require assessment in accordance with Regulation 48(1) the Conservation (Natural Habitats &c) Regulations 1994 (the 'Habitats Regulations') implementing the requirements of Article 6(3) of the Habitats Directive. Natural England has advised that an Appropriate Assessment is required which will be undertaken by the IPC (as the 'competent authority'). Information to help inform the Approriate Assessment will be submitted with the DCO.

4.4.2 The assessment will consider the implications of the proposals in view of the conservation objectives of the designated sites to determine whether an 'adverse effect on site integrity' would arise. If this were to be the case, then the project could

only proceed if it can be demonstrated that no alternative solutions exist and that there are 'imperative reasons of overriding public interest'. Compensatory habitat would have to be provided if these tests were met.

4.5 Environmental Management

4.5.1 An Environmental Management and Monitoring Plan (EMMP) is being prepared to accompany the DCO application to the IPC. Its purpose will be to monitor and confirm that effects or changes from construction and operation of the proposed development do not exceed stipulated environmental quality standards and the determined objectives for the project. Moreover it will ensure that any mitigation and monitoring proposals included within the ES are recorded and a timeframe and responsibilities are assigned. The EMMP is intended to provide a methodology by which significant changes to the environment can be avoided or, where change is inevitable, are controlled, measured and managed.

4.6 Approach to Sustainability

4.6.1 The Government's White Paper 'Meeting the Energy Challenge' (January 2008[6]), concluded that nuclear had a role to play in the UK's energy mix alongside other low carbon sources. The reasons for this were based on the environmental, social and economic characteristics of nuclear generation.

4.6.2 The Government undertook a high level assessment of the potential impacts on environmental, social and economic factors of construction, operation and decommissioning of new nuclear power stations (an Appraisal of Sustainability) as part of its draft Nuclear NPS. In addition to this, an Appraisal of Sustainability was also undertaken for the Hinkley Point Site, to inform the decision making for the SSA. This Appraisal draws on a range of information relevant to the Site, including the relevant policy context at the regional and local government level, which was used for the characterisation of baseline conditions and the appraisal of effects. The Apprasial of Sustainbaility for the Hinkley Point Site identifies potential significant effects arising from the construction of a new nuclear power station at Hinkley Point Site, and how adverse effects can potentially be mitigated. Whilst this appraisal considers the regional and local baseline, the Government acknowledges that the appraisals of Sustainability have been undertaken at a strategic level. The Government recognises that detailed assessment should take place at the development consent stage. EDF Energy's Sustainability Statement for the proposed Hinkley Point C development, together with its Environmental Statement, will fulfil this need.

4.6.3 The Environmnetal statement will assess the significance of impacts at the site-specific level, and present mitigation where neccesary. EDF Energy's Sustainability Statement will draw on relevant sustainability objectives identified from the Hinkley

[6] Department for Business, Enterprise and Regulatory Reform (BERR) (January 2008) 'Meeting the Energy Challenge': a White Paper on Nuclear Power

Point Site Specific Appraisal of Sustainability, and will demonstrate how the proposed development responds to these objectives based on the mitigation measures proposed, but also by examining additional measures considerd by EDF Energy. The Sustainavbility Statement will therefore identify how the Sustainability Objectives for the project have been delivered; it is not the intention of this document to reassess the sustainability of nuclear energy, as this is established at a higher level through national level studies (i.e. the NPS).

4.7 Consultation

a) The Consultation Process

4.7.1 Under the Planning Act 2008, one of the key elements of the new regime for NSIPs, including nuclear power stations, is the legal requirement to undertake detailed pre-application consultation, in line with principles contained in the Department for Communities and Local Government's (DCLG's) Guidance on Pre-application Consultation[7] and the IPC's Guidance Note 1 on Stages of Consultation Pre-application[8]. This pre-application consultation falls into two categories:

- Consultation with statutory consultees and other relevant stakeholders (other interested parties) under Section 42 of the Act; and
- Consultation with local communities living in the vicinity of the Hinkley Point C site under Section 47 of the Act.

4.7.2 In advance of making the DCO application, EDF Energy is consulting the local community, statutory stakeholders and other interested parties on its development proposals. This consulation process comprises two formal stages. Stage 1 undertaken between November 2009 and January 2010, sets out EDF Energy's initial proposals; and Stage 2 to be carried out in Spring 2010, will present more detailed proposals taking account of responses received at Stage 1 and results of ongoing studies.

4.7.3 Stage 1 consultation presented initial proposals and a number of options where elements could be subject to change as a result of ongoing studies and consultation feedback.

4.7.4 In addition to the formal stages of pre-application consultation, EDF Energy will continue to hold informal discussions with the key statutory consultees and other interested parties, as appropriate, up to the DCO application submission.

b) Consultation to Date

Statutory Consultees and Other Interested Parties

[7] Department for Communities and Local Government (DCLG) (September 2009) Planning Act 2008 Guidance on Pre-Application Consultation

[8] Infrastructure Planning Commission (December 2009) IPC Guidance Note 1 on Pre-application Stages (Chapter 2 of the Planning Act 2008)

4.7.5 Early consultation with statutory consultees and other interested parties commenced in Autumn/Winter 2008 in support of the initial EIA scoping process for DECC. Further consultation was undertaken prior to the acquisition of British Energy by EDF Energy in January 2009 to assist the Government's Strategic Siting Assessment (SSA) nomination process. This was undertaken by both companies.

4.7.6 During the formal announcement of intention to nominate Hinkley Point into the SSA process, EDF Energy widely publicised its intentions to nominate through national and local press releases, an advertising campaign and letters to stakeholders. The programme of consultation has continued.

Public Consultation

4.7.7 The existing Hinkley Point operators have strong links with the local community, including through the Hinkley Point Site Stakeholder Group. EDF Energy has undertaken a public consultation programme in order to engage people on its plans. A range of issues, raised during these stages, will be addressed through the EIA process.

c) Statement of Community Consultation (SOCC)

4.7.8 EDF Energy is committed to being open and transparent with the local community and key stakeholders. EDF Energy has prepared and published a Statement of Community Consultation (SOCC), as required by the Planning Act 2008. This sets out how we propose to formally consult people living in the vicinity of Hinkley Point in advance of submitting an application to the IPC. Further information is set out in the SOCC available online at www.edfconsultation.info.

5 ENVIRONMENTAL IMPACT ASSESSMENT – MAIN SITE AND ASSOCIATED ON-SITE DEVELOPMENT

5.1 Introduction

5.1.1 This section discusses the key potential environmental issues and impacts associated with the proposed development at the Hinkley Point C site. Each environmental parameter will be considered in the EIA. Where particular surveys or studies are required in order to describe the impact more fully or provide quantification of the magnitude of the impact, these are described.

5.2 Geology, Soils and Land Use

a) Baseline Environment

Geology

5.2.1 Hinkley Point lies on the southern margin of the Bristol Channel sedimentary basin ('the Somerset Basin'). Mesozoic sediments, deposited in a synclinal trough, are floored by rocks of the Devonian and Carboniferous age, which are exposed in the Quantock Hills and in the South Wales Carboniferous massif. West of the Hinkley Point C site, Mesozoic (Jurassic and Triassic) rocks are exposed along the cliff towards Watchet; to the east the Lower Lias cliff line gives way to the flat low-lying ground of the River Parrett Estuary and the Somerset Levels which represent an extensive area of shallow marine and terrestrial Quaternary sediments.

5.2.2 The solid geology in the study area predominantly comprises:

- Lower Lias of the Lias Group (Lower Jurassic, Blue Lias);
- Triassic Penarth Groups (PNG) Lilstock Formation (subdivided into Langport Member and Cotham Member) and Westbury Formation; and
- Mercia Mudstone Groups (MMG). Blue Anchor Formation, and Undifferentiated.

5.2.3 The majority of the study area is shown not to be overlain by significant drift deposits (Quaternary and recent). Where they occur, these deposits consist of between 2m and 5m of gravelly-sandy silty clay. Hinkley Point B is underlain by up to 5m of made ground, and on the low land to the east of Hinkley Point B there is a superficial covering of up to 5m of estuarine organic clays overlying 2m to 5m of glacio-fluvial sands.

Special Designations

5.2.4 Approximately 300m of the western area of the cliff section adjacent to the western edge of the Hinkley Point C site lies within the 'Blue Anchor to Lilstock' Site of Special Scientific Interest (SSSI). The designated interest here comprises cliff and

foreshore exposures of Lower Jurassic age and the geomorphology of exposed foreshore rock pavement. The potential area identified for the jetty includes the most eastern section of the SSSI, although the final position of the jetty is yet to be determined. The sea wall and intake and outfall structures are outside the SSSI boundary.

Soils and Land Use

5.2.5 The Soil Survey for England and Wales provides information and description of the soils within the study area. Subsoils vary according to the underlying geology.

5.2.6 In terms of land use, a review of historical maps and plans has identified that the Built Development and Southern Construction Areas have been greenfield agricultural land since at least 1886. Some of the land in the Built Development Area East was used during construction of Hinkley Point B for workers' accommodation and other temporary uses.

5.2.7 Published mapping of agricultural land quality has identified the entire study area and most of the surrounding land as being of Grade 3 (according to the Agricultural Land Classification (ALC) system). However this does not differentiate between Grade 3a or 3b at this scale. There is a small area of Grade 4 land to the south and east of Hinkley Point B. Grade 3b, 4 and 5 agricultural land is considered to be of poorer quality. To confirm and map the ALC within the study area soils surveys are being undertaken to inform an assessment in accordance with relevant guidelines.

5.2.8 To date approximately 70% of the land is classified as Moderate Quality Agricultural Land (Subgrade 3b); while 24% of the agricultural land on site is Subgrade 3a, which falls within the category of 'Best and Most Versatile Land'. This band of Subgrade 3a, crosses the southern part of the Built Development Area West. The remaining 6% is Poor Quality Grade 4 land. Much of the land within the Built Development and Southern Construction Areas is the subject of agri-environment schemes.

b) Assessment Studies

5.2.9 The geological characteristics and interests of the Hinkley Point C site are being determined through a combination of desk-based review of available literature and mapped data. A site survey of the geological exposure provided by the low cliff fronting the Hinkley Point C site and the cliffs and foreshore to the west has been undertaken. This will provide information on the geological and geomorphological value of the cliff and foreshore which will be used to establish the importance of the area within the context of the wider, extensive exposures present within Lilstock and Watchet Bays.

5.2.10 Geological data for the Built Development Area West has also been obtained from geophysical investigations and intrusive works undertaken during 2008. Information on soils and soil conditions has been obtained via desk-based review and field survey.

5.2.11 No further studies to inform assessment of potential geological and soil-related interests are planned in the Built Development Areas, although a further ALC survey is planned for the Southern Construction Area.

5.2.12 The table below provides a summary of the surveys and studies undertaken to date or planned with respect to geology, soils and land use.

Built Development Area	
West	**East**
Completed studies: • Agricultural Land Classification (ALC) survey • Geological mapping of cliff exposures • Detailed geological and geotechnical intrusive investigation	Completed studies: • Desk based studies • Geological mapping of cliff exposures
Studies in progress or planned: • None	Studies in progress or planned: • ALC survey • Detailed geological and geotechnical intrusive investigation
Southern Construction Area	
Completed studies: • Desk based studies	
Studies in progress or planned: • ALC survey • Geological and geotechnical intrusive investigation	

c) Key Issues

5.2.13 Although some of the construction works would lead to disruption and the loss of geological material, these activities would be unlikely to have any significant impact on the intrinsic geological interest since the stratigraphic sequence subcrops extensively in the wider area. The intrinsic value of the geology of the Hinkley Point C site is, therefore, effectively confined to the visible outcrops forming the cliff and foreshore platform along the northern boundary.

5.2.14 Construction of the new 760m Sea Wall would obscure the exposure in the cliff section fronting the Hinkley Point C site and construction of both the Sea Wall and the jetty could impact on the exposed foreshore rock pavement. Given the potential value of the geological and geomorphological interests at this site (i.e. continuity of exposure with a designated geological SSSI to the west), consultation with Natural England has been undertaken and the scope of a geological mapping exercise was agreed.

5.2.15 The geological mapping confirmed that, to the west of Hinkley Point, the sequence of geological beds that would be lost due to construction of the Sea Wall are the same as the SSSI. Similarly, there are several examples of rock pavement exposed to the west of Hinkley Point that are similar to those present in front of the Hinkley Point C Development Site. They are also equally as accessible to the public.

5.2.16 In terms of the potential effects on land use and soils, preparation of the site for the main construction works will generate a number of possible adverse effects, largely linked to permanent and temporary land-take. This land-take for the main construction works will include changes to soils and land use over the lifetime of the facility, but these are confined to Grade 3b to 5 land, thus minimising the adverse effect.

5.2.17 Prior to construction of the plant and on-site associated development, it is intended that topsoil from the Built Development Areas will be stripped and stored in the Southern Construction Area for use in post-construction restoration work. Topsoil will also be stripped from land in the southern part of this area to enable excavated material from the Built Development Area to be stockpiled and infrastructure required for the construction phase (e.g. workers' accommodation campus) to be built. Stored soil will be used in the restoration of the areas subject to temporary construction works.

5.3 Land Contamination

a) Baseline Environment

5.3.1 Both the Built Development and Southern Construction Areas have been greenfield agricultural land since before 1886. The former Benhole Farm (north-western corner of the site) was demolished in around 1976 leaving a single remnant outbuilding.

5.3.2 Within the Southern Construction Area a number of historical ponds have been identified, however all but one have been infilled. In addition, a property has been identified as being on site from at least 1841 (Corner Farm), which by 1975 had become derelict and by 2002 had been completely removed. Ponds are also present in the Built Development Area West.

5.3.3 The Built Development Area East comprised greenfield, predominantly agricultural land until 1975, when a small sewage works was constructed. In addition, during the construction of Hinkley Point B, an accommodation campus and other temporary uses were developed in this area. At present, land near to the access road is used for car parking, training facilities and a small electrical substation. Surrounding the Hinkley Point C site, land use has remained predominantly agricultural with the exception of the existing Hinkley Point Power Station Complex.

5.3.4 Desk-based assessments have indicated the presence of a number of potential sources of contamination.

- Southern Construction Area and Built Development Area West – historical use as agricultural land, possible storage and maintenance of vehicles and chemicals within farm buildings and localised infilling of former pond areas. The Built Development Area West is not subject to any regulatory controls for radioactive substances and does not present a risk to human health.

- Built Development Area East – specific areas where waste management activities have taken place, former sewage works, former contractors' accommodation/fabrication compound and associated electrical substations and a mound on site comprising excess spoil from the construction of the existing Hinkley Point Power Station Complex.

b) Assessment Studies

5.3.5 The Government's guidance on land affected by contamination is set out in Annex 2 of Planning Policy Statement 23: Planning and Pollution Control (2004) (PPS23). The requirements follow the risk-based framework adopted in the Government guidance document: Model Procedures for the Management of Land Contamination (CLR 11). PPS23 requires that an assessment of risk is carried out by the applicant where development is proposed on land that is, or may be, affected by land contamination.

5.3.6 To date, intrusive soil investigations for non-radiological substances have been undertaken in two phases within the Built Development Area West to inform the risk assessment. Overall, the investigations of shallow and deeper soils identified the risk of non-radiological contamination to human health and ecological receptors to be very low.

5.3.7 Non-intrusive and intrusive soil investigations for radiological substances have also been undertaken within the Built Development Area West. The first phase in July 2008 comprised a non-intrusive ground survey using direct radiation measurements. In addition, 20 near-surface soil samples and 30 soil samples from trial trenches were collected and analysed concurrently with the non-radiological investigations in July and October 2008 respectively.

5.3.8 Radiation measurements taken during a walkover survey recorded environmental gamma dose rates representative of expected background values. Soil samples analysed for radiological parameters also indicated that levels of radioactivity in the near surface and deeper soils are similar to background levels and are mainly due to naturally occurring nuclides.

5.3.9 A desk-based assessment of the Built Development Area East and Southern Construction Area covering both non-radiological and radiological contamination issues is ongoing. The desk-based assessment will be followed by a radiological walkover survey and intrusive investigation to allow soil sampling and analysis.

5.3.10 The table below provides a summary of the surveys and studies undertaken to date or planned with respect to land contamination.

Key habitats	Description
Intertidal sand and mudflats	Annex I qualifying habitat types for the Severn Estuary SAC, and mudflats are also a UK BAP priority habitat type.
Atlantic salt meadow	Occurs east of Hinkley Point and forms a feature of the Severn Estuary SAC and SPA designation.
Sandbanks	Sandbank habitats forming part of the SAC designation and are located to the west of Hinkley Point.
Reef habitat supporting Sabellaria	Where *Sabellaria* occurs offshore in high densities (›1,000/m^2), forming a thick crust (›2cm) and covering an area generally exceeding 25m^2, it is defined as *Sabellaria* reef and forms one of the Severn SAC designated features. Both *Sabellaria alveolata* and *S. spinulosa* reefs are UKBAP Priority Habitats, and *Sabellaria alveolata* has a Species Action Plan in the West Somerset BAP.

Built Development Area	
West	**East**
Completed studies: • Assessment of potential contamination sources and features • Radiological walkover survey • Ground gas monitoring (6 visits over 3 months) • Phase 2 intrusive (shallow and deeper soils) radiological and non-radiological contamination investigation	Completed studies: • Assessment of potential contamination sources and features • Design of Phase 2 intrusive investigation requirements
Studies in progress or planned: • Phase 1 desk study • Phase 2 assessment (where necessary)	Studies in progress or planned: • Radiological walkover survey • Phase 2 intrusive investigation of soils (radiological and non-radiological) • Ground gas monitoring (6 visits over 3 months) • Phase 2 assessment (where necessary)
Southern Construction Area	
• All as for Built Development Area East	

c) Key Issues

5.3.11 Available data for the Built Development Area West indicates that land contamination is unlikely to be an issue for either construction or operation of the proposed nuclear power station.

5.3.12 Additional assessments for the Built Development Area East and Southern Construction Area are underway. The significance of any associated environmental issues will depend on both the presence of contaminated materials and the level of contamination. Dependant on the conclusions of the additional assessments, the following may also need to be considered:

- The management of topsoil stripped from the Built Development Areas and parts of the Southern Construction Area;

- The management of any contaminated materials contained within the spoil mounds created during construction of the existing Hinkley Point Power Station Complex;
- Any environmental, health and safety issues associated with the management of potentially contaminated materials;
- The potential contamination of groundwater and the drawdown and discharge (via dewatering) of this groundwater during construction; and
- The potential use of the jetty for discharges to sea.

5.4 Hydrogeology

a) Baseline Environment

5.4.1 The topography of the study area comprises undulating countryside, terminating at a natural cliff line which descends to a shingle beach. Across the Built Development Areas ground elevations range from approximately 10m Above Ordnance Datum (AOD) to 35m AOD; across the Southern Construction Area elevations range from approximately 5m AOD to 28m AOD.

5.4.2 The geology is described above. The Lower Lias comprises a Minor Aquifer. Rocks of the Penarth Group are considered to be generally impermeable although they may have minor transmissivity. The Mercia Mudstone Group (including the Blue Anchor Formation) are likely to be of insignificant permeability. The Environment Agency 1:100,000 Groundwater Vulnerability Map (Sheet 42, Somerset Coast) confirms the site as being situated on a Minor Aquifer (variably permeable).

5.4.3 Seventeen groundwater abstraction licences regulated by the Environment Agency are I place within 2km of the Hinkley Point C Development site. No surface water or potable water abstractions are recorded within a 1km search radius. Three of the 17 abstractions are located within 1km of the boundary of the Southern Construction Area. The closest are for farming and domestic use. The site is not within the catchment area or zone of any Source Protection Zone (SPZ).

5.4.4 Analysis of the available geological and groundwater information indicates that the Hinkley Point C site is likely to be largely self-contained as a groundwater system. Under natural conditions, groundwater is expected to flow northwards in general.

b) Assessment Studies

5.4.5 Groundwater level monitoring over a full calendar year for the Built Development Area West has been undertaken to allow both seasonal and potential tidal variations in behaviour to be assessed. Monitoring is also being undertaken within the Built Development Area East and the Southern Construction Area. On the basis of the geological and groundwater data a conceptual model of groundwater flow within the Hinkley Point C site is being developed. This will be used to ascertain potential effects of Hinkley Point C on groundwater flows and interdependent environmental parameters.

5.4.6 The table below provides a summary of the surveys undertaken to date, in progress or planned with respect to hydrogeology.

Built Development Area	
West	**East**
Completed studies: • None	**Completed studies:** • None
Studies in progress or planned: • Development of Preliminary Conceptual Groundwater Model (PCGM) using site data from on-shore site investigation • Ongoing groundwater level monitoring	**Studies in progress or planned:** • PCGM based on historic information • Intrusive site investigation • Groundwater level monitoring to commence once borehole installation is complete
Southern Construction Area	
Completed studies: • Assessment of groundwater conditions from historic information • PCGM inferred from maps and historic data	
Studies in progress or planned: • Intrusive site investigation • Groundwater level monitoring to commence once borehole installation is complete	

c) Key Issues

5.4.7 The main issue relating to groundwater conditions is the potential effect of drawdown of groundwater during construction in the vicinity of the deep excavation works for the two UK EPR reactor units and the management of the dewatering and associated discharge of this water. The following potential groundwater impacts relating to dewatering have been identified:

- The development of a cone(s) of depression creating new water gradients under buildings in adjacent areas; and
- The development of a cone(s) of depression creating reversal of the groundwater gradient and incursion of saline water to the Minor Aquifer.

5.4.8 The discharge of water from the dewatering abstraction would also be a consideration for the project. The details of the construction works are currently being developed, as is the dewatering strategy.

5.4.9 With respect to the potential impacts identified above, the assessment will consider:

- The likely volumes and rates over time of water needing to be removed from the aquifer for effective dewatering;
- The worst-case spatial extent of a dewatering cone(s) of depression;
- The range of worst-case spatial differential groundwater gradients and their implications; and
- Potential migration of contaminated water during dewatering.

5.4.10 The proposed dewatering strategy will be programmed and designed to minimise the risk of potential contamination issues.

5.4.11 The nearest licensed abstraction is situated 340m from the western boundary of the Southern Construction Area and is considered likely to be outside the dewatering zone of influence. All licensed abstraction sites are separated hydrogeologically by an area of upfaulted impermeable rocks (Mercia Mudstone) between the Built Development and Southern Construction Areas.

5.4.12 During the operational phase, several potential key effects on the groundwater regime have been identified, as listed below:

- Change in the groundwater flow regime due to either the placement of new building foundations, resulting in a rise in groundwater levels, or local permanent drainage systems around buildings, resulting in a decrease in groundwater levels;
- Change in the distribution of any off-site contaminated groundwater due to the altered groundwater flow regime; and
- Longer term increased incursion of sea water due to any alterations to the groundwater flow regime.

5.4.13 All of these issues will be assessed using the conceptual groundwater model developed on the basis of available geological and hydrogeological information and the scheduled second phase of geological site investigation and borehole data.

5.5 Hydrology, Drainage and Flood Risk

a) Baseline Environment

Surface Watercourses

5.5.1 A number of minor surface watercourses are present within the study area. Holford Stream runs west to east within the northern part of the Southern Construction Phase Area. This watercourse flows under Wick Moor Drove and drains into Wick Moor to the east. There are also a series of agricultural drainage ditches present on site, running along field boundaries. Two drainage ditches are present within the Built Development Area West, one running west to east along a field boundary in the northern part of this land parcel before turning northwards towards the coastline (as referred to above). The other, drains west to east at the base of the shallow valley forming the boundary between the Built Development Area West and Southern Construction Phase Area.

Flood Protection

5.5.2 The existing Hinkley Point Power Station Complex is protected from coastal flooding by the height of the land platform which, in turn, is protected from erosion by defences along the seaward frontage. The shoreline fronting the Hinkley Point C site

consists of a wide (500m) shore platform. This is important in dissipating wave energy and protecting the cliff platform on which the site lies at 10~16m Above Ordnance Datum (AOD).

5.5.3 According to sea level rise projections, it is likely that the flood defence embankment between Hinkley and Stolford Point will be overtopped during a 1 in 200 year tidal event. The Bridgwater Bay to Bideford Shoreline Management Plan (SMP) (1997) indicates that current management policies applicable to this area of coastline are 'Do nothing' and 'Hold the line.'

5.5.4 Hinkley Point falls into the West Somerset Catchment Flood Management Plan (CFMP) prepared by the Environment Agency in 2007. There are no records of fluvial flooding affecting the immediate area of Hinkley Point (including the Holford Stream catchment). As a result, a policy of 'no active intervention' is recommended.

5.5.5 The Environment Agency has modelled potential flood zones in the area. The southern edge of the Southern Construction Area, within the catchments of the Bum and Bailey Brooks, is located within the Fluvial Flood Risk Map Zones 2 (land with a 0.1% or higher annual probability of being flooded from rivers and the sea) and 3 (1% or higher annual probability of being flooded by freshwater or a 0.5% or higher probability of being flooded from the sea).

5.5.6 No fluvial flooding is shown for the Holford Stream upstream (west) of Wick Moor Drove. The southern edge of the Built Development Area West and the northern part of the Southern Construction Area are within the catchment of Holford Stream which is located within Tidal Flood Risk Map Zones 2 and 3. Tidal flooding does not reach as far upstream as the divergence of West and East Brooks. The extent of the tidal flood zone is based on the assumption that no flood defences are present. However, a flood defence embankment is located between Hinkley Point and Stolford Point with an effective crest level of 8.22m AOD.

b) Assessment Studies

Hydrological Overview

5.5.7 A hydrological study for all the catchments of interest in the Hinkley Point C site study area has been carried out and considers the following:

- Evapotranspiration for the different land uses using the Meteorological Office Surface Exchange System (MOSES) database;
- Annual average rainfall derived from a number of sources, including the Flood Estimation Handbook (FEH) CDROM, for the period 1960-1990 and applied to each of the catchments to obtain data for Design Rainfall Events;
- Studies indicating that rainfall recharge provides the driving mechanism for groundwater flow. Groundwater intermittently springs out at outcrops of lower permeability strata and provides the baseflow to surface watercourses; and

- The West and East Built Development and Southern Construction Areas have been separated into zones of similar run-off characteristics and the greenfield run-off rates calculated following the Institute of Hydrology Report No 124.

Flood Protection

5.5.8 A Flood Risk Assessment (FRA), in accordance with PPS25, is being undertaken in order to fully assess any potential impacts associated with flood risk. The FRA utilises output from the above assessments and models the potential for breaching/overtopping of the flood defence embankment between Hinkley Point and Stolford Point under present and projected sea level scenarios.

5.5.9 The specification of a safe platform level for the Hinkley Point C site with respect to tidal flooding was informed by a study of extreme sea water levels that includes, for example, extreme wave modelling analysis and tsunami risk.

5.5.10 The level of flood risk to Wick Moor Drive, the main access/egress route for Hinkley Point C, where it crosses Holford Stream, Bum Brook and Stogursey Brook is being assessed to identify the likely duration over which the Hinkley Point C site would be isolated subsequent to a breach/overtopping event, if one occurs.

5.5.11 The table below provides a summary of the surveys and studies undertaken to date, in progress or planned with respect to hydrology, surface water drainage and flood defence.

Built Development and Southern Construction Area
Completed Studies: • Consultation with the Environment Agency and Internal Drainage Board to agree scope of Flood Risk Assessment • Assessment of existing surface water drainage characteristic • Topographic survey of watercourses, flood defences and Wick Moor Drove • Tidal breach and overtopping modelling
Studies in progress or planned: • Tidal and Fluvial joint probability modelling • Assessment of drainage requirements for construction and development proposals • Flood Risk Assessment

c) Key Issues

Surface Water Drainage

5.5.12 A number of potential environmental impacts relate to the discharge of surface water derived from the Hinkley Point C site during the construction and operational phases. Surface water discharges to controlled waters would be managed in accordance with Planning Policy Statement 25: Development and Flood Risk (2006) (PPS25). Pollution control measures would be implemented and controlled through conditions of the discharge consents agreed with the Environment Agency on the control of discharges from the site.

5.5.13 Surface water drainage systems are being designed to intercept run-off. These will incorporate features which prevent or minimise both flooding of the Hinkley Point C site during construction and operation, and any adverse impact to the surrounding land or controlled waters to which they may discharge. A 'Water and Sediment Management Plan' will be developed to ensure that the drainage requirements are met during the construction phase.

5.5.14 The surface water drainage design will need to take account of potential changes to physical processes during the construction and operational phases that may be significant enough to impact receptors and require mitigation.

Flood Protection

5.5.15 The proposed platform level for the Built Development Area is approximately 14m and will provide adequate protection against tidal flooding from extreme sea water levels.

5.5.16 The FRA and associated modelling studies will inform the location and form of construction works that can be carried out within the Holford Stream and Bum Brook valleys without reducing the flood storage capacity and potentially increasing flood magnitude in the wider area. The FRA and modelling studies would also assess potential changes in the hydraulic regime in the Holford Stream as a result of culverting.

5.6 Fresh Water Quality

a) Baseline Environment

Surface Water

5.6.1 No historical water quality data is available for the surface watercourses draining the Hinkley Point C site. The most relevant surface water quality data available is Environment Agency data (2002-2007) for a 4.4km reach of the Stogursey Brook to the south of the Hinkley Point C site. It indicates moderate to good water quality with a high degree of nutrient enrichment.

5.6.2 During 2009, six surface water surveys were undertaken over the Built Development Areas, with five surveys reported on. For the surveys, a total of 11 sample locations were selected and a range of analyses were carried out on-site and in the laboratory.

5.6.3 The data from the first five surveys indicate that all tested parameters for monitoring sites within the Built Development Area are within the normal range for lowland freshwater systems and within the UK Drinking Water Standards (DWS) and freshwater Environmental Quality Standards (EQS) guidelines, with the exception of:

- Suspended solids with a maximum recorded value of 492mg/l (exceeds EQS value of 25mg/l);

- Biochemical Oxygen Demand (BOD) with a maximum recorded value of 16 mg/l (exceeds EQS value of 6mg/l); and
- Ammonia with a maximum recorded value of 0.62mg/l (exceeds DWS value of 0.5 mg/l but below EQS of 1.3mg/l).

5.6.4 The results are not unexpected for shallow, agricultural drainage ditches which typically show wide variation in water quality and flow characteristics. Sections of the ditches become dry during long periods without rain.

5.6.5 Sampling associated with the Southern Construction Area indicate that the majority of water quality parameters are within the normal range for lowland freshwater systems.

5.6.6 The surface water quality survey also included an assessment of radiological parameters which indicated that, on average, results from all sampling locations do not exceed DWS criteria for gross alpha, gross beta and tritium. In addition, no anthropogenic radionuclides measurable by high-resolution gamma spectrometry were detected at any of the sampling locations.

Groundwater

5.6.7 Five groundwater surveys were undertaken over the Built Development Area West between December 2008 and June 2009. For the surveys, a total of 11 sample locations were selected, comprising:

- 8 boreholes with piezometers sampling shallow groundwater between 3.5m bgl and 18.5m bgl; and
- 3 boreholes with piezometers sampling deep groundwater between 30m bgl and 54m bgl.

5.6.8 In terms of general groundwater quality in the shallow Lower Lias groundwaters, elevated concentrations of determinands related to sea water have been recorded from a couple of boreholes. Highly saline groundwaters have been recorded from deeper levels, particularly close to the shoreline or deeper in the Blue Anchor formations.

5.6.9 A Tier 1 groundwater risk assessment using the analytical results from the borehole monitoring has been undertaken. The results show that, generally, low concentrations of inorganic contaminants are present and are below the relevant screening values (i.e. the Drinking Water Stansdards (DWSs) and Environmental Quality Standard (EQSs)). Concentrations of organic contaminants (i.e. Petroleum Hydrocarbons (PHs), Polycyclic Aromatic Hydrocarbons (PAHs) and Volatile Organis Compounds (VOCs)) were below the limit of detection and below the relevant screening values across all deep and shallow groundwater locations, with the exception of an elevated Total Petroleum Hydrocarbon (TPH) concentration identified in one shallow piezometer during the first monitoring campaign.

5.6.10 The groundwater monitoring also included an assessment of radiometric and radiochemical parameters, as described with respect to the surface water monitoring. All of the shallow groundwaters met the UK drinking water screening criteria for gross alpha, gross beta and tritium. No anthropogenic radionuclides measurable by high-resolution gamma spectrometry were detected at any of the sampling locations throughout the survey.

b) Assessment Studies

5.6.11 Surface water quality monitoring has been undertaken across the development site in a series of six surveys during 2009. No further assessment studies are planned to establish baseline conditions.

5.6.12 Groundwater quality monitoring covering the Built Development Area West indicates no significant contamination. Further groundwater quality monitoring will be undertaken within the Built Development Area East and Southern Construction Area.

5.6.13 The table below provides a summary of the surveys and studies undertaken to date, in progress or planned with respect to fresh water quality.

Built Development Area	
West	**East**
Completed studies: • Consultation with the Environment Agency on requirements for surface water and groundwater quality monitoring and sampling • Five groundwater sampling campaigns from installed boreholes (December 2008 to June 2009) for radiological and non-radiological contaminants • Six terrestrial surface water monitoring and sampling campaigns for both radiological and non radiological contaminants	**Completed studies:** • None
Studies in progress or planned: • Reporting of results	**Studies in progress or planned:** • Groundwater quality monitoring and sampling campaign (radiological and non-radiological)
Southern Construction Area	
Completed studies: • Surface water monitoring and sampling campaign	
Studies in progress or planned: • Groundwater quality monitoring and sampling campaign (radiological and non-radiological)	

c) Key Issues

5.6.14 The following activities could lead to, or alter, discharges to terrestrial watercourses and in turn have the potential to result in changes to surface water quality during construction works:

- Surface drainage from drains, roads and stockpile areas, including hydrocarbon inputs from road drainage;
- Increased volume of surface discharges and associated sediment generation;

- Construction of haul road across Holford Stream; and
- Erosion of riparian areas (potentially producing elevated suspended solids).

5.6.15 Best management practices will be implemented, including through the establishment of an EMMP, to minimise the risk of accidental spills/leaks affecting surface water and groundwater quality during construction and operational phases.

5.6.16 There will be a permanent surface drainage system constructed, which will collect most surface water and discharge it to marine waters rather than surface watercourses. There are no planned direct discharges to be made to the Holford Stream although there is the potential for surface water run-off to enter watercourses. The surface water drainage system will therefore incorporate catch-pits and oil interceptors. Sustainable Drainage System (SuDS) principles will be incorporated where possible.

5.7 Marine Water and Sediment Quality

a) Baseline Environment

5.7.1 Engineering works in the marine and estuarine environments will include the construction of cooling water intake and outfall tunnels below the intertidal shore and sea-bed and the installation of intake and outfall structures on the sea-bed itself. The works will also include construction of the sea wall, construction of the jetty and the upgrade to Combwich Wharf.

5.7.2 The sediment and water quality of Bridgwater Bay is affected by various historic and current activities including a number of major industrial activities. In addition, a number of nuclear power stations are situated around the Bristol Channel.

5.7.3 Marine water quality data for chemical and radiological parameters are available from a series of ongoing surveys. Samples have been collected from inshore and off-shore locations off Hinkley Point. Marine sediment quality data is not available for chemical contaminants but is available for radiological parameters (Radioactivity in Food and the Environment (RIFE) reports).

Chemical Parameters

5.7.4 Development specific data on marine sediment quality in the area off-shore of Hinkley Point has not been obtained, although a survey of the jetty's berthing pocket and proposed cooling water intake and outfall positions is planned. A study undertaken by Langston *et al.* in 2007[9] indicates that:

- Arsenic, cadmium, chromium, copper, mercury and lead were present at concentrations at which biological effects could not be excluded; and

[9] Langston, W.J., Chesman, B.S., Burt, G.R., Hawkins, S.J., Readman, J. and Worsfold, P. (2003) Site Characterisation of the South West European Marine Sites. Severn Estuary pSAC, SPA. Marine Biological Association Occasional Publication No.13.

- Zinc was present at concentrations at which biological effects might be expected.

5.7.5 In 2009, four water quality surveys were undertaken on different states of the tide and in different seasons and have recorded values for a range of non-radiological parameters. Results indicate relatively homogenous conditions within the sampling zones off Hinkley Point as would be expected given the large tidal range and high tidal velocities and associated mixing. Overall water quality conditions were within the normal range for coastal waters and generally comply with the relevant EQSs. However, an elevated concentration of dissolved copper was recorded at a number of locations and high suspended solids levels were also recorded (a noted feature of the Severn Estuary and Bristol Channel).

Radiological Parameters

5.7.6 Data on radionuclide presence in the marine environment is available through the annual RIFE reports. RIFE 13 (2007) includes data on radionuclide concentrations in sediment at various locations along the coast of Bridgwater Bay. The RIFE Reports suggest concentrations of man-made radionuclides in the aquatic environment of the Severn Estuary represent low total dose to critical groups (less than 5% of public dose limit).

5.7.7 In 2009, a further four water quality surveys were undertaken off-shore of Hinkley Point. The water collected was analysed for a range of radiochemical and radiometric parameters. The majority of results obtained were at levels below the analytical detection limit.

b) Assessment Studies

5.7.8 Impacts relating to discharge of thermal waters have been the subject of numerical modeling studies. Two models have been used to predict the impact of the development for four potential intake and discharge configurations.

5.7.9 The potential for impacts upon local sediment and water quality resulting from proposed dredging and other off-shore and cross-shore construction activities will be assessed in the context of both current and historical studies in the area. Where potential sensitivities are identified, mitigation will primarily be achieved through the selection of appropriate engineering design and construction methodologies and the application of best practice.

5.7.10 The table below provides a summary of the surveys and studies undertaken to date, in progress or planned with respect to marine water and sediment quality.

Marine Areas
Completed Studies: • Consultation with the Environment Agency on requirements for water quality monitoring and sampling • Four seasonal water quality monitoring and sampling campaigns (radiological and nonradiological) nearshore (cooling water outfall) and off-shore (cooling water intake) • High resolution temperature and turbidity surveys from fixed instrument platforms (intertidal, sea-bed and

buoyed).

Studies in progress or planned:

- Water quality modelling (considering discharge of a subset non-radiological contaminants into the marine environment)
- Sampling and analysis of sediments at specific locations where sediment management may be required

c) Key Issues

5.7.11 Potential marine water quality impacts include discharges of contaminated water into the marine environment, sediment disturbance and contaminant mobilisation associated with the construction works. A combination of environmentally sensitive design and best practice construction management measures will be implemented to avoid or minimise potential impacts.

5.7.12 Although there may be potential operational impacts as a result of the discharge of cooling water and possible use of various process chemicals, such as hydrazine. All discharges to the marine environment will be controlled through conditions of the discharge consents agreed with the Environment Agency.

5.7.13 During the operational phase of the development, it is proposed that a surface drainage system will collect all surface run-off from the Built Development Area and discharge this water via two outfall locations to the foreshore. Treatment measures will be incorporated into the drainage system. Best management practices would be implemented to minimise the risk of spills affecting water and sediment quality.

5.8 Hydrodynamics and Coastal Geomorphology

a) Baseline Environment

5.8.1 Hinkley Point is a headland and is a natural boundary between two distinct coastal process units, namely:

- Lilstock to Hinkley Point cliffs (a series of cliffs formed of Lower Lias limestones and mudstones); and
- The outer Parrett Estuary (estuarine and marine Holocene deposits, characterised by reclaimed coastal marshes and mudflats).

5.8.2 Hydrodynamic survey work was undertaken at Hinkley Point in late summer 2008 over four spring-neap cycles and identified that:

- Tidal currents are parallel to the shore. Peak tidal current velocities in the nearshore subtidal zone range from 1.0m/s on neaps to 1.5m/s on springs relatively close to the site and 1.4m/s on neaps to 1.7m/s on springs further off-shore. Strong ebb to flood asymmetry was noted with stronger currents on the ebb. The magnitude of the asymmetry decreased as neap tides were approached. Current measurements across the sub-tidal zone described spring tide peak currents of approximately 1.4m/s. Tidal currents across the inter-tidal zone were variable with typical speeds of 1.0m/s on spring tides.

- The dominant direction of wave approach is from the west-northwest, with less frequent slightly smaller waves from the west. Significant wave heights of over 2m were recorded off-shore. The longest period waves (up to 20 seconds and likely to be swell waves) arrive from the west-northwest sector. Some shorter period waves arrive from the west sector.

5.8.3 This is a typical outer estuarine site that experiences a moderate variation in salinity regime throughout the tidal cycle. However, due to its extremely high tidal range, it is in most other senses atypical. Turbidity levels are extremely high, a distinctive feature of Bridgwater Bay, and the extreme turbidity and tidal regimes both have a significant influence on ecology and water quality. The freshwater plume from the nearby Parrett Estuary can also extend some distance off-shore.

5.8.4 Over the next 100 years, climate change is likely to impose a number of important modifications to the regime along the Somerset coast, including rising sea-levels and increases in the extreme water and storm surge levels. Climate change will act to accelerate existing trends within the Lilstock to Hinkley Point and outer Parrett Estuary process units. The evolution of these coastal/estuarine systems is being taken into account in predicting the potential implications of the development.

5.8.5 The geomorphology of the foreshore from St. Audrie's Bay to Hinkley Point comprises wave cut platforms of exposed rocks of the Upper Triassic and Lower Jurassic as well as shingle from an Ice Age source. The shingle originates to the west and is transported to the area by longshore drift.

b) Assessment Studies

5.8.6 An extensive suite of hydrodynamic survey work was undertaken at Hinkley Point in late summer 2008 over four spring-neap cycles using:

- A number of sub-tidal instrument moorings;
- Inter-tidal instrument moorings;
- Ship-borne instrument surveys;
- An anchor station;
- The deployment of drogues;
- A long term Waverider buoy (still operating directly off-shore); and
- A series of highly instrumented 'landers' on the sea-bed in shallower water.

5.8.7 New geophysical survey work was also undertaken to secure a detailed bathymetry sufficient for engineering design and hydraulic modelling. Swathe and sidescan sonar were used to develop habitat, bed morphology and (in combination with validation sampling) biotope maps. The output from these studies shows that most of the sea-bed and shore of the wider estuary is dominated by mud sometimes shallowly draped over the underlying solid geology with patches of coarser sediment. The sea-bed immediately in front of the Hinkley Point C site is dominated by bedrock exposures of interbedded limestone and mudstone.

5.8.8 On the basis of the collated data two separate numerical hydraulic models were developed to support, firstly, the engineering design studies and, secondly, the environmental assessment activity. Two potentially compatible needs have been considered in these simulations – avoiding recirculating the expelled cooling water back into the intake (with consequent efficiency losses on station operation) and limiting the potential environmental impact of the thermal plume from the cooling water outfall pipe.

5.8.9 The table below provides a summary of the studies undertaken to date, in progress or planned with respect to hydrodynamics and coastal geomorphology.

Marine Areas
Completed Studies: • Extensive single beam, sidescan and swathe high resolution surveys of the sea-bed • Mapping of nearshore and intertidal habitats and sea-bed morphology utilising sonar and Lidar surveys • Marine hydrographic surveys utilising ship-borne, sea-bed and buoyed instruments • Establishment of a long term wave monitoring facility (Waverider) and shallow water fixed instrument packages to ensure off-shore/on-shore wave field calibration • Development, calibration, validation and use of numerical hydraulic models in support of cooling water dispersion studies • Reviews and analyses of historical coastal geomorphological trends, current context and considerations of future change.

c) Key Issues

5.8.10 Studies to date on the hydrodynamics and coastal geomorphology have identified the following issues which will need to be taken into account:

- The engineering and access management approach for any cross-shore works. This will need to give careful consideration to local geomorphological interests. The main cooling water culverts will be tunnelled under the intertidal shore and sea-bed and thus will have no impact upon nearshore coastal geomorphological interests;
- The design and construction of the sea wall will be undertaken with appropriate care in order not to restrict the movement of sediments along the top of shore during storm sea conditions;
- The design and construction of other cross-shore structures, such as the proposed jetty, will be undertaken with appropriate care in order not to provide barriers to either waves or the existing hydraulic flows;
- Aside from the proposed sea wall itself the most significant structures to be introduced in the marine area will be the cooling water works. As described above any impact on the intertidal and near subtidal areas will be negated by tunnelling but the off-shore operations to introduce the intake and outfall structures themselves will inevitably cause some distrubance. The appropriate level of care in design and construction will be applied in order to control any localised impact on the hydrodynamic regime at these points; and
- Climate change predictions are suggesting higher water levels, including higher extreme water levels. The design of the sea wall will take these issues into account.

5.9 Terrestrial Flora and Fauna

a) Baseline Environment

5.9.1 The combined Built Development Area and Southern Construction Area comprises open, gently rolling mixed lowland farmland with hedgerows of variable quality, small scrubby woodlands and occasional standard trees. Much of the area is intensively managed and there is little semi-natural habitat present away from the cliff edge and the immediate vicinity of the built plant.

5.9.2 A relatively extensive area of land on the southern side and small areas of ground to the east and west of the existing Hinkley Point Power Station Complex have been subject to management according to an EDF Energy land management plan. The area is subject to the non-statutory conservation designation County Wildlife Site (CWS) (Hinkley CWS); approximately 60% of the designation is within the Built Development Area.

5.9.3 There are no substantial water-bodies within the combined Built Development and Southern Construction Areas, although two streams (Bum Brook and Holford Stream) run east-west across the area. These are connected to watercourses within the Bridgwater Bay SSSI and a minor unnamed stream which discharges to the intertidal zone. A more substantial drain (or rhyne) forms the boundary between the site and Wick Moor (North Moor). There is also limited standing water on-site.

5.9.4 The eastern boundary of the combined Built Development and Southern Construction Areas is formed (moving north to south) by the existing Hinkley Point Power Station Complex, the Bridgwater Bay SSSI and mixed farmland which has similar characteristics to that found within the site. The part of Bridgwater Bay SSSI immediately adjacent to the site consists of an area of flat, open improved grassland which is seasonally grazed. To the south and west of the Southern Construction Area there is further mixed farmland.

5.9.5 The northern boundary of the Built Development Area lies adjacent to Bridgwater Bay from which it is separated by a low cliff between five and ten metres in height. At low tide, the shore adjacent to and east of the site comprises a relatively narrow platform of rock (extending from approximately 200m to 500m from the cliff/upper shore). Further east, approximately 1km from the Hinkley Point C Development Site, the mosaic of intertidal habitats grades into an area of open mud and sand known as Steart Bay.

5.9.6 The Severn Estuary Special Protection Area (SPA) and Ramsar Site covers all intertidal and inshore marine habitat adjacent to the northern boundary of the Built Development Area and also extends inland and includes Wick and North Moor to the east.

5.9.7 The Severn Estuary was classified under the EU Birds Directive on the basis of its wintering and migratory bird interest. Qualifying features of the SPA are the wintering

numbers of (Russian) white-fronted goose, Bewick's swan, shelduck, gadwall, dunlin, redshank and the wintering waterfowl assemblage (over 20,000 birds). Additional species forming part of the key interest of the adjacent Bridgwater Bay SSSI (which shares a common boundary with the SPA locally) are whimbrel, grey plover, black-tailed godwit and teal.

Species Data

5.9.8 Sources of desk study data for terrestrial fauna including protected species are summarised below:

- **Birds:** Baseline data on the intertidal bird community included national Wetland Bird Survey (WeBS) counts and additional data collected for the West Hinkley Wind Farm Assessment (located on land within and to the east of the Built Development Area) which also supplemented annual breeding bird censuses undertaken by the EDF Energy Conservation Warden and historical work associated with previous applications.
- **Bats:** Considerable desk study data was available, predominantly as a result of the West Hinkley Wind Farm application, for which bat surveys were conducted between 2005 and 2007. Additional data and contextual information was received from Somerset Environmental Records Centre (SERC) and from the Somerset Bat Group
- **Water Vole:** Desk study data indicated that water vole occur to the east and south of the built plant at Hinkley Point, but that field signs had not been recorded within the site.
- **Otter:** There are very recent records of otter using rhynes to the east of the proposed development area from the EDF Energy Conservation Warden.
- **Dormouse:** Desk study indicated that there had been no previous dormouse survey, or records of dormouse within 3km, of the site. The nearest known record of the species is approximately 6.5km to the south-west.
- **Badger**: This species is abundant in West Somerset. Information from a number of sources was obtained through the desk study.
- **Great Created Newts:** Information provided by SERC, the former site conservation warden and Somerset County Council indicated the historical occurrence of great crested newts in Pixies Pond and Branland Copse (to the east), but no recent records.
- **Reptiles:** Information from SERC and the site warden indicated that slow-worm and grass snake populations were likely to be present to the south of the existing Hinkley Point Power Station Complex and that common lizard was present on the coast outside the area of concern.
- **Invertebrates:** There were limited previous data available for the combined Built Development and Southern Construction Areas, with most available information relating to aquatic invertebrates on land to the east and to butterflies. This latter information was mainly available as a result of annual surveys undertaken by the EDF Energy Conservation Warden.

b) Assessment Studies

5.9.9 An extended Phase 1 habitat survey has been carried out in and around the Hinkley Point C site, the findings of which are illustrated in **Figure 5**. Further assessment surveys undertaken on the fauna in the study area are summarised below:

Birds

5.9.10 For estuarine habitats, the baseline numbers and distribution of breeding, feeding and roosting birds was established through two years of regular intertidal surveys. This resulted in no records of white-fronted goose, Bewick's swan and gadwall and very low numbers and/or infrequent occurrence of dunlin, grey plover and teal within 1km of the coastal fringe of the Built Development Area.

5.9.11 A survey of the breeding bird community of the Built Development and Southern Construction Areas and a substantial perimeter area was completed in 2007. The breeding bird community of the mixed farmland habitats within the combined Built Development and Southern Construction Areas is characterised by a range of common and relatively ubiquitous bird species. Skylark is present in the larger arable fields, with lesser whitethroat being the only locally notable farmland species (towards the western edge of its range). The area of the Hinkley CWS to the south of the existing Hinkley Point Power Station Complex supports several pairs of the regionally scarce nightingale and lesser whitethroat and also Cetti's warbler, which is specially protected.

Bats

5.9.12 Surveys were mainly undertaken in 2007 and 2009 and included walked transects, deployment of static detectors and emergence and re-entry surveys. These found that at least 12 species of bat used the combined Built Development and Southern Construction Areas, with the east-west green lane being of particular local importance as a commuting route. Several species featuring in Annex II of the Habitats Directive were recorded (barbastelle, greater horseshoe and lesser horseshoe bats).

Water Voles

5.9.13 Surveys were conducted during 2007, 2008 and 2009, with the most complete survey (taking in all running and still water-bodies) within the Built Development and Southern Construction Areas conducted in 2009. No field signs of water vole were recorded.

Otter

5.9.14 Survey of all watercourses within and close to the combined Built Development and Southern Construction Areas in 2009 recorded a few field signs in areas of adjacent

land along the Bum Brook and a rhyne on Wick Moor. There were no signs from within the Hinkley Point C site.

Dormouse

5.9.15 Surveys were conducted between 2007 and 2009 targetting the most suitable habitat. Over 350 dormouse 'tubes' were deployed, with no recordings.

Badger

5.9.16 A detailed survey followed by a bait marking study were completed in winter 2008/09 (when animals are most active). 28 setts (belonging to eight social groups) were located within the combined Built Development and Southern Construction Areas boundary. Bait marking work established that 12 social groups were present within the wider survey area (which extended well outside the Hinkley Point C area).

Great Crested Newt

5.9.17 In 2009, fifteen ponds within 500m of the Hinkley Point C site were screened with regard to suitability for great crested newts. Eight were then subject to detailed survey work in 2009. No great crested newts were recorded.

Reptiles

5.9.18 Surveys conducted within the combined Built Development and Southern Construction Areas (and adjacent land) over three consecutive years (2007-2009) concluded that there was a low population of grass snake and a good population of slow-worm to the south of the existing plant, but that reptiles were largely absent from the Hinkley Point C Development Site.

Invertebrates

5.9.19 Freshwater and terrestrial surveys recorded a small number of rare species, most of which were associated with the more extensive semi-natural habitats (including the less seasonal watercourses) outside the Built Development and Southern Construction Areas boundary.

5.9.20 Consultation with key stakeholders with respect to terrestrial ecology, including Natural England, the Environment Agency, Somerset Wildlife Trust and the RSPB, is ongoing and will continue throughout the assessment process.

5.9.21 The table below provides a summary of the terrestrial ecology surveys undertaken to date and planned.

Built Development Area and Southern Construction Area
Completed studies: • Extended Phase 1 Habitat Survey • Hedgerow Assessment

- River Corridor Survey
- National Vegetation Survey of Seminatural grassland areas
- Woodland Condition Assessment
- Intertidal Bird Survey (72 visits)
- Nocturnal Bird Survey (26 visits)
- Bird usage of farmland around Hinkley
- Breeding Bird Survey
- Badger Surveys (including bait marking)
- Bat Surveys
- Dormouse Surveys
- Otter Surveys
- Water Vole Surveys
- Reptile Surveys
- Great Crested Newt Surveys
- Freshwater Invertebrate Survey

Studies in progress or planned:

- None

c) Key Issues

5.9.22 The principal ecological issues will be the loss of semi-natural habitats and habitat corridors within the Built Development and Southern Construction Areas and potential disturbance leading to displacement of bird populations within the Severn Estuary SPA and Ramsar Site and the Bridgwater Bay SSSI. The Built Development will also result in the loss of approximately 60% of the Hinkley CWS.

5.9.23 As a result of the soil stripping process, one small block and one linear strip of species rich semi-natural coastal grassland and seven small (generally) species poor woodland compartments will be lost. The majority of the 60 hedgerows within and adjacent to the Built Development and Southern Construction Areas, one pond and two flowing water-bodies will also potentially be removed or radically altered as a result of development. 37 of the hedgerows are considered important under the Hedgerow Regulations; this is due in almost all cases to their having seven or more woody species in a 30m sample area. The pond and most of the sections of watercourses have an aquatic and marginal flora that is of limited conservation interest.

5.9.24 Potential issues identified through the surveys to date relating to terrestrial fauna, including protected *species* are summarised below:

Birds

5.9.25 Waterfowl species most likely to be affected by disturbance resulting from the construction *works* (e.g. noise) will include moulting and wintering shelduck, wintering curlew and passage ringed plover.

5.9.26 Breeding bird habitat in the form of hedgerow, woodland and arable fields (very few *birds* breed in the pasture on site) will be lost in both the Built Development and Southern Construction Areas.

Bats

5.9.27 Loss of commuting routes and the three small on-site barns, two of which are used in summer by *small* numbers of roosting pipistrelles.

Otter

5.9.28 There is unlikely to *be* any significant effects on otter populations.

Badgers

5.9.29 There is the potential for badgers to be affected by the proposed development, particularly as a result of elements such as soil stripping and the removal of *woodland*. Given the confidential status that the locations of badger setts are afforded and the specific legislation relating to the species, a separate consenting process involving Natural England is being conducted.

Reptiles

5.9.30 Populations *present* are not likely to be affected by the development.

Invertebrates

5.9.31 Effects on invertebrate communities, which reflect habitat quality, will be limited.

Other Protected Species

5.9.32 Great crested newt, dormouse *and* water vole are considered unlikely to be affected by the proposal.

5.9.33 It should be noted that the most *ecologically* diverse area of the Hinkley CWS (approximately 40% of the total area) has been avoided through development design. This allows the retention of the most extensive areas of species-rich semi-natural grassland, the still water-bodies of most ecological merit and much of the local scrub.

5.9.34 Where required, a range of options will be considered to achieve the mitigation and conservation gain required of the development. The scope of the environmental measures will be agreed with nature conservation consultees.

5.10 Marine and Coastal Flora and Fauna

a) Baseline Environment

Marine Communities

5.10.1 The Severn Estuary SAC is recognised for its dynamic estuarine habitats, including immersed sandbanks, extensive mudflats and Atlantic salt meadows.

5.10.2 **Phytoplankton:** Throughout the Bristol Channel and Severn Estuary (including off Hinkley Point) low light levels restrict phytoplankton growth in open waters.

5.10.3 **Zooplankton:** The limitation of primary production is also considered to reduce growth of zooplankton.

5.10.4 **Sea-bed Fauna:** The sea-bed faunal assemblages of the Severn Estuary are generally regarded as being relatively impoverished.

5.10.5 **Intertidal Fauna and Flora:** The foreshore both fronting and adjacent to the proposed Hinkley Point C site comprises cobbles and shingle on the upper shore and outcrops of beds of limestone and shale mixed with areas of mud across the rest of the shore. The middle shore has a partial covering of brown algae but is otherwise relatively devoid of species. The lower shore immediately to the west of the existing Hinkley Point B cross-shore cooling water outfall is heavily colonized by the tube dwelling worm *Sabellaria*. Further areas colonised by *Sabellaria* exist both to the east of the existing outfall area and to the west of the proposed development area. Although individuals of these species are not themselves protected under UK legislation, they can form extensive biogenic reefs. Within the Severn Estuary, some of the subtidal *Sabellaria* agglomerations are of sufficient size and development to be considered as biogenic reef habitat and as such are designated as Annex I habitat under the EC Habitats Directive, as well as being listed within the UK Biodiversity Action Plan.

5.10.6 Another feature of interest on this part of the shore is the presence of areas of *Corallina* sward associated with the outer faces of the dipping limestone beds. These provide a habitat for a wide variety of species not otherwise found locally. Some of these features are present along the wave-cut rocky platform fronting the Hinkley Point C site and in the area where the jetty is proposed.

Fish and Fisheries

5.10.7 The fish assemblage common to the area around Hinkley Point is well known through continuing long-term study at the existing Hinkley Point B site. This assemblage is highly diverse due to the coast's southern and western location and includes many species of potential commercial and conservation significance.

5.10.8 **Protected Fish Species:** Several species of fish, protected under various pieces of legislation, occur within the immediate area of the proposed Hinkley Point C site and, on a wider scale, within the Severn Estuary and Bristol Channel. The seven migratory species found within the estuary together form a qualifying feature of the Severn Estuary Ramsar site.

5.10.9 Only twaite shad *Alosa fallax*, river *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus* are qualifying features of the Severn Estuary SAC, although these species have been rarely observed at Hinkley Point despite many years of routine survey effort. In addition to the migratory species, ten marine species found within the estuary are also UK BAP species, and the entire estuarine fish assemblage of the Severn Estuary is designated under Ramsar Criterion 8 as 'one of the most diverse in Britain'.

5.10.10 The level of commercial fishing activity in the Severn Estuary and inner Bristol Channel is generally much lower than on grounds to the west and is thought to be decreasing. The estuary as a whole is thought to act as an important nursery ground for many commercially important species, including sole and sea bass. The nearest harbour to the site is Watchet which berths no commercial fishing vessels.

Marine Mammals

5.10.11 The diversity and abundance of marine mammals decreases within increased proximity to the Severn Estuary (SWF, 2009a). Sparse data is available for marine mammals in the Severn Estuary and it is likely that marine mammals are largely absent from this area.

b) Assessment Studies

Marine Communities

5.10.12 **Phytoplankton:** Routine seasonal phytoplankton surveys have been carried out off-shore over the course of a year.

5.10.13 **Zooplankton:** Routine zooplankton surveys have been carried out over an extensive area with a particular interest in the planktonic larvae and eggs of fish.

5.10.14 **Sea-bed Fauna:** Extensive surveys of the sea-bed fauna have been carried out routinely from early in 2008.

5.10.15 **Intertidal Fauna and Flora:** Extensive studies of the intertidal rocky shore and soft shore habitats fronting and flanking the proposed development site for several kilometers to the east and west have been carried out and, in combination with a detailed examination of remote sensing data, habitat and biotope maps have been produced. The only species recorded within the intertidal zone of potential conservation interest were *Sabellaria* and *Corallina*.

Fish and Fisheries

5.10.16 As well as surveys associated with this particular development numerous studies have been conducted on fish assemblages within the Severn Estuary and the Bristol

Channel. As a result, much information is available regarding species identity, richness and their population dynamics within the Severn Estuary and Bristol Channel. A number of studies have investigated the life history and migratory movement of particular species.

5.10.17 A comprehensive source of information on the abundance and species richness of fish in the locality is provided by the entrainment and impingement data collected at Hinkley Point B using the station's cooling water drum screens – this effort was instigated in 1981.

5.10.18 To add to this data further quantitative studies have been established at the site to aid in refining predictions of cooling water impingement by the proposed Hinkley Point C Nuclear Power Station. Amongst these, an extensive series of surveys began early in 2008, involving trawls both in open water and over the sea-bed. The total number of species recorded in the trawls carried out in the vicinity of the proposed off-shore cooling water intake and outfall locations was low (15) and the catch per unit effort was also generally low.

Marine Mammals

5.10.19 A desk-based review indicated that although there have been sightings of harbour porpoise, dolphin species (mainly common dolphin) and grey seal in the outer Bristol Channel, the diversity and abundance of marine mammals decreases within proximity to the Severn Estuary.

5.10.20 The table below provides a summary of the surveys and studies undertaken to date, in progress or planned with respect to marine flora and fauna.

Marine Areas
Completed Studies: • Construction areas: first and second phase marine ecology baseline surveys • Wider subtidal areas: study of near-shore subtidal resources • Wider intertidal areas: study of intertidal resources • Characterisation (habitat and biotope mapping) of subtidal and intertidal areas • Review of commercial fisheries activity • Reviews of historic intertidal and power station fish impingement studies • Initial predictions of fish impingement and entrainment on cooling water screens • Campaigns from February 2008 to July 2009, including investigations of: o Fish, using pelagic, otter and beam trawls o Zooplankton (including dedicated ichthyoplankton surveys) and phytoplankton o Fish caught on power station screens and entrained plankton o Intertidal infauna, epifauna and flora o Subtidal infauna and epifauna o Subtidal and intertidal habitat and biotope mapping using remote sensing and field validation o Intertidal fish and mobile invertebrates • Desk-based assessment of marine mammals
Studies in progress or planned: • Construction areas: final baseline marine ecology surveys • Continuing intertidal fish surveys • Continuing power station fish-on-screen surveys, in support of impingement and entrainment predictions and assessments • Continuing near-shore fish, ichthyoplankton, benthic intertidal and subtidal surveys.

c) Key Issues

Construction

5.10.21 The construction methods for installing cooling water infrastructure (horizontal tunnels and vertical wells) will result in the loss of limited areas of subtidal habitat immediately around the sea-bed structures themselves. It is likely that the area of disturbance will be greatest during the construction phase when there is a risk of greater upstream/downstream impacts on the sea-bed due to scour. However, the area of habitat loss is not expected to be significant.

5.10.22 The movement of construction vehicles during the construction of the sea wall and jetty has the potential to impact the foreshore and intertidal area supporting *Corallina* and *Sabalaleria*. Careful controls governing access during construction will be implemented in order to minimise potential effects as far as possible.

5.10.23 The construction of the sea wall and jetty may have an impact on the intertidal and subtidal areas although with careful positioning and appropriate mitigation the impacts on the shore are unlikely to be significant.

5.10.24 Any piling noise associated with the jetty could also affect certain fish species in close proximity to the works. Further studies are being undertaken to detremine the potential effects.

5.10.25 Construction-related discharges from the land-based works, or through accidents and incidents, into the marine environment have the potential to erate impact the foreshore and associated *Corallina* community.

Operation

5.10.26 The operation of the Hinkley Point C Nuclear Power Station will result in the impingement of fish and crustacea on the cooling water intake screens and entrainment through the cooling water system and subsequent discharge of fish eggs and larvae. The primary means of mitigating such impacts is through the appropriate location and design of the cooling water intake structures and, in this instance, the proposal is that the intakes be positioned a significant distance off-shore in deeper water. In addition, designs that reduce the intake velocity sufficiently to allow fish avoidance to occur, even under conditions of high tidal flow, are being considered. The introduction and maintenance of more active (e.g. acoustic) fish protection measures at such a remote off-shore location are unlikely to prove practicable.

5.10.27 The tidally oscillating and generally buoyant thermal plume that will result from the cooling water discharge will impinge upon areas of sea-bed and this plume at its furthest extent may reach as far as the shore flanking Bridgwater Bay and the mouth of the Parrett Estuary. Given the highly opportunistic nature of the infaunal

populations in this area and the limited temperature rise involved, this plume is unlikely to have any significant impact, despite its scale.

5.10.28 The release of hydrazine and the any residues of biological fouling control agents during routine operations may have a negative impact on the marine environment. However, any such operational discharges will be controlled to within acceptable levels.

5.10.29 The *Corallina* community present on the shore fronting the site may be negatively impacted by discharges from the adjacent land onto the foreshore. Appropriate design and the operational management arrangements on-site will mitigate this.

European and nationally designated sites

5.10.30 The key potential ecological effects associated with the development are those that could affect European and nationally designated sites. Consequently, any such potential effects are being considered in detail. The effects of the project on marine species and habitats that form part of the designated interest features of the Severn Estuary SAC, SPA and Ramsar site will be considered in light of the Habitats Regulations.

5.11 Transportation

a) Baseline Environment

5.11.1 EDF Energy's baseline assessment of transportation in the vicinity of the Hinkley Point C site has considered the full range of potential options for accessing the site – by road, walking, cycling, bus, rail and sea.

5.11.2 The main access road serving Hinkley Point is the C182, which runs from Hinkley Point through the village of Cannington and then joins the A39 to the south of the village. It is an unlit, single carriageway rural road, generally subject to the national speed limit.

5.11.3 From the M5, the A38 links the motorway north and south of Bridgwater at Junctions 23 and 24 respectively. At Bridgwater the A38 joins the A39. Despite the A39 bypass traffic associated with the Hinkley Point Power Station Complex still has to travel through the centre of Cannington to reach the C182.

5.11.4 There are very few footpaths on the C182 leading to the site and little use is made of the unlit local roads for walking and cycling. Some bus services run between local villages and into Bridgwater, but services are extremely limited. The nearest railhead is at Bridgwater approximately 12km from the Hinkley Point C site. A privately operated line runs 12km to the west of the Hinkley Point C site.

5.11.5 EDF Energy owns a roll-on roll-off (RoRo) facility at Combwich Wharf on the River Parrett. This is used periodically to receive delivery of very heavy or large plant. Combwich is a very small village with narrow streets which are not suitable for the

passage of large vehicles. Deliveries arriving at Combwich are transported to Hinkley Point along a private access road, which connects to the C182.

5.11.6 Navigation at Hinkley Point and into the River Parrett is managed by the Port of Bridgwater. As well as the RoRo berth owned by EDF Energy at Combwich, Hanson Aggregates manage the sand wharf at Dunball. Shipping operations are due to commence shortly at the cargo berth at Dunball Wharf which has recently been taken over by River Bulk Shipping. Vessel usage within the area managed by the Port of Bridgwater is on a fairly small scale with 59 coastal vessels recorded in 2006.

b) Assessment Studies

5.11.7 A Strategic Transport Masterplan for the Hinkley Point C project was developed in 2008 in consultation with key statutory consultees. The strategy examined the key issues for transportation, including scope, aspirations and impacts of the development scenarios. A transport baseline report was produced in late 2008, covering the existing road, rail and bus network in the vicinity of the Hinkley Point site. Further transport assessment studies followed in 2009 and this assessment work is still ongoing.

Roads

5.11.8 The baseline report established a traffic scenario of existing (2008) demand conditions on the Somerset road network within an agreed survey area; this includes the M5 motorway (and specifically Junctions 23 and 24), the A38, the A39 and the C182 through Dunball, Bridgwater, Cannington and Combwich. The geographic extent was increased for later surveys to capture demand on highway links and junctions that may accommodate both existing and future operational traffic. This entailed extending the assessment area further to the west of Hinkley Point. The Highways Agency has also sought confirmation of the development's potential implications for the performance of the strategic road network at motorway junctions more remote than Junctions 23 and 24. Further work will be carried out to investigate this.

5.11.9 The baseline report included a significant data collection exercise to obtain traffic flow and queue length data for key links and junctions on the highway network. Further traffic volumetric data has been secured in 2009. The data has been collected using automatic traffic counters (ATC) that identify the mix of light vehicles and heavy vehicles on a daily basis. At junctions on the network, vehicle turning movements have been counted, along with the length of traffic queues during the network peak hours.

5.11.10 Once the base data has been collected, appropriate growth factors (as agreed with the Highway Authorities) will be included in order to represent the baseline background traffic growth on the network, before any additional construction or operational traffic is added on. Future year assessments of highway network performance are to be undertaken for 2015, the projected peak construction year in

terms of the number of site-based employees, and for 2020 when both new reactors are projected to be operational. This is also in line with the Highways Agency 'review period'. The baseline assessment will be used to determine whether any highway improvements will be required.

5.11.11 Data has also been collected on personal injury accidents on the Somerset road network within the chosen survey area, including the M5 motorway and the slip-roads serving Junctions 23 and 24. Further accident analysis is ongoing.

5.11.12 In addition to its baseline assessment, EDF Energy is assessing the potential impact of Hinkley Point C traffic on the local road network with its proposed Transport Strategy in place using the PARAMICS micro-simulation model and the more strategic SATURN model (developed from the Taunton and Surrounding Area Strategic Traffic Model (TSTRT2)). Both models are being used to assess the need for bypasses around Cannington and Bridgwater.

5.11.13 In addition to traffic flow modelling, further detailed analysis of accident statistics will be undertaken and a review of whether there are any intrinsic safety issues.

5.11.14 EDF Energy's Transport Strategy has as a key objective the promotion of sustainable modes of transport. All possible public transport options have, therefore, been identified and their viability assessed.

5.11.15 Data on vessel operations off the coast of Hinkley Point and within the River Parrett is being sought from the Port of Bridgwater, together with information regarding key navigation routes around the UK obtained from the Marine and Coastguard Agency.

5.11.16 All of the marine construction works will have navigational requirements, which may require a navigation risk assessment to be undertaken. This would be based on the baseline data collected and the construction activities planned (i.e. the number and timing of vessels and other structures). The influence of the tidal range and current speeds will also be taken into account to inform the design of the proposed jetty.

5.11.17 The table below provides a summary of the surveys and studies undertaken to date, as well as those in progress or planned.

Transport Assessment
Completed Studies: • Desk-based data review • Traffic flow and queue surveys • Roadside survey interviews to secure origin and destination data at five locations • Public Transport Network and Service assessments • Preliminary Personal Injury Accident analysis • Preliminary traffic modelling of highway network performance using both SATURN and PARAMICS modelling software • Preliminary highway design route assessment study for Cannington bypass
Studies in progress or planned: • Further traffic surveys (volumetric and queues) • Detailed traffic modelling for each respective phase of development • Detailed analysis of accident data

c) Key Issues

5.11.18 The construction of Hinkley Point C will require significant movement of people and materials to and from the site, which could have an adverse impact on local transport if not properly managed. During construction, the workforce on the site is predicted to peak at around 4,000 plus a 20% contingency (see **Section 5.18.1** Socio-economics) in 2015 and most of these workers will have to be transported to and from the site on a daily basis. In addition, significant volumes of construction materials will have to be transported to the site, including large and abnormal loads. Once the site is operational, it will have a permanent workforce of around 700 and an additional temporary workforce of around 1,000 for periodic outages. These workers will also have to travel to and from the site on a daily basis.

5.11.19 Socio-economic work has assessed the probable geographic origins of the construction workforce and enabled likely travel routes and predicted demand to be identified.

5.11.20 There is inevitably some uncertainty about the origins of construction material given that EDF Energy has not yet placed contracts for their supply. However, a "first principles" approach has been adopted to assess likely vehicle movements. An assessment has also been undertaken of likely vehicle movements once the plant is operational.

5.11.21 The overall road transport assessment for both the construction and operational phases will enable EDF Energy to determine the overall impact of its proposals on the road network and whether any additional mitigation measures are required.

5.11.22 Two key locations that need to be assessed from a road transport perspective are Cannington and Bridgwater. Preliminary analysis has shown that a bypass around Cannington is likely to be necessary but does not indicate a need for a bypass around Bridgwater. Further investigations are being conducted at both locations.

5.11.23 Although preliminary analysis has shown that it is not likely to be practical for workers to walk or cycle to the site or use local bus services, in line with EDF Energy's commitment to maximise the use of sustainable modes of transport, plans have been put in place for workers to use park and ride facilities. The key issue of how to encourage workers to use alternative modes of transport is being included in the Transport Assessment.

5.11.24 The use of rail services is likely to be impractical for the bulk transfer of materials to the site, since goods would have to be transported from the railhead to the site by road via Bridgwater. There may be some scope for transporting workers to the area by rail if services can be improved. EDF Energy is discussing this with First Great Western.

5.11.25 Tidal navigation in the vicinity of the jetty will be constrained by the large tidal ranges experienced in the Severn Estuary (up to 12 metres on spring tides). Navigation will

also be influenced by the construction and eventual presence of the off-shore cooling water infrastructure. Hence measures will need to be taken during the construction phase to avoid congestion and ensure safe navigation in the long-term.

5.11.26 In light of the above issues, EDF Energy is therefore developing a suite of measures to deal with transport related impacts, including:

- The refurbishment of Combwich Wharf to maximise water-borne transport of bulky and abnormal loads;
- Provision of a temporary jetty at Hinkley Point C for bulky aggregate delivery;
- shift patterns for construction workers so that they can be moved to and from the site outside peak traffic hours;
- Strategic locations for construction worker accommodation;
- Car sharing;
- Park and ride facilities;
- Parking restraint measures;
- Freight consolidation facilities;
- A bypass around Cannington; and
- Minor road improvements.

5.12 Noise and Vibration

a) Baseline Environment

5.12.1 Noise sensitive receptor locations relative to the Built Development Area and Southern Construction Areas have been identified. The sensitive receptors to be used in the assessment are those located closest to potential sources of noise or vibration (during construction and/or operation) or the most representative, where numerous receptors exist close together. The presumption is that achieving suitable noise or vibration levels for these receptors will, in the majority of situations, afford sufficient protection to more distant receptors.

5.12.2 The area around the Built Development Area is primarily arable farmland, punctuated by scattered residences, farmhouses and a number of small hamlets. Three noise sensitive receptors have been selected from these, each at a distance greater than 1km from the nearest proposed UK EPR reactor unit. However, some activities within the Southern Construction Area may be at a closer distance (within 50m to the nearest residential dwelling). One of the selected assessment locations is the closest potentially affected receptors to these operations.

5.12.3 Noise measurement survey work was undertaken in April and May 2009. The methodology for the survey was agreed in advance with the relevant local authority Environmental Health Departments and was carried out in accordance with current best practice and the requirements of British Standard 7445 'Description and measurement of environmental noise'.

5.12.4 The noise measurements recorded during the various surveys generally show levels typical of those expected in a rural community, with dominant noise sources including local road traffic, birdsong and surf movement (at the coastal monitoring location), dropping to very low levels during the night-time with wind noise providing an observable contribution to the noise levels.

5.12.5 No background vibration measurements have been conducted and it was agreed with the local authority Environmental Health Officers that none were necessary given the distance separation between likely sources and potential receptors.

b) Assessment Studies

5.12.6 Preliminary construction and operational noise assessments have been conducted, including assessment of noise associated with the jetty. Impacts have been assessed with regard to human receptors.

5.12.7 The construction noise assessment indicated that the majority of the construction operations associated with the Hinkley Point C Development Site, including commissioning activities, would have a negligible noise impact on the nearest potentially sensitive receptors, based on permissible noise limits agreed with the local authority. The assessment found, however, that a potentially major adverse day-time noise impact may arise as a result of earthworks and stockpiling at the southern-most extent of the site. The creation of a landscape buffer from topsoil to potentially reduce noise levels to a moderate adverse impact level is being evaluated.

5.12.8 EDF Energy is currently consulting on proposals to build a workers' accommodation campus near to Doggetts Farm and Wick Moor Drove. The construction and occupation of this building will be examined further within the ES, with noise impacts assessed and suitable mitigation proposed where necessary.

5.12.9 An assessment of noise emissions from the proposed operational Hinkley Point C Nuclear Power Station has been undertaken using a 3-dimensional noise propagation model to predict noise levels at the nearest sensitive receptors. In light of the low existing ambient noise levels measured at these receptors and the low predicted power station noise at each a permissible night-time noise level of 43dB LAeq for the combined noise emissions from the power station was derived from published threshold values with the aim to protect amenity and prevent sleep disturbance. If required, it is proposed that suitable attenuation measures would be applied to the most significant noise sources on the site with a view to minimising any further adverse impact and these will be further detailed in the ES.

5.12.10 Assessment of traffic-related noise will be conducted in accordance with the guidance contained in the Highways Agency document 'Design manual for roads and bridges' (Volume 11, Section 3, Part 7 - 2008) and the Department of Transport guidance 'Calculation of road traffic noise' (1988).

5.12.11 Control of construction noise will be achieved through an application by the contractor for a 'prior consent' in accordance with the guidance at Section 61 of the Control of Pollution Act 1974. This will enable the principal contractor and local authority to agree suitable measures intended to minimise the potential for disturbance due to construction activities, including such things as permissible noise levels and working hours, at a time when the proposed construction methodology and timescales are better defined.

5.12.12 The table below provides a summary of the studies undertaken to date, planned or in progress with respect to noise and vibration.

Built Development Area	
West	**East**
Completed studies: • Baseline noise monitoring	**Completed studies:** • Baseline noise monitoring
Studies in progress or planned: • Modelling of noise sources during the operational phase	**Studies in progress or planned:** • Modelling of noise sources during the operational phase
Southern Construction Area	
Completed studies: • Baseline noise monitoring	
Studies in progress or planned: • Construction and Operational noise and vibration impact assessment of potential campus development	

c) Key Issues

5.12.13 The primary noise and vibration sources during the construction phase would be those typical of an industrial construction site. Potential impacts would vary through the following major stages of the development, but the potentially significant activities would include:

- Mobilisation;
- Earthworks and site platform construction;
- Building construction, including percussive piling and any blasting;
- Construction of the jetty and refurbishment works to Combwich Wharf; and
- UK EPR commissioning.

5.12.14 The preliminary assessments have indicated that, in most cases, there is likely to be a significant separation distance between the construction areas and potentially affected receptors and, therefore, a negligible noise impact. Potentially greater impacts may be anticipated where activities occur much closer to residential properties, such as the stockpiling operations in the Southern Construction Area. However, it is intended that the construction of a landscape buffer in this location will serve to reduce construction noise to an acceptable level, although the creation of the buffer will, itself, be a source of potential noise in the short-term.

5.12.15 Throughout the construction period, the volume of construction traffic on local roads will vary, but is generally expected to increase significantly, with the potential for noise and vibration impacts on receptors along affected routes. The local roads most likely to be affected during this period are:

- A39 Bridgwater to Minehead Road;
- Cannington High Street;
- Rodway; and
- Withycombe Hill.

5.12.16 The assessment of off-site impacts (beyond the construction site) will be based upon the detailed Transport Assessment, which will address mitigation of local effects.

5.13 Air Quality

a) Baseline Environment

5.13.1 The proposed development at Hinkley Point C is located in a predominantly rural setting on the coastline of Bridgwater Bay. The study area constitutes the residential and ecological receptor locations in closest proximity to the Built Development Area and Southern Construction Area and to the off-site construction phase roads.

5.13.2 Information relating to existing ambient air quality is available from a series of reports prepared by West Somerset Council and Sedgemoor District Council under the Local Air Quality Management regime. In addition a 6-month background monitoring survey of nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and fine particulate matter (PM_{10}) was undertaken between February and September 2009. Measurements were taken at representative properties of the nearest residential locations to the proposed development, in the villages of Burton, Shurton and Wick to the south and Stolford to the east and on-site at the Hinkley Point B Nuclear Power Station Training Centre.

5.13.3 Further background air pollutant concentration data is available on the DEFRA UK Air Quality Archive (UKAQA) over a $1km^2$ grid. The monitoring survey data better reflects local air quality, which can generally be regarded as good. Values are well within the respective health-based Air Quality Objectives prescribed in the Air Quality Regulations (DEFRA, 2002). No statutory Air Quality Management Areas (AQMAs) have been designated by either West Somerset or Sedgemoor District Councils.

5.13.4 In respect of potential air quality effects on vegetation and ecosystems, the AQS also defines objectives for concentrations of nitrogen oxides (NO_x), sulphur dioxide (SO_2) and ozone (O_3). Critical Loads for pollutant deposition and Critical Levels of gaseous pollutant concentrations are available from the UK Air Pollution Information System.

b) Assessment Studies

5.13.5 A qualitative assessment of potential air quality impacts from the construction phase of the development has been undertaken, comprising consideration of fugitive construction dust releases from assumed activities. The assessment is based on analysis of local meteorological data and the consideration of 31 receptor locations (18 of which are located more than 1km from the development and all of which are

more than 200m from the site activities, with one exception, Doggetts Farm, which is approximately 50m from the construction site boundary). The approach is conservative and the assessment concludes that, even at Doggetts Farm, appropriate dust control and management as will be described in the EMMP, would ensure that any impact would be minor.

5.13.6 Once a detailed construction programme, including transportation and shipping, has been defined, the effects of exhaust emissions from on-site plant and equipment will be considered.

5.13.7 Emissions to air from (non-transportation) operational processes have been assessed using a two-stage approach. A screening assessment was undertaken using Environment Agency guidance for the purposes of regulated industry permitting. Detailed dispersion modelling of emissions was undertaken, including releases from the following activities:

- Periodic testing of diesel backup generators (NO2 and SO2);
- Thermal decomposition of insulation material (formaldehyde, HCHO and carbon monoxide, CO);
- Releases from temperature increases in the steam generators after wet lay-up (ammonia, NH3); and
- Exhaust releases from auxiliary boilers, domestic heating and fire fighting and hydrant diesel pumps (NO2 and SO2), albeit limited.

5.13.8 Based on the screening approach described above, a detailed modelling study was carried out for emissions from the diesel backup generator testing activity. The estimated process emissions from the other activities were all determined to be insignificant, with regard to both human health and ecological receptors. Thus, detailed modelling was only undertaken for short-term emissions of NO_2 and SO_2. ADMS 4 dispersion modelling software was used with 5 years of local meteorological data in order to predict concentrations at sensitive human health receptor locations based on scenarios in 2017 (first reactor operational) and 2020 (both reactors operational). The approach was very conservative; worst-case dispersion conditions (2005 meteorological data) were used and releases were assumed for each hour of the year, whereas in reality this generator testing is scheduled to occur for only 88 hours per year. Predicted short-term NO_2 and SO_2 concentrations did not exceed the relevant Air Quality Objectives at any of the receptor locations.

5.13.9 To date, no assessment of the local air quality impacts of exhaust emissions from operational traffic has been undertaken. Once the traffic data becomes available, detailed modelling of road traffic emissions will be carried out using ADMS Roads software, considering a worstcase construction period and operational scenario.

5.13.10 The table below provides a summary of the surveys and studies undertaken to date, in progress or planned with respect to air quality.

Built Development Area and Southern Construction Area
Completed studies: • Air quality baseline monitoring to determine background pollutant concentrations • Air quality modelling of operational emissions to air
Studies in progress or planned: • Dispersion modelling and impact assessment of vehicular emissions to air (construction and operational phases)

c) Key Issues

5.13.11 The separation distance between the construction areas and potentially affected off-site receptors should ensure that there is no significant impact from construction dust. Although one receptor is within relatively close proximity to activities on the southern boundary, the creation of a landscape buffer and control and management of fugitive dust emissions during the construction activities will ensure that impacts at this location are not significant.

5.13.12 The construction programme will identify the extent of proposed rail and marine transportation routes and at that stage the scope of any assessment of the air quality impact of emissions associated with these routes will be determined. Emissions from construction and operational traffic will be considered in the forthcoming vehicular dispersion modelling study. Operational impacts (non-vehicular) have already been assessed and process emissions from all activities will not contribute significantly to existing pollutant background concentrations.

5.13.13 Operational impacts (non-vehicular) have been assessed and process emissions from all activities are not likely to contribute significantly to existing pollutant background concentrations.

5.13.14 Releases from periodic testing of the diesel backup generators were modelled and this indicated that the relevant short-term Air Quality Objectives will not be exceeded. Emissions from construction and operational traffic will be considered in the proposed vehicular dispersion modelling study.

5.14 Radiological Effects

a) Baseline Environment

5.14.1 All individuals in the UK are exposed to ionising radiation to a varying degree from natural and man-made sources. Natural contributions (from radon gas, cosmic rays etc.) vary according to location, whilst exposure to man-made sources varies according to occupation, lifestyle and location. Natural sources contribute on average 84% of the total annual dose to members of the public. Discharges of radioactivity into the environment from industry contribute less than 0.04% a year of the total dose received.

5.14.2 The historical, current and future discharges from the Hinkley Point A and Hinkley Point B Nuclear Power Stations provide a contribution to the historic and potential future baseline for the discharges of artificial radionuclides around Hinkley Point. The Environment Agency and the Foods Standards Agency produce an annual 'Radioactivity In Food and the Environment' (RIFE) report on the results of radiological monitoring of food and environmental sampling programmes in the UK, especially near nuclear licensed sites. The most recent RIFE reports have been reviewed and the following relevant data have been extracted:

- Drinking water, freshwater and seawater for locations close to Hinkley Point; and
- Mud sampled 1.6km from the discharge pipeline from the existing Hinkley Point Power Station Complex, mud from Watchet and sediment from Stolford.

5.14.3 In addition to this published data specific sampling campaigns are being carried out by EDF Energy in order to obtain a comprehensive understanding of background levels of radioactivity around Hinkley Point. The results of these sampling campaigns have been assessed against a range of relevant regulatory guidelines and the results of these assessments are provided in the relevant sections dealing with land quality (**Section 5.3**), fresh water quality (**Section 5.6**) and marine water quality (**Section 5.7**).

5.14.4 Further walkover surveys will be undertaken within the Built Development Area East and Southern Construction Area and these will be followed by soil and groundwater sampling and analysis to complete the baseline characterisation.

b) Assessment Studies

5.14.5 For the construction phase of Hinkley Point C, if the results of the soil and groundwater investigations described above show any significant contamination to be present, then radiological impacts on workers involved in the construction of the proposed power station will be assessed.

5.14.6 For the operational phase, the assessments include the evaluation of radiological impacts on both human and non-human species. These assessments have taken into account the particular characteristics of the human population and the natural environment in the locality of Hinkley Point. The assessments follow up the work which has already been done during the Generic Design Assessment (GDA) process. The GDA has determined the potential doses to members of the public and a range of non-human species from the operation of an UK EPR reactor unit for a 'generic' new build nuclear power station site in the UK. The purpose of all of this work is to demonstrate to the regulatory authorities that doses to members of the public due to discharges of radioactivity from the UK EPR reactor design will be within relevant regulatory limits.

5.14.7 The table below provides a summary of the studies undertaken to date, in progress or planned with respect to human and non-human radiological effects.

Built Development Area and Southern Construction Area
Completed studies: • Assessment of the radiological impact of the transport of radioactive materials • Assessment of human radiological impacts from discharges • Assessment of non-human radiological impacts from discharges
Studies in progress or planned: • Assessment of radiological impacts on workers during the construction phase, should contamination be identified following intrusive investigations on the Built Development Area East.

5.14.8 Site-specific assessments have been carried out with respect to the human population in order to determine the following radiological impacts:

- Doses to the selected critical groups from routine, continuous releases of liquid and atmospheric discharges. The critical groups represent those individual members of the public in the area around Hinkley Point who, because of their location and day-to-day activities are expected to receive the highest doses. Within each critical group, doses to adults, children and infants have been calculated.
- Annual doses to the most exposed members of the public from direct radiation exposure to the proposed radioactive waste stores.
- Collective doses to the UK, European and World populations from routine releases of liquid and atmospheric discharges and representative 'per caput' doses (the latter refers essentially to the average dose to individuals within each of these large populations).
- Potential doses to hypothetical members of a critical group as a result of short-term operational atmospheric discharges.
- Doses due to potential build-up of radionuclides in the environment as a result of discharges during the whole of the proposed 60 year operational phase of Hinkley Point C.
- The radiological impact of the transport of radioactive materials to and from Hinkley Point C and required in support of its normal operational activities.

5.14.9 Radiological impacts on non-human species as a result of liquid and atmospheric discharges from Hinkley Point C have been assessed with respect to four habitats that are representative of the range of habitats in the locality of Hinkley Point (i.e. marine, freshwater, terrestrial and coastal). The locations of the habitats were selected to include ecologically designated sites or those where radionuclide concentrations would be highest.

5.14.10 Generic species which are appropriate for each of the selected habitats together with certain additional terrestrial species (badgers and bats) that are known to be present in the locality of Hinkley Point, were modelled to determine representative doses.

c) Key Issues

5.14.11 For the assessment of radiological impact on humans, the calculated doses have been compared using significance criteria derived from guidance values as set by the regulatory authorities.

5.14.12 Assessments to date show that doses to members of the public from the liquid and gaseous discharges from Hinkley Point C can be considered as negligible (less than 20 μSv/y). When taken together with the existing authorised discharges from the Hinkley Point A and Hinkley Point B sites total doses to the critical group members of the public will also be negligible (less than 20 μSv/y), and will be dominated by the assumed discharges from the existing Hinkley Point A and Hinkley Point B stations. A worst-case assumption has been made that both the existing Hinkley Point A and B sites continue to discharge wastes at the current authorised limits. In reality this will not be the case and, in the medium and long-term, only discharges (and the associated negligible impacts) from Hinkley Point C need to be considered.

5.14.13 The doses estimated for the non-human species assessment were also considered in light of relevant regulatory guidance. The most stringent limit is a dose rate of 10 μGy/hr, below which evidence shows that there would be no measureable harm to any non-human species. This was therefore also taken as constituting a 'negligible' radiological impact with respect to non-human species around the site. The assessments indicate that the doses in the selected habitats (and for generic species) from Hinkley Point C and the cumulative Hinkley Point Nuclear Power Station Complex discharges will be well below this criterion of 10 μGy/hr and can, therefore, also be considered as negligible.

5.15 Landscape and Visual Amenity

a) Baseline Environment

5.15.1 Hinkley Point is situated in a clearly defined geographical region of North Somerset, bounded by the Bridgwater Bay to the north, the Quantock Hills to the south and west and the Polden Hills to the east.

5.15.2 The Hinkley Point Nuclear Power Station Complex lies within national Landscape Character 'Area 142 – Somerset Levels and Moors' (as amended within the West Somerset District Local Plan), which is a broad area of low-lying farmland and wetland surrounded and divided up by low hills and ridges. At a more local level Hinkley Point C falls within the Quantock Vale Landscape Character Area, which extends approximately 5km from the site. This area is characterised as a lowland landscape of wider valleys and gentle hills, rarely above 60m AOD. Within the hinterland of Hinkley Point are a number of small villages and hamlets widely dispersed around a network of minor roads. Within this context, the Hinkley Nuclear Point Power Station Complex is a dominant landscape feature.

5.15.3 Several national and international designations within the wider study area have informed the landscape and visual assessment. They include the Exmoor National Park, Quantock Hills and Mendip Hills Areas of Outstanding Natural Beauty (AONB), the Severn Estuary Ramsar site, SPA and SAC and Bridgwater Bay SSSI and National Nature Reserve. There are no local landscape designations within the site, however, a Historic Landscape, Green Wedge, Historic Parks and Gardens and a Conservation Area are present within the wider study area.

5.15.4 The potential visibility or Theoretical Zone of Visual Influence (TZVI) of the development has been mapped using modelling software. Consultation with key stakeholders was undertaken from December 2008 to July 2009 has identified all relevant landscape designations and landscape character assessments to be considered, and provided advice on areas of potential visual sensitivity.

5.15.5 Principal and secondary viewpoints have been identified for the visual assessment. Principal viewpoints were selected as points which provide the clearest views of the site and are also the most accessible to the public. Secondary viewpoints represent views from areas which are not commonly used by the public, would provide less clear views of the Hinkley Point C Development Site, or may be perceived to be sensitive but in reality have restricted views of the site due to the distance.

5.15.6 From 57 viewpoints initially recorded, principal (23) and secondary (12) viewpoints were selected following consultation with key stakeholders (including Natural England, West Somerset Council, Somerset County Council, Sedgemoor District Council and Exmoor National Park Authority). The sensitivity of the selected viewpoints has been assessed using standard, and accepted methods. In broad terms, sensitivity depends on the distance from the site, the number of potential viewers, nature of the viewpoint, movement of viewers and cultural significance of the viewpoint.

5.15.7 Seascape has been considered alongside landscape and takes account of the open water beyond the mainland and includes views from the land to sea, from sea to land and along the coastline.

b) Assessment Studies

5.15.8 The initial impact assessment of the scheme has been carried out and mitigation measures have been proposed. Local landscape components have influenced the development of the concept design for the site. The residual landscape effects have been assessed for all landscape elements identified in the baseline study and include impacts on grassland, hedgerows, woodland and trees, water features, topography, aesthetic and perceptual factors, accessibility, agricultural land, field patterns and cultural and social factors.

5.15.9 Visual impact assessments identify key potential impacts of development, both beneficial and adverse. For the full assessment, the impact upon the baseline landscape and receptor groups' views of the landscape has been identified and

assessed for the construction phase and on completion of the Hinkley Point C Nuclear Power Station Development.

5.15.10 The assessment of the significance of residual landscape and visual effects has been determined using the 'Guidelines for Landscape and Visual Impact Assessment' produced by the Landscape Institute and the Institute of Environmental Management and Assessment (2002). It defines impact significance as a combination of the sensitivity of landscape and visual setting analysed in the baseline study and the magnitude of impact following mitigation.

5.15.11 The table below provides a summary of the surveys undertaken to date, in progress or planned with respect to landscape and visual amenity.

Built Development Area
Completed studies: • Landscape baseline • Visual baseline
Studies in progress or planned: • Landscape and visual assessment, including a visual impact assessment model and photomontages • Seascape assessment (landscape and visual) of the jetty and the seawall • Offsite mitigation proposals
Southern Construction Area
Completed studies: • Landscape baseline
Studies in progress or planned: • Landscape and visual assessment (including site preparation) • Restoration/mitigation proposals • Photomotages

c) Key Issues

5.15.12 The proposed development has the potential to change the character and appearance of the coastline and cliff top, i.e. cause landscape and visual effects, defined by the Landscape Institute and Institute of Environmental Assessment (2002) as:

- **Landscape Effects:** Changes '*in the elements, characteristics, character and qualities of the landscape as a result of development*'; and
- **Visual Effects:** Changes '*in the appearance of the landscape as a result of development.*'

5.15.13 Either can be positive or negative. The main landscape impacts associated with the construction would be the loss of landscape features, including:

- Grassland areas, including calcareous grassland;
- Hedgerows;
- Predominantly deciduous woodland; and
- Watercourses and ponds within the site.

5.15.14 Further landscape impacts during construction would include:

- Changes to topography due to stockpiling of excavated materials and longer-term new build elements for the purpose of screening;
- Change in landscape character due to the presence of construction machinery;
- Adverse landscape impacts on aesthetic and perceptual attributes of the surrounding landscape character areas;
- Impacts on accessibility;
- Impacts from the visibility of lighting associated with construction; and
- Loss of agricultural land with an ancient, distinctive field pattern.

5.15.15 The visual effects during the construction phase include adverse visual impacts from:

- The majority of principal viewpoints and some secondary viewpoints due to construction machinery, materials, stripped soils and partially completed buildings;
- Increased traffic to and from the development;
- The visibility of lighting associated with construction at viewpoints; and
- Loss of landscape elements providing screening to the existing development.

5.15.16 During operation, the main landscape and visual impacts associated with the development would be the main power station buildings. There would be lighting associated with the elements of the scheme that would be visible. Changes to the existing lighting regime will need to be carefully considered. Where appropriate, shielding will be used to reduce this impact as much as possible.

5.15.17 The majority of landscape elements to be lost during construction will be recreated on completion of the scheme. A net gain in some landscape elements such as woodland areas is one of the aims of the design concept.

5.15.18 The residual visual impacts will be analysed on a viewpoint-by-viewpoint basis. The need for screening the proposed development from sensitive locations will be addressed in the mitigation strategy.

5.16 Archaeology and Cultural Heritage

a) Baseline Environment

5.16.1 Within the Hinkley Point C site there are no Scheduled Monuments, Listed Buildings, Conservation Areas, Registered Parks and Gardens or Registered Battlefields. However, there are a number of hedgerows that meet the archaeological and historical criteria of Important Hedgerows as defined in the Hedgerow Regulations 1997.

5.16.2 A Scheduled Monument, Wick Barrow (also known as Pixies Mound) is located 50m outside the site boundary to the east of Wick Moor Drove. It dates from the Neolithic and Bronze Age periods and was partially excavated in 1907. There are eight Listed Buildings situated to the south of the site boundary in the nearby village of Shurton.

5.16.3 Ten sites, identified from previous studies, are recorded in the Somerset Historic Environment Record (HER) and National Monuments Record (NMR), including:

- Scatters of Mesolithic flints found during previous field walking surveys;
- St Sidwell's Well, located just within the eastern site boundary to the west of Wick Barrow, which may have its origins in the Iron Age;
- A 3rd - 4th century Romano-British settlement identified during previous archaeological investigations in the northern part of the site;
- The postulated site of a late Saxon-medieval settlement, Sedtammtone, recorded in the Domesday Book but never convincingly located;
- The sites of Benhole Farm and of Corner Farm;
- Water meadow systems and associated drainage features;
- The remains of a possible limekiln; and
- An undated enclosure, visible as cropmarks on aerial photographs in the south of the site.

5.16.4 There are three historic buildings surviving within the site. Benhole Barn, the only surviving structure at the site of Benhole Farm which burnt down in 1952, has been substantially altered. Langborough Barn and linhay complex is located to the east of Benhole Barn. Part of its roof and a substantial lean-to building along the south face of the building has collapsed. Sidwell Barn, the smallest but most complete of the three buildings, is located in the east of the site, adjacent to Wick Moor Drove. None of these buildings are designated and no previous studies had been undertaken to establish their importance.

5.16.5 The Severn Estuary is of known importance for its marine archaeological interest. At Stolford, immediately to the east of Hinkley Point, the geology of the off-shore area is characterised by banded layers of alluvium and peat. Exposed timbers of Mesolithic and Neolithic date have been eroded and exposed from these deposits, observable on the foreshore. This area is known as the Stolford Submarine Forest. Medieval and Post-medieval fish weirs and Post-medieval groynes are also recorded in the foreshore area.

b) Assessment Studies

5.16.6 A baseline assessment has been undertaken in accordance with the published guidelines set out by the Institute for Archaeologists' (IfA) 'Standards and Guidance for Archaeological Desk- Based Assessment 2008'. In accordance with standard practice, a study area, extending 500m beyond the boundary of Hinkley Point C, was defined in order to establish the archaeological and historical context of the site.

5.16.7 This assessment has identified 42 known or suspected cultural heritage assets within the study area through a combination of desk study, site walkover surveys, watching briefs during geotechnical site investigation and a geophysical survey. These include 39 archaeological sites and three standing buildings.

5.16.8 Cultural heritage assets were identified through:

- A search of the records held at the National Monuments Record and the Somerset Historic Environment Record;
- Analysis of the Historic Landscape Characterisation (HLC) data;
- A search of maps and documentation at the Somerset Record Office;
- Data from field surveys carried out for the 1990 Hinkley Point C proposal;
- Other data sources, including the National Mapping Programme,
- Portable Antiquities Scheme and the South West Archaeological Research Framework (Webster 2008); and
- Consultation with appropriate statutory bodies.

5.16.9 Consultation has been undertaken with Somerset County Council Historic Environment Services (HES), regarding the assessment methodology and mitigation of potential impacts. English Heritage has also been kept informed of the progress of the assessment. Further consultation is planned.

5.16.10 Following a site walkover with the County Archaeologist, the Development Control Archaeologist and the Senior Conservation Officer it was agreed that specialist assessments would be required to determine the importance of the surviving historic buildings and inform a suitable strategy for mitigating potential impacts on extant historic buildings and historic landscape features on the Built Development Area.

5.16.11 Non-intrusive field surveys have also been carried out in order to identify previously unknown features as part of the ongoing assessment, including:

- Field reconnaissance surveys;
- A watching brief during construction adjacent to Wick Moor Drove;
- A watching brief during excavation of geotechnical test pits; and
- Geophysical surveys.

5.16.12 Geophysical surveys, comprising a detailed magnetometer survey and limited resistivity survey, have been undertaken across the whole site. As well as enhancing the known data for the Romano-British settlement in the northern part of the site, the surveys also confirmed the presence and location of the undated cropmark enclosure in the south of the site.

5.16.13 The magnetometer survey also identified a number of potential archaeological sites that were previously unknown, including:

- A possible doubled-ditched, sub-circular enclosure, approximately 75m in diameter, located to the north of the Romano-British settlement;
- Possible enclosures and field systems to the south-west of the Romano-British settlement;
- Linear and curvilinear features and a possible enclosure to the east of Langborough Barn;

- Possible enclosures or field systems with a drive way leading to Wick Moor Drove, recorded to the north of Sidwell Barn; and
- A series of enclosures and linear features, extending east-west across the site and straddling the boundary between the Built Development Area and the Southern Construction Area.

5.16.14 An archaeological watching brief during construction of the site compound adjacent to Wick Moor Drove recorded an undated pit and ditch, which may relate to Romano-British settlement features recorded beyond the site boundary to the east.

5.16.15 Desk studies identified the site of a building 'the Old Barn', to the south of Langborough Barn, recorded on an estate map dating from 1614.

5.16.16 In addition, 21 possible sites were identified as a result of the site walkover surveys. The majority of these sites comprise earthwork remains of former landscape features such as field boundaries, watercourses or ponds.

5.16.17 Surviving field boundaries within the site boundary are usually formed of a hedge on a bank commonly with a drainage ditch. Many of these boundaries are recorded on the 1614 and 1794 maps and would be considered Important under the archaeological and historical criteria included in the Hedgerow Regulations.

5.16.18 The most prominent historic landscape feature is an east-west track way, following the well defined ridge which runs through the central section of the Hinkley Point C site. This track way is depicted on all historic maps of the site dating back to 1614. A substantial hedge survives along most of the southern side of the track and there is a shorter stretch of hedge along its northern edge that continues for approximately 200m.

5.16.19 An assessment of the surviving historic buildings on the site has been undertaken The assessment reviewed previous desk-based studies and the geophysical survey of the off-shore area undertaken by EMU, also in 2009. The document was commissioned to assess the proposed locations of 19 boreholes in the off-shore area, and concluded that *"There are no direct conflicts at any of the nineteen proposed borehole locations with known archaeological targets, or features/zones of high archaeological potential as determined from an assessment of the extant interpretations of the geophysical data."*

5.16.20 The table below provides a summary of the studies and surveys undertaken to date, in progress or planned with respect to archaeology and cultural heritage.

Built Development Area	
West	**East**
Completed studies: • Cultural heritage desk-based assessment (DBA) • Detailed walkover survey • Historic Buildings Assessment • Watching brief during geotechnical site investigation • Geophysical survey to identify features of potential archaeological interest	**Completed studies:** • Cultural heritage DBA • Detailed walkover survey • Geophysical survey
Studies in progress or planned: • Trial trenching to confirm findings of geophysical survey	**Studies in progress or planned:** • None
Southern Construction Area	
Completed studies: • Cultural heritage DBA • Detailed walkover survey • Geophysical survey	
Studies in progress or planned: • Additional geophysical survey at Shurton • Trial trenching to confirm findings of geophysical survey	

c) Key Issues

5.16.21 Geophysical anomalies of possible archaeological origin were recorded across large areas of the site. At least five potential sites were identified, but at present the date and function of these possible sites remains unknown. Therefore the importance of these sites cannot be assessed.

5.16.22 Trial trenching across the Hinkley Point C site is currently being undertaken; a total of 130 trial trenches will be excavated. The trial trenhcing will target potential features identified by desk-based studies, walkover surveys and the geophysical surveys. The number and locations of the trenches has been agreed with Somerset County Council HES. Trial trenching will adhere to the Institute for Archaeologists' Standards and Guidance for Archaeological Field Evaluation, 2008.

5.16.23 Prior to the main construction works, topsoil stripping and land-levelling will take place across all areas where site works are planned, including temporary work areas and sites used for the storage of spoil. Groundworks will result in the destruction of all archaeological remains below ground. The existing buildings on the site will be demolished.

5.16.24 A section of the historic track way and hedge banks will be retained within the proposed development but the majority of the historic landscape features above

ground will be lost. Somerset County Council HES has agreed that preservation by record, in accordance with the guidance contained in Planning Policy Guidance Note 16: Archaeology and Planning (1990) (PPG16), would be appropriate mitigation.

5.16.25 Archaeological excavation and recording would be followed by an appropriate programme of post-excavation works, comprising assessment, analysis, publication and archiving.

5.16.26 Historic building recording, equivalent to Royal Commission for Historic Monuments of England (RCHME) Level II standard, will be completed prior to demolition of the historic barns.

5.16.27 The setting of the Scheduled Monument, Wick Barrow, would be slightly altered by the development, both during construction and operation. However, since part of the setting is already occupied by the existing Hinkley Point Nuclear Power Station Complex and that it is intended that much of the land to the south would be reinstated, this slight alteration to the setting of the Scheduled Monument is likely to be of minor significance. Adequate mitigation, including the preparation of an updated Monument Management Plan, will be discussed with English Heritage and Somerset County Council HES.

5.16.28 The development would have no impact on the Listed Buildings in Shurton Village, or their settings.

5.16.29 Although the off-shore work established that there are no direct conflicts at any of the borehole locations with known features or zones of high archaeological potential, boreholes may still encounter deposits of palaeo-environmental and archaeological significance. Further consultation will be undertaken with the English Heritage Regional Scientific Advisor to determine suitable mitigation of potential impacts on marine archaeology.

5.17 Amenity and Recreation

a) Baseline Environment

5.17.1 The Hinkley Point C site is well served by a network of public footpaths and bridleways (Public Rights of Way - PRoW. Within 3km of Hinkley Point, there are 50km of PRoW that are connected to the Hinkley Point area by road or by other footpaths. A coastal path runs along the low cliff edge to the west and along the coastal frontage of the proposed Hinkley Point C site. A number of the north-south coastal access paths, as well as east-west connecting PRoW, fall within the Hinkley Point C Development Site. The PRoW network which runs across and in the vicinity of the site provides access to a blend of coastal and inland environments.

5.17.2 Aside from use of the footpath network, fishing, horse-riding and occasional wildfowling are the only formal recreational activities undertaken on or near to the

Hinkley Point C Development site, in relatively restricted areas, as well as in low numbers.

5.17.3 Within the Severn Estuary and Bristol Channel there are a large number of sailing, cruising, boating and yacht clubs. However, no specific or formal boating/sailing activities or events are known to occur off Hinkley Point.

b) Assessment Studies

5.17.4 Following consultation with Somerset County Council's Rights of Way Team, a Recreational Access Survey was undertaken for the PRoW across and in the vicinity of the site. The survey entailed counts of users of the PRoW and a questionnaire for PRoW users, as well as a survey of footpath condition and access.

5.17.5 Counts of footpath users did not indicate a high density use of the PRoW network, including along the coastal path. During 1 hour counts at various locations across the footpath network, over a 12 hour period on each of 4 days, 26 individuals were recorded. Based on the Somerset County Council Rights of Way Improvement Plan (RoWIP) Appendix F criteria, the use was low for all PRoW counted.

5.17.6 The majority of users appear to be local residents (70% of those surveyed lived within less than 1km), though on occasion visitors who reside significant distances from the area (e.g. in excess of 10km) use the PRoW. The PRoW network is predominantly favoured for dog walking (85% of users counted).

5.17.7 The counts did not reveal significant differences in visitor/user numbers between weekdays and weekends. Use of the PRoW network is therefore seen to be low intensity but high frequency (repetitive use of the network by local users).

5.17.8 The table below summarises the surveys undertaken to date, in progress or planned with respect to amenity and recreation.

Built Development Area
Completed studies: • Recreational Access Survey
Studies in progress or planned: • Consultation with amenity groups, and with angling groups over use of the foreshore • Consultation with Natural England, Ramblers Association and Open Space Society • Consultation with local residents • Consultation with SCC PRoW Officer over closures/diversions/enhacements.
Southern Construction Area
Completed studies: • Recreational Access Survey
Studies in progress or planned: • Consultation with SCC PRoW Officer over closures/diversions/enhacements.

c) Key Issues

5.17.9 The PRoW network will be impacted during the construction and operational phases of the Hinkley Point C development with some permanent rationalisation and diversion of PRoW. The survey described above will help to inform the evaluation of

significance of potential impact from closure and likely redirection of routes, as well as providing supporting information for the focus of mitigation measures and possible enhancements. These will be undertaken based on the priorities identified in the Somerset County Council RoWIP.

5.17.10 Plans for the PRoW are yet to be finalised. Consultation will take place with Somerset County Council ahead of any application to rationalise or divert PRoW and, in due course, there will be engagement with the Ramblers Association and the Open Spaces Society. In addition, Natural England will be a key consultee for any works impacting on the coastal footpath due to their remit under the Marine and Coastal Access Act (2009). Further feedback will also be sought from users of the PRoW network.

5.17.11 The following is currently being considered:

- During the construction phase, it is proposed that all PRoW are temporarily diverted around the outside of the site for safety reasons;
- A temporary diversion to the coastal path for a maximum of 18 months will be necessary for the construction of the jetty and Sea Wall. The Coastal Path will remain open to the public thereafter;
- Following construction, PRoW within the development site will not be re-opened, but alternative routes outside the permanent development area boundary will be provided; and
- Opportunities will be explored with consultees for proposals to up-grade and enhance the quality of the permanent PRoW.

5.17.12 Any potential effects of the proposals on horse riding, wildfowling, fishing, sailing and boating will also need to be considered.

5.18 Socio-economics

a) Baseline Environment

5.18.1 Socio-economic impact assessment involves a systematic appraisal of the impacts on day-to-day quality of life of people and communities. Sensitivities can be defined in terms of the various groups and agencies likely to be affected by the proposed development.

5.18.2 Construction stage employment is estimated to peak at 4,000, plus a 20% contingency, based on current estimates and actual monitoring information on the workforce profile for Sizewell B Nuclear Power Station which provides some valuable comparative information. Operational workforce numbers are expected to build up from about the middle of the construction programme and well before the reactors are commissioned. The fully operational station (from 2020 onwards) will provide approximately 700 permanent jobs, comprising various categories. In addition, approximately 1,000 other workers will be employed at the site during refuelling and maintenance outages.

5.18.3 Socio-economic impacts must be seen in the context of the local baseline, including local demographics, economy and employment, accommodation, education, health and other services, plus community perceptions of impacts. They must also be seen in various spatial contexts.

5.18.4 The combined population in the three immediate districts of Sedgemoor, Taunton Deane and West Somerset is almost 256,000 Office of National Statistics (ONS), mid-2007 population estimates). The Office of National Statistics forecast population growth between 2006 and 2026 in these districts, divided by broad age group, shows small growth percentages forecast in numbers of children (15%) and those of working age (9%) compared with major growth in those over retirement age (59%). West Somerset has an increasing and very high percentage of population over retirement age. Also of significance for the retention of a young and future working age population is the net outward migration of people in the 16-24 age group from all three districts.

5.18.5 The employment rate in Sedgemoor, Taunton Deane and West Somerset is similar to the national average, but slightly below the south-west regional average. Important employment sectors include manufacturing in Sedgemoor; public services in Taunton Deane and tourism-related employment in all districts, particularly in West Somerset. Overall the number of residents in skilled manual trades (c14% for the three districts), including construction and building trades, is above average.

5.18.6 Claimant unemployment rates have been low and below the English average, but rose substantially in 2008/2009 in the face of the global recession, with a more than doubling of rates over the year. An occupational breakdown for May 2009 shows over 800 unemployed claimants in the three districts with relevant engineering and construction skills and over 7,000 in a 90 minute daily commuting zone.

5.18.7 The districts do display some important socio-economic issues and on the overall Index of Multiple Deprivation (2007), West Somerset is ranked 106th out of the 354 local authority districts in England (where a rank of 1 indicates the most deprived district nationally). Average levels of deprivation are lower in Sedgemoor (ranked 169th) and Taunton Deane (ranked 204th).

b) Assessment Studies

5.18.8 Socio-economic effects are partly determined by the nature of the development; the nature of the locality; and policy decisions taken by key stakeholders (e.g. the developer's policy on accommodation/local recruitment/training etc; and the policy positions and socio-economic objectives of local and regional authorities and agencies). These determinands need to be investigated thoroughly to clarify the likely set of key impacts. An important distinction is made between the construction and the operational stages of the development, as previous experience has shown that there are marked differences in their socio-economic impacts. The assessment study methodology included:

- Initial assembly of baseline data for the local area;
- Socio-economic Topic Group Workshops with local stakeholders;
- Development of framework and key elementsto provide a comprehensive local area socio-economic baseline ;
- Work on the power station baseline, including detailing existing power station socioeconomic characteristics; and
- Clarification of potential socio-economic impacts for the construction and operational stages of the projects consultation on possible mitigation and enhancement.

5.18.9 The spatial/geographic scope of the socio-economic baseline studies varies by impact category. The local labour market for the operational phase is defined as the immediate districts of West Somerset, Sedgemoor and Taunton Deane.

5.18.10 The studies draw on extensive work on the socio-economic impacts of many of the UK nuclear power stations, including an eight year longitudinal study monitoring the socio-economic impacts of building Sizewell B, socio-economic studies for the proposed Hinkley Point C Nuclear Power Station in the late 1980s, and studies on the decommissioning of Hinkley Point A. Studies of the local socio-economic impacts of the early years of the construction stage of the EDF EPR project at Flamanville 3 in Normandy provide some current comparative experience.

5.18.11 The methodology has drawn on published/semi-published information and consultation with local area stakeholders and power station staff. The table below provides a summary of the socio-economic studies that have been undertaken or are planned.

Main Development
Completed studies: • Initial socio-economic scoping • Stage 2 baseline studies (local area, generic power station development, likely impacts and mitigation) • Comparative studies • Hinkley Point C Construction workforce – journey origins and routes study • Socio-economic stakeholder workshops (2008-9) • Work on mitigation, enhancement and legacy possibilities
Studies in progress or planned: • Work on local/regional area assessment indicators, wider effects and mode detailed mitigation and enhancement • Latent accommodation study.

c) Key Issues

5.18.12 The construction of the proposed Hinkley Point C Nuclear Power Station is expected to take in the region of ten years with a peak workforce estimate of 4,000 plus a 20% contingency. There is a further assumption of an 18 month stagger between construction of the two units, which has the advantage of facilitating the continuity of some skills/workers needed.

5.18.13 Development changes in the locality have the potential to generate a range of socio-economic impacts with, as appropriate, mitigation/enhancement measures, including:

Construction

- **Employment:** the employment profile is based on a peak workforce estimate of 4,000 plus a 20% contingency, giving a planning peak of 4,800. The potential for local recruitment is considerable, but varies across wokforce categories. With a set of strong support policies and practices it is anticipated that over 2,000 peak construction jobs could be taken up by people from the local commute zone and especially the immediate districts. The development could provide a major opportunity for local employment which could help to keep (primarily young) employees in the districts and contribute to an enhancement of employee skills in the engineering and construction industries which could be used on other local projects.
- **Accommodation:** at peak construction there might be approximately 2,400 non-local workers seeking a range of largely temporary accommodation provision in the locality. It is estimated that about one quarter of the non-local workforce could make use of local B&Bs/guest houses/caravans etc, without putting an undue strain on the important local tourism accommodation market. Other accommodation would be provided by the owner- occupied and rental sectors, but it is estimated that there will be a need for the supply of purpose built accommodation for at least one third of the non-local workforce.
- **Other Key Services:** these include for example, impacts on education and schools, health and local medical services and crime and policing. Impacts on schools are influenced particularly by the number of non-local workers accompanied by families. From comparative experience this is estimated to be quite low. Measures would include the provision of an on-site medical centre, worker behaviour policies and the provision of high quality campuses and worker transport.
- **Wider Economic Impacts:** In addition to the direct local employment effects discussed above, power station developments have a range of secondary or indirect effects. The construction work on site is likely to create demands for goods and services from local firms creating additional employment. The scale of these wider economic impacts is substantial and provisionally estimated at around £100 million per annum over the construction period. On the other hand there can be concern that some existing local firms may suffer, by losing labour to the power station project.
- **Less Tangible Impacts/Disturbance:** the aim of mitigation is to avoid/minimise any negative impacts associated with the development of the project, as discussed above. Opportunities for the enhancement of positive impacts would also be taken. However such a large project is likely to cause some indirect disturbance effects which are less easy to address directly. In such cases there can be benefit in supporting a package of facilities which the local community can enjoy, with a focus perhaps on locally identified key priority areas.

Operation

- **Employment:** the operational workforce is expected to build up from about the middle of the construction programme and well before the reactors are commissioned. The fully operational station will provide around 700 permanent jobs, again comprising various categories: managerial, clerical and administrative, plus the major industrial workforce category. In addition, approximately 1,000 other workers will be employed at the site over a period of one month every one to two years, for refuelling and maintenance outage for each reactor. Drawing on experiences from other nuclear stations, and policies of strong support for local recruitment, it is estimated that at least 50% of the operational workforce could be recruited from the immediate districts. The operational project should provide a continuation for a substantial quota of skilled and secure jobs for local people, partly off-setting the closure and decommissioning of Hinkley Point A and the eventual closure of Hinkley Point B.
- **Accommodation:** it is estimated that the non-local permanent operational workforce will primarily be owner occupiers (almost 80%), with the remainder renting property. Hinkley Point B provides a useful guide to the future pattern of residential location, with 95% of the operational workforce living within the three immediate districts, including 70% living in Sedgemoor.
- **Other Key Services:** data from previous studies suggest a school age child yield of about one per non-local employee. The age profile is likely to be more balanced between primary and secondary school age children for the operational phase compared to the primary school focus for the construction stage. The distribution of children is likely to be across many schools within the three immediate districts but, reflecting the distribution of nonlocal families, is likely to be concentrated in Sedgemoor. Registration with local GP surgeries is also likely to be primarily in Sedgemoor, with smaller numbers in West Somerset.
- **Wider Economic Impacts:** at full operation the indirect employment effects and the increase in the level of income in the local economy will be of a more permanent nature. Estimates of the annual addition suggest this may be in the range of £30-40m per annum (2010 prices). Previous studies also suggest the additional local indirect employment will be about 60% of direct employment.
- **Perceptions of impacts/disturbance:** there is likely to be little in terms of significance in terms of community disturbance and most impacts are likely to be positive.

5.18.14 Detailed impact studies have been undertaken for all the issues summarised above and these have been discussed with local stakeholders. The socio-economic work will continue to be refined to take account of the latest data, local and regional objectives and policies and continuing discussions on mitigation and enhancement.

6 ENVIRONMENTAL IMPACT ASSESSMENT – OFF-SITE ASSOCIATED DEVELOPMENT

6.1 Introduction

6.1.1 There are a number of options proposed for the Off-site Associated Development in terms of location and scale. These have been informed by EDF Energy's transport and accommodation strategies. The environmental assessment work undertaken for the Off-site Associated Development is in its early stages, but all surveys and assessments required for a robust EIA will be completed prior to the DCO application. The table below sets out the current proposals and options for the Off-site Associated Development considered necessary to construct and operate the Hinkley Point C Development.

Locations	Potential developments
Cannington	• Bypass to the east or the west • Accommodation with up to 320 beds (including Cannington College) • Park and Ride facility with up to 900 spaces • Consolidation/storage facility for road and water-borne freight • Spoil disposal
Bridgwater	• Park and Ride facility with up to 750 spaces at Junction 23 • Park and Ride facility with up to 350 spaces at Junction 24 • Freight consolidation facility at either Junction 23 or 24 • Accommodation with up to 500 beds
Williton	• Accomomodation with up to 200 beds • Park and Ride facility with up to 350 spaces
Combwich Wharf	• Wharf refurbishment, and provision of a freight consolidation/storage facility for water-borne freight

6.1.2 In this section a short description is provided of the assessment studies either undertaken or proposed for each of these locations and potential developments, along with an initial indication of the potential impact issues. Socio-economics is considered in general terms for all of the Off-site Associated Development in **Section 6.2**.

6.2 Socio-economics

6.2.1 EDF Energy's strategy for Off-site Associated Development, in terms of location and scale, has been assisted by the baseline assessment of the local population, local employment, accommodation provision and the likely origins of workers expected to be employed to construct the Hinkley Point C Development. The assessment of the socio-economic impacts of the proposed Off-site Associated Development is still in its initial stages. Further information is being collected, for example on the likely numbers of workers and the amount of materials required for construction.

Key Issues

6.2.2 The construction of the proposed Off-site Associated Development is expected to take in the region of one to two years. There is expected to be a distinction between the socio-economic impacts arising during the construction, operation and (where appropriate) decommissioning or legacy phases. For example, once Hinkley Point C is constructed, the Cannington bypass would be used less, but other projects may have ongoing legacy uses that give rise to employment opportunities.

6.2.3 It is estimated that the construction employment impacts will be far less for the Off-site Associated Development compared with the Hinkley Point C Development. However, it is possible that there could be a proportionally higher percentage of local employment, especially given the recruitment and training practices proposed to be adopted by EDF Energy. Construction of the Off-site Associated Development will be in advance of the peak periods for Hinkley Point C and there may be opportunities for some continuity of employment on power station construction.

6.2.4 Other socio-economic impacts will flow from the employment impacts. For example, if the workforce is largely locally based, there will be less requirement for additional accommodation, or additional impact on local services.

6.3 Cannington Bypass

6.3.1 Two potential route options have been identified for the proposed bypass – to the east and west of the village.

Geology, land-use and soils

6.3.2 A desk-based assessment and site visit has been undertaken for both route options to ascertain the Agricultural Land Quality, geology and existing land uses. The pattern of soils across both route option is similar. Land use within both corridors is agricultural, covering Agricultural Land Classification (ALC) Grades 1, 2 and 3. EDF Energy will be undertaking further ALC field surveys and assessment of the stewardship schemes in operation. These will be supported by further site visits and consultation with landowners. There are unlikely to be any issues relating to geology, except where it potentially affects design, and no further assessment is considered to be required.

6.3.3 Key issues relating to soils and land use are:

Construction

- Loss of agricultural land and impacts on biodiversity;
- Temporary and permanent loss of land uses, including agricultural land, for both routes. Any temporary loss can be mitigated by good soils management practices and high quality restorations of the site post construction.

Operation

- There are unlikely to be any significant issues for soils and land use during the operational phase, but the shorter western route option is likely to have lower impact as it has a smaller footprint than the eastern option and would affect smaller areas of agri-environment schemes.

Land contamination

6.3.4 Consultation has been undertaken with the Environmental Health Officer from Sedgemoor District Council and the potential for contamination discussed. It was agreed that as a desk study had shown no significant potential for contamination no further assessment would be required. However, as part of the construction management plan the Contractor will put in place a contingency plan to deal with any contamination should an unexpected site be encountered. There are no significant issues in relation to contamination and waste for either of the route options.

Hydrogeology

6.3.5 Initial desk-based assessment and site survey have been carried out. The majority of both routes cross areas designated as Non-Aquifers. Of the remaining sections, the route crosses a Minor Aquifer associated with terrace gravels and a small section of a Major Aquifer within sandstone. These aquifers are classified as being of high and intermediate permeability and so are vulnerable to any surface pollution. There are no Source Protection Zones located within a 5km radius of the study area, and there are a number of current records of abstraction licences for general farming or dairy use and/or spray irrigation, and domestic use.

6.3.6 Further Studies to be undertaken include groundwater level survey information (obtained either through consultation with the Environment Agency or by site investigation), groundwater quality assessments and an assessment of the appropriateness of the mitigation package.

Hydrology, drainage and flood defence

6.3.7 In order to determine the impact on hydrology and related aspects, the issues of flooding and drainage are key themes and factors that will influence the design of any bypass. Cannington is covered by the Parrett Catchment Flood Management Plan (CFMP). Steepness of local watercourses, combined with the impermeability of the local geology, generates high run-off from the land causing rivers to respond rapidly to rainfall. Modelling has been carried out for the area to estimate the potential flood zones, which are presented in the Sedgemoor Strategic FRA Level 1 report. The majority of the village and surrounding area is in Flood Zone 1 and therefore not at major risk of flooding. The main sources of recorded flood incidences within Cannington are associated with surface water.

6.3.8 The key issues for the western route are the potential for the bypass to result in the exacerbation of peak fluvial flows in Cannington Brook, whilst the key issues for the eastern route arise from its presence within the floodplain. Although mitigation measures can be incorporated for both bypass options to minimise impacts on

drainage and flood risk, the scale and influence on the eastern route results in much greater disturbance than the western route. Furthermore, in terms of the sequential testing under PPS25, it is likely that the eastern bypass would not be the favoured route.

6.3.9 Further studies will include an assessment of any direct effects on watercourses and drains (including assessment against the Water Framework Directive criteria which will be relevant for the Cannington Brook (eastern route option)). Somerset Consortium of Drainage Boards will also be consulted in respect of an eastern route option to ensure that drainage management and control across the area is unimpeded. The approach to be employed for a Flood Risk Assessment will be agreed with the Environment Agency in advance of undertaking the assessment.

Freshwater quality

6.3.10 An initial desk-based assessment has been undertaken. The proposed western route is on higher, more freely draining ground and does not contain any significant surface water channels. Cannington Brook, although small, is the major surface water feature in Cannington but is 140m from the western route option at its nearest point. One small tributary stream of the Cannington Brook is present and this is crossed by the western route option. Canningnton Brook is separated by a weir into two separate channels on the eastern side of the village, and the eastern bypass route crosses both of the separate channels. The remainder of the eastern route crosses a further eight channels. Ongoing monitoring bu the Environment Agencyof Cannington Brook at the Cannington Weir indicates water quality at Chemical Grade A (very good), i.e. containing a natural ecosystem, suitable for salmonid and cyprinid fisheries.

6.3.11 In order to determine the impact on water quality the assessments of effects on watercourses and drains, including geotechnical investigation will be carried out, assessing against the Water Framework Directive criteria (relevant for the eastern route option). The Somerset Consortium of Drainage Boards will continue to be consulted.

Terrestrial flora and fauna

6.3.12 Most of the habitats along both routes are of limited biodiversity value. The exceptions to this are areas of marshy grassland, hedgerows, watercourses and mature trees. Hedgerows along both route are considered to be ecologically 'important' under the Hedgerow Regulations 1997, primarily for the number of woody species they support.

6.3.13 The western route does not cross any designated sites. Two County Wildlife Sites, Cannington Brook and Cannington Park are located within 250m of the route. The eastern route crosses the Cannington Brook County Wildlife Site. The Severn Ramsar, Severn Estuary SPA and SAC and Bridgwater Bay SSSI all lie approximately 1km to the north-west of the route.

6.3.14 Desk study information has been obtained (primarily from the Somerset Environmental Records Centre (SERC)) regarding protected species records within 3km of both route options and is summarised below.

- Bats. Most of the desk study information related to records of individual bats. A small number of roost sites were highlighted but none are located on the route. Within 10km a range of species have been recorded;
- Water vole. This species has previously been recorded on the Cannington Brook, which is crossed by the eastern route;
- Otter. There are numerous records of otter were provided, relating primarily to the Cannington Brook and its tributaries;
- Dormouse. There are no records of dormouse within 3km of either option;
- Badger. Records of badger were noted from various locations;
- Great crested newt. A single record was provided from 1992 when this species was recorded to the west of the western route; and
- Reptiles. Records of both slow-worm and grass snake were provided. These species are both relatively widespread in the area.

6.3.15 Faunal surveys commenced in May 2009 and will continue until summer 2010. Surveys completed to date include:

- Breeding bird characterisation survey (footpaths and roads only, completed between May and July 2009). Seven species that feature on both the Red List of Birds of Conservation Concern and the UK BAP (Biodiversity Action Plan) Priority list, three species which are Amber-listed and also UK BAP Priority species and nine additional Amber-listed species were recorded breeding within the survey area. Farmland bird numbers were generally low. Three Schedule 1 species (afforded special protection under the Wildlife and Countryside Act 1981,) were recorded within the survey area: kingfisher (2 territories), peregrine and hobby. Winter surveys of the fields within 1km of each route option are being undertaken;
- Due to the size of the survey area three bat transect routes, sampling bat activity and species, were completed per month between June and September 2009. This was augmented by a monthly driven transect. A minimum of ten bat species have been recorded to date, including the Annex II (of the Habitats Directive) listed species barbastelle, lesser horseshoe and greater horseshoe bat. A preliminary appraisal of the buildings and trees near to the route options has identified a number of locations with high potential to support bat roosts;
- A water vole survey of all watercourses within 250m of each route option was completed in August 2009. This found evidence of water vole on nine sections of watercourse, all associated with the eastern route. Further watercourses provide suitable habitat for water vole and there is potential for them to be more wide spread throughout the site;
- An otter survey of all watercourses within 250m of each route option was completed in August 2009. This found evidence of otter on two sections of watercourse, both associated with the eastern route. Further evidence of otter

was found along the River Parrett and the Perrymoor Brook. All the watercourses within the survey area provide suitable habitat for otter and are likely to be used, at least, infrequently;

- A dormouse survey began in August 2009, and monthly checks will be completed between September and November 2009 and between April and May 2010. A dormouse nest was found within a tube located near to the eastern route in August 2009;
- A badger survey was completed in August 2009 of both route options. It recorded four setts within 250m of the route options and a moderate amount of activity within the fields crossed by the routes.;
- All the ponds within 500m of both route options were screened in August 2009 for Great Crested Newt. Of the 15 ponds identified, 12 were considered to provide potentially suitable habitat. Presence/absence surveys will be completed in spring 2010; and
- A reptile survey of both routes was begun in August 2009. Approximately 200 reptile mats covering both route options have been checked on 11 occasions between August and September 2009. A further nine survey visits are planned for April and May 2010 to determine an approximate population size class estimate. The surveys to date have recorded slow-worm along the western route and grass snake along the eastern route, although the habitats in both locations have the potential to support both these species and common lizard.

6.3.16 On the basis of results from the desk study and field surveys undertaken to date, the western route is the preferred route option from an ecological perspective. It does not cross any non-statutory designated sites and is considerably further away from Natura 2000 sites than the eastern route. Protected species surveys are at a relatively early stage, but emerging results suggest the western route is also the preferred route option.

Transportation

6.3.17 Much of the work being carried out in relation to the Strategic Transport Assessment will inform the assessment of the Off-site Associated Development, including the Cannington bypass. As detailed earlier, the extent of the highway network to be included in the assessment has been identified through consultation with the Highway Authorities (Somerset County Council and the Highways Agency).

6.3.18 Traffic data has been collected using automatic traffic counters (ATC) and this data identifies the existing mix of light vehicles and heavy vehicles, vehicle turning movement counts for the various junctions, along with the length of traffic queues that were observed at those junctions during the surveys. The survey data was collected in neutral periods in 2008 and has informed the traffic modelling of future highway network operation.

6.3.19 Using the baseline traffic flow data, an audit of the local highway network will be completed to assess the operational capacity of the roads and, critically, the junctions. This will determine whether highway improvements will be required during

the construction and operational phases, and the extent of those works. This analysis will include analysis of the accident statistics.

6.3.20 An assessment of existing public transport provision will be assessed, to include any planned changes to provision. Traffic modelling will be undertaken to ascertain the effects of the proposed development on the highway network during the construction and operational phases. The results of the traffic modelling will be used to inform the air quality and noise assessment work.

6.3.21 Both the SATURN and PARAMICS traffic models will be further utilised to assess the effects of a Cannington bypass on traffic flows through the village. 'Do minimum' traffic modelling scenarios will also be tested.

Noise and vibration

6.3.22 Background noise monitoring has been undertaken within the vicinity of Cannington, as part of the main site works. Existing road traffic noise levels were determined in accordance with the Calculation of Road Traffic Noise Shortened Measurement Procedure. Attended measurement was carried out over three consecutive daytime hours.

6.3.23 The noise monitoring location for the western route was at Chad's Hill. The monitoring location was 3m east of the carriageway edge and 40m north of its junction with Park Lane and Sandy Lane. This location was representative of residential dwellings on Park Lane, Sandy Lane and Chad's Hill. Two monitoring locations allowed assessment of the baseline noise levels at residential properties closest to the eastern route. These were at Rodway on the north edge of the village and at Northbrook Road on the southern eastern section of the village. At the Chad's Hill location significant noise from Castle Hill Quarry was observed. Notable sources included an aggregate crusher plant (repetitive clunks) and quarry vehicle reversing bleepers. The surveys otherwise showed noise levels typical of a semi rural situation.

6.3.24 As part of this initial review an assessment has also been made of the number of noise sensitive properties (NSPs) that are within 600m of the proposed routes.

- Western route. 202 properties, with 6 of these within 100m. Non-residential noise sensitive properties include Brymore School, the cemetery, a church and Cannington College. The precise distance between the nearest properties and the road will be established during the detailed assessment.
- Eastern route. 388 properties, with 22 within 100m. The only other potentially noise sensitive property within the 600m range is the Cannington Primary School (at between 500m to 600m).

6.3.25 The lack of heavy industry or railways in the area leads to the conclusion that existing ground-borne vibration is unlikely to be an issue in the area for either route. Existing blasting activities from Castle Hill Quarry may cause localised and short-lived vibration in properties in the area immediately surrounding the quarry. Ground-borne

vibration from passing traffic may be apparent for some properties located very close to roads. Existing ground-borne vibration levels are, therefore, likely to be extremely low or negligible.

6.3.26 Detailed assessment of potential noise and vibration impacts will be conducted with reference to relevant national and local legislation and guidance. Consultation has been held with the local Environmental Health Officer to agree the assessment scope and methodology proposed. The following assessments will therefore be undertaken:

- Baseline Noise Survey. Once final details of the selected route and design are established the current noise survey will be reviewed to ensure it is adequate for the assessment. If additional monitoring is required then this will be undertaken in accordance with national guidance;
- Infrastructure Construction Noise. Assessment of potential noise impacts during the bypass construction will be conducted using the methodology contained in BS 5228-1:2009;
- Road Traffic Noise. The Department for Transport 'Calculation of Road Traffic Noise' (1988) methodology will be used for the prediction of road traffic noise levels; and
- Vibration. It is not considered that vibration will be a specific issue for either the construction or operation of either bypass route. As such no detailed vibration assessment is proposed. This will however be reviewed once scheme details are finalised.

Air quality

6.3.27 The Cannington area is not located within or near to an Air Quality Management Area (AQMA), nor are there any AQMAs designated within the Sedgemoor District Council boundary. The main sources of air pollution within Cannington and the surrounding area are considered to be road traffic emissions and, to a lesser extent, agricultural processes.

6.3.28 Consultation with West Somerset Council and Sedgemoor District Council has been undertaken and data currently held by them collected. Both authorities currently only carry out NO_2 monitoring, with the majority of monitoring performed within the key urban areas (Bridgwater and Williton).

6.3.29 The UK Air Quality Archive will be accessed to obtain further background air pollutant concentrations, particularly annual mean NO_2 and PM_{10} concentrations. Furthermore, existing traffic flow data on the local road network within the study area would be used in the dispersion modelling study to estimate existing air pollutant concentrations at sensitive receptors.

6.3.30 Detailed assessments of possible impacts through the construction and operation phases will be undertaken using an appropriate atmospheric dispersion model

suitable for road traffic (e.g. ADMS Roads). The scope of the assessment, would be agreed with the local Environmental Health Officer.

Landscape and visual amenity

6.3.31 A number of viewpoints have been initially recorded to show the potential visibility of both bypass options in the surrounding landscape. Those viewpoints will be refined during the consultation process and a final list of principal and secondary viewpoints will be established to assess the visual impact from a variety of locations.

6.3.32 The initial visual survey study revealed limited visibility of the proposed bypass options in the surrounding landscape due to the rolling topography and vegetation (western route) and flat topography (eastern route) with a number of hedgerows providing good screening of low development views. The visual envelope of the proposed options and the final list of principal and secondary viewpoints will be mapped using contour plans and aerial photographs, following consultation and further site visits.

6.3.33 Along with desk-based research, further surveys will include detailed information on designated areas, a detailed description of landscape character and the identification of areas of particular sensitivity, including settlements and dwellings which may be adversely affected. Consideration will also be given to any mitigation requirements. These elements will also be supported by mapping of the landscape character and sensitivities. Information including existing levels of light pollution, and quality of the study area will be collated and described.

Archaeology and cultural heritage

6.3.34 There are two Scheduled Monuments located to the north-west of Cannington: an Iron Age/Romano-British settlement and an Iron Age hillfort (Cynwit Castle, also known as Cannington Camp). The centre of Cannington is a Conservation Area. There are 33 Listed Buildings within the study area (see below), of which four are Grade I, one is Grade II* and 28 are Grade II. 13 of these buildings are located within the Conservation Area.

6.3.35 Numerous archaeological sites and find spots, ranging from the prehistoric to the post-medieval period, are recorded in the vicinity of Cannington.

6.3.36 A Cultural Heritage Desk Based Assessment (DBA) has been undertaken, together with searches of the National Monuments Record (NMR) and Somerset Historic Environment Record (HER).

6.3.37 Surviving archaeological remains located within the footprint of either bypass route would be wholly, or partially, removed by any groundworks associated with the

construction phase. The settings of Scheduled Monuments and Listed Buildings could be adversely affected by the bypass.

6.3.38 A detailed DBA will be carried out for the preferred route option and the chosen locations of the additional infrastructure, if appropriate. Preliminary discussions have been undertaken with Somerset County Council Historic Environment Service (HES), archaeological advisors to Sedgemoor District Council. A staged approach, comprising walkover surveys and geophysical surveys in the first instance, has been agreed. The results of nonintrusive surveys would inform later excavation, as appropriate, once the final route option has been determined. The combined assessment will inform the design of appropriate mitigation. These studies will be undertaken in consultation with Somerset County Council Historic Environment Service and English Heritage.

Amenity and recreation

6.3.39 The Cannington area is well served by a network of public footpaths and bridleways (Public Rights of Way, (PRoW)), as well as permissive paths. Recreation is generally informa, although there is a recreational playing field on the northern outskirts of Cannington and Bridgwater College Cannington Campus has a golf course and horse riding facilities which are open to the public. Details of the construction and operational activities and footprints of the bypass options have been examined against the recreational assets and activities in the surrounding area.

6.3.40 When further details of bypass construction and operation are available, any construction or operational phase closure or diversion to PRoW, or impacts on safety, would be identified. Construction or operational disturbance to recreational activities would also be assessed. Additional data on users will be collated to quantify impacts. Sedgemoor District Council and Somerset County Council will need to be fully consulted on any proposals to alter PRoW, which should also take account of the County Council Rights of Way Improvement Plan (RoWIP) scorecard.

6.4 Cannington

6.4.1 Cannington South. Land to the south of Cannington has been identified as a potentially suitable to accommodate some or all of the following land uses:

- A campus to accommodate up to 200 construction workers;
- A park and ride facility; and
- A freight consolidation facility for road-borne freight.

6.4.2 Cannington North-west. Land to the north-west of Cannington (which includes Cannington Quarry) has been identified as a potentially suitable for the following land uses:

- A park and ride facility;
- A freight consolidation facility for road-borne and/or water borne freight; and

- A spoil disposal site.

6.4.3 Cannington Central - Land in the centre of Cannington has been identified as a potentially suitable location to accommodate a campus for up to 120 beds with a legacy use for Cannington College. Assessment work has recently commenced and when available the conclusions will inform the selection of a preferred site.

6.4.4 Assessment studies either undertaken or proposed these locations are considered below.

Geology, land use and soils

6.4.5 An intial desk-based assessment has been completed in respect of the Cannington South search area. A similar assessment is being undertaken in respect of the Cannington North-west search area. Both search areas are in agricultural use, as arable/grassland and grazing land respectively.

6.4.6 Further assessment will be undertaken to define the potential mineral reserves that may be affected by any proposed development. This will include assessment of reserves within Cannington Quarry and the extent of potential un-worked reserves in the wider area.

6.4.7 In terms of soils and land use, agricultural soil surveys will be undertaken to confirm the ALC grading of the land and allow specification of soils management practices.

Land contamination

6.4.8 A desk-based review of available information has been completed. No key issues have been identified with respect to contamination or waste at this stage. However, land raising and the presence of a former oil depot to the north of the search area indicate a potential but low risk.

6.4.9 A full Phase 1 contaminated land desk study of the search areas will be undertaken to identify any potential sources of contamination. Subject to the findings of this study, further investigation may be required. To confirm that no contamination has occurred from the former oil depot or from the land raising, further consultation and possible on-site assessment will be undertaken.

Hydrogeology

6.4.10 A desk-based review of available information has been undertaken. For the Cannington North-west area the groundwater vulnerability map indicates that the majority of the search area overlies a Minor Aquifer, with soils of intermediate permeability, whilst the remainder overlies either a Non Aquifer or a Major Aquifer. Currently no information has been collated in relation to groundwater levels, flow or chemistry, although groundwater is present within the currently dormant Cannington Quarry.

6.4.11 One option is to backfill the Cannington Quarry with excess spoil. As the quarry lies within a major aquifer and any filling would be below the groundwater table a key issue will be the potential for any imported fill to contaminate this groundwater resource. Should this option be pursued then a detailed assessment of the groundwater regime at the site will be undertaken.

6.4.12 The southern search area is on the Mercia Mudstones which are classified by the Environment Agency as non-aquifer. No issues have been identified at this stage relating to hydrogeology or groundwater in the Cannington South area and no further assessments have been identified.

Hydrology, drainage and flood defence

6.4.13 An initial desk-based assessment has been undertaken, which shows that the North-west search area is in Flood Zone 1 and, therefore, is not at major risk of flooding.

6.4.14 The Cannington South area is covered by the Parrett CFMP. Flood Zone 3b (Functional Floodplain), following the line of the Cannington Brook close to the centre of the village which runs through the search area. The majority of the village and surrounding area is, however, in Flood Zone 1 and therefore not at major risk of flooding. Development within the Southern area could result in the loss of functional floodplain, depending on final development locations, and localised drainage impacts could therefore occur although this will be avoided through sensible design and mitigation. A Flood Risk Assessment will be completed, in accordance with accepted methodology.

Freshwater quality

6.4.15 The North-west area is on raised ground within generally permeable geologies. As such there are no identified surface water channels, although there is a partially flooded quarry.

6.4.16 The main watercourse in the Cannington South search area is Cannington Brook, which flows through the centre of the area as a single channel. The area is also crossed by a number of minor ditches and watercourses that drain the adjacent fields into the Cannington Brook. Cannington Brook is considered as a sensitive receptor.

6.4.17 No assessments have been undertaken to date but a desk study review of the potential surface water bodies, quality standards and objectives will be undertaken.

Terrestrial flora and fauna

6.4.18 Cannington Quarry (North-west area) is approximately 180m by 160m in size and bounded on three sides by a tall (~80m) exposed rock face. The bowl of the quarry is

filled with water of an unknown depth and relatively dense broad-leaved scrub/woodland occurs around the edge.

6.4.19 A preliminary assessment has been completed of the Cannington South search area. It is characterised by agricultural fields, most of which are used for stock grazing. Boundaries are formed by hedgerows, fences and watercourses. There is potential for a proportion of the hedgerows to be ecologically important. Cannington Brook is lined by mature broad-leaved trees and is designated as a County Wildlife Site (CWS) for the protected species it supports. It passes through the western part of the area.

6.4.20 A Phase 1 Habitat Survey and species specific surveys (as necessary) will be completed in accordance with accepted methodology. Appropriate environmental measures will be implemented during the construction and operation of the site to ensure potentially negative effects on habitats and species are minimised.

Transportation

6.4.21 The effects of the use of the Cannington Quarry (North-west area) are envisaged to be low in terms of significance to the receptors in the village although HGV traffic may route to and from the site through the village at the beginning and end of the working day. The timing of the construction and opening of the Cannington bypass in this respect will be important.

6.4.22 Impacts of a park and ride and freight consolidation facilities at Cannington are intrinsically linked with the proposed provision of the Cannington bypass. It is for this reason that both 'with' and 'without' Cannington bypass assessments will be undertaken to establish environmental effects of both scenarios. Assessment work has already established that there are capacity constraints on the highway network through the village. A Transport Assessment will be completed, in accordance with accepted methodology.

Noise and vibration

6.4.23 In the North-west search area the dominant noise sources include quarry activities at Castle Hill Quarry, local road traffic, as well as intermittent noise sources including agricultural activities. In terms of potential receptors the search area is generally in a rural location with few domestic properties; local farms and isolated properties to the north of Cannington will be key receptors.

6.4.24 The quarry means that there is potential for an existing vibration impact. However there are few receptors close to the quarry that may be affected and it is unlikely to have any significant bearing on potential receptors for the proposed development.

6.4.25 In the Cannington South area dominant noise sources include local road traffic on the A39 southern Cannington bypass and on Cannington High Street to the north. Other intermittent sources include general residential and agricultural activities. Noise sensitive receptors, primarily residential dwellings may potentially be exposed

to significant noise impacts, dependent upon the final use and site layout design. In addition, once the accommodation is built, potential receptors would also be present within the development itself.

6.4.26 The lack of heavy industry or railways in the area leads to the conclusion that existing ground-borne vibration levels are likely to be extremely low or negligible. No further assessment of this issue is therefore proposed.

6.4.27 A desk-based assessment has been undertaken to date. Once the nature of the proposed development is defined baseline noise surveys will be conducted in accordance with national guidelines at representative sensitive locations, agreed with the relevant authorities. Assessment of potential noise impacts during construction and operation will then be conducted using the methodology contained in BS 5228-1:2009.

Air quality

6.4.28 A desk-based assessment has been undertaken to date. The Cannington North-west area is generally rural location with few domestic properties (key potential receptors will be the local farms). Whether impacts arise is dependent upon the final use and site layout design.

6.4.29 Receptors for air quality impacts within the Cannington South area are the private residential and farming premises on the southern perimeter of the village. Impacts will be minimised on these receptors through the masterplanning of the development.

6.4.30 Air quality impacts from plant and traffic will be assessed in terms of vehicle emissions of NO2 and PM10. Traffic data from the transport study and main site design will be used to provide 'with and without' development traffic flows and lorry numbers for any quarry filling. The assessment will be undertaken using accepted methodology.

6.4.31 The final site design options, particularly the location of the works within the current search area, will be assessed with respect to potential dust impacts and in order to minimise any impacts. This will allow identification of sensitive receptors in proximity to the proposed development site.

Landscape and visual amenity

6.4.32 An initial desk-based assessment and visual survey (from public rights of way) has been undertaken. The visual envelope of the proposed options and the final list of principal and secondary viewpoints will be mapped using contour plans and aerial photographs, following consultation and further site visits.

6.4.33 The area is located within national landscape character Area '146 Vale of Taunton and Quantock Fringes' and the 'Quantock Foothills' local characterisation. The Area of Outstanding Natural Beauty (AONB) is 10km away

6.4.34 The majority of the Cannington North-west search area is a quarry and many of the original landscape elements have been lost. The initial visual survey study revealed medium visibility of the site, predominantly from nearby public rights of way and local roads. Limited views are available from local dwellings.

6.4.35 The initial visual survey study revealed limited visibility of the Cannington South search area due to the dense belt of boundary vegetation, topography and the surrounding built environment. Walkers and drivers on the High Street and residents of adjacent dwellings will experience the majority of views. Medium and long distance views into the area are very limited.

6.4.36 The main landscape impacts associated with any development would be the potential loss of landscape features within the peripheries of the site, which could be partially mitigated. Along with desk-based research, further surveys will be supported by mapping of the landscape character and sensitivities. Information including existing levels of light pollution and quality of the study area will be collated and described.

Archaeology and cultural heritage

6.4.37 An initial desk-based assessment has been undertaken. There is only one recorded site within the Cannington North-west search area and two Scheduled Monuments and an early Christian cemetery are located to the west. These suggest that the location is an area of high archaeological potential although the majority of the cemetery has probably been destroyed by quarrying. There are 33 Listed Buildings within the search area. The centre of Cannington, about 1km to the south, is a Conservation Area.

6.4.38 There are no recorded sites or find spots within the Cannington South search area, although numerous archaeological sites and find spots are recorded in the vicinity. Cannington Conservation Area abuts the north-east boundary. Undated boundary ditches are recorded immediately to the south and west of the search area and previous construction identified prehistoric remains to the south. Brymore School to the west is set within a post-medieval landscaped park.

6.4.39 There is a relatively high potential for unrecorded archaeological remains to survive within the North-west area, and the settings of the Scheduled Monuments (North-west area) and the Conservation Area and Listed Buildings would potentially be affected. The scope of further detailed studies will be developed in consultation with Somerset County Council Historic Environmental Services and English Heritage. It is envisaged that desk-based assessment and walk over surveys and/or trial trenching will be carried out as appropriate.

Amenity and recreation

6.4.40 An initial desk-based assessment has been undertaken. The Cannington area is well served by a network of footpaths, bridleways and permissive paths. Recreation is generally informal and predominantly consists of cycling, walking, horse riding, and bird watching. However, there are no footpaths directly within the area proposed for freight consolidation and spoil disposal.

6.4.41 A recreational playing field, golf course and horse riding facilities are within 300m of the south-eastern extent of the North-west search area, and there are no formal facilities within 250m of the Cannington South boundary.

6.4.42 Further assessment will consider construction and operational effects, including disturbance, to PRoW and to recreational assets. In order to support the quantification of potential impacts in the above assessment, additional data will be collected on the number of recreational and footpath users in the area.

6.5 M5 Junction 23

6.5.1 Junction 23 of the M5 has been identified as a potentially suitable area for the following landuses:

- A park and ride facility to accommodate up to 750 cars; and
- A freight consolidation facility for road-borne freight.

6.5.2 Two search areas for land around Junction 23 have been identified (J23-A and J23-B). Assessment studies undertaken or proposed are considered below.

Geology, land use and soils

6.5.3 A desk-based assessment has shown that both search areas are underlain by drift deposits (Estuarine Alluvium), which are themselves underlain by the Blue Lias Formation. The land uses of the search area are not known in detail at this stage. The western areas are, however, currently thought to be either permanent grassland, conservation grassland (hay or silage) or arable uses. The eastern section of the search area adjacent to the A38 is split between the car park for the vehicle auction site (north section) and an area of partial land raising (approximately 1.5m of imported fill) and is currently unused.

6.5.4 Soils in the J23-A search area are impermeable and artificial drainage is required for cultivation. Groundwater levels in the fields close to the River Parrett are controlled by ditches and pumps. The indicative ALC for the search area is Grade 3 (undifferentiated). None of the search area is part of any agri-environment scheme. The nature of the soil of the J23-B search area is unknown at this stage.

6.5.5 Soil and Agricultural Land Classification field surveys will be undertaken, as key issues are likely to relate to loss of agricultural land and damage to soils.

Land contamination

6.5.6 EDF Energy has undertaken the following assessments in respect of the J23-A search area:

- Historic map search;
- Review of information held by the Environment Agency; and
- Envirocheck report.

6.5.7 This highlighted the presence of Dunball Wharf and the former Dunball Manure works, now replaced by a petrol depot which is currently the site of a vehicle auction centre. Car parking forms the north-eastern boundary of the J23-A search area, whilst the south-east land appears to be part of land raising works with the use of imported fill. A large soil stockpile is formed along the A38 which is assumed to be the topsoil. Western sections of the search area are in agricultural use. Dunball Depot, approximately 400m to the east of the J23-A search area is licenced to transfer very small quantities of waste (less than 10,000 tonnes per year).

6.5.8 Similar assessments/studies are also being undertaken in respect of the J23-B search area to generate baseline information. Phase 1 Desk-Based Contamination Assessment will also be undertaken in respect of both search areas, although there are unlikely to be any significant issues relating to land contamination.

Hydrogeology

6.5.9 An initial desk-based assessment has been undertaken of the J23-A search area, which indicates that it does not lie within a Source Protection Zone, and that the northern sector predominantly overlies a Minor Aquifer whilst the southern sector overlies a Non Aquifer. Baseline data for the J23-B search area will be obtained.

6.5.10 On the basis of adoption of best practice design standards, no key issues are likely to arise during construction or operation in relation to groundwater.

Hydrology, Drainage and Flood Defence

6.5.11 An initial desk-based assessment of the J23-A search area shows that surface water drainage is controlled by the ditches and rhynes that outfall into the River Parrett. Drainage can be tidally influenced and the search area lies within Flood Zone 3a. There may therefore be issues regarding specific uses and activities. Baseline data for the J23-B search area will be obtained.

6.5.12 Assessment of any direct effects on watercourses and drains would be undertaken in consultation with the Somerset Consortium of Drainage Boards, to ensure that appropriate design measures are incorporated. Flood Risk Assessments would be completed in accordance with the approach set out in PPS25. Mitigation measures to

reduce the exacerbation of flood risk are straightforward and would be incorporated as part of any development, including use of Sustainable Drainage Systems (SuDS).

Freshwater quality

6.5.13 An initial desk-based assessment has been undertaken of the J23-A search area. The river floodplain immediately to the west of the J23-A search area is drained by a network of land drainage channels which discharge to the tidal sections of the River Parrett. One of these crosses the search area. There are no surface water gauging stations in the tidal section of the River Parrett, and the local surface water drainage channels are not monitored, but published Environment Agency data indicates a moderate ecological status for the tidal River Parrett. There are ten records of consent to discharge to controlled waters within a 500m radius of the search area, the majority of which are for treated sewage effluents, except for two trade effluent discharges. There are no surface water abstractions within 500m. Similar baseline data for the J23-B search area will be obtained.

6.5.14 Full desk-based environmental studies will be undertaken in respect of both search areas, although on the basis of adoption of best practice design standards, no key issues are likely to arise in relation to surface water during construction or operation.

Terrestrial Flora and Fauna

6.5.15 A preliminary desk-based assessment including aerial photographs has been undertaken in respect of the J23-A search area. Similar assessment will also be undertaken in respect of the J23-B search area.

6.5.16 Whilst most of the habitats within the search area appear likely to be of limited biodiversity value, the development could result in permanent land take of habitats. A Phase 1 Habitat Survey and species specific surveys (as necessary) will be undertaken in accordance with accepted methodology and appropriate mitigation will be implemented.

Transportation

6.5.17 Consultation with the Highways Agency has identified that there are no planned improvement works, preliminary traffic modelling has been undertaken using the SATURN model and accident data has also been collected.

6.5.18 Preliminary modelling has identified potential implications of development traffic on the performance of the roundabout at Junction 23 and the Dunball Roundabout on the A38. A full Transport Assessment will be undertaken in line with established methodologies.

Noise and vibration

6.5.19 No assessments have been carried out to date, although following development of the design of the facilities, any sensitive receptors will be identified and background monitoring and prediction of potential noise impacts will be conducted. Data on traffic movement will be assessed against existing baseline traffic flows on the network. Where increases indicate potential noise impacts, assessment will be conducted in line with standard guidance.

Air quality

6.5.20 A desk-based assessment has been undertaken in respect of the J23-A search area, although no air quality data is held for either of the search areas. There are a significant number of operations including the highway infrastructure and commercial uses, in the area that will affect baseline air quality.

6.5.21 The principal air quality issue during the construction phase is likely to be the generation and dispersion of dust. This matter will be assessed once the preferred site and nature of development in that location is selected. Air quality impacts in terms of vehicle emissions will be assessed using accepted methodology, informed by the Transport Assessment.

Landscape and visual amenity

6.5.22 The landscape around Junction 23 (Area 142 Somerset Levels and Moors) is broadly characterised by low-lying farmland and wetland surrounded and divided by low hills and ridges. At the local level, the landscape character is defined by Sedgemoor District Council as 'Levels and Moors'. A number of viewpoints have been recorded to show the potential visibility of the search areas. These will be refined through consultation and a final list of principal and secondary viewpoints will be established to assess visual impact from a variety of locations.

6.5.23 The initial visual survey study revealed limited visibility of the search areas due to the relatively flat topography combined with vegetation including hedgerows and small woodland copses providing good screening.

6.5.24 The main impacts associated with development within the search areas would be the loss of valuable landscape features and vegetation, including hedgerows, trees, areas of grassland and farmland. The impact on the landscape character would be low due to the existing built development and the A38 corridor. Potential also exists for effective landscape mitigation.

6.5.25 Along with desk-based research, further surveys will provide detailed information on designated areas and a detailed description and mapping of landscape character. They will also identify areas of particular sensitivity opportunities for mitigation and settlements and dwellings which may be adversely affected.

Archaeology and cultural heritage

6.5.26 Preliminary consultation with Somerset County Council Historic Environment Services has been undertaken in respect of the J23-A search area and will be undertaken for J23-B. No key issues with respect to the historic environment have been identified within the J23-A search area; there is one Scheduled Monument in the vicinity of the J23-A search area but an archaeological evaluation, comprising trial trenching, confirmed that there is no archaeological potential over a large part of the area. No further assessment work is anticipated, following discussions with Somerset County Council Historic Environment Services.

Amenity and recreation

6.5.27 An initial desk-based assessment of the J23-A search area indicates that a coastal path runs along the embankment to the south and west (and outside) of the search area. An alteration is recorded by Somerset County Council within the search area, which follows the line of Dunball Drove and indicates that this may now be a PRoW. No formal recreational activities occur adjacent to the J23-A search area.

6.5.28 Details of the construction and operational activities and footprint of the park and ride and freight consolidation facilities will be assessed against the recreational assets and activities in the surrounding area. Additional data will be collected on the number of users utilising any identified paths. Unless physical obstruction occurs to the footpath network, it is unlikely that significant recreation or amenities issues will arise as a result of development within either search areas.

6.6 M5 Junction 24

6.6.1 Junction 24 of the M5 has been identified as a potentially suitable location for a park and ride facility to accommodate up to 350 cars. It is also considered potentially suitable for a freight consolidation facility for road-borne freight. Assessment studies either undertaken or proposed for three sites (A, B and C) are considered below.

Geology, land use and soils

6.6.2 A desk-based assessment has been undertaken and ALC field surveys will be completed. None of the identified areas lie within a Mineral Consultation Area or are impacted by any approved Area of Permission for mineral workings.

6.6.3 In terms of land use J24-A is described as 'versatile' and the indicative Agricultural Land Classification (ALC) for this study area is 50% Grade 1 (to the north) and 50% Grade 2 (to the south). This area is thus classified as 'best and most versatile land' (BMVL). None of this search area is part of an agri-environment scheme. J24-B and J24-C is also described as 'versatile' and the indicative ALC is Grade 2.

6.6.4 The key issues relate to development within the search area (J24 A, B and C) are: the loss of agricultural land and damage to soils. There are no issues in relation to geology.

Land contamination

6.6.5 Assessments undertaken to date include historic map search, a review of information held by the Environment Agency, an Envirocheck report and a site walk over.

6.6.6 A waste transfer site was formerly located approximately 750m to the north of the search area (Huntsworth M5 Depot, licensed to transfer waste in very small quantities (less than 10,000 tonnes per year) but the licence has since been surrendered. Documented sources of information will be obtained for the B and C search areas.

6.6.7 A Phase 1 desk-based contamination assessment will be completed but there are unlikely to be any significant issues relating to land contamination.

Hydrogeology

6.6.8 An initial desk-based environmental baseline assessment has identified that the J24-A and J24-B areas overlay a Non-Aquifer. The groundwater vulnerability map indicates that approximately 60% of the J24-C site overlies a Minor Aquifer. The remainder is shown as a Non Aquifer. Standard control measures will be developed and incorporated into the design proposals.

Hydrology, Drainage and Flood defence

6.6.9 An initial desk-based assessment indicates that surface water drainage within this area is limited to minor drains along field boundaries that eventually lead into the River Parrett. The entirety of the search area falls within Flood Zone 1 indicating no risk of flooding.

6.6.10 Assessment of any direct effects on watercourses and drains, will be undertaken in consultation with the Somerset Consortium of Drainage Boards, to ensure that appropriate design measures are incorporated. A Flood Risk Assessment will also be completed, in accordance with PPS25.

Freshwater quality

6.6.11 The search areas will be assessed in terms of their status with respect to surface water quality. A desk-based assessment and walk over of the search areas will be conducted to establish their status.

Terrestrial Flora and Fauna

6.6.12 Preliminary assessments of aerial photographs and desk study information have been undertaken.

6.6.13 The J24-B and J24-C search areas both comprise two arable fields bordered by a mixture of hedgerows and fencing. The M5 embankment, which incorporates a narrow band of scrub/woodland, also borders both sites.

6.6.14 There are a considerable number of waterbodies within 500m of the J24-C area and the surrounding area supports a network of drains, some of which connect the ponds.

6.6.15 Records relating to Stockmoor County Wildlife Site (within 500m of the J24-A search area) includes records of various protected species. In the wider area, further records are present within approximately 1km; there are also a considerable number of records of otter within 2km of the search areas, and the desk study data identifies that water vole has occurred at a number of different locations to the north. A range of bird species, such as kingfisher and bittern, have been recorded within 2km of the area. Many of these records relate to the County Wildlife Sites to the north of the area such as Dunwear Brick Pits, Screech OwlLocal Nature Reserve (LNR) and the Bridgwater and Taunton Canal.

6.6.16 Whilst most of the habitats within the search area appear likely to be of limited biodiversity value, development could result in permanent land take of habitats that are listed as being a priority under the UK Biodiversity Action Plan (e.g. hedgerows) and which are used by protected species. Appropriate environmental measures will be implemented during the construction and operation of the development to ensure potentially negative effects are minimised.

6.6.17 A Phase 1 Habitat Survey and species specific surveys (as necessary) will be completed in accordance with accepted methodology.

Transportation

6.6.18 Traffic modelling using the SATURN model and analysis of accident data in the vicinity of Junction 24 is being undertaken. The traffic impact analysis has been informed by the socio-economic work undertaken by Oxford Brookes University in respect of traffic distribution assumptions.

6.6.19 The key issue of the proposed development on the performance of the roundabout junction at J24 and the roundabout on the Taunton Road (A38) to the west of the M5. These are key 'gateway' junctions to Bridgwater. There is also a significant amount of committed development in the area, some of which is under construction. The Highways Agency has indicated that sites J24-C and J24-B will need particular consideration.

6.6.20 A full Transport Assessment will be completed, in accordance with accepted methodology.

Noise and vibration

6.6.21 No assessments have been undertaken to date, although the acoustic climate at these search areas is dominated by road traffic noise. Other intermittent noise sources include agricultural activities in neighbouring fields to the north, east and south. Residential properties, including the new housing development at Dawes Farm, represent likely sensitive receptors.

6.6.22 Once the nature of the proposed development is defined, baseline noise surveys will be identified and assessment of potential noise impacts during construction and operation will be undertaken. The key issue will be potential noise impacts on residential properties

Air quality

6.6.23 No air quality data for the Junction 24 area is currently held but a desk-based assessment has been undertaken. There is a significant area of industrial/commercial development in the vicinity of the search areas, and the M5 motorway is close to all search areas bordering both J24-B and J24-C. The A38 forms the eastern boundary of the J24-B search area. There are, therefore, a significant number of operations in the area that will affect the baseline air quality.

6.6.24 In terms of potential receptors, the J24-A search area is generally in a rural area surrounded by agricultural fields to the west. Potentially sensitive receptors include the new housing at Dawes Farm and other residential properties adjacent to the south-west boundary. The J24-B search area has a series of residential properties on its south-east boundary, and the J24-C search area, has properties to its north-eastern end and immediately adjacent.

6.6.25 The principal air quality issue during construction is likely to be the generation and dispersion of dust. The final site design option, particularly the location of the works within the current search area, will therefore be assessed with respect to the potential dust impacts. Air quality impacts in terms of vehicle emissions will be assessed using accepted methodology, and informed by the Transport Assessment.

Landscape and visual amenity

6.6.26 An initial desk-based assessment and survey work has been undertaken. Junction 24 lies approximately 1km to the south of Bridgwater urban area and 1km to the north-east of North Petherton. The M5 and A38 are located in the immediate vicinity of the proposed sites as do a number of commercial and industrial uses. The Quantock Hills are the nearest designated Area of Outstanding Natural Beauty (AONB), approximately 8km to the west. No other international and local designations exist in the surrounding area.

6.6.27 Relevant local designations include a Green Wedge, Country Park and County Wildlife Sites. The search areas at Junction 24 are located within two national character areas (146: Vale of Taunton and Quantock Fringes; and 142 Somerset Levels and Moors). Two local landscape character areas have been defined by Sedgemoor District Council ('Quantock Foothills' and 'Levels and Moors'). 'Quantock Foothills' covers the majority of the search areas.

6.6.28 Several viewpoints have been initially defined to show the potential visibility of the search area, and these will be refined during the consultation process. The initial visual survey revealed short distance visibility of the search areas due to the rolling topography, intervening vegetation and built form. Along with desk-based research, further surveys and mapping will provide detailed information.

Archaeology and cultural heritage

6.6.29 Preliminary consultation with Somerset County Council Historic Environment Services has been undertaken and baseline information is being obtained.

6.6.30 Surviving archaeological remains within the footprint of any of the sites would be wholly, or partially, destroyed by any groundworks. The settings of Listed Buildings could also be adversely affected. A Cultural Heritage desk-based assessment will be undertaken following standard methodology, and will inform the design of appropriate mitigation. If necessary archaeological excavation and recording will be followed by an appropriate programme of post-excavation works, in accordance with English Heritage guidance.

Amenity and recreation

6.6.31 An initial desk-based assessment shows that there are no PRoW within or in the vicinity of the J24-A or J24-B search areas. A PRoW runs immediately outside the northern boundary of the J24-C area, connecting Huntworth to south Bridgwater.

6.6.32 Details of the construction and operational activities will be assessed against recreational assets and activities, but unless physical obstruction occurs to the footpath network, it is unlikely that significant issues will arise as a result of development.

6.7 Bridgwater

6.7.1 In addition to the development proposed at Junctions 23 and 24 of the M5, Bridgwater has also been identified as a potentially suitable location for accommodation for up to 500 construction workers, with associated living and recreational facilities, in one or several campuses. A number of search areas are being considered and the baseline environment has yet to be assessed.

6.8 Combwich Wharf

6.8.1 EDF Energy proposes to refurbish the existing wharf facility at Combwich to enable the transport of bulky freight. It is also proposed to use 7-10 hectares of adjacent land for freight consolidation/storage. Assessment studies either undertaken or proposed are considered below.

Geology, land use and soils

6.8.2 Initial desk-based assessment shows the entire search area to be formed of quaternary (alluvial) deposits with typical soils. The provisional (ALC) maps indicate that the land is Grade 3 (undistinguished). Key issues relating to the proposed development are likely to be the loss of agricultural land and damage to soils. Further desk-based assessment relating to geology and soil, and an ALC field survey will be undertaken.

Land contamination

6.8.3 The search area appears (from a site walk-over) to be natural ground in agricultural use. There is no evidence of activity that may cause contamination. A Phase 1 desk-based Contamination Assessment will be undertaken, although there are unlikely to be any significant issues relating to land contamination.

Hydrogeology

6.8.4 The south-west section of the search area is classified as Non Aquifer; the remainder of the area is shown as being a Minor Aquifer with potential for surface contamination to migrate to groundwater. A desk-based assessment and site survey will be undertaken, and standard control measures will be incorporated into any design

Hydrology, drainage and flood defence

6.8.5 The Combwich area is covered by the Parrett Catchment Flood Management Plan (CFMP). The proposed search area lies within Flood Zone 3a, and drainage is maintained and administered by the Somerset Consortium of Drainage Boards. All the drains to the south of Combwich are artificial, constructed to drain agricultural land.

6.8.6 A Flood Risk Assessment will be completed, in accordance with the methodology set out in PPS25. Assessments of any direct effects on watercourses and drains will be undertaken in, consultation with the Somerset Consortium of Drainage Boards to ensure that appropriate design measures are incorporated and that drainage management and control across the area is unimpeded.

Freshwater quality

6.8.7 Initial assessment indicates that the proposed freight consolidation/storage facility would be located on the flood plain of the River Parrett. There are a number of adjacent surface water features but no surface water quality data is available for the search area.

6.8.8 There are two records of consent to discharge to controlled waters within a 500m radius of the search, relating to discharge from Wessex Water Facilities of either treated sewage effluents or storm water overflow discharges. There are no surface water abstractions within 500m of the search area.

6.8.9 During construction and operation, accidents causing spillage of contaminative materials which may subsequently discharge to stream is the key issue, and standard control measures will be incorporated into the design.

Marine water and sediment quality

6.8.10 A desk-based assessment/information review has been undertaken. No data is held with respect to marine water quality and sediment quality in the River Parrett with the exception of data for radiological parameters in marine sediments which is available from the RIFE reports.

6.8.11 There may be potential for direct contamination effects on the River Parrett's marine water and sediment quality during construction and operation of this development. A desk-based assessment of marine water and sediment quality data will be completed in order to establish baseline environmental conditions. Depending on the data available, this assessment may be supplemented with surveys for contaminants.

6.8.12 An assessment will be completed of any direct contamination effects on the River Parrett's marine water and sediment quality during construction and operation of Combwich Wharf (including assessment against the Water Framework Directive criteria).

Hydrodynamics and coastal geomorphology

6.8.13 An initial desk-based assessment shows that the tidal range varies from approximately 6m at Dunball to approximately 12m at Burnham-on-Sea. The marine sediments of the River Parrett estuary comprise estuarine and marine Holocene deposits, some of which have been reclaimed into coastal marshes and mudflats. Longshore drift is consistently west to east between Hinkley Point and Steart Island.

6.8.14 An assessment of sediment transport patterns will be completed. As the development could result in localised changes in patterns of sediment erosion and

accretion in the River Parrett's estuary it will be designed to minimise any potential impacts.

Terrestrial Flora and Fauna

6.8.15 An extended Phase 1 Habitat Survey has been undertaken. The area in the immediate vicinity of the search area comprises hardstanding and the approach road to the Wharf, a single storey brick building used as a laboratory by EDF Energy, two small sheds and a sewage treatment works (owned by Wessex Water). There are four small compartments of seminatural grassland. A small compartment of dense scrub is also present. A further area of grassland lies between Combwich Wharf and the intertidal mud of the Combwich Pill, grading into a small fringing area of saltmarsh.

6.8.16 At low tide, the intertidal area adjacent to the Wharf comprises relatively steeply sloping banks of mud that have the potential to provide habitate for estuarine birds. Far more extensive areas of open mud and sand are present further downstream. At high tide the entire extent of mud and sand at Combwich is generally covered. To the west of the search area are thin strips of pasture land and an extensive former gravel pit (now a commercial angling facility), which has CWS status.

6.8.17 The Severn Estuary Special Protection Area (SPA) and Ramsar Site takes in all intertidal and inshore marine habitat adjacent to the Wharf (other than the mouth of Combwich Pill).

6.8.18 Available baseline data on the intertidal bird community includes national Wetland Bird Survey (WeBS) counts and counts undertaken by the British Energy Conservation Warden at The Island (a promontory of land at the mouth of the Huntspill).

6.8.19 The principal ecological issue would be disturbanceduring construction and operation leading to displacement of bird using the intertidal area adjacent to the wharf. Loss of habitat corridors within the search area is a further potential ecological issue, as these are used by a range of protected species.Further targeted surveys, including intertidal bird counts (following consultation with stakeholders) will be completed. A range of options will be considered to mitigate potential effects and achieve local conservation gain.

Marine and Coastal Flora and Fauna

6.8.20 To date a desk-based study has been undertaken. Combwich Wharf is located on the River Parrett and the search area is dominated by inter-tidal mudflat and saltmarsh habitats covered by several levels of national and international conservation designations. The River Parrett's mudflats exhibit a mid to high shore mudflat fauna that also acts as a food source for overwintering bird populations. Spartina is particularly common in the large fringes of saltmarsh and the river is an important migration route for eel and elver. There is also a small but significant run of salmon in the River Parrett.

6.8.21 Piling and other works may disturb fish migration in the River Parrett and the refurbished Combwich Wharf could cause the loss of habitats directly and/or indirectly. Consultation will be undertaken with Natural England to determine specific survey requirements for the intertidal mudflats and quantitative fishery data will be sought from the Environment Agency to provide contextual data.

Transportation

6.8.22 Baseline traffic study has been carried out as part of work undertaken for the main site. Traffic from the C182 to Combwich is confined to local residents and visitors, with no through route. Flows on the C182 have been observed and analysed as part of the wider transport baseline study completed in 2008. There is also a level of use established with Combwich Wharf that has historically generated heavy goods vehicle movements to and from Hinkley Point

6.8.23 A Traffic Assessment will be completed to examine the potential impact of using Combwich Wharf on the local road network. A structural survey of the C182 is being undertaken to ascertain the likelihood of damage to the road and culvert infrastructure as a result of heavy loads. An assessment is also being undertaken of the junction of the haul route that provides access to the C182 to and from Combwich Wharf in order to identify whether any works are required to enable the movement of Abnormal Indivisible Loads (AILs). Due to the scale of traffic and nature of the site works and operational use, however, no traffic issues are expected.

Noise and vibration

6.8.24 A baseline noise survey has been carried out and the acoustic climate at this site is typical of a quiet rural location, i.e. low daytime ambient levels. The nearest noise sensitive receptors include nearby residential dwellings.

6.8.25 The refurbishment and use of the Wharf and construction/operation of a consolidation/storage area have the potential to cause noise disturbance. Once the nature and exact location of the proposed development is defined, the need for additional baseline noise surveys will be established and assessment of potential noise impacts undertaken.

Air quality

6.8.26 A desk-based assessment has identified that receptors for air quality within this area are the private residential properties on the southern edge of Combwich and at Putnell Farm. Once the location of the works within the current search area is defined, the potential dust impacts on sensitive receptors will be assessed in line with accepted methodology. Operational impacts will be considered through the design of the development, with vehicular routes and working areas located as far as possible from sensitive receptors.

Landscape and visual amenity

6.8.27 An initial desk-based assessment and visual survey work has been undertaken. Combwich Wharf lies on the floodplain of the River Parrett adjacent to the built-up area of Combwich. Combwich Wharf lies within the 'Levels-Estuarine' sub-area of the 'Levels and Moors' local landscape character and within national landscape character area 142 'Somerset Levels and Moors'. The Quantock Hills are the nearest designated Area of Outstanding Natural Beauty (AONB), 10km to the south-west.

6.8.28 Several important national and international conservation designations are adjacent to the search area, and local designations close to the search area include a CWS (adjacent to the search area), ancient woodlands and a Green Wedge.

6.8.29 The initial visual survey study revealed high visibility of the search area within short distance. The main landscape impacts associated with the development of Combwich Wharf would be the potential loss of valuable landscape features within the periphery of the search area, although these features would be protected, where possible, through appropriate site layout design and an effective landscape strategy. The opportunity exists to create new landscape elements and to screen the development. With respect to the adjacent international and national designations, it will be important to establish appropriate buffer zones on site boundaries to protect these valuable resources from visual intrusion. Along with desk-based research, further surveys will provide detailed information and identify opportunities for any required mitigation

Archaeology and cultural heritage

6.8.30 A Cultural Heritage DBA indicates that there are no Scheduled Monuments, Conservation Areas, Registered Parks and Gardens or Registered Battlefields within the search area. There are four Grade II Listed Buildings located in Combwich village and evidence of a settlement dating from the Iron Age and Romano-British periods has been recovered to the south. The area is now designated as a site of county importance by Somerset County Council Historic Environment Services.

6.8.31 The presence of a Roman port at Combwich Pill has also been suggested. The place-name Combwich indicates Saxon settlement, although no Saxon remains are recorded in the town. Combwich was also an established medieval port. Medieval ridge and furrow earthworks are recorded to the east.

6.8.32 Although Combwich is an archaeologically rich area, with an area to the south designated as a site of county importance, geotechnical data suggests that deep (up to 3m) alluvial deposits may overlie any surviving archaeological remains. The extent to which potential development would impact on any surviving archaeological remains is yet to be established.

6.8.33 Desk-studies and deposit modelling, followed by geophysical survey and trial trenching, if Appropriate, will be carried out. Should it be required, archaeological

excavation and recording will be followed by an appropriate programme of post-excavation works, in accordance with English Heritage guidance.

Amenity and recreation

6.8.34 Desk-based study indicates that the River Parrett is navigable to Bridgwater. Combwich Motor Boat and Sailing Club have mooring facilities and slipways at Combwich Quay and facilities that it leases from EDF Energy to the east. Laboratory access to the river is gained by a public slipway within the Pill and two slipways accessed from land leased by the club.

6.8.35 Informal recreational activities take place along the Public Rights of Way (PRoW) that are present within the search area. The Parrett Trail footpath crosses the access (diversion) road into Combwich Quay that is used by Abnormal Indivisable Loads (AILs).

6.8.36 Although considered unlikely, the layout and area of the upgraded facilities at Combwich could affect either the facilities or activities of the Combwich Motor Boat and Sailing Club. Disturbance will be avoided wherever possible and if necessary mitigation measures will be implemented. Potential disturbance or obstruction could arise to the PRoW during construction or operation, and where this is possible mitigation measures will be discussed with the Local Authority Rights of Way Officer.

6.8.37 Further studies will identify any construction or operational phase closure or diversion to PRoW and assess construction or operational disturbance to any recreational facilities or amenities.

6.9 Williton

6.9.1 Williton has been identified as being a potentially suitable location to accommodate the following land uses:

- A campus to accommodate up to 200 people; and
- A park and ride facility to accommodate up to 350 cars.

6.9.2 As surveys and assessments related to this location have not been as detailed to date as for other locations, the studies either undertaken or proposed are only summarised in the table below.

Geology, land use and soils

6.9.3 A review of available mapping indicates that both search areas (WIL-A and WIL-B) are in agricultural use. Potential issues are likely to relate to loss of agricultural land and to damage to soils. It is unlikely that any issues relating to geology will arise. Soil and ALC field surveys will be completed.

Land contamination

6.9.4 A desk-based review of mapping indicates both search areas are both in agricultural use, and no potentially contaminative sites are on or near the areas. A Phase 1 contamination desk study will be carried out for both sites although it is unlikely that issues relating to land contaimination and waste will arise.

Hydrogeology

6.9.5 No studies have been carried out to date. A desk-based assessment will be performed, from which the risk to the groundwater environment and need for further studies will be established.

Hydrology, drainage and flood defence

6.9.6 Desk-based assessments show that the Williton area is covered by the West Somerset Catchment Flood Management Plan (CFMP). Both search areas are located within Flood Zone 3a. Development over any of the drains within the WIL-B search could result in localised drainage impacts, hardstanding from the park and ride and campus developments could result in increased peak fluvial flows to nearby streams, with the potential to result in more frequent or more extensive flooding within Williton. However measures including SUDS would be incorporated in the design of the development. Assessment will be undertaken of any direct effects on watercourses and drains, and Flood Risk Assessment will also be carried out, using the methodology set out in PPS25.

Freshwater quality

6.9.7 An initial desk-based assessment has been completed and a desk-based water quality assessment will be carried out.

Terrestrial flora and fauna

6.9.8 The two search areas have been subject to a preliminary assessment, using aerial photographs and desk study information. Whilst most of the habitats within the search areas appear likely to be of limited biodiversity value, the development could result in permanent landtake of habitats that are listed as being a priority under the UK Biodiversity Action Plan (UKBAP), are used by protected species, or could sever habitat corridors. Construction also has the potential to harm and disturb species. Phase 1 Habitat Survey and species specific surveys (as necessary) will be undertaken, in accordance with accepted methodology.

Transportation

6.9.9 A full transportation study will be completed.

Noise and vibration

6.9.10 An initial desk-based assessment indicates that main noise sources are broadly simila between the two sites, as is the nature of potential receptors. Sensitive

receptors will be identified and background monitoring will be conducted as appropriate. Prediction of potential noise impacts, in accordance with standard guidance, would then be conducted.

Air quality

6.9.11 An initial desk-based assessment shows that the search areas are generally rural in location, with no major sources of air pollution identified. Potential receptors are in effect the same as for noise - the residential properties that border both search areas. Both search areas have similar sensitivities. The impact of dust will be assessed and sensitive receptors identified. Air quality impacts in terms of vehicle emissions will also be assessed using accepted methodology and informed by the Transport Assessment.

Landscape and visual amenity

6.9.12 Whilst the proposed development has the potential to change the character and appearance of the local landscape, desk-based research and surveys will provide detailed information in order to assess the impact and identify opportunities for mitigation.

Archaeology and cultural heritage

6.9.13 A Cultural Heritage Desk Based Assessment (DBA) in accordance with the published guidelines, will be undertaken and will include a field reconnaissance walkover survey. The results will be discussed with Somerset County Council Historic Environment Services and any need for further assessment agreed.

Amenity and recreation

6.9.14 A desk-based assessment has been completed and a number of PRoW identified within both search areas. A PRoW within the WIL-B search area provides an off-road connection between Williton and Sampford Brett as well as amenity use. A tennis court, presumably part of the Mamsey House nursing home, is located within the WIL-A search area.

6.9.15 Potential disturbance or obstruction to PRoW could arise Where potential obstruction could occur, mitigation measures will be agreed with the Rights of Way Officer. Details of the construction and operational activities and footprint of the campus and park and ride facility will be assessed against the recreational assets and activities. In order to support the quantification of potential impacts additional data will be collected on the number of users of the PRoW.

7 SUMMARY AND WAY FORWARD

7.1.1 The information in this report is provided to support EDF Energy's formal request to the IPC for a scoping opinion in relation to the potential impacts of a new nuclear power station at Hinkley Point C, and the scope of the EIA and ES.

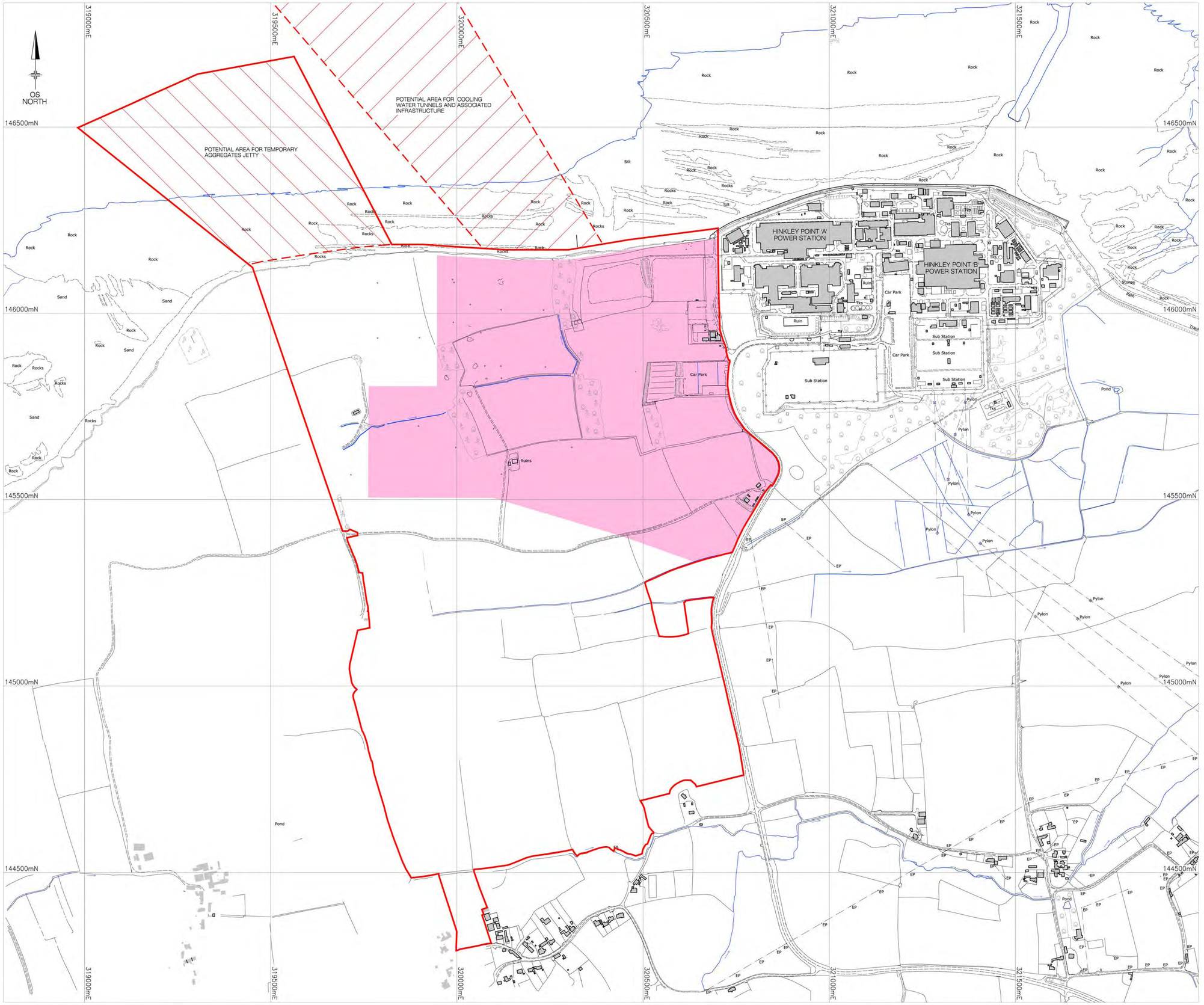
7.1.2 This Scoping Report represents the first reporting stage in the EIA process and sets out the proposed way forward for the assessment of the likely environmental effects arising from the development proposals.

7.1.3 The process of EIA is an iterative and evolutionary one that builds up layers of data as the assessment progresses. Many of the surveys and investigations necessary to provide the baseline data for the assessment of effects have already been undertaken, or are in progress. Information on these studies is presented in **Sections 5** and **6** above, along with an outline of the key environmental issues likely to be associated with development of the project. The ES will build on this work and present a comprehensive account of the potential environmental and socio-economic effects of the development proposals, both adverse and beneficial, and will identify measures to prevent, reduce, offset or enhance the effects of the development where appropriate.

7.1.4 As summarised in **Section 4**, the process leading up to the formal DCO application involves a series of consultations with statutory and non-statutory stakeholders and the local community. One of the key aims of the consultation process is to allow consultees to influence the way projects are developed by providing feedback on potential options and the design development process. The consultation process, in particular consultation with statutory consultees, will assist in further defining and agreeing the scope and methodology of the EIA and resultant ES.

Only figured dimensions are to be worked from

Draw to microphotography standards



KEY

- HINKLEY POINT C DEVELOPMENT SITE – INDICATIVE BOUNDARY
- POTENTIAL AREA FOR TEMPORARY AGGREGATES JETTY
- POTENTIAL AREA FOR COOLING WATER TUNNELS AND ASSOCIATED INFRASTRUCTURE
- INDICATIVE PERMANENT DEVELOPMENT SITE

0 50 100m 500m

Scale 1:3500 @ A0

EDF Energy
90 Whitfield Street
London
W1T 4EZ

Drawn	Title
S Gallimore	HINKLEY POINT C SITE
Orig Scale	
1:3500	
Orig Size	
A0	
Date	Drawing Number
NOV'09	Figure 1

KEY

- HINKLEY POINT C DEVELOPMENT SITE - INDICATIVE BOUNDARY
- POTENTIAL AREA FOR TEMPORARY AGGREGATES JETTY
- POTENTIAL AREA FOR COOLING WATER TUNNELS, INTAKE & OUTFALL STRUCTURES AND ASSOCIATED INFRASTRUCTURE

N
W E
S

Scale 1:15,000 @ A3

0 100 500m 800m

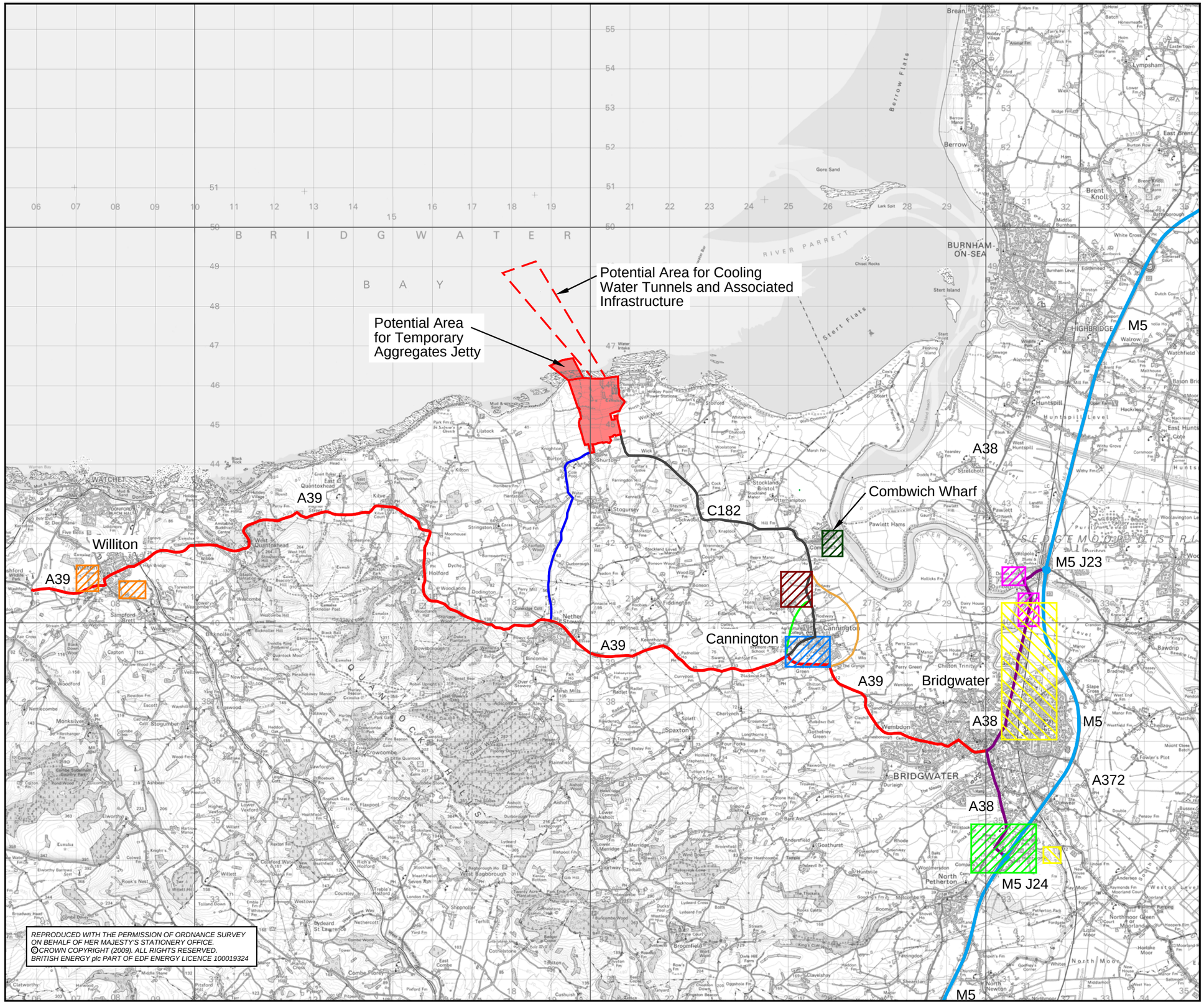
Drawn : S Gallimore | Date : Nov 09

EDF ENERGY

Hinkley Point C

Marine and Off-shore Works

Figure 2



KEY

- M5 MOTORWAY
- A39
- A38
- C182
- ALTERNATIVE EMERGENCY ACCESS ROUTE ON PUBLIC HIGHWAY

KEY PROPOSALS

- HINKLEY POINT C DEVELOPMENT SITE - INDICATIVE BOUNDARY
- POTENTIAL AREA FOR COOLING WATER TUNNELS AND ASSOCIATED INFRASTRUCTURE
- (east) / (west) CANNINGTON BYPASS OPTIONS EASTERN AND WESTERN - SEE FIGURE 10.13
- CANNINGTON NORTH-WEST SEARCH AREA - SEE FIGURE 10.14
- CANNINGTON SOUTH AND CANNINGTON CENTRAL SEARCH AREAS - SEE FIGURE 10.14
- JUNCTION 23 SEARCH AREAS - SEE FIGURE 10.15
- JUNCTION 24 SEARCH AREAS - SEE FIGURE 10.16
- BRIDGWATER SEARCH AREAS - SEE FIGURE 10.17
- WILLITON SEARCH AREAS - SEE FIGURE 10.18
- COMBWICH WHARF SEARCH AREA - SEE FIGURE 10.19

ROAD IMPROVEMENTS - SEE FIGURE 10.20

N W E S

Scale 1:100,000 @ A3

0 1,000m 5,000m

Drawn : S Gallimore | Date : Nov 09

EDF ENERGY

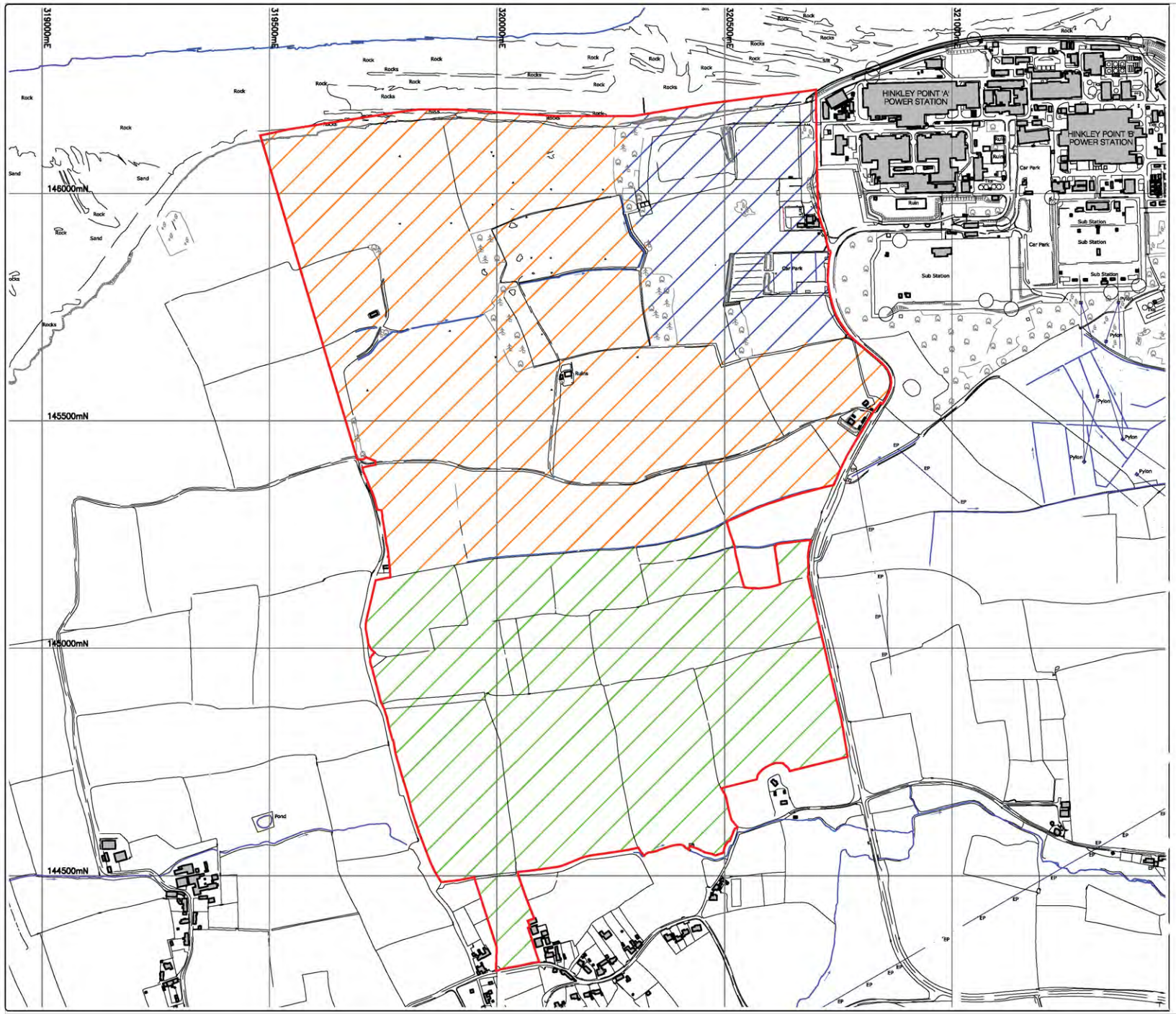
Hinkley Point C
Proposed Nuclear Power Station and Off-Site Development

Proposed Power Station Site and Indicative Off-site Development

Figure 3

Only figured dimensions are to be worked from

Draw to microphotography standards



KEY

FOR DISCUSSION

Legend

- Hinkley Point C Development Site - Indicative Boundary
- Built Development Area West
- Built Development Area East
- Southern Construction Phase Area

Rev	Date	Description	By	Des
D2	23.10.09	Change of Layout	KB	
D1	22.10.09	First Issue	SG	

Overview

N W E S

100m

Client: EDF CIDEN

Project: Hinkley EPR EDF Access

Title: Main Development and Construction Area (the boundary which stops at the coast) [Antony]

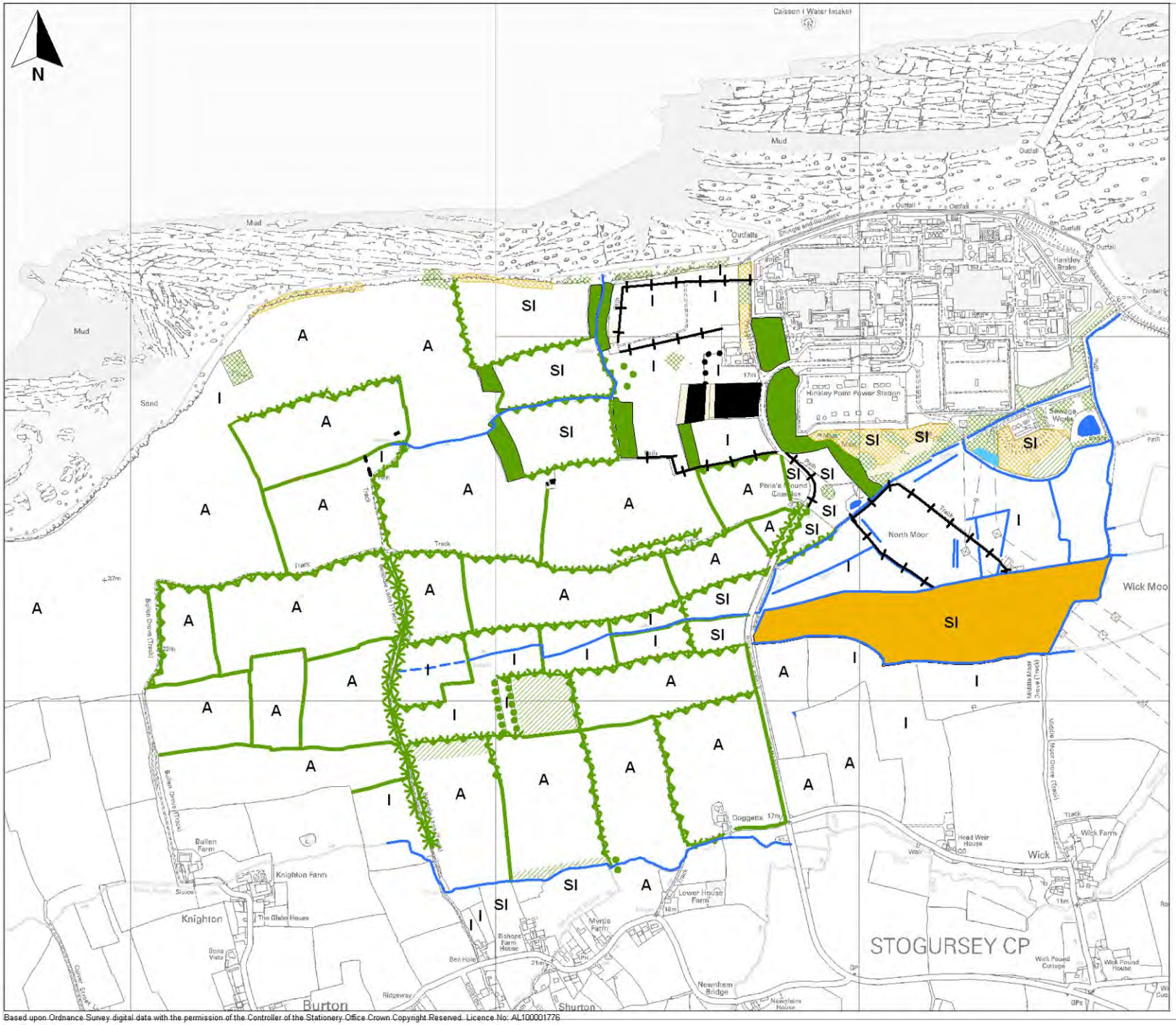
Drawn	Checked	Approved
KB	HK	JB

Date	Sheet size
23 October 2009	A3

Drawing Number	Rev	Scale
HinkleyDevArea	D2	see scale bar

EDF Energy
90 Whitfield Street
London
W1T 4EZ

Drawn	Title
k Hall	HINKLEY POINT C MAIN DEVELOPMENT AND CONSTRUCTION AREA
Orig Scale	
NTS	
Orig Size	
A3	
Date	Drawing Number
NOV'09	Figure 4



Key

- A — Arable
- Broad-leaved plantation woodland
- Broad-leaved scattered trees
- Broad-leaved semi natural woodland
- Boundary removed
- Car Park
- Dense scrub
- Fence
- I — Improved grassland
- Native species-rich hedge
- SI — Poor semi-improved grassland
- Running water
- Scattered scrub
- SI — Semi-improved neutral grassland
- Habitat boundary
- Species-poor intact hedgerow
- H20 — Hedge number
- Standing water
- Swamp
- Tall ruderal
- SI — Semi-improved calcareous grassland
- Calcareous grassland
- Dry ditch

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90 Whitfield Street
London
W1T 4EZ

Drawn	Title
k Hill	HINKLEY POINT C PHASE 1 HABITAT SURVEY MAP
Orig Scale	
NTS	
Orig Size	
A3	
Date	Drawing Number
NOV'09	Figure 5

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APPENDIX 7D: IPC SCOPING OPINION: EDF ENERGY REVIEW OF CONSULTEE SCOPING COMMENTS

Table 7D.1: IPC Scoping Opinion: EDF Energy Review of Consultee Scoping Comments

Consultee	ES Topic	Comment	Response
Avon and Somerset Police Authority	Socio-economic	The potential impact of public protest has not been taken into account alongside requirements needed to meet or mitigate the impact on the delivery of policing and the community.	The socio-economic chapter **(Volume 2 Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education and training, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. EDF Energy has been working with service providers (The District and County Councils, Avon and Somerset Constabulary, Devon and Somerset Fire and Rescue Services, South Western Ambulance Service Trust and NHS Somerset to address any potential community safety impacts arising from the project. A **Community Safety Management Plan** has been produced which sets out the overarching approach to ensure that community safety and emergency services issues are comprehensively addressed, any identified impacts mitigated and monitoring arrangements are in place to deal with any sensitivities or variances from the central assessment. This includes a summary of the **Outline Contingency Response Arrangements**.
Avon and Somerset Police Authority	Socio-economic	Want assurances that a detailed assessment of the implications for local policing resources has been conducted and the developers have in place agreements to mitigate any additional pressures placed on the policing service.	The socio-economic chapter **(Volume 2 Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education and training, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. EDF Energy has been working with service providers (The District and County Councils, Avon and Somerset Constabulary, Devon and Somerset Fire and Rescue Services, South Western Ambulance Service Trust and NHS Somerset to address any potential community safety impacts arising from the project. A **Community Safety Management Plan** has been produced which sets out the overarching approach to ensure that community safety and emergency services issues are comprehensively addressed, any identified impacts mitigated and monitoring arrangements are in place to deal with any sensitivities or variances from the central assessment. This includes a summary of the **Outline Contingency Response Arrangements**.
Avon and Somerset Police Authority	Socio-economic	Pleased that an analysis of personal injury accidents statistics is underway, supported by a review of any intrinsic safety issues, and wish to be notified of the outcome of this analysis in due course.	The socio-economic chapter **(Volume 2 Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education and training, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. EDF Energy has been working with service providers (The District and County Councils, Avon and Somerset Constabulary, Devon and Somerset Fire and Rescue Services, South Western Ambulance Service Trust and NHS Somerset to address any potential community safety impacts arising from the project. A **Community Safety Management Plan** has been produced which sets out the overarching approach to ensure that community safety and emergency services issues are comprehensively addressed, any identified impacts mitigated and monitoring arrangements are in place to deal with any sensitivities or variances from the central assessment. This includes a summary of the **Outline Contingency Response Arrangements**.
Bawdrip Parish Council	Construction of Hinkley Point C	The ES should reflect the environmental consequences of temporary accommodation provided for construction workers and their commute to work.	The ES considers the associated developments as part of the overall Hinkley Point C Project, with socio-economic and transport impacts of the HPC Project assessed in **Volume 2 Chapters 9** and **10** respectively. The potential environmental impacts of each associated development site are assessed within site-specific volumes of the ES (see **Volumes 3-10**). The project-wide impacts (including HPC together with the associated developments are) are considered in the cumulative impact assessment presented in **Volume 11.**
Bawdrip Parish Council	Construction of Hinkley Point C	ES should reflect the environmental consequences of construction traffic from Junction 23 of M5 to Cannington and beyond the site by existing and/or the provision of new roads.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**.
Bridgwater Town Council	Socio-economic	Jobs and Training - A local labour agreement is essential to ensure 50% local provision is honoured. It is equally important to ensure training opportunities are maximised through the employment and skills charter.	The socio-economic chapter (**Volume 2 Chapter 9**) provides an assessment of labour market impacts. EDF Energy has been working with the Councils to produce a **Construction Workforce Development Strategy** which is an **Appendix to the Economic Strategy**. This includes the principles that will be adopted in the employment and skills charter and the

Consultee	ES Topic	Comment	Response
			measures that will be adopted to enhance the beneficial impacts on Somerset.
Bridgwater Town Council	Socio-economic	Procurement - Support commitment to use local contracts and suppliers and use of local companies where possible. Interested to see how implemented in next stage.	The socio-economic chapter (Volume 2 Chapter 9) provides an assessment of supply chain impacts. EDF Energy has produced a **Supply Chain Engagement Strategy** which is an **Appendix to the Economic Strategy**. This includes the approach that is already being implemented to maximise supply chain opportunities for Somerset businesses.
Bridgwater Town Council	Socio-economic	The Town Council is supportive but consider it essential that local issues are resolved in favour of the local communities of which Bridgwater as the 'host' town is the key settlement.	The socio-economic chapter (**Volume 2 Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. The socio-economic assessment of the proposals for HPC has been integrated into EDF Energy's wider process of project development, collaborative working, and consultation. The scoping and production of the assessment has therefore been an ongoing "adaptive" process emerging from the stages of project development, both formal consultation and through ongoing engagement with local authorities and statutory bodies.
Bridgwater Town Council	Socio-economic	Community benefit should be seen in three phases to produce a comprehensive package: The now – commitment to the area – balancing high environmental impact with socio-economic needs Mitigation – compensation through service support – e.g. health, leisure, social, cultural, extra policing and civil protection Long term benefits – supporting infrastructure for transportation and environmental gain, the socio-economic offer, helping achieve the objectives of the Bridgwater Vision and regeneration of the fabric of the town, including the public realm.	The socio-economic chapter (**Volume 2 Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. In parallel with the assessment process EDF Energy has been working with the local authorities and other public agencies to identify and plan for activities to avoid and/or mitigate any negative impacts from the development and to enhance positive effects in the construction phase and once HPC is operational. Some of these actions are regarded by EDF Energy as basic good management practice and are therefore included as a part of the "central case" against which impacts are assessed. These for example include employment and training activities to secure local recruitment and a worker code of conduct to help govern worker behaviour. Where, after undertaking these activities, significant adverse impacts are still assessed as likely, further mitigation measures are identified.
Bridgwater Town Council	General (Alternatives)	M5 Junction 24 - Park and Ride Facilities - Ensure that sites chosen are in accordance with planning policy requirements, e.g. flood zones should be taken into account.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant. The strategic considerations for the proposed associated developments are details in **Volume 1 Chapter 5** and the separate **Planning Statement** and appended **Alternative Site Assessment.**
Bridgwater Town Council	General (Alternatives)	M5 Junction 24 - Park and Ride Facilities - Request that park and ride facilities are not seen as a legacy to the town. This is not a solution in provincial market towns and would be subverting local knowledge, wishes and opinion.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant. The strategic considerations for the proposed associated developments are details in **Volume 1 Chapter 5** and the separate **Planning Statement** and appended **Alternative Site Assessment.**
Bridgwater Town Council	General (Alternatives)	Request that accommodation is not provided in a single block and should seek to provide legacy use in several locations, with sufficient leisure and social facilities. Affordable housing is a vital legacy and should be built to a suitable standard. Sites should be chosen with due regard to existing residential development and must complement and enhance the built environment.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant. The strategic considerations for the proposed associated developments are details in **Volume 1 Chapter 5** and the separate **Planning Statement** and appended **Alternative Site Assessment.**
Bridgwater Town Council	Transport	Require further information in terms of transportation and traffic modelling. Such modelling should include traffic from Little Sydenham Farm development, the new Bridgwater Hospital development and current South Bridgwater development. Also require an enhanced level of survey work to give a coherent transport investment package.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**.
Bridgwater Town Council	General (Alternatives)	Not convinced by arguments that the park and ride facilities and freight logistics are sufficient without additional highways infrastructure over and above a Cannington bypass.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant. The strategic considerations for the proposed associated developments are details in

Consultee	ES Topic	Comment	Response
			Volume 1 Chapter 5 and the separate **Planning Statement** and appended **Alternative Site Assessment.**
British Energy (EDF)	N/A	No comments.	
Burnham on Sea and Highbridge Town Council	Transport	Want the environmental statement to show how the transport information was gathered and assessed to formulate the transportation document and how the full impact of transport on the environment is to be kept at a reasonable level without a purpose built route to minimise traffic congestion at Bridgewater and reduce the risk on the A39.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**.
Burnham on Sea and Highbridge Town Council	Transport	How much equipment will travel by train and ship to Hinckley C, and the logistics for this transport.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. Consideration is given to the use of the use of the rail network to deliver materials to the area.
Burnham on Sea and Highbridge Town Council	General	Concerned about the environmental impact of the sites to accommodate workers, in particular the main site and the Cannington Campus.	The ES considers the associated developments as part of the overall Hinkley Point C Project, with socio-economic and transport impacts of the HPC Project assessed in **Volume 2 Chapters 9** and **10** respectively. The potential environmental impacts of each associated development site are assessed within site-specific volumes of the ES (see **Volumes 3-10**). The project-wide impacts (including HPC together with the associated developments are) are considered in the cumulative impact assessment presented in **Volume 11.** It should be through further consideration of potential sites for accommodation campuses, and with regard to the consultation responses, there are no accommodation campuses proposed within the village of Cannington. Campus accommodation will be provided on-site at HPC and in Bridgwater.
Cannington Parish Council	Socio-economic	Concerned about potential impacts to the village, including loss of village character and identity.	The socio-economic chapter (**Volume 2 Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education and training, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. The potential environmental impacts of each associated development site are assessed within site-specific volumes of the ES **(see Volumes 3-10)**. The project-wide impacts (including HPC together with the associated developments are) are considered in the cumulative impact assessment presented in **Volume 11**.
Cannington Parish Council	Transport	Suggest implementing traffic-calming measures within the village, to make the journey slower and more inconvenient for those who try to cut through the village.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The assessment has identified a number of measures to reduce the traffic impacts, particularly during construction when the HGV and workforce movements are at peak, this includes a travel plan, route diversions and a number of highway improvements (including modifications to existing road alignments or junction/roundabout arrangements; and enhanced safety measures). These are detailed in the ES and **Transport Assessment.**
Chilton Trinity Parish Council	N/A	Requested an extension for their response.	N/A
Civil Aviation Authority	N/A	No comments.	N/A
Cotswolds AONB	N/A	No comments.	N/A
Countryside Council for Wales	Description of the Proposed Development	The entire scheme should be described in detail - To include the construction and operational phases.	The ES provides details on the proposed built developments, including the construction, operational and post-operational phases (where applicable) of the Hinkley Point C Project (see in particular **Volumes 2-10, Chapters 2-5**.
Countryside Council for Wales	Landscape and Visual	An assessment of landscape impacts.	The ES includes a landscape and visual assessment of the potential impacts of the HPC Project (see **Volume 2 Chapters 22**). The assessment of the landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. This includes an explanation of the appropriate study area for assessment. This includes relevant viewpoints.
Countryside Council for Wales	Legislation and Policy	The EIA should make reference to the latest policy guidance, including: Planning Policy Wales - March 2002, Planning Guidance (Wales) - Technical Advice note	All EIA topic chapters include reference to relevant policies where applicable. The Application is also supported by a Planning Statement.

Consultee	ES Topic	Comment	Response
		(Wales) 5 - Nature Conservation and Planning, Planning Guidance (Wales) - Technical Advice note (Wales) 17 - Environmental Assessment, Planning Guidance (Wales) - Technical Advice note (Wales) 15 - Development and Flood Risk, The Severn Estuary Shoreline Management Plan and the North Devon and Somerset SMP.	
Countryside Council for Wales	Marine Ecology / Habitats Regulations Assessment	The EIA should address the potential impacts of the proposals for the migratory fish features in the River Usk and River Wye.	This has been assessed in the **Habitats Regulations Assessment (HRA**) provided as a part of the DCO submission, which considers the impacts of the HPC Development on such features.
Countryside Council for Wales	Terrestrial Ecology and Ornithology / Habitats Regulations Assessment	The ES should address the potential environmental impacts arising from the proposals on the Severn Estuary SSSI, Ramsar Site, SPA, SAC, River Usk SAC and River Usk (Lower Usk) SSSI, River Wye SAC and SSSI, and the potential impacts on protected species and the landscape.	This has been assessed in **Volume 2, Chapters 19** and **20** which consider the impacts of the HPC Development on Marine Ecology, Terrestrial Ecology and Ornithology and also in the Habitats Regulations Assessment
Countryside Council for Wales	Terrestrial Ecology and Ornithology	There should be an assessment of impacts on any habitats and species listed in the UK Biodiversity Action Plan.	This has been assessed in **Volume 2, Chapters 19** and **20** which consider the impacts of the HPC Development on Marine Ecology, Terrestrial Ecology and Ornithology.
Countryside Council for Wales	Terrestrial Ecology and Ornithology	The ES should address the points raised by CCW in their advice to DECC on the proposed Nuclear NPS.	The ES has given consideration to relevant National Policy Statements EN-1 and EN-6. Consultation with CCW has also been undertaken as part of the pre-application consultation
Countryside Council for Wales	Terrestrial Ecology and Ornithology	Inclusion of details of a monitoring programme covering all designated sites and protected species affected by the scheme relating to both construction and operational phases of the development. Monitoring should be linked to appropriate contingency plans.	This has been included in **Volume 2, Chapters 19** and **20** which consider the impacts of the HPC Development on Marine Ecology and Terrestrial Ecology and Ornithology.
Countryside Council for Wales	General	The EIA should include a description of all the existing natural resources and landscape, including seascape, interests within and in the vicinity of the proposed development.	A description of the existing site and surroundings has been included in **Volume 2, Chapter 1,** and further detail is provided in the topic-specific chapters.
Countryside Council for Wales	Marine Ecology	The EIA should consider the impacts of the scheme on biodiversity including the potential impacts on the nature conservation resource of the Severn Estuary.	This has been included in **Volume 2, Chapters 19** and **20** which consider the impacts of the HPC Development on Marine Ecology, Terrestrial Ecology and Ornithology.
Devon County Council	N/A	No comments.	N/A
Direct Rail Services Ltd	Operation of Hinkley Point C	ES to demonstrate options for the most efficient, least disruptive and 'green' methods of transporting materials during the construction, operational and decommissioning phases. This should take into account infrastructure disruptions and safety issued that will have an impact on the local population.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. Consideration is given to the use of the use of the rail network to deliver materials to the area. Consideration to different transport options (i.e. the transport strategy) is detailed in **Annex 7 Transport Assessment** .
Direct Rail Services Ltd	Socio-economic	ES should demonstrate impact on the local population.	The socio-economic chapter (**Volume 2 Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education and training, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. This includes the impact on the local population.
Dorset County Council	N/A	No comments.	N/A
Durleigh Parish Council	Transport	Concerned about the extra traffic, both during the construction and after the plant has been commissioned that will be generated on the A39. Reference to new hosing and a new secondary school causing traffic flows. Support for a new bridge over the River Parrett at Dunball.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The assessment has identified a number of measures to reduce the traffic impacts, particularly during construction when the HGV and workforce movements are at peak, this includes a travel plan, route diversions and a number of highway improvements (including modifications to existing road alignments or junction/roundabout arrangements; and enhanced safety measures). These are detailed in the ES and **Transport Assessment.**
EDF Energy (IDNO) Limited	N/A	No comments.	N/A
Energetics Electricity Ltd	N/A	No comments.	N/A

Consultee	ES Topic	Comment	Response
Energetics Gas Ltd	N/A	No comments.	N/A
English Heritage	General	Include all necessary impacts including the main site and any associated infrastructure during construction.	The ES assesses the potential impacts of the HPC Project on the historic environment and off-shore and inter-tidal archaeology (see **Volume 2 Chapters 23** and **24**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**.
English Heritage	General	The Cannington By-Pass proposal should be treated as separate from the remaining proposals for Cannington as this is a major piece of infrastructure in its own right and should be treated thus.	The application for development consent includes a provision for the Cannington bypass as one of the associated development required to support the construction of HPC. The impacts of the Cannington Bypass are assessed and presented in **Volume 5** of the ES.
English Heritage	Landscape and Visual	Expect to see photomontages provided of the Cannington by-pass and major development within the village.	The landscape and visual assessment for Cannington Park and Ride and the bypass are presented in **Volumes 5** and **6** in **Chapter 16**. These assessments include photomontages.
English Heritage	Historic Environment	Consider the cumulative impacts of both the by-pass and separate development within Cannington.	The cumulative impacts of Cannington bypass with other HPC Project components and other developments have been assessed in **Volume 11**.
English Heritage	Historic Environment	Within the section on Combwich Wharf-(6.8) - we note that an area of 7-10 ha land will be provided for freight consolidation/storage. We would wish to understand whether any levelling of the ground may be required and what the implications of this may be on potential archaeological deposits.	The ES assesses the potential impacts of the HPC Project, including Combwich Wharf, on the historic environment (see Volume 7, Chapter 16)
English Heritage	Historic Environment	Understood that the destruction of the 10 sites (5.16.3) and other potential sites and features of archaeological interest as yet unknown, through the proposed preliminary works for terracing the development site, do need to be fully integrated into the scoping report even though it is understood that a separate EIA will be produced for this part of the project.	The ES assesses the potential impacts of the HPC Project on the historic environment and off-shore and inter-tidal archaeology (see **Volume 2 Chapters 23** and **24**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**.
English Heritage	Historic Environment	Recommend that a constraints map should be provided indicating where all the environmental constraints both natural and historic are within a certain agreed radius of the site together with each of the main off-site developments.	The ES assesses the potential impacts of the HPC Project on the historic environment and off-shore and inter-tidal archaeology (see **Volume 2 Chapters 23** and **24**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**.
English Heritage	Historic Environment	The Study Area as defined in 4.3.1 has not been fully understood in terms of the impact of the project on the Historic Environment.	The Study Area for the assessment of impacts to the historic environment is set out in **Volume 2 Chapter 23** and **Volumes 3-10, Chapter 16**.
English Heritage	Historic Environment	The section on Archaeology and Cultural Heritage – (page 69) should provide a broader summary of the designated historic assets within the wider context of the NPS.	Descriptions of the designated historic assets have been included within **Volume 2 Chapters 23** and **24** and **Volumes 3-10, Chapter 16**.
English Heritage	Historic Environment	The scope of the assessment should take account of all assets within 10km of the NPS.	The Study Area for the assessment of impacts to the historic environment is set out in **Volume 2 Chapter 23** and **Volumes 3-10, Chapter 16**.
English Heritage	Historic Environment	Question the validity of using the guidelines published by IFA for identifying a 500m study area as appropriate for such large scale development as this.	The Study Area for the assessment of impacts to the historic environment is set out in **Volume 2 Chapter 23** and **Volumes 3-10, Chapter 16**.
English Heritage	Historic Environment	Concerned with the lack of assessment made towards the matter of setting of any historic assets, whether as individual historic buildings or schedules monuments or as a group of historic assets for example within an historic park or garden.	The setting of such assets has been assessed in **Volume 2 Chapter 23** and **Volumes 3-10, Chapter 16**.
English Heritage	Historic Environment	Impact on a number of highly graded historic buildings in the vicinity of the development site have been granted exemption from Inheritance Tax on the grounds of their outstanding interest in terms of cultural and natural heritage needs to be assessed.	The ES assesses the potential impacts of the HPC Project on the historic environment and off-shore and inter-tidal archaeology (see **Volume 2 Chapters 23** and **24**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**.
English Heritage	Historic Environment	Impact of all proposed transport and related infrastructure options on this historic environment should be appropriately assessed as they are likely to have a significant impact both regionally, sub-regionally and locally.	The ES assesses the potential impacts of the HPC Project on the historic environment in **Volume 2 Chapter 23** and **Volumes 3-10, Chapter 16**. This includes an assessment of transport impacts on the historic environment.
English Heritage	Landscape and Visual	The new road link on the development site and the impact of this on the existing landscape character of the area needs to be fully assessed.	The ES assesses the potential impacts on landscape character in Volume 2 Chapters 22 for the Hinkley Point C development site and Volumes 3-10 Chapter 15.
English Heritage	Historic Environment	There needs to be a greater level of impact analysis provided for the setting of Wick Barrow – what the impact of the proposed new roundabout, substation and pylons that are all being proposed will be and what mitigation may be needed as a result.	The ES assesses the potential impacts of the HPC Project on the historic environment and off-shore and inter-tidal archaeology (see **Volume 2 Chapters 23** and **24**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in Volumes 3-10, Chapter 16. This includes an assessment of the impact on Wick Barrow.

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English Heritage	Transport	Encourage the proposal to produce a Master plan on transport issues.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment** (which includes the Framework Travel Plan)). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10, Chapter 8**.
English Heritage	Historic Environment	The visual impact should be assessed from all high level designated sites from which the size will be visible, including from the Welsh side of the Estuary. Given the size of the project a set distance would be an appropriate.	The ES addresses landscape and visual impacts in **Volume 2, Chapter 22** in respect of the HPC development.
English Heritage	Historic Environment	Include detail on worked flint as this has been recorded from the Stolford submerged forest in the past.	The ES assesses the potential impacts of the HPC Project on the historic environment and off-shore and inter-tidal archaeology (see **Volume 2 Chapters 23** and **24**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in Volumes 3-10, Chapter 16. This includes an assessment of the impact on Wick Barrow.
English Heritage	Historic Environment	The fish weirs are found in the intertidal area across Bridgwater Bay.	The ES assesses the potential impacts of the HPC Project on the historic environment and off-shore and inter-tidal archaeology (see **Volume 2 Chapters 23** and **24**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in Volumes 3-10, Chapter 16. This includes an assessment of the impact on Wick Barrow.
English Heritage	Historic Environment	Appropriate mitigation for nationally significant archaeology should be preservation in situ of the deposits not preservation by record.	The ES assesses the potential impacts of the HPC Project on the historic environment and off-shore and inter-tidal archaeology (see **Volume 2 Chapters 23** and **24**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an assessment of appropriate mitigation measures.
English Heritage	Historic Environment	Include a Monument Management Plan for Wick Barrow.	Details of mitigation and management plans, including a Monument Management Plan for Wick Barrow are provided in **Volume 2 Chapter 23**.
English Heritage	Historic Environment	Section 5.16.28 of the Scoping Report - "The development would have no impact on the Listed Buildings in Shurton Village, or their settings" - Statement singles out Shurton Village and doesn't take into account higher designated assets that are located further away but that could have larger setting issues that should be addressed.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the appropriate study area for assessment.
English Heritage	Historic Environment	Include a deposit model and discussion of stratigraphy based on the borehole records and vibrocores.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the appropriate study area for assessment.
English Heritage	Historic Environment	Ensure consistency between chapters on Landscape and Visual Amenity and Archaeology and Cultural Heritage.	The ES assesses the potential impacts of the HPC Project on landscape and visual, the historic environment, off-shore and inter-tidal archaeology (see **Volume 2 Chapters 22, 23** and **24 respectively**). The assessment of the impacts on landscape and visual and the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 15** and **16** respectively. Cumulative impacts are considered in **Volume 11**.
English Heritage	Historic Environment	There is a great deal of potential visual sensitivity from a number of highly graded historic buildings and their settings that need to be assessed. A lack of recognition in the significance of this historic environment in this context will severally undermine the quality of the final EIA unless this is rectified.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the appropriate study area for assessment.
English Heritage	Historic Environment	Take into account the historic landscape character and the part it plays in shaping the current landscape around the site.	The ES includes a landscape and visual assessment of the potential impacts of the HPC Project (see **Volume 2 Chapters 22**). The assessment of the landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. This includes an explanation of the appropriate study area for assessment.
English Heritage	Historic Environment	There is a need to provide a comprehensive baseline context of the landscape around the main site and indicate how the various assets fit into this context currently and how the development may impact upon this context.	The ES includes a landscape and visual assessment of the potential impacts of the HPC Project (see **Volume 2 Chapters 22**). The assessment of the landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. This includes an explanation of the appropriate study area for assessment. This includes an assessment of the baseline conditions.
English Heritage	Historic Environment	Seeking visual impact assessment techniques such as photomontages on the following provisional list of major historic assets along this route:	The ES includes a landscape and visual assessment of the potential impacts of the HPC Project (see **Volume 2 Chapters 22**). The assessment of the landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. This includes an

Consultee	ES Topic	Comment	Response
		Fairfield House and registered Park, West Somerset Stogursey Castle Scheduled Monument Stogursey Conservation Area Dodington Hall, Dodington and grounds Court House, East Quantoxhead and the wider complex of historic assets at Kilve.	explanation of the appropriate study area for assessment. This includes relevant photomontages. The visual impacts on features of Historic interest in particular are assessed in the Historic Environment chapters within **Volumes 2-10**).
English Heritage	Historic Environment	The Landscape and Visual Impact Assessment by Gillespies is not comprehensive enough and omits many viewpoints that we consider essential in assessing the full impact on the historic assets in the vicinity.	The ES includes a landscape and visual assessment of the potential impacts of the HPC Project (see **Volume 2 Chapters 22**). The assessment of the landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. This includes an explanation of the appropriate study area for assessment. This includes relevant viewpoints.
English Heritage	Historic Environment	It is considered that the cumulative impact of all this development is potentially very harmful to the character of this settlement and disproportionate to its existing size and status within the locality.	The site specific cumulative impacts of the HPC Project have been assessed within each topic chapter, where applicable, and in-combination impacts with other components of the HPC Project and other non-HPC developments have been assessed and presented in **Volume 11**.
English Heritage	Historic Environment	Williton (Paragraph 6.9 of the Scoping Report) – We are concerned that the report omits the scheduled monument round barrow complex that exists to the north and within the WIL A site. This is therefore not reflected in the section on the archaeology and cultural heritage. There are also a number of listed building assets present both within the village and in the surrounding countryside that need to be thoroughly assessed through the EIA.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the appropriate study area for assessment. This includes an assessment of the relevant designated assets.
English Heritage	Historic Environment	Examine the need for a work-force of the scale suggested may have implications on the existing infrastructure of the locality and the impact this could have on historic assets within the area.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the appropriate study area for assessment. This includes an assessment of the baseline conditions.
English Heritage	Historic Environment	Baseline information should describe the current and future likely state of the historic environment, providing the basis for identifying sustainability issues, predicting and monitoring effects and alternative ways of dealing with them.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the appropriate study area for assessment. This includes an assessment of the baseline conditions.
English Heritage	Historic Environment	Consider the wider geographic area in order to assess the likely significant environmental effects.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the appropriate study area for assessment. These chapters include an explanation of the appropriate study areas.
English Heritage	Historic Environment	Any gaps in information on the historic environment should be highlighted as part of the baseline description.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the appropriate study area for assessment. Any limitations and assumptions in the environmental impact assessment have been indicated.
English Heritage	Historic Environment	All designated historic assets should be considered, together with potential impacts on non-designated features of local historic, architectural or archaeological interest and value, since these can make an important contribution to creating a sense of place and local identity.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the appropriate study area for assessment. This assessment includes all relevant designated historical assets.
English Heritage	Historic Environment	Address opportunities as well as problems in relation to the historic environment.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the appropriate study area for assessment. Any benefits have been discussed within these chapters.
English Heritage	Historic Environment	Include the wider contribution of the historic environment to sustainable development and not simply view it as a narrow issue focused on preservation.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the appropriate study area for assessment. Any benefits have been discussed within these chapters. Consideration has also been given to sustainable development within the

Consultee	ES Topic	Comment	Response
			project, and details are provided in the Sustainability Statement.
ESP Connections Ltd	N/A	No comments.	N/A
ESP Electricity Ltd	N/A	No comments.	N/A
ESP Networks Ltd	N/A	No comments.	N/A
ESP Pipelines Ltd	N/A	No comments.	N/A
Fiddington Parish Council	Transport	Concerned about traffic management during peak construction period.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The assessment has identified a number of measures to reduce the traffic impacts, particularly during construction when the HGV and workforce movements are at peak, this includes a travel plan, route diversions and a number of highway improvements (including modifications to existing road alignments or junction/roundabout arrangements; and enhanced safety measures). These are detailed in the ES and **Transport Assessment.**
Fiddington Parish Council	Transport	Concerned about impacts on Worker Accommodation on local residents and traffic.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The assessment has identified a number of measures to reduce the traffic impacts, particularly during construction when the HGV and workforce movements are at peak, this includes a travel plan, route diversions and a number of highway improvements (including modifications to existing road alignments or junction/roundabout arrangements; and enhanced safety measures). These are detailed in the ES and **Transport Assessment.**
Fiddington Parish Council	Transport	Not enough consideration has been given to the project for a road between Dunball Wharf and the link road around Cannington.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The assessment has identified a number of measures to reduce the traffic impacts, particularly during construction when the HGV and workforce movements are at peak, this includes a travel plan, route diversions and a number of highway improvements (including modifications to existing road alignments or junction/roundabout arrangements; and enhanced safety measures). These are detailed in the ES and **Transport Assessment.**
Forestry Commission	N/A	No comments.	N/A
Fulcrum Pipelines Limited	N/A	No comments (but asked that future applications from EDF contain grid references of the site to enable Fulcrum to located it easily).	N/A
Health and Safety Executive	N/A	No comments.	N/A
Joint Nature Conservation Committee	N/A	No comments.	N/A
Marine Management Organisation	Coastal Hydrodynamics and Geomorphology	As regards Coastal processes the Scoping report address all the issues that need to be covered in the EIA. However, detail is lacking which would allow an assessment of activities to be made.	The ES assesses the potential coastal hydrodynamics and geomorphology impacts of the HPC development (see **Volume 2 Chapter 17**).
Marine Management Organisation	Coastal Hydrodynamics and Geomorphology	Coastal Protection works need to be designed to withstand extreme conditions that are forecast over the occupancy life of the site.	The ES assesses the potential coastal hydrodynamics and geomorphology impacts of the HPC development (see **Volume 2 Chapter 17**). This includes a consideration of measures designed to mitigate the impacts of the HPC development to the coast.
Marine Management Organisation	Coastal Hydrodynamics and Geomorphology	Details on the assessments of discharge of cooling water are needed. This should include why the two specific numerical models were chosen and also why two models, rather than one or three or more were chosen.	The ES assesses the discharges of cooling water associated with the HPC development (see **Volume 2 Chapters 18** and **19**). Appendix 18A to Volume 2 Chapter 18 describes the model development process. Supporting references to the ES provide further detail.
Marine Management Organisation	Coastal	Detail of on-site model calibration is needed as well as appropriate modelling of all	The ES assesses these scenarios (see **Volume 2 Chapters 18** and **19**). Model development is

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	Hydrodynamics and Geomorphology	three possible discharge scenarios.	described in Appendix 18A to **Volume 2 Chapter 18**, and full details of the validation and calibration procedures are contained in supporting references.
Marine Management Organisation	Coastal Hydrodynamics and Geomorphology	Scour and deposition modelling and monitoring around cooling water intake and outfall structures should be undertaken. Swathe bathymetry should be used to measure the sea bed response to these structures.	The ES assesses the potential coastal hydrodynamics and geomorphology impacts of the HPC development (see **Volume 2 Chapter 17**). The ES describes the intended monitoring of these aspects (see **Volume 2 Chapter 17**).
Marine Management Organisation	Coastal Hydrodynamics and Geomorphology	The influence of all structures (jetty, intake and outfall pipes, wharf refurbishment) on hydrodynamics and sediment transport needs proper consideration in the ES.	The ES assesses the potential coastal hydrodynamics and geomorphology impacts of the HPC development (see **Volume 2 Chapter 17**). This includes an assessment of all structures that are likely to give rise to environmental effects within the relevant study area.
Marine Management Organisation	Coastal Hydrodynamics and Geomorphology	Language used regarding the Hinkley-Stolford embankment should be clear. The 'tidal event' at Section 5.5.3 of the Scoping Report implies astronomical water levels only are considered, with no meteorological forcing.	The ES assesses the potential coastal hydrodynamics and geomorphology impacts of the HPC development (see **Volume 2 Chapter 17**). This includes an assessment of all structures that are likely to give rise to environmental effects within the relevant study area.
Marine Management Organisation	Coastal Hydrodynamics and Geomorphology	Ensure that full details of wave records and modelling is provided and that detail is given on what sort of analysis was performed and how future change was considered in respect of historical coastal geomorphology.	The ES assesses the potential coastal hydrodynamics and geomorphology impacts of the HPC development (see **Volume 2 Chapter 17**). This includes an explanation of the methodology used in the assessment.
Marine Management Organisation	Coastal Hydrodynamics and Geomorphology	Section 6.8.13 of the Scoping Report states that the longshore transport direction is 'consistently' west to east, however it is noted that the tidal currents in the area are strongly ebb dominant which is counter to the drift direction. Clarification should be provided in the ES.	The ES assesses the potential coastal hydrodynamics and geomorphology impacts of the HPC development (see **Volume 2 Chapter 17** for HPC**,** and **Volume 7 Chapter 18** for Combwich Wharf). This includes the consideration of impacts of structures associated with the HPC Project on sediment transport.
Marine Management Organisation	Coastal Hydrodynamics and Geomorphology	Dredged material with contaminant levels between Action Levels 1 and 2 require further consideration and testing before a decision can be made on whether a FEPA dredge disposal application should succeed.	The ES assesses the levels of sediment contamination in the context of marine water and sediment quality (see **Volume 2 Chapter 17** for HPC**,** and **Volume 7 Chapter 18** for Combwich Wharf).
Marine Management Organisation	Coastal Hydrodynamics and Geomorphology	The ES should clarify whether the material from Combwich Wharf is intended to be disposed of to sea.	Details on the management of dredged material at Combwich Wharf is included in **Volume 7**of the ES which details the construction and operational activities at Combwich Wharf, including an assessment of impacts on the marine environment.
Marine Management Organisation	Coastal Hydrodynamics and Geomorphology	Any survey specifications relating to the detailed studies being undertaken in support of the ES should be submitted to the MMO for review before an application is submitted to the IPC.	Such issues were discussed with the MMO through the Marine Authorities Liaison Group
Marine Management Organisation	Cumulative impacts	Consideration should be given to the cumulative effects of the thermal plumes produced from Hinkley Points C and B.	This is considered both in **Chapters 18** and **19** of Volume 2 of the ES and the associated Habitats Regulatory Assessment (HRA)
Marine Management Organisation	Cumulative impacts	The EIA will need to assess the impact of the scheme in combination with other projects in the vicinity of the scheme.	The site specific cumulative impacts of the HPC Project have been assessed within each topic chapter, where applicable, and in-combination impacts with other components of the HPC Project and other non-HPC developments have been assessed and presented in **Volume 11**.
Marine Management Organisation	Cumulative impacts	Given the applicants intention to submit, ahead of the DCO application, and ES for the temporary aggregates jetty, it is vital that the issue of any cumulative effects stemming from all associated development is properly addressed.	The site specific cumulative impacts of the HPC Project have been assessed within each topic chapter, where applicable, and in-combination impacts with other components of the HPC Project and other non-HPC developments have been assessed and presented in **Volume 11**.
Marine Management Organisation	Marine Ecology	Greater detail on fisheries and baseline fish needs to be available to properly assess the suitability of the data in the ES and there should be sufficient detail provided to describe the techniques used or the data sampled.	The ES assesses the potential marine ecology impacts of the HPC development (see **Volume 2 Chapter 19**). This includes a description of the baseline condition. Further details are provided in supporting references.
Marine Management Organisation	Marine Ecology	More detailed explanations of the piling and other engineering works generating substantial underwater noise, the position of the intake and outfall tunnels and the intake screens should be provided for these and the options used to reduce the potential impacts to fisheries.	The ES assesses the potential marine ecology impacts of the HPC development (see **Volume 2 Chapter 19**). This includes an assessment of the impact of the HPC development to fisheries.
Marine Management Organisation	Marine Ecology	The ES should consider the full impact of piling noise and suggest any mitigation measures.	The ES assesses the potential marine ecology impacts of the HPC development (see **Volume 2 Chapter 19**). This includes an assessment of the construction impacts.
Marine Management Organisation	Marine Ecology	The construction of the intake will impact upon juvenile fish populations and the outfall may assist over wintering fish species.	The ES assesses the potential marine ecology impacts of the HPC development (see **Volume 2 Chapter 19**). This includes an assessment of the impact of the HPC development to fisheries.
Marine Management Organisation	Marine Ecology	Although no commercial fishing operates in the Severn Estuary we consider that the construction plans are sensitive to the possible nursery grounds around or within the site.	The ES assesses the potential marine ecology impacts of the HPC development (see **Volume 2 Chapter 19**). This includes an assessment of the construction impacts.
Marine Management Organisation	Marine Ecology	More details studies need to be included to consider the impact of the benthic	The ES assesses the potential marine ecology impacts of the HPC development (see **Volume 2**

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		ecology.	**Chapter 19**). This includes an assessment of the impact of the development on the benthic ecology.
Marine Management Organisation	Marine Ecology	In respect of the sea wall, cooling water tunnels, temporary aggregates jetty and the Combwich Wharf refurbishment the ES should address the following:1- Identification of the potential zone of effect; 2- Identification of the ecological resources, features and functions present within , and in the vicinity of this zone (including an understanding of natural variability). This step will include a regional perspective based on previous studies; 3 - Development of an impact hypothesis for the construction, operation and decommissioning phases; 4 - Assessment of whether the predicted impacts are likely to cause significant ecological impact, defined as an impact on the integrity of a defined site of ecosystem and/or the conservation status of habitats or species within a given geographical area, including cumulative impacts; 5 - Consideration of litigation, compensation, enhancement as appropriate.	**Volume 7** of the ES assesses the impact of the Combwich Wharf proposals.
Marine Management Organisation	Navigation	Plans fit for navigation and mooring that include assessment via numerical modelling will need to be presented in the ES should dredging occur. These should consider (a) if there is buried contaminant that might be released (and its fate of there are contaminants, (b) the impact of dredging on local hydro and sediment dynamics, (c) the likely deposition rates and required maintenance dredging, and (d) the disposal of any dredged material.	The ES assesses the impacts to navigation of the HPC development (see **Volume 2, Chapter 26**).
Marine Management Organisation	Marine Water and Sediment Quality	Information on whether capital and maintenance dredging is likely to be required as part of the refurbishment at Combwich Wharf is required. This should also include information on navigational dredging.	**Volume 7 Chapter 3** and **4** of the ES detail the construction and operation of Combwich Wharf respectively.
Marine Management Organisation	Marine Water and Sediment Quality	When considering sediment transport the size of the sediment should be taken into account.	The ES assesses the potential impacts of the HPC Project on marine water and sediment quality (see **Volume 2, Chapters 18**). This includes an assessment of the effects of sediment transport.
Marine Management Organisation	Marine Water and Sediment Quality	Data on marine water and sediment quality should be included.	The ES assesses the potential impacts of the HPC Project on marine water and sediment quality (see **Volume 2, Chapters 18**). This assessment has been base on a variety of data.
Mendip District Council	N/A	No comments.	N/A
National Grid	Construction of Hinkley Point C	Statutory electrical safety clearances must be maintained at all times. Construction cannot be closer than 5.3m to the nearest (lowest) conductor.	The Construction of the HPC Development is detailed in **Volume 2, Chapter 3** of the ES.
National Grid	Description of Proposed Development	Note the proposed substation and terminal towers would form part of EDF Energy's DCO application (not part of National Grid's DCO, as noted in paragraph 3.3.1 of the Scoping Report).	The National Grid 400KV substation would be located within the development site and consent under the DCO application to the IPC. The connections to the Wider National Grid System would form part of the NG application.
National Grid	Operation of Hinkley Point C	Will seek to ensure that tower access for National Grid is maintained during and after construction.	The National Grid 400KV substation would be located within the development site and consent under the DCO application to the IPC. The connections to the Wider National Grid System would form part of the NG application.
NATS en Route plc	N/A	No comments (but reserve the right to comment at the full planning consent stage and there may be construction issues, such as crane height, which are relevant to NATS).	N/A
Natural England	Cumulative Impacts Habitats Regulation Assessment	The Appropriate Assessment of the power station will need to take into account the in -combination effects of recent and other foreseeable plans or projects such as National Grid power lines (Hinkley to Seabank), Steart managed re-alignment, Oldbury Nuclear Power Station, Hinkley A, Hinkley B etc. Where uncertainty exists over a plan or project, it is important that all likely/potential scenarios be considered and assessed - e.g. Hinkley B continuing to operate beyond 2017, which is a possibility that has yet to be decided.	The site specific cumulative impacts of the HPC Project have been assessed within each topic chapter, where applicable, and in-combination impacts with other components of the HPC Project and other non-HPC developments have been assessed and presented in **Volume 11**. The application for development consent also includes a Report on the Habitats Regulation Assessment.
Natural England	Historic Environment	Assessment is required of the likely impact the development will have on 'heritage landscapes' i.e. properties exempt from inheritance tax due to their landscape interest - e.g. Eastfield House, Williton.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2, Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an assessment of relevant heritage assets.
Natural England	Marine Ecology	The Scoping report (5.10.27/5/10.28/5.10.29) appeared to make conclusions on incomplete date - for example "this plume is unlikely to have any significant impact", "appropriate design and the operational management arrangement on -site will	The ES assesses the potential marine water quality and marine ecology impacts of the HPC development (see **Volume 2, Chapters 18** and **19**). This includes a description of the baseline

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		mitigate this."	condition and methodology used in the environmental impact assessment. .
Natural England	Terrestrial Ecology and Ornithology	There is little or no mention of Biodiversity Action Plan species/habitats - whether they are present and to what extent, and how the impact of the wider development on biodiversity in general will be assessed.	The ES assesses the potential marine ecology impacts and the terrestrial ecology and ornithological impacts of the HPC development (see **Volume 2, Chapters 19** and **20**). These assessments include details on relevant Biodiversity Action Plan species.
Natural England	Terrestrial Ecology and Ornithology	There is a failure to mention what has been identified as a bat roost in at least one of the on-site trees. Considered that further bat surveys are required (activity surveys) to determine what species of bat use the roost, how they are using the roost and the size of the population. Note that these factors will determine whether a Natural England European Protected Species (EPS) licence is required and what mitigation is appropriate.	The ES assesses the potential terrestrial ecology and ornithology impacts of the HPC development (see **Volume 2, Chapter 20**). This includes an assessment of the impact of the HPC development to bats and appropriate bat surveys have been carried out to date.
Natural England	Habitats Regulations Assessment	The eastern route option for the Cannington bypass, Junction 23-A/23-B (freight consolidation and Park and Ride) and Combwich Wharf should be subject to a Habitats Regulations Assessment.	The ES assesses the potential impacts on the marine and terrestrial ecological features, this includes potential impacts on designated sites including the Severn Estuary SPA, SAC and Ramsar site (see the terrestrial ecology, marine ecology and marine environment chapters). As required by the Conservation (Natural Habitats) Regulations 1994, EDF Energy have also undertaken an assessment (**Habitats Regulations Assessment**) to inform the appropriate assessment to be undertaken by the *competent authority.*
Nether Stowey Parish Council	General (Alternatives)	Include an analysis of all alternatives.	The ES assesses the alternatives considered in respect of the HPC Project including the alternatives considered associated with the HPC development and also the alternatives associated with the associated developments (see **Volume 2, Chapter 6** and **Volumes 3-10, Chapter 6).**
Nether Stowey Parish Council	General	The ES should evaluate the off-site associated development necessary for the proposed power station to meet all ht objectives outlined in para 1.4.1 of the Scoping Report throughout the expected life of the power station, not just the construction phase.	The environmental effects of the associated development are included within **Volumes 3-10**. This includes an assessment of the associated developments during their operational life.
Nether Stowey Parish Council	General	Highlight the objectives relating to minimising disruption to the local community and creating infrastructure with a long term benefit.	The ES considers the associated developments as part of the overall Hinkley Point C Project, with socio-economic and transport impacts of the HPC Project assessed in **Volume 2 Chapters 9** and **10** respectively. The potential environmental impacts of each associated development site are assessed within site-specific volumes of the ES (see **Volumes 3-10**). The project-wide impacts (including HPC together with the associated developments are) are considered in the cumulative impact assessment presented in **Volume 11.**
Nether Stowey Parish Council	General	Baseline information used for the ES analysis should not just be the "current" situation but also take into account the projected "no Hinkley C development" situation at the end of the construction period (say 2020).	The methodology used in the environmental impact assessment I considered in **Volume 1, Chapter 7**. Baselines for each topic are examined in each relevant chapter of the Environment Statement.
Nether Stowey Parish Council	General	Assessment should cover the construction, operation and decommissioning phases.	**Volume 2, Chapters 3, 4** and **5** of the ES cover the construction, operation and decommissioning phases of the HPC Development.
Nether Stowey Parish Council	Socio-economic	Analysis of 'local' to be reviewed and expressed in terms of distance from the site as the Council take a different view of 'local' than the Applicant.	The ES considers the associated developments as part of the overall Hinkley Point C Project, with socio-economic impacts of the HPC Project assessed in **Volume 2, Chapters 9**. The potential environmental impacts of each associated development site are assessed within site-specific volumes of the ES (see **Volumes 3-10**). These assess impacts at a range of spatial scales, from the immediate areas around the HPC site and AD sites, to the three main Council Districts (West Somerset, Sedgemoor and Taunton Deane), and 60 and 90 minute travel times from the site.
Nether Stowey Parish Council	Transport	Baseline assessment takes into full account expected residential, commercial and industrial developments in the area and that the growth factors used in the PARAMICS and SATURN traffic models are not unduly depressed by the current week state of the economy.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessments include a full description of the baseline conditions used as well as the modelling utilised.
Nether Stowey Parish Council	Transport	Regard should be had of the rural nature of the area surrounding Bridgewater and the consequential constraints on the likely financial viability of alternatives to private car travel.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**).

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Nether Stowey Parish Council	Transport	In respect of alternatives the Council believes there may will prove to be a conflict between the narrower quantitative analysis preferred by the applicant and the wider qualitative assessment that will come form the communities of the area.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the transport impacts include an assessment of the alternatives considered.
Network Rail Infrastructure Ltd	Transport	Suggest that a section be added to the ES to demonstrate that the railway infrastructure will not be compromised and be adequately protected.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The consideration of using railway infrastructure during the construction of HPC is also considered within the Transport Assessment.
Network Rail Infrastructure Ltd	Transport	Wants to be consulted on any planning application submitted as its primary concern is the safety of the adjacent railway.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The consideration of using railway infrastructure during the construction of HPC is also considered within the Transport Assessment. Consultation has been undertaken during the pre-application consultation process with the relevant consultees.
NHS Somerset Primary Care Trust	Amenity and Recreation	ES should address the full impact of limiting access to public rights of way and the lost opportunity to promote the Hinkley area for recreation, given that nationally there is a drive to get people more active.	The ES assesses the potential amenity and recreation impacts of the HPC development (see **Volume 2, Chapter 25**). This includes an assessment of the impacts to the public rights of way.
NHS Somerset Primary Care Trust	Construction of Hinkley Point C	Due consideration should be given to the environmental impact and loss of amenity value of surrounding land due to construction and security concerns.	The ES assesses the potential amenity and recreation impacts of the HPC development (see **Volume 2, Chapter 25**). This includes an assessment of construction impacts.
NHS Somerset Primary Care Trust	General	The ES should consider the environmental impact of associated development (particularly the power line connections required by the National Grid).	The environmental effects of the associated development are included within **Volumes 3-10**. The project-wide impacts (including HPC together with the associated developments are) are considered in the cumulative impact assessment presented in **Volume 11**.
NHS Somerset Primary Care Trust	Radioactive Waste Management	ES should address in more detail the potential environmental and health risks of long term storage of radioactive waste (para 3.5.9 of the Scoping Report).	The ES assesses the management of spent fuel and radioactive waste arising from the HPC development (see **Volume 2, Chapter 7**).
NHS Somerset Primary Care Trust	Socio-economics	Consideration should be given to assessing the impact of alternative workforce scenario modelling in addition to the Sizewell experience, which may no longer hold, given the changes in economic migration over recent years.	The ES, **Volume 2, Chapter 9**, identifies a central case for the workforce based on the best available information. The assessment also includes sensitivity tests of alternative workforce numbers, and mitigation measures are linked with monitoring of outcomes to ensure that contributions will mitigate the full range of likely impacts.
NHS Somerset Primary Care Trust	Socio-economics	Recommend stronger assessment of the socio-economic impact of the development during the construction phase.	The socio-economic chapter (**Volume 2 Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. This assessment encompasses the construction phase of the HPC development. .
NHS Somerset Primary Care Trust	Health Impact Assessment	Strongly recommend that the health impact considerations are given greater prominence and that the findings of the health impact assessment are integrated within the ES.	The effects of the HPC Project on human health are assessed in the **Health Impact Assessment**.
NHS Somerset Primary Care Trust	Health Impact Assessment	ES should adequately address the publicly perceived negative health impacts of the development which have been raised during public consultations.	The effects of the HPC Project on human health are assessed in the **Health Impact Assessment**.
Northern Ireland Assembly - Planning Service	N/A	No comments.	N/A
Office of Rail Regulation	N/A	No comments.	N/A
OFWAT	N/A	No comments.	N/A
Parrett Internal Drainage Board	Groundwater	The ES should consider the impact on the ground water levels as a result of any proposed development.	The ES assesses the impacts to groundwater of the HPC development (see **Volume 2, Chapter 15**), including groundwater levels both on site and off site. The assessment of groundwater impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter**

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			12.
Parrett Internal Drainage Board	Surface Water	The ES should include consideration of the impact from all of its sites proposed as part of the development for Hinkley Point, including satellite sites.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**.
Parrett Internal Drainage Board	Surface Water	The ES should consider the impact on surface water run off from any site.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This includes an assessment of surface water run off.
Parrett Internal Drainage Board	Surface Water	The ES should consider the impact of increased run off on the local and wider watercourse network.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This includes an assessment of surface water run off to the local and wider watercourse network.
Parrett Internal Drainage Board	Surface Water	The ES should consider the impact both in terms of quality and quantity, and timing of any run off.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This includes an assessment of surface water run off.
Parrett Internal Drainage Board	Surface Water	The ES should include an assessment of the impact of any possible operational or maintenance works carried out as part of that development.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This includes an assessment of any operational/maintenance impacts on surface water.
Royal Mail Group	N/A	No comments.	N/A
Sedgemoor DC and West Somerset DC	Air Quality	Population exposure for different by-pass location options should also be taken into account using the webTag methodology.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures. A NATA assessment has been undertaken considering different bypass options and is appended to the **Transport Assessment** (**Annex 7**).
Sedgemoor DC and West Somerset DC	Air Quality	For Cannington, it is not clear how the significance of potential impacts would be assessed and how potential impacts during construction would be taken into consideration.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures.
Sedgemoor DC and West Somerset DC	Air Quality	For M5 Junctions 23 and 24, Combwich Wharf and Williton some baseline information has been provided (including for Junction 24 potential existing sources of pollution in the area and sensitive receptors). The generation of dust has been identified as the main air quality issue during construction. It is stated that this will be assessed, however, no indication is given on how this will be done or what guidance will be used to determine the required level of mitigation.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures.
Sedgemoor DC and West Somerset DC	Air Quality	The baseline section mentions that the monitoring survey data reflect the local air quality better than available data from UK Air Quality Archive, however, this is not detailed any further, nor are monitoring data presented (data are presented in separate presentation).	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures.
Sedgemoor DC and West Somerset DC	Air Quality	It is stated that the Air Quality Strategy (AQS) defines objectives for air quality effects on vegetation and ecosystems but no information is provided as to whether there are any sensitive designated sites/ecological sites in the vicinity of the proposed scheme. A desk study undertaken on behalf of the Authorities showed that there is a designated site sensitive to NOx and nitrogen deposition (the Bridgwater SSS!) bordering the proposed Development Area West and Southern Construction Phase Area.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures. Air quality impacts on ecological features and features of conservation interest are assessed in the Terrestrial Ecology chapters of the ES.

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Sedgemoor DC and West Somerset DC	Air Quality	Given the scale of the development and the anticipated duration of construction it is considered appropriate to include a transparent assessment of potential dust nuisance in the ES.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures.
Sedgemoor DC and West Somerset DC	Air Quality	It appears that potential emissions of fine particulate matter (PM_{10}; $PM_{2.5}$) have not been considered. If this is not an issue and was scoped out then this should be stated.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures.
Sedgemoor DC and West Somerset DC	Air Quality	It is not clear whether potential impacts (NOx, nitrogen deposition) on the nearby ecological sites have been considered.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures. Air quality impacts on ecological features and features of conservation interest are assessed in the Terrestrial Ecology chapters of the ES.
Sedgemoor DC and West Somerset DC	Air Quality	Considering that there is the potential for cumulative effects including emissions from the Hinkley Point B plant an overlap of operation might need to be considered in the air quality assessment.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures. The cumulative project-wide impacts and impacts with other non-HPC developments are assessed and presented in **Volume 11**. Hinkley Point B, as it is currently in operation, is accounted for in the baseline assessment.
Sedgemoor DC and West Somerset DC	Air Quality	Given the scale of the development it is considered appropriate to include a transparent assessment of potential impacts from on-site plant operations in the ES, including details on the initial screening assessment.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures.
Sedgemoor DC and West Somerset DC	Air Quality	The level of detail provided varies widely between the different off-site development schemes. It is recommended to complete the baseline sections to a consistent level and, as a minimum, include comments on background pollutant concentrations, likely predominant sources of pollution, absence/presence of AQMAs and location of sensitive receptors including ecological sites.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures.
Sedgemoor DC and West Somerset DC	Air Quality	Further consultation would be required with the Authorities to establish long term monitoring proposed locations but are likely to include Taunton Road, Bristol Road; Northern Distributor Road and other major access routes.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures. This includes a description of appropriate monitoring locations.
Sedgemoor DC and West Somerset DC	Air Quality	It has not been identified what the main sources of air pollution are in the study area (for example, relating to other industrial sites). It would also be beneficial to include more detail on on-site sources of pollution, including a figure. A figure showing potential receptor locations and monitoring points might also be beneficial and aid transparency.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures. This includes a description of the relevant receptors and sources of pollution.

Consultee	ES Topic	Comment	Response
Sedgemoor DC and West Somerset DC	Air Quality	It would be beneficial to provide reference to applicable legislative documentation and guidance/technical documents/air quality reports and consultation where applicable.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures. This includes reference to the relevant legislation, policy and technical documents that have been referenced in the assessments.
Sedgemoor DC and West Somerset DC	Air Quality	If an assessment of construction dust is to be scoped out on basis of the qualitative assessment as described in the Scoping Report, more transparency would be desirable as to how the assessment was carried out. Further information is required on the criteria or guidance used to determine that the potential impacts would be minor. In addition, further information would be required on the proposed mitigation measures.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures.
Sedgemoor DC and West Somerset DC	Air Quality	Vehicle emissions will be assessed using an 'accepted methodology'. The Scoping Report should identify what the 'accepted methodology' refers to. Also, it is not clear how the significance of potential impacts would be assessed.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures.
Sedgemoor DC and West Somerset DC	Air Quality	It would be useful for specific details of the development proposals to be included within the ES, including locations of sensitive receptors and modelling/monitoring positions.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures. This includes an assessment of emissions from the HPC development.
Sedgemoor DC and West Somerset DC	Socio-economics	Information showing travel times and locations of off-site facilities which would be used by on site workers due to the absence of a like provision on site is currently absent from the Scoping Report and this will be required within the ES.	The socio-economic chapter (**Volume 2, Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. This includes a description of the facilities which will be provided on site and an audit of facilities within the area.
Sedgemoor DC and West Somerset DC	Socio-economics	Continued dialogue with inter alia Somerset County Council, Natural England, Community Sport in Somerset, Ramblers Association, Open Space Society and local residents and amenity groups, as well as Bridgwater Swimming Club, Bridgwater football and rugby clubs is recommended. The findings of such consultation and how these views have been addressed should be included within the ES.	The socio-economic chapter (**Volume 2, Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. This includes a description of the consultation employed and an audit of leisure provision (**Technical Note 5, Appendix 9E to Volume 2, Chapter 9**) based on information provided by the local authorities, and funded by EDF Energy through a Planning Performance Agreement and supplemented by additional work undertaken by EDF Energy in the preparation of the application.
Sedgemoor DC and West Somerset DC	Socio-economics	A leisure audit of the entire Sedgemoor District and the coastal strip of West Somerset is currently being undertaken but is not referenced within the Scoping Report. This document should be referenced in full within the ES to address amenity and recreation proposals in the context of local and more strategic aspirations across the area affected.	The findings from this assessment are fully referenced in **Technical Note 5, Appendix 9E to Volume 2, Chapter 9.**
Sedgemoor DC and West Somerset DC	Socio-economics	Greater understanding is needed to understand the level of services currently provided in the towns, any existing deficit, amenity and recreational provision required to serve construction workers (approx. 20,000 FTEs), and the permanent 700 workers for a period of 60-80 years. This could be done by providing examples of the intended on site offer and case study example using the best practice example such as Sizewell B.	The socio-economic chapter (Volume 2, Chapter 9) provides an assessment of impacts on public service provision in the construction and operational phases of the development. **Technical Note 5, Appendix 9E to Volume 2, Chapter 9** sets out the background context. The proposed provision on the three campuses (HPC site, Bridgwater A and Bridgwater C) are contained in the relevant site descriptions.
Sedgemoor DC and West Somerset DC	Amenity and Recreation	Considerably more detailed information will be required detailing the PRoW network and the closure and diversion of PRoW, particularly in terms of the expected phasing of closures and how access will be maintained.	The ES assesses the potential amenity and recreation impacts of the HPC development (see **Volume 2, Chapter 25**). This includes an assessment of the impacts to the public rights of way.
Sedgemoor DC and West Somerset	Socio-economics	There is a lack of baseline position which sets out the adequacy or deficit of facilities. Consultation with the District Leisure and planning officers will be required and the	The socio-economic chapter (**Volume 2, Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread,

Consultee	ES Topic	Comment	Response
DC		proposal will need to take into account current local plan policy.	including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required.
Sedgemoor DC and West Somerset DC	Socio-economics	The ES should also specify how workers on site will use facilities located elsewhere in the Districts in the absence of on-site provision.	The socio-economic chapter (**Volume 2, Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required.
Sedgemoor DC and West Somerset DC	Socio-economics	Further information on the type and scale of the recreational offer to be provided on site is required as it is not possible at this stage to determine whether supply is proportionate to the needs of the workers and whether any provision has been made to address ongoing recreational and amenity needs of existing users of the area around the proposed station.	The proposed provision on the three campuses (HPC site, Bridgwater A and Bridgwater C) are contained in the relevant site descriptions. The socio-economic chapter (**Volume 2, Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required.
Sedgemoor DC and West Somerset DC	Socio-economics	Further context and reference to similar facilities would assist in developing confidence that the proposed provision of facilities has a rationale. This could be set out in a leisure strategy as part of the process, and integrated into the socio-economic analysis.	The socio-economic chapter (**Volume 2, Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required.
Sedgemoor DC and West Somerset DC	Socio-economics	Whilst there may be a worker benefit to on site facilities there may be an opportunity cost in terms of lack of long term legacy benefit to local communities. This will need to be set out and evaluated in the ES.	The socio-economic chapter (**Volume 2, Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required.
Sedgemoor DC and West Somerset DC	Socio-economics	It would be useful to understand what recreational and amenity services will be provided on site. This provision would need to be able to cater for a diverse range of recreational uses and should not be limited to the small range of uses which have been analysed in the baseline. This is currently absent. A good understanding of the wider recreational offer within the rest of the local area should also be described within the ES with a demonstration of how this could be made available and enhanced for on site staff.	The socio-economic chapter (**Volume 2, Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required.
Sedgemoor DC and West Somerset DC	Socio-economics	Additional photographic/representational material of the types of recreational facilities to be provided on site is required. This could include site reference data from Sizewell to provide a design basis. In addition, mapping showing the locations of sites used for other recreational pursuits would also be beneficial (for example popular locations for angling pursuits).	The **Design** and **Access Statements for the HPC Site, Bridgwater A** and **Bridgwater C campuses** contain illustrative material of proposed amenity provision. The socio-economic chapter (Volume 2, Chapter 9) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required.
Sedgemoor DC and West Somerset DC	Surface Water	It is recommended that details of the approach to numerical modelling are provided in the ES. Further detail should be provided on the 'assessment of sediment transport patterns' for associated development, and the approach to estuary numerical modelling, EDF should allow for hydraulic, sediment transport and morphological modelling of the estuary and the Parrett.	The assessment of sediments movements for the Combwich Wharf Development is provided in **Volumes 7, Chapter 18**.
Sedgemoor DC and West Somerset DC	Surface Water	Concerns over a lack of evidence that sites have been evaluated for the Off-site Associated Development with respect to PPS25 (Sequential and Exception Tests). It is expected that this will be detailed in full within the ES.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This assessment runs in parallel to the flood risk assessments that have been carried out with evaluate the proposals pursuant to PPS25.
Sedgemoor DC and West Somerset DC	Surface Water	Potentially building in Flood Zone 3 means fluvial modelling may be required to clearly identify floodplain impingement. Consultation with the Environment Agency and internal Drainage Boards is advisable with on-going consultation with the local planning authorities.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This includes an assessment of the impacts to floodplains.
Sedgemoor DC and West Somerset DC	Surface Water	Keen to understand the impact of proposals on flood risk and whether proposals exacerbate or moderate / manage down flood risk threats. In this context both the site selection criteria for off site development is of interest, and the design criteria for any proposal will be important.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. The assessment considers the implications of potential flood risk.
Sedgemoor DC and West Somerset DC	Surface Water	Considerably more graphical detail is anticipated within the ES in respect of the development including the jetty, cooling water tunnels and seawall.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. Details in respect of the proposed development can be found in **Volume 2, Chapter 2.**

Consultee	ES Topic	Comment	Response
Sedgemoor DC and West Somerset DC	Coastal Geomorphology and Hydrodynamics	Hydraulic numerical modelling has taken place for cooling water studies only. The approach to modelling should be confirmed, EDF should allow for numerical modelling of coastal processes.	The ES assesses the potential coastal hydrodynamics and geomorphology impacts of the HPC development (see **Volume 2 Chapter 17**).
Sedgemoor DC and West Somerset DC	Coastal Geomorphology and Hydrodynamics	Tide and sediment transport direction is presented, but there is no information on flow velocities or transported sediment volumes. Baseline hydraulic parameters e.g. estuary ebb/flood dominance, tidal prism, river discharge and so forth should be provided. Further details are required on the initial desk-based assessment and should form a supplement to the ES.	The ES assesses the potential coastal hydrodynamics and geomorphology impacts of the HPC development (see **Volume 2 Chapter 17**).
Sedgemoor DC and West Somerset DC	Coastal Geomorphology and Hydrodynamics	The implications of any change to coastal processes on Bridgwater area, Burnham on Sea / Brean and Berrow, as well as Minehead and Dunster will need to be set out.	The ES assesses the potential coastal hydrodynamics and geomorphology impacts of the HPC development (see **Volume 2 Chapter 17**). This includes an explanation of the methodology used in the assessment.
Sedgemoor DC and West Somerset DC	Construction of Hinkley Point C	The phasing of the requirement for 'significant' areas of land on a temporary basis for construction, and the locations of land expected to be used for construction as well as environmental management and control processes to be employed should be detailed in full within the ES and in an accompanying Code of Construction Practice/Environmental Management Plan.	The ES assesses the construction impacts of the HPC development (see **Volume 2 Chapter 3**). This includes a consideration of the phasing of the HPC development.
Sedgemoor DC and West Somerset DC	Cumulative impacts	Expect that the cumulative impacts of the National Grid proposals for transmission upgrade should be set out within the ES.	The site specific cumulative impacts of the HPC Project have been assessed within each topic chapter, where applicable, and in-combination impacts with other components of the HPC Project and other non-HPC developments have been assessed and are presented in **Volume 11**. This includes an assessment of the National Grid proposals as a non-HPC development.
Sedgemoor DC and West Somerset DC	Cumulative impacts	It is expected that the ES will detail the rationale for considering the cumulative / interactive projects and at a topic-specific level, detail these predicted effects in full.	The site specific cumulative impacts of the HPC Project have been assessed within each topic chapter, where applicable, and in-combination impacts with other components of the HPC Project and other non-HPC developments have been assessed and presented in **Volume 11**.
Sedgemoor DC and West Somerset DC	Cumulative impacts	ES should take into account current planned growth as part of the Regional Spatial Strategy and those planned projects which are well advanced, such as North East Bridgwater, Northgate, Building Schools for the Future, the hospital and police station.	The site specific cumulative impacts of the HPC Project have been assessed within each topic chapter, where applicable, and in-combination impacts with other components of the HPC Project and other non-HPC developments have been assessed and presented in **Volume 11**.
Sedgemoor DC and West Somerset DC	General	It is expected that the manner in which the development objectives manifest themselves in the project will be detailed in full within the ES and set in the context of the Somerset and local Sustainable Community Strategies, corporate priorities and objectives, the emerging Local Development Framework (LDF) for SDC and WSC as well as the Bridgwater Vision, the respective Economic Strategies and Local Authority Area (LAA) targets	The ES presents the assessment of the construction, operation and where applicable, the post-operational use, of HPC and the associated developments. **Volume 2** presents the assessment of works associated with the HPC development itself, and **Volumes 3-10** the associated developments. This includes a description of the baseline environment, the scoping and consultation process, the methodology, predicted impacts and mitigation measures; the assessment of potential impacts, gives consideration to planning policy, where relevant.
Sedgemoor DC and West Somerset DC	General	Encourage EDF to take full account of the Planning Performance Agreement (PPA) vision and objectives.	The ES presents the assessment of the construction, operation and where applicable, the post-operational use, of HPC and the associated developments. **Volume 2** presents the assessment of works associated with the HPC development itself, and **Volumes 3-10** the associated developments. This includes a description of the baseline environment, the scoping and consultation process, the methodology, predicted impacts and mitigation measures; the assessment of potential impacts, gives consideration to planning policy, where relevant. Pre-application consultation has been undertaken with Somerset County Council and the District Councils in accordance with the Planning Performance Agreement (PPA).
Sedgemoor DC and West Somerset DC	Preliminary Works	Considerably more definition is required in the ES as to the assumptions made in the DCO with respect to the planning status of the Preliminary Works application.	The ES presents the assessment of the construction, operation and where applicable, the post-operational use, of HPC and the associated developments. **Volume 2** presents the assessment of works associated with the HPC development itself, and **Volumes 3-10** the associated developments. This includes a description of the baseline environment, the scoping and consultation process, the methodology, predicted impacts and mitigation measures; the assessment of potential impacts, gives consideration to planning policy, where relevant. The preliminary works applications have been considered and assessed where relevant throughout the ES. The approach to the inclusion of these applications and environmental effects are described in **Volume 1, Chapter 6**.
Sedgemoor DC and West Somerset DC	Decommissioning	It is expected that appropriate information will be provided in the ES to provide confidence that the development does not pose an unacceptable risk to human health or the environment during and following the decommissioning period (accepting the role and value of other regulatory regimes).	Decommissioning and potential impacts are described in **Volume 2, Chapter 5** of the ES.

Consultee	ES Topic	Comment	Response
Sedgemoor DC and West Somerset DC	Decommissioning	The overall expected timelines for phasing of decommissioning should be specified in the.	Decommissioning and potential impacts are described in **Volume 2, Chapter 5** of the ES. .
Sedgemoor DC and West Somerset DC	Cumulative impacts	Expected that grid infrastructure would itself be described and evaluated as far as practicable within the ES and the synergistic and/or cumulative effects for issues such as landscape and visual be detailed.	The site specific cumulative impacts of the HPC Project have been assessed within each topic chapter, where applicable, and in-combination impacts with other components of the HPC Project and other non-HPC developments have been assessed and are presented in **Volume 11**. This includes an assessment of the National Grid proposals as a non-HPC development.
Sedgemoor DC and West Somerset DC	General (Alternatives)	Expected that for the off site associated development in particular a description of alternatives considered and their reasons for selection/rejection would be provided.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant. The strategic considerations for the proposed associated developments are details in **Volume 1 Chapter 5** and the separate **Planning Statement** and appended **Alternative Site Assessment**.
Sedgemoor DC and West Somerset DC	General (Alternatives)	It is expected that the ES will make considerable emphasis on the suitability of the SSA process to meet the alternatives description requirement as set out in the EIA Regulations.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant. The strategic considerations for the proposed associated developments are details in **Volume 1 Chapter 5** and the separate **Planning Statement** and appended **Alternative Site Assessment**.
Sedgemoor DC and West Somerset DC	General	It is noted that the graphical material included in appendices to the Scoping Report provide outline information on the off-site associated development by way of areas of search, considerably more detail would be required in the ES.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant.
Sedgemoor DC and West Somerset DC	General	Due regard should be made of the location and extent of all aspects of the proposals including the specific location of offshore works (including cooling water tunnels) and seawall proposals.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant. A description of HPC is contained within **Volume 2, Chapters 2-5**.
Sedgemoor DC and West Somerset DC	General	Broad dimensional and locational information for buildings and other structures on and off site would be expected within the ES.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant. A description of HPC is contained within **Volume 2, Chapters 2-5**.
Sedgemoor DC and West Somerset DC	General (Alternatives)	The description of the project and construction process should be linked in the ES.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant. A description of HPC is contained within **Volume 2, Chapters 2-5**.
Sedgemoor DC and West Somerset DC	General	It is understood that a considerable amount of spoil will be generated from the cooling tunnel construction/boring alone and more detail would be expected within the ES.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant. A description of HPC is contained within **Volume 2, Chapters 2-5**.
Sedgemoor DC and West Somerset DC	General	It is expected that the ES will detail in full the measures to control and manage the effects of all aspects of the development, both on and off site.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant. A description of HPC is contained within **Volume 2, Chapters 2-5**.
Sedgemoor DC and West Somerset DC	General	The means by which significance has been evaluated should be detailed in full within the ES. It should be acknowledged that specific relevant criteria will also be used for certain topic areas where such criteria exist and are considered best practice, for example Ecological Impact Assessment.	**Volume 1, Chapter 7** of the ES provides a description of the environmental impact assessment methodology. Subject-specific methodology is detailed within each of the topic chapters for each volume.
Sedgemoor DC and West Somerset DC	General	It is assumed that EDF will inter alia address the requirements for Transport Assessment; Planning Statement; Design and Access Statement and Flood Risk Assessment; Habitats Regulations Assessment within technical annexes to the ES.	Where relevant the topic chapters of the ES refer to each document that supports the DCO Application.
Sedgemoor DC and West Somerset DC	General	It is recognised that the areas considered under each topic area will be defined through best practice and consultation with statutory and non-statutory consultees and this should be detailed in full within the ES.	Consultation is detailed in each topic chapter within the ES and a Consultation Report has been submitted with the DCO Application.

Consultee	ES Topic	Comment	Response
Sedgemoor DC and West Somerset DC	General	The Environmental Management and Monitoring Plan should make provision for detailing the appropriate guidance/legislation relevant to the anticipated effects and the control mechanisms which will be employed to address future regulatory requirements and best practice.	The EMMP makes appropriate reference to the relevant legislation and guidance which is must comply with.
Sedgemoor DC and West Somerset DC	Sustainability	It is recommended that the Sustainability Statement objectives be agreed through consultation with the Authorities to ensure full and effective integration of inter alia LAA targets and satisfactory consideration of the Bridgwater Vision and proposals for North East Bridgwater. It is important that this is not just a statement but a genuine and full sustainability appraisal of the proposals (including the Main Site; Preliminary Works and Associated Development) with clear recommendations on how sustainability objectives/key performance indicators of the authorities will be achieved.	The **Sustainability Statement** is a separate document which supports the DCO Application.
Sedgemoor DC and West Somerset DC	Socio-economic	More definition of this Procurement Strategy is sought from EDF (noting that this has a particular relationship to the socio-economic section of the ES).	The socio-economic chapter (**Volume 2 Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. This includes the impacts on supply chain and procurement.
Sedgemoor DC and West Somerset DC	Sustainability	The Sedgemoor Sustainability Appraisal for the Local Development Framework (LDF) should be considered in the Sustainability Statement proposed by EDF.	The **Sustainability Statement** considers the Sedgemoor Sustainability Appraisal for the Local Development Framework.
Sedgemoor DC and West Somerset DC	Consultation	It is expected that the Stage 1 consultation feedback from the Authorities be fully integrated into the options development for Stage 2 and that these are adequately assessed as part of the EIA.	The **Consultation Report**, and each topic chapter within the ES, where relevant detail how EDF Energy has consulted and taken on board consultation responses received to date.
Sedgemoor DC and West Somerset DC	Flood Risk	It should be noted that there are specific regulatory requirements, for example the Sequential Test under PPS25 for flood risk that demand a full and detailed account be made of site selection / option development processes. The response to and integration of these considerations should be detailed in full within the ES.	The Flood Risk Assessment for the HPC Development and associated developments includes reference to requirements under PPS25 where relevant.
Sedgemoor DC and West Somerset DC	Consultation	It should be noted that the Authorities have yet to see their responses to the Statement of Community Consultation (SOCC) adequately addressed and therefore the findings relevant to the EIA of any further consultation undertaken to address the authorities' concerns should be set out in the ES.	The **Consultation Report**, and each topic chapter within the ES, where relevant detail how EDF Energy has consulted and taken on board consultation responses received to date.
Sedgemoor DC and West Somerset DC	Consultation	A programme of action on both (i) the lack of tangible progress on engaging the hard to reach groups, particularly in Bridgwater and Williton, and (ii) on the progression of a robust skills development programme which will enable EDF to meet their local labour targets and local economic benefits, is now essential and will serve to inform the response to consultation points previously made.	The **Consultation Report**, and each topic chapter within the ES, where relevant detail how EDF Energy has consulted and taken on board consultation responses received to date. The socio-economic chapter (**Volume 2 Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. This includes the provision of training opportunities.
Sedgemoor DC and West Somerset DC	Consultation	It is considered helpful for the IPC's duty to consult to be reflected in the ES through a full account of representations made by consultees and the means by which these have been addressed within the technical evaluation.	The **Consultation Report**, and each topic chapter within the ES, where relevant detail how EDF Energy has consulted and taken on board consultation responses received to date.
Sedgemoor DC and West Somerset DC	Consultation	It is expected that the consultation process (statutory and non-statutory) be detailed in full for the Preliminary Works elements of the proposals where material feedback has been gained in the TCPA / HEO processes.	The **Consultation Report**, and each topic chapter within the ES, where relevant detail how EDF Energy has consulted and taken on board consultation responses received to date.
Sedgemoor DC and West Somerset DC	Preliminary Works	It is unclear whether the Preliminary Works should be considered as an element of the off site associated development and more clarity would be required (including a full description of the proposals within the ES).	The preliminary works application has been assessed where relevant throughout the ES. In particular see **Volume 1, Chapter 6**.
Sedgemoor DC and West Somerset DC	Geology and Contaminated Land	Specific issues are noted at Junction 23A where the petrol depot and land raising works should be considered. Furthermore in Bridgwater, the former Cellophane site; Bridgwater College/Rugby Club site and the Cattle Market site have potential contamination risks associated with them which should be considered.	**Volumes 3-10, Chapters 12** detail the potential land contamination impacts of the proposed associated developments.
Sedgemoor DC and West Somerset DC	Geology and Contaminated Land	An overlay of the historical features and the exploratory locations would provide a useful visual aid particularly where low levels of contamination have been identified. This would be expected with the ES.	**Volume 2, Chapter 14** discusses the historical features and exploratory locations which provide information considered within the ES baseline assessment. Desk study information, which provides a plan of identified historical features, and a site investigation report, which provides exploratory hole locations, are provided within the DCO package.

Consultee	ES Topic	Comment	Response
Sedgemoor DC and West Somerset DC	Geology and Contaminated Land	Within the conceptual site model, the meaning of the annotations for the surface water features is not clear. There is no key to the historical features but these are assumed to be associated with an agricultural use. The location of the sewage works is also unclear. These issues should be addressed within the ES	Please see **Volume 2, Chapters 14, 15** and **16** of the ES which detail the potential impacts of the HPC Development on Geology and Land Contamination, Ground Water and Surface Water.
Sedgemoor DC and West Somerset DC	Health Impact Assessment	Consideration of non-radioactive and radioactive waste and the long term impact on human health and the environment as a result of such proposals needs to be provided. The future studies setting out this evaluation should be identified and ideally should form part of a comprehensive Health Impact Assessment (HIA) for the project. It is recommended that this be published as part of the EIA with a dedicated chapter included within the ES.	The effects of the HPC Project on human health are assessed in the **Health Impact Assessment**.
Sedgemoor DC and West Somerset DC	Historic Environment	At the Cannington site, an area of 'high potential for unrecorded archaeological remains' is noted but a rationale for this statement is not provided	The ES assesses the potential impacts of the Cannington Park and Ride on the historic environment (see **Volume 6 Chapters 16**).
Sedgemoor DC and West Somerset DC	Historic Environment	No baseline data has been obtained for the M5 J23 and J24 and Williton sites; therefore no assessment of these aspects of the report can be made at this time. This should be corrected within the ES.	The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the baseline conditions.
Sedgemoor DC and West Somerset DC	Historic Environment	A collation of Historic Environment Record (HER) data in the ES is imperative to understand the concentration and distribution of cultural heritage sites within the proposed development site and its environs.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the appropriate study area for assessment.
Sedgemoor DC and West Somerset DC	Historic Environment	Due to potential setting issues, the scope of study area should have been determined in consultation with English Heritage and the Local Planning Archaeologist, and recorded thus in the report.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). This includes data on the relevant heritage assets that require assessment.
Sedgemoor DC and West Somerset DC	Historic Environment	Where Desk Based Assessments (DBA) had been completed, the inclusion of a cartographic review would have assisted in gaining an understanding of the historic development of the overall landscape.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of the appropriate study area for assessment.
Sedgemoor DC and West Somerset DC	Historic Environment	No graphics were included within the Scoping Report, for the Cultural Heritage Section. This omission should be addressed within the ES.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. These assessments are supported by both desk based assessments and figures which support the assessments.
Sedgemoor DC and West Somerset DC	Historic Environment	The Environmental Impact Assessment is to be carried out in line with the relevant National Regional and Local Planning policies with regard to cultural heritage. These policies, appertaining to the study area, were omitted from the report.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. The assessments have been carried out with reference to the relevant legislation and policy guidance.
Sedgemoor DC and West Somerset DC	Surface Water	The combined impact of the Steart proposals and the nuclear new build proposals are a serious issue to address in terms of environmental impact and specifically water management on the Parrett, impact on flood risk and on the operation of the wharf at Combwich.	The ES assesses the impacts to surface water of the proposed Combwich Wharf proposals (see **Volume 7, Chapter 13**).
Sedgemoor DC and West Somerset DC	Surface Water	It is expected that mapping data illustrating the extent of flooding around the proposed development would be provided in the ES.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. The assessment is supported by modelling data.
Sedgemoor DC and West Somerset DC	Surface Water	Paragraph 5.5.6 of the SR suggests that the outputs from the baseline analysis will be used to predict breaching of the flood defences. However, the hydrological assessments described in 5.5.9 would not facilitate such complex assessment. More confidence/information would be required within the ES.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This includes an explanation of the baseline conditions and methodology used to compile the assessment.
Sedgemoor DC and West Somerset DC	Surface Water	In relation to mitigation, it may be preferable to isolate the issues at this scoping stage and then set out the effects of mitigation. At present, possible effects are often only described with mitigation employed.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. The assessment details the suggested mitigation measures.

Consultee	ES Topic	Comment	Response
Sedgemoor DC and West Somerset DC	Surface Water	More confidence should be included within the ES through direct inclusion of empirical data to support the narrative.	The ES is supported by extensive technical data. Please see **Volume 1, Chapter 7** for an explanation of the methodology used in the environmental impact assessment.
Sedgemoor DC and West Somerset DC	Surface Water	Very little helpful graphical material has been included in the Scoping Report for this section. This should be addressed within the ES.	The ES is supported by extensive graphical figures to aid the detailed analysis. Please see **Volume 1, Chapter 7** for an explanation of the methodology used in the environmental impact assessment.
Sedgemoor DC and West Somerset DC	Surface Water	In relation to fresh water, more information on the potential impacts through referencing which pollutants may be released by which activities would be a helpful addition to the ES.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. The assessment details the likely pollutants that may be released.
Sedgemoor DC and West Somerset DC	Surface Water	In relation to fresh water, this section should detail the calculations and analysis planned, using the data collected.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. Please see the methodology sections for an examination as to how the environmental impact assessment has been carried out.
Sedgemoor DC and West Somerset DC	Surface Water	Bum Brook, Bayleys Brook and how it separates out into East and West Brook, eventually flowing out into the estuary is worthy of a commentary, as is a more detailed description of the complicated nature of the watercourses and channels south of the existing site.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This assessment includes a description of the potential impacts to watercourses in and around the HPC development.
Sedgemoor DC and West Somerset DC	Surface Water	ES may be improved with a more rounded description of the watercourses in the vicinity of the proposed development site.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This includes a description of the relevant watercourses.
Sedgemoor DC and West Somerset DC	Surface Water	More information on the potential impacts on fresh water quality may be helpful by describing in more detail which pollutants may be released by which activities.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This includes a description of potential pollutants.
Sedgemoor DC and West Somerset DC	Surface Water	Fresh water section would be more robust if the key issues and proposed mitigation were in separate sections.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. These include separate sections on both the potential impacts and proposed mitigation.
Sedgemoor DC and West Somerset DC	Surface Water	A map or plan of locations monitored for fresh water quality would greatly improve interpretation. Expected by way of a full project description in the ES.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. These include a description of the relevant watercourses.
Sedgemoor DC and West Somerset DC	Landscape and Visual	It is considered that the Scoping process would have benefited from the inclusion of on-site evaluation and site photographic work to support consultation / engagement on the primary issues raised at this stage. It is expected that this developing 'narrative' will inform the development of the off-site associated development in particular and also be fully integrated into the assessment of impacts on landscape character and visual amenity.	The ES includes a landscape and visual assessment of the impacts of the HPC development (see **Volume 2, Chapter 22**). The assessment of landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. These assessments include photographic representations of the visual impacts of the HPC development and associated development.
Sedgemoor DC and West Somerset DC	Landscape and Visual	Further clarification is required as to whether Cannington bypass proposals will be supported by a different methodology in line with Section 3 Part 5 DMRB, rather than or as well as GLVIA.	The Cannington Bypass proposals are assessed in **Volume 5** of the ES. Each environmental topic assessed is supported by its own methodology section which details how the environmental assessment has been carried out.
Sedgemoor DC and West Somerset DC	Landscape and Visual	Both proposed bypass routes being considered will impact upon landscape character (particularly the eastern route which will cut across the natural field patterns of the levels and introduce a transport route into what is otherwise predominantly an agricultural landscape). The sensitivity of this feature should be recognised and fully evaluated in the ES.	The landscape and visual impact of the Cannington Bypass proposals are assessed in **Volume 5, Chapter 15** of the ES.
Sedgemoor DC and West Somerset DC	Landscape and Visual	It is expected that the ES will make links to the socio-economic issues and the impacts on key economic sectors such as tourism.	The socio-economic chapter (**Volume 2 Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. This includes the impact on tourism.
Sedgemoor DC and West Somerset	Landscape and	No mention of methodology or guidance is mentioned in this section and confirmation	The ES includes a landscape and visual assessment of the impacts of the HPC development

Consultee	ES Topic	Comment	Response
DC	Visual	would be sought of this in the ES.	(see **Volume 2, Chapter 22**). The assessment of landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. These assessments are supported by detailed methodologies.
Sedgemoor DC and West Somerset DC	Landscape and Visual	Reference is made to 'effective landscape mitigation' although this is not set out in any detail at this stage. Due recognition should be made of the potential effects of employing this mitigation and opportunities for enhancement should be explored in the ES.	The ES includes a landscape and visual assessment of the impacts of the HPC development (see **Volume 2, Chapter 22**). The assessment of landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. These assessments are described the mitigation measures that will be required.
Sedgemoor DC and West Somerset DC	Landscape and Visual	The inclusion of plans showing the landscape context is recommended for inclusion with the ES. The addition of photographic material to show initial visual survey study and the development of the project based around constraints would be valuable.	The ES includes a landscape and visual assessment of the impacts of the HPC development (see **Volume 2, Chapter 22**). The assessment of landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. These assessments are supported by relevant figures and photographic material.
Sedgemoor DC and West Somerset DC	Legislative Context	There is a reference to "other environmental consents" independent from the DCO in the Scoping Report. These should be specified in full in the ES and demonstrate the relationship to environmental effects assessed within the EIA.	Where relevant the individual chapters of the ES make reference to the other consents that EDF Energy will be required to obtain.
Sedgemoor DC and West Somerset DC	Legislative Context	There is a reference to the DCO providing consent which would otherwise be granted under other licensing regimes (provided the relevant licensing bodies agree). The ES should give full details of any such agreement, with statutory authorities and the appropriate environmental information to guide full evaluation of the development proposals.	Where relevant the individual chapters of the ES make reference to the other consents that EDF Energy will be required to obtain.
Sedgemoor DC and West Somerset DC	Legislative Context	It should be noted that the SSA process addresses nuclear development only and for Hinkley C (where we understand there are proposals for considerable off-site development) it is expected that a full account will be made of alternatives considered including the reasons for rejection or selection of preferred development choices.	The ES assesses the alternatives considered in respect of the HPC Project including the alternatives considered associated with the HPC development and also the alternatives associated with the associated developments (see **Volume 2, Chapter 6** and **Volumes 3-10, Chapter 6).**
Sedgemoor DC and West Somerset DC	Marine Ecology	For Off-site Associated Development the baseline section is judged to be reasonably adequate with international designations acknowledged, however national designations are not noted. Designations and details of desk based assessment should be provided in the ES.	Such considerations are included in the Habitats Regulatory Assessment provided as a part of the DCO submission.
Sedgemoor DC and West Somerset DC	Terrestrial Ecology and Ornithology	Further confirmation is required on how the impact on the overwintering population will be assessed.	The ES assesses the potential impacts of the development on overwintering bird populations at or in the vicinity of the HPC development site in **Volume 2 Chapter 20**)..
Sedgemoor DC and West Somerset DC	Marine Ecology Habitats Regulation Assessment	Considerably more detail is anticipated within the ES in respect of the graphical description of the development including the jetty; cooling water tunnels and seawall.	The ES provides a detailed description of the HPC development (see **Volume 2 Chapter 2**). This includes a description of the jetty, cooling water tunnels and seawall.
Sedgemoor DC and West Somerset DC	Marine Ecology / Habitats Regulation Assessment	No information is provided on national and local designations, particularly Blue Anchor to Lilstock Coast SSSI, nor Bridgwater Bay SSSI. A background description of Blue Anchor to Lilstock Coast and Bridgwater SSSIs, and Bridgwater Bay NNR should be provided.	Such considerations are included in the Habitats Regulatory Assessment provided as an information report in support of the DCO submission.
Sedgemoor DC and West Somerset DC	Marine Ecology	Baseline surveys should confirm all locations of Sabellaria and Corallina within offshore works footprint and those outside potentially affected by offshore construction.	The ES assesses the potential marine ecology impacts of the HPC development (see **Volume 2 Chapter 19**). The assessment has taken into account the locations of Sabellaria within offshore works footprint and those outside potentially affected by offshore construction. Corallina is restricted to the intertidal areas alone.
Sedgemoor DC and West Somerset DC	Navigation	Vessel usage off the coast of Hinkley Point and within the River Parrett should be clarified from Port of Bridgwater Harbour Master and the Maritime and Coastguard Agency. Details on navigational constraints to the River Parrett are also required.	The ES assesses the potential impacts of the HPC development to navigation (see **Volume 2 Chapter 26**). This includes an assessment of vessel usage and includes an assessment on navigation constraints to the River Parrett.
Sedgemoor DC and West Somerset DC	Navigation	Navigation/navigation risk assessment will be required to identify how existing vessel routes in Bridgwater Bay will be affected by construction and operational activities.	The ES assesses the potential impacts of the HPC development to navigation (see **Volume 2 Chapter 26**). This includes an assessment of vessel usage and includes an assessment on navigation constraints to the River Parrett.
Sedgemoor DC and West Somerset DC	Marine Water and Sediment Quality	The data gap in marine water and sediment quality data should be filled for Off-site Associated Development (Combwich Wharf in particular). Non-radiological parameters for marine sediments, and non-radiological and radiological parameters for water column should be obtained. These should be contemporary samples rather than historic data.	The ES assesses the potential marine water and sediment quality impacts of the HPC development (see **Volume 2 Chapter 18**). Particular impacts of the Combwich Wharf proposals on the marine environment are assessed in **Volume 7, Chapter 18**.
Sedgemoor DC and West Somerset	Marine Water and	Recommended that cross-sections be include with the ES to show the interface of	Particular impacts of the Combwich Wharf proposals on the marine environment are assessed in

Consultee	ES Topic	Comment	Response
DC	Sediment Quality	Combwich Wharf with the River, and the location of the nearest (Combwich Motor Boat and Sailing Club) vessel moorings.	**Volume 7, Chapter 18**. This includes a detailed assessment of the impact of the Combwich Wharf proposals to the environment.
Sedgemoor DC and West Somerset DC	Marine Water and Sediment Quality	Section lacks a description of chemical (non-radiological) determinants for sediment quality. It is unclear what quantitative analysis of real data collected will be undertaken; the approach is limited to a desk based assessment. EDF should allow for numerical modelling of coastal processes.	The ES assesses the potential marine water and sediment quality impacts of the HPC development (see **Volume 2 Chapter 18**). This includes as assessment of the chemical determinants for sediment quality. Modelling has been carried out where it is appropriate to have done so.
Sedgemoor DC and West Somerset DC	Marine Water and Sediment Quality	The water quality modelling does not appear to be looking at sediment quality and how bed material will be transported; sediment transport modelling may be required. There is some uncertainty in the approach to monitoring suspended sediment levels from pre-construction to post-construction. Desk based studies should be supplemented with contemporary surveys and sampling. Details of the approach to estuary numerical modelling should be provided; EDF should allow for hydraulic and morphological modelling of the estuary.	The ES assesses the potential marine water and sediment quality impacts of the HPC development (see **Volume 2 Chapter 18**). This assessment includes a detailed section on the methodology underpinning the assessment.
Sedgemoor DC and West Somerset DC	Marine Water and Sediment Quality	No details of thermal plume modelling are provided and this would be sought within the ES.	The ES assesses the potential marine water and sediment quality impacts and marine ecological impacts of the HPC development (see **Volume 2 Chapters 18** and **19**). This includes an assessment of thermal plume modelling.
Sedgemoor DC and West Somerset DC	Marine Water and Sediment Quality	Details of the intended approach to suspended sediment monitoring from pre-construction through to post-construction is required and this should be provided in full within the ES.	The ES assesses the potential marine water and sediment quality impacts of the HPC development (see **Volume 2 Chapter 18**). This includes a description of the monitoring that will be undertaken by EDF Energy.
Sedgemoor DC and West Somerset DC	Noise and Vibration	The report does not give any details of the likely assessment methodology to be adopted for the potential worker's accommodation campus near Doggetts Farm and Wick Moor Drive.	The ES assesses the potential noise and vibration impacts of the HPC development (see **Volume 2 Chapter 11**). This assessment includes an explanation of the methodology used.
Sedgemoor DC and West Somerset DC	Noise and Vibration	The section on Cannington reports that vibration is unlikely to be an issue and that no further assessment is proposed. Further evidence would be required to confirm that vibration is not a significant factor for further consideration.	**Chapter 9 of both Volumes 5** and **6** of the ES assesses the noise and vibration impacts of the Cannington Bypass and Cannington Park and Ride proposals. These chapters detail how vibration impacts have been assessed.
Sedgemoor DC and West Somerset DC	Noise and Vibration	In respect of Combwich Wharf, no measurements have been undertaken during the evening and night and this location and these should be considered given the proximity of residential dwellings.	The ES (see **Volume 7 Chapter 9**) provides full details of the baseline surveys undertaken. Noise measurements were taken over a full 24 hour period to cover all hours of proposed construction and operation.
Sedgemoor DC and West Somerset DC	Noise and Vibration	Further details would be expected around noise survey including the indication of time periods measured to ensure validity of approach.	The ES assesses the potential noise and vibration impacts of the HPC development (see **Volume 2 Chapter 11**). This assessment includes an explanation of the methodology used and details of the baseline noise surveys.
Sedgemoor DC and West Somerset DC	Noise and Vibration	The proposed night-time noise limit of 43dBLAeq is high and a full rationale for using this limit and moving away from the use of BS4142 will need to be presented and agreed with all stakeholders in advance of production of the ES	The proposed operational noise limit was agreed with the EHOs at SDC and WSC. A full rationale for using this limit is contained within **Volume 2, Chapter 11** of the ES
Sedgemoor DC and West Somerset DC	Noise and Vibration	There is little which indicates how the severity of impact has been determined. An objective reference scale should thus be included.	The ES assesses the potential noise and vibration impacts of the HPC development (see **Volume 2 Chapter 11**). This assessment includes an explanation of the methodology used to assess impacts.
Sedgemoor DC and West Somerset DC	Noise and Vibration	The Scoping Report also states that wind noise provides an observable contribution to the background noise levels. There may be a risk that this has artificially increased noise levels and additional monitoring over a longer period would reduce this risk.	The ES (see **Volume 2 Chapter 11**) provides details of the baseline surveys undertaken. The survey methodology and monitoring locations were agreed with the EHOs at WSD and SDC prior to the surveys being undertaken.
Sedgemoor DC and West Somerset DC	Noise and Vibration	The Scoping Report states that construction noise assessments generally have a negligible impact on the nearest noise sensitive receivers based on permissible noise limits agreed with the local authority. The report does not state what these noise limits are, nor what noise levels constitute a negligible, moderate or major adverse impact and so on.	The ES assesses the potential noise and vibration impacts of the HPC development (see **Volume 2 Chapter 11**). This assesses the noise and vibration impacts arising from the construction of the HPC Developments.
Sedgemoor DC and West Somerset DC	Noise and Vibration	The report does not give any details of the calculation methodology for construction noise.	The ES assesses the potential noise and vibration impacts of the HPC development (see **Volume 2 Chapter 11**). This assessment includes an explanation of the methodology used to assess construction noise impacts.
Sedgemoor DC and West Somerset DC	Noise and Vibration	The location of noise sensitive receivers and monitoring positions should be included within the ES.	The ES assesses the potential noise and vibration impacts of the HPC development (see **Volume 2 Chapter 11**). This assessment includes a description of the study area assessed and the location of the noise sensitive receptors and monitoring positions.

Consultee	ES Topic	Comment	Response
Sedgemoor DC and West Somerset DC	Nuclear Regulatory Context	Considered appropriate that suitable technical aspects of the Funded Decommissioning Programme be included in the DCO to provide confidence as to the expected decommissioning effects and provision for full environmental evaluation.	The ES includes detail on the Funded Decommissioning Programme within **Volume 2, Chapter 5** of the ES.
Sedgemoor DC and West Somerset DC	Operation of Hinkley Point C	The phasing of worker accommodation at this facility (and the relationship to the construction programme) should be detailed in full within the ES.	**Volume 2, Chapters 3** and **4** of the ES cover the construction and operational phases of the HPC Development. This includes reference to the on site accommodation for workers.
Sedgemoor DC and West Somerset DC	Radioactive Waste Management	A Legacy Management Programme detailing the management intentions of off site associated development should be included within the ES, including impacts of climate change, and the issues associated with the national waste repository. It is fundamentally important for the IPC to understand that the interim waste proposals are long term proposals for 160 years.	The ES assesses the management of spent fuel and radioactive waste arising from the HPC development (see **Volume 2, Chapter 7**). Conventional Waste Management is considered within Volume 2, Chapter 8 of the ES.
Sedgemoor DC and West Somerset DC	Radioactive Waste Management	Estimates of waste material arisings and due reference to the anticipated role of a Geological Disposal Facility (GDF) as well as transportation requirements/effects should be made in a dedicated chapter of the ES. This section of the ES should also detail the relationship of managing 'conventional' wastes to sustainability objectives for the project.	The ES assesses the management of spent fuel and radioactive waste arising from the HPC development (see **Volume 2, Chapter 7**).
Sedgemoor DC and West Somerset DC	Radioactive Waste Management	Should be set out that the developer has no plans to accommodate new or existing waste from other sites in the UK or overseas at the Hinkley site. It is purely for its own operational use.	The ES assesses the management of spent fuel and radioactive waste arising from the HPC development (see **Volume 2, Chapter 7**).
Sedgemoor DC and West Somerset DC	Radioactive Waste Management	Scenarios and impacts of climate change will need to be assessed, particularly given that high level waste may be stored on site for approximately 160 years, and this will need to be modelled to inform the scale of flood defence structures. Our understanding is that current assessment requirements are for 100 years which is clearly inadequate.	The **Flood Risk Assessment** (FRA) submitted with the application for the DCO assesses the potential flood risk for the full lifetime of HPC including the Interim Spent Fuel Store. The assessment of future flood risk takes into account climate change predictions.
Sedgemoor DC and West Somerset DC	Radiological	It is recommended that the Radioactivity in Food and the Environment (RIFE) study be included in full with the ES.	Radioactivity in Food and the Environment (RIFE) are referred to where appropriate in the ES (see **Volume 2, Chapter 21**).
Sedgemoor DC and West Somerset DC	Radiological	It would be expected that information be made available in this section from the Generic Design Assessment (GDA) process on potential doses to human and non-human species from operation of EPR.	This is included in **Volume 2, Chapter 21** which assess the radiological impacts of the HPC development.
Sedgemoor DC and West Somerset DC	Radiological	The addition of radionuclide concentration studies in marine waters, groundwater, surface freshwater and shallow and deeper soils is welcome. It is assumed that samples have been analysed for gamma spectroscopy / spectrometry; gross beta; gross alpha; tritium and carbon-14 although this is not specifically referenced.	A radiological impact assessment has been undertaken as part of the EIA. The findings are detailed in **Volume 2, Chapter 21** which includes a full methodology for the assessment and reference to all studies relied upon.
Sedgemoor DC and West Somerset DC	Radiological	Limited reference has been made to methodology or reference criteria within this section. It is unclear whether radiological baseline information has been accessed from the existing A and B stations.	This is included in **Volume 2, Chapter 21** which assess the radiological impacts of the HPC development which provides a full methodology for the assessment and reference to all studies relied upon.
Sedgemoor DC and West Somerset DC	Radiological	Issues in relation to human health should be set out in the parallel Health Impact Assessment.	This is included in **Volume 2, Chapter 21** which assess the radiological impacts of the HPC development and considers the impacts to humans.
Sedgemoor DC and West Somerset DC	Radiological	Reference to public dose limits should be included within the appropriate section of the ES and it is expected that due reference will be made to the Health Protection Agency for advice.	This is included in **Volume 2, Chapter 21** which assess the radiological impacts of the HPC development and considers the impacts to humans.
Sedgemoor DC and West Somerset DC	Radiological	Discussions are also anticipated with the Nuclear Installations Inspectorate/Health and Safety Executive and should be detailed in full within the ES.	Consultation with appropriate bodies has been set out within **Volume 2, Chapter 21**.
Sedgemoor DC and West Somerset DC	Socio-economic	In relation to "off site" associated development, it is not clear what work is to be undertaken to scope the employment impacts arising from associated development or its timetable. Clarification needs to be provided urgently.	EDF Energy has been working with the local authorities, through the Socio Economic Taskgroup, to confirm the likely workforce profile for the development, which includes the timing and phasing of the construction workforce for associated developments. This is contained within **Technical Note 1, Appendix 9a, Volume 2, Chapter 9 of the Environmental Statement**. Further details for each associated development site are assessed within site-specific volumes of the ES (see Chapters 7 of **Volumes 3-10**). This includes an assessment of impacts on employment where appropriate.
Sedgemoor DC and West Somerset DC	Socio-economic	It is noted that the emerging Overarching National Policy Statement (NPS) for Energy (EN-1) states that *'applicants should describe the existing socio-economic conditions in the areas surrounding the proposed development and could also refer to how the*	The socio-economic chapter (**Volume 2 Chapter 9**) provides a comprehensive baseline assessment and summary of local planning, regeneration and economic development policies.

Consultee	ES Topic	Comment	Response
		development's socio-economic impacts correlate with local planning policy'. This analysis is absent from the Scoping Report and would need to be rectified in the ES.	
Sedgemoor DC and West Somerset DC	Socio-economic	This is not an area where 'lip service' will be adequate to communicate how the proposals deliver for example the Sedgemoor Sustainable Community Strategy, Corporate and Regeneration objectives and priorities, Economic Masterplan objectives, the Bridgwater Vision or address local community impacts through a robust and well developed community engagement and workforce development programme / local labour agreement. In addition, the West Somerset Sustainable Communities Strategy, Corporate and Regeneration objectives and priorities and Economic Masterplan objectives are fundamentally important to delivering these objectives.	The socio-economic chapter (**Volume 2 Chapter 9**) provides a comprehensive baseline assessment and summary of local planning, regeneration and economic development policies. This is used to identify the scope of the assessment, the assessment of the significance of impacts, and the identification of mitigation and enhancement measures. The **Economic Strategy, to which a Construction Workforce Development Strategy, Education Strategy** and **Supply Chain Engagement Strategy** and **Public Information Centre Management Strategy** are appended sets out a comprehensive pack of measures to maximise local benefits which have been developed in consultation with the local authorities.
Sedgemoor DC and West Somerset DC	Socio-economic	Authorities will want to be assured that the developer understands the Councils 'place shaping' role to coordinate and manage infrastructure investment, but also to shape the design and delivery of infrastructure to ensure it adds value to the locality in ways which ensure it has a sustained benefit to communities and places in the long term, and is not imposed by the developer or indeed the IPC. Councils will be very interested to know how the IPC will take proper account of this Council role and work with authorities to ensure final proposals integrate into the locality in ways to mitigate impacts but also make provision for local communities and to regenerate places.	The socio-economic chapter (**Volume 2 Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. The potential socio-economic impacts of each associated development site are assessed within site-specific volumes of the ES (see **Chapters 7 of Volumes 3-10**). Also see the **Sustainability Assessment** which looks at sustainability elements of the HPC Project. The **Design** and **Access Statements** set out how the development will physically interact with the wider area.
Sedgemoor DC and West Somerset DC	Socio-economic	Concerned that the Scoping Report includes limited reference to how aspirations from within the community, the local authorities or other key stakeholders who will have an interest in the Hinkley project will be assessed within the EIA.	The socio-economic chapter (**Volume 2 Chapter 9**) provides a comprehensive review of local policies which identify the priorities of the local authorities. EDF Energy has also undertaken a comprehensive Consultation process, as set out in the Consultation Report, and the team producing the socio-economic assessment has reviewed all relevant comments. The socio-economic assessment has sought to identify evidence in relation to the full range of issues raised and, where an evidence based judgement can be made has included these in the assessment.
Sedgemoor DC and West Somerset DC	Socio-economic	The Scoping Report places a reliance on the transferability of experience gained from longitudinal studies of socio economic impacts created by UK nuclear power stations specifically Sizewell. Whilst this is generally a reasonable starting position, considerably more context would be sought in setting out the position at Hinkley within the ES.	The socio-economic chapter (**Volume 2 Chapter 9**) provides an assessment of consequent impacts on public services of likely workforce accommodation preferences and spatial spread, including education, health, policing and emergency services, and leisure and recreation provision and any mitigation measures required. The potential socio-economic impacts of each associated development site are assessed within site-specific volumes of the ES (see **Chapters 7 of Volumes 3-10**). The methodology for the socio-economics assessment is set out within these chapters.
Sedgemoor DC and West Somerset DC	Socio-economic	The assessment of economic impact during the construction phase is dependent upon underlying assumptions from other studies particularly the expected division of migrant and local labour (within the daily commute distance). These assumptions require sensitivity testing which is expected to be documented within the ES.	The socio-economic chapter (**Volume 2 Chapter 9**) has used evidence from a range of sources to identify the likely workforce and recruitment and travel patterns. This has been reviewed with the Councils through the socio-economic taskgroup and the transport working group and forms the basis of the central case assessment. Background details are contained within **Technical Note 1, Appendix 9a, Volume 2, Chapter 9 of the Environmental Statement.**
Sedgemoor DC and West Somerset DC	Socio-economic	Social cohesion implications of having a large influx of migrant workers should not be discounted in the consideration of baseline conditions. The Somerset Local Authority Area (LAA) targets include indicators concerned with a significant population of worklessness relatively close to the site in West Somerset and Sedgemoor, social cohesion, alcohol and drug abuse, which should be addressed in the ES.	EDF Energy's review of social cohesion issues in the South West is contained in **Technical Note 6, Appendix 9F, Volume 2, Chapter 9 of the Environmental Statemen**t. **Volume 2 Chapter 9** assesses potential impacts on social cohesion.
Sedgemoor DC and West Somerset DC	Socio-economic	Equalities issues should be set in the context of inter alia the Somerset Economic Strategy which seeks an improvement in the female average wage. Measures aimed at enhancing opportunities for female employees during the construction and operational stages can help address this issue and make headway on this target.	**Technical Note 2, Appendix 9B, Volume 2 Chapter 9 of the Environmental Assessment** considers likely workforce demographics which form the basis of the central case in the assessment. The **Construction Workforce Development Strategy, an Appendix to the Economic Strategy** sets out the measures identified to maximise recruitment from equalities target groups.
Sedgemoor DC and West Somerset DC	Socio-economic	There should be a strong focus on the target group of those that are currently on benefit and are unfit to work.	The ES considers the socio-economic impacts of the HPC Development in **Volume 2 Chapters 9**. This assessment includes a consideration of the impact of the proposals on the local labour market. **The Construction Workforce Development Strategy, an Appendix to the Economic Strategy** sets out the measures identified to maximise recruitment from equalities target groups.
Sedgemoor DC and West Somerset DC	Socio-economic	Many of the labour recruitment outcomes are mediated by the way companies working on the project hire people onto the job. Locally based companies are more	The ES considers the socio-economic impacts of the HPC Development in **Volume 2 Chapters 9**. This assessment includes a consideration of the impact of the proposals on the local supply

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		likely to hire local people and it would be beneficial to include a profile of local companies in the baseline.	chain. The **Supply Chain Engagement Strategy, an Appendix to the Economic Strategy** sets out the measures identified to maximise opportunities for local business to benefit from the development of HPC.
Sedgemoor DC and West Somerset DC	Socio-economic	More clarification could be provided on the occupational profile of the project's job demand especially in relation to potential displacement of jobs from the local economy. With other planning consents being negotiated, the Morrison's developments create 1600 jobs which will be recruited from 2010. Other projects such as Building Schools for the Future (BSF) will require a significant construction workforce and all these elements indicate that the degree of labour availability will be constrained and therefore assumptions on the level of local labour optimistic.	The ES considers the socio-economic impacts of the HPC Development in **Volume 2 Chapters 9**. This assessment includes a consideration of the impact of the proposals on the local labour market. Cumulative impacts with other projects on the south west labour market are considered in **Volume 11 Chapter 6**.
Sedgemoor DC and West Somerset DC	Socio-economic	The local labour content in more recent studies is substantively below the 50% assumption level stated in the Scoping Report. The means by which this will be tested within the ES is currently unclear.	The ES considers the socio-economic impacts of the HPC Development in **Volume 2 Chapters 9**. This assessment includes a consideration of the impact of the proposals on the local labour market and the methodology for the assessment is set out within the chapter and in **Technical Note 1, Appendix 9a, Volume 2, Chapter 9.**
Sedgemoor DC and West Somerset DC	Socio-economic	Displacement effects within the existing employed workforce of the catchment areas should be considered more directly. Existing construction and engineering workers are likely to be attractive to contractors during the construction phase of the work and it is unclear what level of contract compliance will be used by EDF or its prime contractors to changes those preferences. Unemployed people may therefore benefit indirectly through jobs released as a result of trading up to a more secure, better paid opportunity by those already in work.	The ES considers the socio-economic impacts of the HPC Development in **Volume 2 Chapters 9**. This assessment includes a consideration of the impact of the proposals on the local labour market. Cumulative impacts with other projects on the south west labour market are considered in **Volume 11 Chapter 6.**
Sedgemoor DC and West Somerset DC	Socio-economic	Leakage of economic benefit is a critical issue within the assessment; it is however underplayed in the report. The report should reference the testing of options in relation to the local labour content assumed for the project is a major part of project scope rather than presenting absolute numbers as a "fait accompli". Leakage effects should also be accounted for at the different spatial impact areas considered during the assessment. Reference should also be made to considering how local labour participation is expected to vary over time reflecting the changing skills mix on the project.	The ES considers the socio-economic impacts of the HPC Development in **Volume 2 Chapters 9**. This assessment includes a consideration of the impact of the proposals on the local labour market. Cumulative impacts with other projects on the south west labour market are considered in **Volume 11 Chapter 6**.
Sedgemoor DC and West Somerset DC	Socio-economic	Based on available recent experience, there is likely to be a significant number of culturally distinct people (overseas workers with specialist skills recruited by contractors) drawn into the communities of Somerset who lack extensive experience of dealing with multicultural environments. Assimilation of these workers needs to be considered in terms of potential community safety issues.	EDF Energy's review of social cohesion issues in the South West is contained in **Technical Note 6, Appendix 9F, Volume 2, Chapter 9 of the Environmental Statemen**t. **Volume 2 Chapter 9** assesses potential impacts on social cohesion.
Sedgemoor DC and West Somerset DC	Socio-economic	It is expected that the socio-economic section of the ES details in full the expected profile and skills of workforce employed in the project during construction and operation and the extent to which the local labour market wilt be able to support this requirement.	The ES considers the socio-economic impacts of the HPC Development in **Volume 2 Chapters 9**. This assessment includes a consideration of the impact of the proposals on the local labour market with further background information contained in **Technical Notes in Annexes 9A to 9F**.
Sedgemoor DC and West Somerset DC	Geology and Land Contamination	Results from soil sampling and ground gas investigations (risk from ground gas/infill from ponds) have not been provided to date and would be expected in the ES.	The ES provides the results from soil sampling and ground gas investigations (risk from ground gas/infill from ponds) for HPC and an assessment of impacts in relation to contaminated land in **Volume 2, Chapter 14**.
Sedgemoor DC and West Somerset DC	Geology and Land Contamination	The rationale for the sampling techniques used and the sampling distribution pattern is not explained in the SR, and it is assumed that these are included in the relevant technical/site investigation reports. Suitable provision should be made for this to be fully documented in the ES.	A summary of the SI sampling methodology for HPC is included in **Appendix 14C of Volume 2 Chapter 14** of the ES, with full details of sampling provided relevant technical/site investigation reports which are referenced in that chapter.
Sedgemoor DC and West Somerset DC	Geology and Land Contamination	The SR contains no information or synopsis of the ground conditions encountered and it is assumed that this would be included in a supporting site investigation report and/or as a technical annexe to the ES.	A summary of the SI results on ground conditions encountered is provided in **Volume 2 Chapter 14** of the ES, with further details in **Appendix 14C** of that volume and in technical reports referenced in the chapter.
Sedgemoor DC and West Somerset DC	Terrestrial Ecology and Ornithology	Preliminary baseline information about ecological features is provided for Off-site Associated Developments at Cannington Bypass, Cannington, M5 Junction 23, M5 Junction 24, Combwich Wharf and Williton. When completed, the findings of the baseline ecological surveys at the aforementioned offsite associated development sites should be appended to the ES.	The ES assesses the potential impacts of the HPC Project on terrestrial ecology and ornithology (see **Volume 2, Chapters 20**). The assessment of the impacts on terrestrial ecology and ornithology for each of the associated development sites are provided in **Volumes 3-10, Chapter 14**. These chapters include a description of the baseline conditions.
Sedgemoor DC and West Somerset	Terrestrial Ecology	When ecological surveys at the Off-site Associated Developments have been	The assessment of the impacts on terrestrial ecology and ornithology for each of the associated

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DC	and Ornithology	completed the scope of the assessment would need to be updated.	development sites are provided in **Volumes 3-10, Chapter 14**. These chapters include a description of the baseline conditions, study area and methodology followed.
Sedgemoor DC and West Somerset DC	Terrestrial Ecology and Ornithology	All designated nature conservation sites that would be affected by the proposed works should be listed and their qualifying features described, particularly Bridgwater Bay National Nature Reserve (and the ecosystem resource to the public) and Severn Estuary Special Area of Conservation (and the qualifying inter-tidal habitats that support important bird populations).	The ES assesses the potential impacts of the HPC Project on Terrestrial Ecology and Ornithology and Marine Ecology (see **Volume 2, Chapters 19** and **20**). The assessment of the impacts on terrestrial ecology and ornithology for each of the associated development sites are provided in **Volumes 3-10, Chapter 14**. Relevant designated conservation sites are described in the chapters.
Sedgemoor DC and West Somerset DC	Terrestrial Ecology and Ornithology	The findings of the baseline ecological surveys at the main site should be appended to the ES.	The ES assesses the potential impacts of the HPC Project on terrestrial ecology and ornithology (see **Volume 2, Chapters 20**). The baseline ecological survey information is included in the baseline reports in Appendices 20A-20L and 20Q.
Sedgemoor DC and West Somerset DC	Terrestrial Ecology and Ornithology	The findings of the badger survey should be included within a restricted access appendix to the ES.	The ES assesses the potential impacts of the HPC Project on terrestrial ecology and ornithology (see Volume 2, Chapters 20). The baseline information relating to badgers is provided in a confidential Annex to the ES
Sedgemoor DC and West Somerset DC	Terrestrial Ecology and Ornithology	The potential collision risk of the proposed overhead power lines to birds at the Main Site should be considered.	The ES assesses the potential impacts of the HPC Project on terrestrial ecology and ornithology (see **Volume 2, Chapters 20**). This assessment considers all likely significant impacts on birds
Sedgemoor DC and West Somerset DC	Terrestrial Ecology and Ornithology	It is essential that the Scoping Report should describe the assessment methodology to be used, in particular how the value of ecological features and significant effects will be determined.	The ES assesses the potential impacts of the HPC Project on terrestrial ecology and ornithology (see **Volume 2, Chapters 20**). The assessment of the impacts on terrestrial ecology and ornithology for each of the associated development sites are provided in **Volumes 3-10, Chapter 14**.These assessments include a description of the methodologies used.
Sedgemoor DC and West Somerset DC	Transport	The assumption seems to be, based on a preliminary assessment, that a Bridgwater Bypass will not be justified. This is a large assumption which is not evidenced based and is premature in the context of the scoping report as the transport modelling is not complete. There is also a serious question as to the adequacy of the consultation in relation to the lack of options presented by EDF and the rationale for this.	**Annex 7 Transport Assessment** provides an assessment of the transport features of the HPC Project, including the consideration of a Bridgwater bypass route.
Sedgemoor DC and West Somerset DC	Transport	In the context of the Bridgwater Bypass the planning authority has raised the need for proper and due consideration of this proposal following its inclusion in the Hinkley C Inquiry process in the late 1980's. It is the only reference point in planning history terms and should be the start point for technical evaluations, not ruled out in advance of technical assessments. This issue has been raised on many occasions and now could present a risk to the project in the context of the lack of options presented for consultation and should be thoroughly addressed in the Stage 2 process and ES. The IPC views on National Grid options and the adequacy of consultation is important in this regard.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The assessment has identified a number of measures to reduce the traffic impacts, particularly during construction when the HGV and workforce movements are at peak, this includes a travel plan, route diversions and a number of highway improvements (including modifications to existing road alignments or junction/roundabout arrangements; and enhanced safety measures). These are detailed in the ES and **Transport Assessment,** together with consideration to the alternative option of a Bridgwater bypass route.
Sedgemoor DC and West Somerset DC	Transport	The Institute of Environmental Assessment have published "Guidelines for the Environmental Assessment of Road Traffic." Although this document dates from the 1990's it remains the only advice on the assessment of road traffic related to major development. It is not referenced in the Scoping Report.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. These assessments refer to all relevant legislation and guidance.
Sedgemoor DC and West Somerset DC	Transport	The various development scenarios for traffic models are not stated in the EIA Scoping Report and it is not clear what options and combinations of options will be tested.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. These assessments provide an explanation of the methodology followed.
Sedgemoor DC and West Somerset DC	Transport	The models concentrate on the highway peak hours and the hours either side of the peak. These are not necessarily the hours of peak environmental impact, and are not the summer peak. Conversion to other hours and times of year may be necessary.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. These assessments provide an explanation of the methodology followed.

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Sedgemoor DC and West Somerset DC	Transport	Further detail would be expected within the ES illustrating delivery access routes (on and off-site) as well as any predicted overrun areas.	This has been assessed in **Annex 7 Transport Assessment** and Appendix 1 to that document which contains the **Freight Management Strategy**.
Somerset County Council	Air Quality	Further modelling and air quality monitoring validation will be necessary for assessments at a number of sites. The impact on the 'Bridgwater Option' in particular needs attention, and air quality impact on the new residential development near to the proposed western area of the M5 Junction 24.	The ES assesses the impacts to air quality of the HPC development (see **Volume 2, Chapter 12**). The assessment of air quality impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 10**. These assessments include detail on the methodology followed and the baseline conditions.
Somerset County Council	Air Quality	Potential for air quality impacts on any proposed Cannington campus will need to be assessed, in particular should a new campus be in the proximity of a new Cannington by-pass.	The assessment of air quality impacts for the Cannington Bypass and Cannington Park and Ride are provided in **Volumes 5** and **6, Chapter 10** respectively.
Somerset County Council	Air Quality	It is noted that the C Station stack height is proposed to be up to 80m but is dependent on detailed dispersion modelling. Whilst this detailed dispersion modelling is likely to be a matter for the Environment Agency as regulator to assess, it is relevant to note that the stack height for adequate dispersion is not yet determined and therefore its height above ordnance datum is not yet established, nor the potential for visual impact.	The ES assesses the air quality and landscape and visual assessment of the HPC development (see **Volume 2, Chapter 12** and **22**). This includes an assessment of the stack height.
Somerset County Council	Air Quality	ES should examine the impact of dust on overall air quality, humans and sensitive neighbouring environments, in particular during the construction period.	The ES assesses the impacts to air quality of the HPC development (see **Volume 2, Chapter 12**). The assessment of air quality impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 10**. This includes an assessment of dust impacts arising from the HPC Project - in particular during the construction period.
Somerset County Council	Air Quality	ES should specifically describe in detail how working methods will minimise airborne dust through mitigation, suppression and control.	The ES assesses the impacts to air quality of the HPC development (see **Volume 2, Chapter 12**). The assessment of air quality impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 10**. This includes detailing the mitigation measures employed to deal with any dust impacts.
Somerset County Council	Air Quality	As well as considering the typical construction activities the ES should assess other operations that would be a specific feature of constructing a new nuclear power generating facility.	The ES assesses the impacts to air quality of the HPC development (see **Volume 2, Chapter 12**). The assessment of air quality impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 10**. This includes an assessment of likely impacts to air quality arising throughout the construction period.
Somerset County Council	Air Quality	Information on how dust will be monitored should be provided in the ES.	The ES assesses the impacts to air quality of the HPC development (see **Volume 2, Chapter 12**). The assessment of air quality impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 10**. Detail is included on how dust will be monitored.
Somerset County Council	Air Quality / Noise and Vibration	The ES should consider the issue of noise and air quality at the park and ride sites, due to vehicular pollutants generated by 'cold starts' and associated noise implications, particularly where there are residential properties nearby.	The ES assesses the impacts to noise and air quality of the HPC development (see **Volume 2, Chapter 11** and **12**). The assessment of noise and air quality impacts for each of the associated development sites are provided in **Volumes 3-10, Chapters 9** and **10**. This includes an assessment of the air/noise impacts at the park and ride sites.
Somerset County Council	Air Quality / Noise and Vibration	ES should consider sections of the road network (other than the A39 Bridgwater to Minehead Road; Cannington High Street; Rodway; and Withycombe Hill already considered) which are also likely to experience noise and vibration issues, taking into account the Park and Ride locations for example.	The ES assesses the impacts to air quality of the HPC development (see **Volume 2, Chapter 12**). The assessment of air quality impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 10**. This includes an assessment of the air/noise impacts at the study areas for the park and ride sites
Somerset County Council	Amenity and Recreation	Potential impacts upon the coast path need to be carefully considered and any prolonged closure/temporary diversion will have a negative impact.	The ES assesses the potential amenity and recreation impacts of the HPC development (see **Volume 2, Chapter 25**). This includes an assessment of the impacts to the public rights of way.
Somerset County Council	Conventional Waste	The requirement of a Site Waste Management Plan should be considered and how construction-related waste is to be dealt with. This is particularly important due to the amount of displacement that will occur on the main site, but also from the range of off-site developments.	The ES includes an assessment of conventional waste management at **Volume 2, Chapter 8**. This includes a description of the Site Waste Management Plan.
Somerset County Council	Description of Development	Concerned that options for off-site Associated Development have not yet been fixed - if it were decided that certain options were unnecessary or undesirable this could affect significantly the nature of the EIA required.	The ES provides an assessment of the associated developments at **Volumes 3-10**.
Somerset County Council	General (Alternatives)	It is not possible to see where the need will be addressed for the precise form that the associated development will take. For example, the table associated with paragraph 6.1.1. appears to require the provision of significantly more beds for construction workers than the number of construction workers that is quoted elsewhere in the document as being needed.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant. The strategic considerations for the proposed associated developments are details in **Volume 1 Chapter 5** and the separate **Planning Statement** and appended **Alternative Site**

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			Assessment..
Somerset County Council	General (Alternatives)	It is not clear what the justification is for the accommodation to be located in the sites suggested, some of which appear to be somewhat distant from the proposed power station site.	The proposals and alternatives considered for the construction, operation and post-operational use of each of the associated developments are detailed in the ES in **Volumes 3-10**. This includes the assessment of potential impacts, giving consideration to planning policy, where relevant. The strategic considerations for the proposed associated developments are details in **Volume 1 Chapter 5** and the separate **Planning Statement** and appended **Alternative Site Assessment**.
Somerset County Council	Description of the Existing Site and Surroundings	Whilst somewhat dismissive when considering the loss of hedgerows it is considered the report largely covers the key areas.	**Volume 1** of the ES provides an introduction to EDF Energy's proposals. See **Volume 2, Chapter 23** for an assessment of the impacts to historic hedgerows.
Somerset County Council	Description of the Proposed Development	Mitigation for unavoidable impacts and/or compensation need to be an integral part of the EIA and not something left to negotiation post EIA. Further consideration should be given to mitigation and compensation issues within the ES.	**Volume 2, Chapter 27** provides a summary of the mitigation required in respect of the HPC Development.
Somerset County Council	Habitats Regulations Assessment	Note that (under paragraph 4.4.1) EDF states that "Natural England has advised that an Appropriate Assessment is required which will be undertaken by the IPC (as 'competent authority')." Do not consider it has been agreed definitively that there is only one 'competent authority' and that no other public body will need to consider whether Appropriate Assessment is necessary	The ES assesses the potential impacts on the marine and terrestrial ecological features, this includes potential impacts on designated sites including the Severn Estuary SPA, SAC and Ramsar site (see the terrestrial ecology, marine ecology and marine environment chapters). As required by the Conservation (Natural Habitats) Regulations 1994, EDF Energy have also undertaken an assessment (**Habitats Regulations Assessment**) to inform the appropriate assessment to be undertaken by the *competent authority.*
Somerset County Council	Historic Environment	The scope of archaeological assessment proposed for Junction 24 and Williton is inadequate and should include targeted trial trenching as well as the suggested DBA, as these site have high potential for reasonably significant remains.	The effects to the historic environment from both Junction 24 and Williton are examined in **Volumes 9** and **10, Chapter 16**. These assessments include the baseline condition and methodology followed.
Somerset County Council	Historic Environment	There is no mention that the proposed park and ride is located on part of a Scheduled Monument (Battlegore barrow cemetery SM No. 33704). It is extremely unlikely that this location would be acceptable for development.	All associated developments have been assessed in respect to their impact on the historic environment. This includes assessing the impact on all designated heritage assets within the relevant study areas.
Somerset County Council	Historic Environment	ES should provide full information on the potential impacts of development upon the archaeological finds, and how known finds are to be dealt with as part of the development process.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. This includes an explanation of how archaeological finds are to be dealt with during the construction phase of the HPC Development.
Somerset County Council	Landscape and Visual	Paragraph 6.4.33 states that the site is 10km from the AONB - this is incorrect and needs clarifying, especially given the reference in the document to associated development sites. The Quantock Hills AONB is considerably closer to Cannington (particularly in relation to the Cannington A). Given the proximity to the Quantock Hills AONB and its prominent physical landform, Cannington can clearly be seen from many areas of the nationally protected landscape (for example Cannington A would be visible from the AONB).	The ES includes a landscape and visual assessment of the impacts of the HPC development (see **Volume 2, Chapter 22**). The assessment of landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. These assessments define the appropriate study areas.
Somerset County Council	Landscape and Visual	Paragraph 6.6.26 states that the Quantock Hills AONB is located approximately 8km to the west of Junction 24. This is incorrect as Junction 24 is only approximately 4km from the AONB boundary. This baseline information must be updated to reflect the actual distance. Reference should be made to the potential visual impacts from the Quantock Hills AONB, particularly cumulative impacts given the recent and visually prominent developments at Junction 24 which are clearly visible from within the AONB and which have had a negative impact on visual amenity.	The ES includes a landscape and visual assessment of the impacts of the HPC development (see **Volume 2, Chapter 22**). The assessment of landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. These assessments define the appropriate study areas.
Somerset County Council	Landscape and Visual	Reference should be made to the potential visual impacts of development at Williton from the Quantock Hills AONB, and not just reference the local landscape.	The ES includes a landscape and visual assessment of the impacts of the HPC development (see **Volume 2, Chapter 22**). The assessment of landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. These assessments define the appropriate study areas.
Somerset County Council	Landscape and Visual	Careful thought and justification needs to be given to the location of any screen planting, particularly in relation to any development which might be considered in the future. Should further development happen screening put in as part of the current application should at least be retained and preferably be capable of providing screening to possible future development.	The ES includes a landscape and visual assessment of the impacts of the HPC development (see **Volume 2, Chapter 22**). The assessment of landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. These assessments provide details on the appropriate mitigation that will be required.

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Somerset County Council	Landscape and Visual	The baseline information should make it clear that the site is highly visible from the Quantock Hills AONB due to physical character of the landform and change in topography allowing for numerous uninterrupted views of the site from this nationally protected landscape. 43. No reference is made to consultation with the Quantock Hills AONB Service.	The ES includes a landscape and visual assessment of the impacts of the HPC development (see **Volume 2, Chapter 22**). The assessment of landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. These assessments define the appropriate study areas.
Somerset County Council	Landscape and Visual	The visual impact of the jetty could be considerable given its proposed length. Further comment should be included as to the impact of this structure upon the landscape/environment.	The ES includes a landscape and visual assessment of the impacts of the HPC development (see **Volume 2, Chapter 22**). The assessment of landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. These assessments consider the visual impact of the jetty where necessary.
Somerset County Council	Legislative Context	According to paragraph 2.1.4 "The DCO may include consents required under a number of other licensing regimes, if the relevant licensing bodies agree. "Does this include planning consents that might be needed (e.g. to clear land at Hinkley Point to facilitate ground preparation)? Have the public bodies that might need to give consent agreed to the DCO covering their areas of responsibility/competence? We would be concerned about any consents being issued for works which may be difficult/impossible to reverse (such as land clearance) in advance of a proper EIA and appropriate assessment process.	Where relevant the individual chapters of the ES make reference to the other consents that EDF Energy will be required to obtain.
Somerset County Council	Other	If the Generic Design Assessment (GDA) is yet to be completed, is there a danger that a Scoping Opinion might be issued in relation to a development proposal that might alter radically depending on the GDA's findings? Recommend that the ES reflects the completed GDA.	The Environmental Impact Assessment has given consideration to the GDA process, and reflects the current findings.
Somerset County Council	Marine Ecology	There is a table (under paragraph 5.3.10) that indicates that "Sabeliaria alveolata has a Species Action Plan under the West Somerset BAP". The accuracy of this statement should be checked since, at least so far as the UK BAP website is concerned, it appears that the West Somerset BAP contains a Habitat Action Plan for Sabellaria alveolata reefs.	The impact to Sabeliaria alveolata of the HPC Development has been assessed in **Volume 2, Chapter 19** which considers impacts of the HPC Development to marine ecology.
Somerset County Council	Transport	The assessment of off-site impacts (beyond the construction site) will need to be based upon the detailed Transport Assessment, which should address mitigation of the local effects of traffic movements.	The ES is supported by a **Transport Assessment** (see **Annex 7** of ES) which considers the traffic impacts of the HPC Project.
Somerset County Council	Noise and Vibration	Paragraph 3.11.7 states that the construction noise assessment indicated that the majority of the construction operations associated with the Hinkley Point C Development Site, including commissioning activities, would have a negligible noise impact on the nearest potentially sensitive receptors, based on permissible noise limits agreed with the local authority. It would be useful if the meaning of agreed limits could be clarified.	The proposed operational noise limit was agreed with the EHOs at SDC and WSC. A full rationale for using this limit is contained within **Volume 2, Chapter 11** of the ES
Somerset County Council	Noise and Vibration	The potential impact of noise at the proposed limit of 43dB(A), cannot be ignored or justified on the basis of it not creating sleep disturbance. It is our view that this approach is inappropriate and may not encourage night-time noise to be minimised when it might otherwise be considered as reasonably practicable. The ES and the second stage consultation will need to provide justification for any situations where operational noise is likely to be perceived as an increase over an existing noise environment.	The ES assesses the potential noise and vibration impacts of the HPC development (see **Volume 2 Chapter 11**). This assessment includes an explanation of the methodology used and the significance criteria attached to the potential impacts.
Somerset County Council	Noise and Vibration	The ES should assess the impact of vibration on adjacent residential properties, land uses and the impact on humans.	The ES assesses the potential noise and vibration impacts of the HPC development (see **Volume 2 Chapter 11**). This assessment includes an assessment of the potential vibration impacts during construction of the HPC Development.
Somerset County Council	Radioactive Waste Management	The potential for the movement of waste generated by the proposal should be addressed in the EIA with regard to the effects on the environment associated with such waste e.g. impacts relating to final disposal or the movement of wastes.	The ES assesses the management of spent fuel and radioactive waste arising from the HPC development and the management of conventional waste (see **Volume 2, Chapters 7** and **8** respectively).
Somerset County Council	Radioactive Waste Management	Clarification will need to be given on the potential traffic movements that could be generated, and that Drigg will have the capacity to receive the LLW from the site and if possible from other sites. Failure to store at Drigg would have implications for the development (and other similar developments across the UK), and in the event of concern the national waste management strategy specifically relating to LLW needs to be considered.	The ES assesses the management of spent fuel and radioactive waste arising from the HPC development and the management of conventional waste (see **Volume 2, Chapters 7** and **8** respectively).

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Somerset County Council	Radioactive Waste Management	Intermediate Level Waste is proposed for storage on site; the details of this element of the proposal will need to be clearly justified to ensure sufficient capacity for ILW generated on site.	The ES assesses the management of spent fuel and radioactive waste arising from the HPC development and the management of conventional waste (see **Volume 2, Chapters 7** and **8** respectively). This includes proposals for the storage of ILW.
Somerset County Council	Radioactive Waste Management	No estimates relating to yearly amounts of VLLW or LLW are provided, which would be very useful given the need for lengthy off-site transportation and its consequent impacts.	The ES assesses the management of spent fuel and radioactive waste arising from the HPC development and the management of conventional waste (see **Volume 2, Chapters 7** and **8** respectively). These chapters consider the impact of VLLW and LLW.
Somerset County Council	Radioactive Waste Management	The locations for waste disposal and the amount of traffic generation are key considerations that need to be stated along with the resultant impacts.	The ES assesses the management of spent fuel and radioactive waste arising from the HPC development and the management of conventional waste (see **Volume 2, Chapters 7** and **8** respectively). This includes proposals for the storage of waste materials.
Somerset County Council	Radioactive Waste Management	It is not clear whether decommissioning will start immediately upon the decommissioning of the spent fuel storage.	Decommissioning is examined in **Volume 2, Chapter 5** of the ES.
Somerset County Council	Radiological	The impacts of the various construction works on the marine environment are likely to affect the magnitude of the various radiological parameters that contribute towards a revised total dose to some critical groups. It is essential that these impacts are fully assessed in respect of all those high occupancy groups in the off-shore areas in the vicinity of Hinkley Point - for example local fishermen, houseboat occupants, charter boat skippers - as indicated in The Centre for Environment, Fisheries and Aquaculture Science's Radiological Habits Survey: Hinkley Point, 2006 (Environment Report RL03/07).	Radiological impacts of the HPC Development are assessed in **Volume 2, Chapter 21** of the ES. This assessment includes an assessment of critical groups.
Somerset County Council	Terrestrial Ecology and Ornithology	Suggest that, in respect of the Cannington Bypass, all reasonable in-combination effects should be identified in relation to the Severn Estuary SPA/Ramsar.	The ES assesses the potential in-combination effects on the Severn Estuary SPA/Ramsar site within the cumulative assessment (Volume 11)
Somerset County Council	Terrestrial Ecology and Ornithology	There have been no wintering bird surveys of the land which is close enough to the Severn Estuary SPA to support feeding geese, ducks, waders, etc.	The ES assesses the potential terrestrial ecology and ornithology impacts of the HPC development (see **Volume 2, Chapter 20**). This includes an assessment of the impact of the HPC development to birds.
Somerset County Council	Terrestrial Ecology and Ornithology	Want more detail in the ES on the ecological impacts of the off-site associated development.	The potential impacts of the associated development to terrestrial ecology and ornithology have been assessed in **Volumes 3-10, Chapters 14**.
Somerset County Council	Terrestrial Ecology and Ornithology	ES should show whether there are aspects of the offsite associated development (other than those described in paras 6.8.19 and 6.8.21) that are capable of causing "in combination effects" upon SPA/Ramsar sites.	The potential impacts of the associated development to terrestrial ecology and ornithology have been assessed in **Volumes 3-10, Chapters 14**. Cumulative impacts are assessed in Volume 11 of the ES. Where appropriate this assesses in combination effects upon designated sites.
Somerset County Council	Terrestrial Ecology and Ornithology	Ecological baseline surveys should not be limited to protected species surveys within the undefined locality but should include all neighbouring habitat and species that could be affected by the proposal.	The ES assesses the potential terrestrial ecology and ornithology impacts of the HPC development (see **Volume 2, Chapter 20**). This includes the methodology followed.
Somerset County Council	Terrestrial Ecology and Ornithology	Impact on badgers is an impact that certainly needs to be addressed within the ES, not least because there are good reasons to believe the impact of the development upon this species is likely to be one of the more significant ecological impacts.	The ES assesses the potential terrestrial ecology and ornithology impacts of the HPC development (see **Volume 2, Chapter 20),** including badgers. Sufficient information is provided in the ES to conclude the significance of any impact
Somerset County Council	Terrestrial Ecology and Ornithology	Simply because land is not designated as Site of Special Scientific Interest (SSSI), this does not preclude it from being of National importance for nature conservation. The SSSI series is not comprehensive but rather representative of the best sites of conservation importance in the country. In this case, the Hinkley Point CWS contains UK BAP habitats and features that may be of significance above merely the County level.	The ES assesses the potential terrestrial ecology and ornithology impacts of the HPC development (see **Volume 2, Chapter 20**). The relevant receptors are defined in the assessment.
Somerset County Council	Terrestrial Ecology and Ornithology	Might be appropriate to mention the Special Area of Conservation (SAC) designation as well as Special Protection Area (SPA) and Ramsar designations.	The ES assesses the potential terrestrial ecology and ornithology impacts of the HPC development (see **Volume 2, Chapter 20**). Relevant designations are included within this chapter.
Somerset County Council	Terrestrial Ecology and Ornithology	Little assessment work has apparently been done on the invertebrate communities associated with the maritime cliff at Hinkley Point. It is known that maritime cliffs can support important communities of particularly rare invertebrates. If the current cliff configuration is to be altered, this is a potentially significant impact that we have little data to assess.	The ES assesses the potential terrestrial ecology and ornithology impacts of the HPC development (see **Volume 2, Chapter 20**). Baseline information in relation to the coastal invertebrate assemblage has been collected.
Somerset County Council	Transport	The wider transport impacts of the Cannington Bypass should also be assessed, in addition to environmental criteria such as severance, driver stress, visual intrusion,	The potential transport impacts of the proposed Cannington Bypass are assessed in **Volume 5, Chapter 8** of the ES.

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		implications for pedestrian amenity, noise and vibration and air quality.	
Somerset County Council	Transport	The modelling assessment in relation to Cannington should be provided and reported on by EDF and their consultants, to clarify whether there is a need for the Cannington bypass in highway capacity term, since comments made to date are contradictory.	The potential transport impacts of the proposed Cannington Bypass are assessed in **Volume 5, Chapter 8** of the ES. Modelling data is included within this chapter where appropriate.
Somerset County Council	Transport	Transport-related assessment of the Williton proposals should be undertaken and reported on to identify whether proposals at Williton are feasible in traffic terms.	The potential transport impacts of the proposed Williton proposals are assessed in **Volume 10, Chapter 8** of the ES.
Somerset County Council	Transport	The need and alignment options for the Bridgwater Bypass should be assessed in the ES, using the same methodology for assessing the need and alignment of the Cannington Bypass.	**Annex 7 Transport Assessment** provides an assessment of the transport features of the HPC Project, including the consideration of a Bridgwater bypass route.
Somerset County Council	General	Clarification is sought as to how the EIA Scoping Report differs from the Stage 1 Consultation document. EDF should clarify how they intend to respond to the previously issued comments.	Comments received through the formal consultation process have been taking into consideration in the environment impact assessment where appropriate. Responses to comments received are detailed within the separate **Consultation Report**.
Somerset County Council	Transport	The traffic data for undertaking the noise and air quality assessments is proposed to be extracted from the Saturn model, which include one-hour AM (08:00-09:00) and PM (17:00-18:00) peak hours only. Given that approximately 80% of all construction trips are expected to take place outside these peak hours, the EIA methodology as it currently stands does not enable an assessment of the majority of construction trips.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The methodologies followed for each assessment are included with these chapters.
Somerset County Council	Transport	Opportunities for improving walking and cycling facility requires further assessment and provisions, both in relation to the main and associated development sites.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. These chapters consider provisions of walking and cycling facilities where appropriate.
South West Councils	N/A	No comments.	
South West RDA	Socio-economic	Welcome the proposed inclusion of a 'Socio-economics' chapter. Include evidence to demonstrate how the proposals will help to promote successful and competitive businesses, strong and inclusive communities and an effective and confident region.	The socio-economic chapter (**Volume 2 Chapter 9**) provides an assessment of economic impacts. The **Economic Strategy** and **Appendices** sets out how these impacts can be enhanced.
South West RDA	Socio-economic	Include the scale of investment arising from the proposed development and impacts on job creation, GVA, skills, local regeneration initiatives and regional supply chains.	The socio-economic chapter (**Volume 2 Chapter 9**) provides an assessment of economic impacts.
South West RDA	Socio-economic	How will the proposals contribute to securing a sustainable energy supply for the region, including maintaining security and resilience of supplies.	These impacts are an inherent part of the proposal.
SP Manweb	N/A	No comments.	[query whether correspondence is incomplete]
Stogursey Parish Council	Amenity and Recreation	Comments from the Rights of Way Officer to be taken on board. [Note we have not been supplied with this report].	The ES assesses the potential amenity and recreation impacts of the HPC development (see **Volume 2, Chapter 25**). This includes an assessment of the impacts to the public rights of way.
Stogursey Parish Council	Operation of Hinkley Point C	The proposed emergency route via Shurton to be reconsidered. Unless major works were undertaken to prevent flooding this emergency route would be unusable.	A description of the proposed development is contained within **Volume 2, Chapter 2** which provides details on the location of the emergency route. This route would provide an alternative means of access to HPC in the event that the main C182 was inaccessible. Flood risk to the access routes is assessed in the **Flood Risk Assessment** and the Surface Water chapter of the ES (see **Volume 2 Chapter 16**).
Stogursey Parish Council	Description of the Proposed Development	Request that the Bund be kept as far north of Shurton as possible, preferably on the top ridge and worked back towards Shurton.	The proposed bund to the south-east of the site, acting as a visual screen to activities on site has been subject to formal consultation. It is proposed that the bund is located to the south of the accommodation campus.
Stogursey Parish Council	Transport	Want assurances that any bus transport used for workers coming from Williton will keep to the A39/C182 Route and not take other smaller and unsuitable roads.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The methodologies followed for each assessment are included with these chapters.
Stogursey Parish Council	Transport	Realignment of the road junctions at both Clayland Corner and at the junction of Shurton Lane and C182.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction,

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			operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The methodologies followed for each assessment are included with these chapters.
Stogursey Parish Council	Transport	If there is a new Bypass at Cannington the Parish Council prefer the Westerly option because of the bus links from the A39 West linking with C182.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The methodologies followed for each assessment are included with these chapters.
Stringston Parish Council	Air Quality	Include an assessment of local air quality with regard to road traffic emissions.	The ES assesses the impacts to air quality of the HPC development (see **Volume 2, Chapter 12**). The assessment of air quality impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 10**. This includes a consideration of traffic emissions.
Stringston Parish Council	Historic Environment	Analysis of properties along this route that may be effected by the onslaught of traffic should be included in the ES.	The ES assesses the potential impacts of the HPC Project on the historic environment (see **Volume 2 Chapters 23**). The assessment of the impacts on the historic environment for each of the associated development sites are provided in **Volumes 3-10, Chapter 16**. These assessments include the impact from traffic on designated assets where appropriate.
Stringston Parish Council	Noise and Vibration	Minimal or no building works to take place throughout the night.	The construction phase of the HPC Development is detailed within **Volume 2, Chapter 3** of the ES and **Annex 2** the **Construction Method Statement.**.
Stringston Parish Council	Transport	Analysis of route for workers from A39 through Kilve and then onto the B road (West Road) through the village of Stringston needed in respect of ditches, hedgerows and a review of access for residents situated along the road who may be in danger when leaving their properties.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. This includes an assessment of the traffic impacts from the A39 to Stringston where appropriate.
Taunton and Somerset Foundation Trust	Construction of Hinkley Point C	Want to know the normal hours of working during the construction phase.	The construction phase of the HPC Development is detailed within **Volume 2, Chapter 3** of the ES.
Taunton and Somerset Foundation Trust		Want to know EDF Energy's estimate of the potential accident rate, and the likely numbers of more seriously injured people that might need hospital treatment.	The socio-economic assessment (see **Volume 2 Chapter 9**) considers the impacts on the existing healthcare system.
The Bristol Port Company	N/A	No comments.	N/A
The British Waterways Board	Amenity and Recreation	Suggest a baseline assessment of the current levels of use of the towpath along the canal adjacent to the BRI-D site.	Amenity and recreation impacts of the proposed Bridgwater A and C sites are included in the ES at **Volumes 3** and **4, Chapter 17** respectively.
The British Waterways Board	Amenity and Recreation	Would like, if the BRI-D site is taken forward, the situation in relation to the partially constructed marina on the site to be rectified and the full amenity benefit of locating close to a waterway to be explored.	Bridgwater D was not progressed as part of the final HPC Project proposals. Please see **Volumes 3** and **4** of the ES for an assessment of the impacts of the proposed Bridgwater A and C campuses.
The British Waterways Board	Historic Environment	Suggest an assessment of any possible impact on archaeological features or features of cultural heritage in the BRI-D canal area.	Bridgwater D was not progressed as part of the final HPC Project proposals. Please see **Volumes 3** and **4** of the ES for an assessment of the impacts of the proposed Bridgwater A and C campuses.
The British Waterways Board	Surface Water	Suggest a baseline assessment of canal structure in relation to the stretch of canal adjacent to the proposed site for the BRI-D off-site accommodation.	Bridgwater D was not progressed as part of the final HPC Project proposals. Please see **Volumes 3** and **4** of the ES for an assessment of the impacts of the proposed Bridgwater A and C campuses.
The British Waterways Board	Surface Water	Suggest an assessment of the contamination risk to the canal adjacent to BRI-D in respect of construction and as a result of polluted run off or drainage following development.	Bridgwater D was not progressed as part of the final HPC Project proposals. Please see **Volumes 3** and **4** of the ES for an assessment of the impacts of the proposed Bridgwater A and C campuses.
The British Waterways Board	Surface Water	The canal should be considered a sensitive receptor and the volume of any possible discharge or other land drainage requirements will need to be considered in the BRI-D location.	Bridgwater D was not progressed as part of the final HPC Project proposals. Please see **Volumes 3** and **4** of the ES for an assessment of the impacts of the proposed Bridgwater A and C campuses.
The British Waterways Board	Landscape and Visual	Suggest consideration of the visual impact of the BRI-D development both from the towpath and the waterway itself.	Bridgwater D was not progressed as part of the final HPC Project proposals. Please see **Volumes 3** and **4** of the ES for an assessment of the impacts of the proposed Bridgwater A and C campuses.
The British Waterways Board	Terrestrial Ecology	Suggest a baseline assessment of the waterway flora and fauna in the BRI-D canal	Bridgwater D was not progressed as part of the final HPC Project proposals. Please see

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	and Ornithology	area, and a mitigation programme to ensure no loss of habitat may be necessary (both during and after construction).	**Volumes 3** and **4** of the ES for an assessment of the impacts of the proposed Bridgwater A and C campuses.
The Coal Authority	N/A	No comments.	N/A
The Crown Estate	Coastal Geomorphology and Hydrodynamics	Recommend that careful consideration is given in relation to the proposed seawall and any contribution it may have to coastal squeeze. Also consider the impact that the hard defences might have on the shoreline affecting landowners of contiguous property.	The impacts of the proposed seawall are considered in **Volume 2** of the ES. And specific reference to the issue of coastal squeeze in Chapter 17 of that volume.
The Crown Estate	Construction of Hinkley Point C	Query whether environmental impact of the transportation-distance and souring of construction materials is being considered.	Construction impacts of the HPC Development are considered within **Volume 2, Chapter 3** of the ES. Impacts on transport in the construction phase are considered within **Volume 2, Chapter 10** of the ES.
The Crown Estate	Marine Ecology	Note sensitive and highly protected marine environment around the Hinkley Point C site through designations plus a candidate SAC.	The impact of the HPC Development on the marine environment is assessed in **Volume 2, Chapter 19** of the ES.
The Crown Estate	Marine Ecology	Query if any study or assessment is to be carried out in relation to non-human receptors in the marine environment in respect of noise, especially in relation to works impacting The Crown Estate.	The impact of the HPC Development on the marine environment is assessed in **Volume 2, Chapter 19** of the ES. Construction impacts are assessed in this chapter to non-human receptors, and in particular both fish and cetacea.
The Crown Estate	Marine Water and Sediment Quality	Welcome baseline data studies proposed and outlined, especially in relation to marine water and sediment, presuming these are available on request.	The impact of the HPC Development on marine water and sediment quality is assessed in **Volume 2, Chapter 18** of the ES. The baseline condition is set out within this chapter. Further details are available to the Crown Estate in the supporting references.
The Crown Estate	Terrestrial Ecology and Ornithology	Suggest that EDF consult with Bridgwater Bay Wildfowlers Club and their interests are considered.	The impact of the HPC Development on amenity and recreation is assessed in **Volume 2, Chapter 25** of the ES. Impacts to wildfowling is considered.
The Environment Agency	Air Quality	The air quality impacts should be assessed in relation to impacts on designated habitat sites, particularly those of national and international status.	The ES assesses the impacts to air quality of the HPC development (see **Volume 2, Chapter 12**). The assessment of air quality impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 10**. This includes an assessment of likely impacts to air quality arising at designated habitat sites.
The Environment Agency	Coastal Geomorphology and Hydrodynamics	A clear definition is needed of the present baseline for alongshore and across-shore sediment transport, given the sensitivity of the sandy foreshore and dune system along the Steart Peninsula and also those between Brean and Burnham, and to what extent any of the new structures will influence this. The potential influence of the proposed managed realignment site at Steart also needs to be taken into consideration in relation to the sediment transport regime.	The ES assesses the potential coastal hydrodynamics and geomorphology impacts of the HPC development (see **Volume 2 Chapter 17**). This includes an assessment of the baseline conditions and all structures that are likely to give rise to environmental effects within the relevant study area. Specific reference is made to the need for continuing monitoring to secure both the current baseline and identify rates of change.
The Environment Agency	Coastal Geomorphology and Hydrodynamics	The potential influence of the proposed managed realignment site at Steart also needs to be taken into consideration in relation to the sediment transport regime.	The ES assesses the potential coastal hydrodynamics and geomorphology impacts of the HPC development (see **Volume 2 Chapter 17**).
The Environment Agency	Conventional Waste	Pursuant to 6.4.11 of the Scoping Report, the applicants are expected to follow the waste management hierarchy and would not expect disposal as the first option (in particular the Cannington Quarry). If this option is progressed further an Environmental Permit will be needed to deposit spoil in Cannington Quarry. Please note it would also need the relevant planning consent from the relevant Planning Authority.	The ES assesses the management of spent fuel and radioactive waste arising from the HPC development and the management of conventional waste (see **Volume 2, Chapters 7** and **8** respectively).
The Environment Agency	Cumulative effects	There is a need to assess, so far as is reasonable in the light of existing available information, the potential in combination effects from other major schemes (existing and proposed) within the area. We suggest, for example, the effects of the existing nuclear power station's at Hinkley Point and Oldbury, the proposed development of a new nuclear power station at Oldbury, the Seven Barrage, Steart coastal realignment, North East Bridgwater urban extension, and Bristol Harbour extension.	The site specific cumulative impacts of the HPC Project have been assessed within each topic chapter, where applicable, and in-combination impacts with other components of the HPC Project and other non-HPC developments have been assessed and presented in **Volume 11**.
The Environment Agency	Preliminary Works	Include assessment of preliminary works in the assessment of cumulative impacts.	A cumulative assessment has been included in **Volume 11**. The environmental effects of the associated development are included within **Volumes 3-10**. Preliminary Works have been assessed as part of the HPC Project throughout the ES.
The Environment Agency	Description of the Proposed Development	Reflect the requirement to use the Best Available Techniques (BAT) to minimise the radioactive waste created and the radioactive discharges made and their impact.	The ES assesses the management of spent fuel and radioactive waste arising from the HPC development and the management of conventional waste (see **Volume 2, Chapters 7** and **8** respectively). This includes reference to BAT where appropriate.

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The Environment Agency	General	The assessments should reflect appropriate timescales relevant to the development These would include for example, construction, operation (nuclear generating period), decommissioning, interim waste and spent fuel storage, waste and spent fuel disposal, and decommissioning of interim storage facilities.	**Volume 1, Chapter 2** of the ES details the likely timescales of the proposed HPC Development.
The Environment Agency	Geology and Contaminated Land	The Environment Agency to be consulted upon desk studies for land contamination in the Cannington Bypass Associated Development Area.	**Volume 5, Chapter 12** presents a baseline assessment of the potential for historical contamination of the Cannington Bypass site. The baseline assessment is partially based on a Desk Study report produced by Mott MacDonald Ltd and presented within the DCO package.
The Environment Agency	Groundwater	Consider surface water flooding is a factor in Cannington.	Impacts to surface water of Cannington Bypass and Cannington Park and Ride are assessed in **Volumes 5** and **6, Chapter 13**.
The Environment Agency	Surface Water	Investigate the potential impacts associated with dewatering for construction.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This assessment includes an assessment of dewatering where appropriate.
The Environment Agency	Coastal Geomorphology and Hydrodynamics / Surface Water	Include assessment against the latest Shoreline Management Plan which is currently under review.	Where relevant, the ES (see **Volume 2 Chapter 17** Coastal Geomorphology and Hydrodynamics and **Chapter** 16 on Surface Water) and the **Flood Risk Assessment** considers the Shoreline Management Plan.
The Environment Agency	Surface Water	An assessment of the potential impacts of culverting Holford stream on flows into the North Moor area of Wick Moor should be included within the assessment.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This includes an assessment of the surface water impacts in connection to the culverting of Holford Stream.
The Environment Agency	Marine Water and Sediment Quality	Include chlorine dispersion modelling/assessment of other chemical discharges.	The ES assesses the potential marine water and sediment quality is assessed in impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures. The operation of HPC and the potential impact on marine water and sediment quality arising from operational discharges is assessed in **Volume 2, Chapter 18** of the ES
The Environment Agency	Surface Water	The Flood Risk Assessment will be required to cover tidal flood risk as well as fluvial.	A **Flood Risk Assessments** has been undertaken for each of the HPC Project sites including the highway improvement sites, where applicable; these cover tidal flood risk and fluvial flood risk where appropriate.
The Environment Agency	Legislative Context	In respect of Funded Decommissioning Plans Include the technical basis for waste management and disposal, as well decommissioning.	The decommissioning of HPC is described in **Volume 2, Chapter 5** of the ES, and Spent Fuel and Radioactive Waste Management is examined in **Volume 2, Chapter 7** of the ES. The Funded Decommissioning strategy is also detailed in **Chapter 5**.
The Environment Agency	Legislative Context	Reflect in the ES that the draft nuclear NPS helps set out the relationship between the planning process and those of the nuclear regulators.	Reference to the Nuclear NPS are included where relevant throughout the ES.
The Environment Agency	Other	Include all the other relevant regulatory roles of the Environmental Agency.	The EIA has been informed through ongoing formal and informal consultation with the Environment Agency, this includes consultation on other regulatory roles such as water discharge permits.
The Environment Agency	Marine Ecology	The assessment of impacts of the thermal plume should consider the potential impacts on species sheltering in the saltmarsh fringes around the north side of Steart Peninsular as well as the impacts on species within Bridgwater Bay.	The impact of the HPC Development on the marine environment is assessed in Volume 2, Chapter 19 of the ES. This includes an assessment of the effects of the thermal plume.
The Environment Agency	Marine Ecology	The assessment should also consider impacts on migratory fish, which may use the area north of Hinkley as a corridor to the Parrett Estuary. Particular attention should be focused on the migration of sea trout, eels and salmon, and their juvenile forms.	The impact of the HPC Development on the marine environment is assessed in Volume 2, Chapter 19 of the ES. This includes an assessment of the impact of the HPC Development on migratory fish.
The Environment Agency	Radiological	The scope of GDA is wider than compliance with dose limits.	Radiological impacts of the HPC Development are assessed in **Volume 2, Chapter 21** of the ES. This baseline condition includes reference to the GDA.
The Environment Agency	Radiological	Reference to Best Available Technology (BAT) and as low as reasonably achievable (ALARA) should be included in the ES.	Radiological impacts of the HPC Development are assessed in **Volume 2, Chapter 21** of the ES. This assessment utilises both BAT and ALARA.
The Environment Agency	Coastal Geomorphology and Hydrodynamics	Assess whether the sea wall and its foundations have the potential to encroach on the SSSI if the alignment of the wall extends further seaward that the line of the current cliff.	The ES assesses the potential coastal hydrodynamics and geomorphology impacts of the HPC development (see **Volume 2 Chapter 17**). This includes an assessment of the impacts of the seawall.

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The Environment Agency	Terrestrial Ecology	If no specific mollusc surveys have been carried out during the last 25 years, then it advised to ensure the process of the EIA includes such a survey.	The ES assesses the potential impacts on ecology impacts of the HPC Project during construction, operation and where applicable the post-operational use of the development. This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures.
The Environment Agency		As Cannington Quarry is listed as a potential spoil disposal site, the phase 1 habitat and species survey should include the freshwater body currently within the quarry and the fringes of Quarry to evaluate the overall ecological value of the site. Please note PPS 9 require developers to mitigate and where possible enhance ecological value within the area.	The ES assesses the potential impacts on ecology impacts of the HPC Project during construction, operation and where applicable the post-operational use of the development. This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures.
The Environment Agency		In respect of the construction of accommodation at Bridgewater reference should be made to the fact that dependent upon site location a detailed assessment of all pertinent environmental issues will need to be undertaken.	The environmental effects of the Bridgwater A and C campus accommodation has been assessed at **Volumes 3** and **4** of the ES.
The Environment Agency	Coastal Hydrodynamics and Geomorphology	Will the assessment of sediment transport patterns cover the Hinkley site through to Combwich on the River Parrett?	The ES assesses the potential effects of the HPC Project on marine geomorphology (see **Volume 2, Chapters 17**). This includes an assessment of the effects on sediment transport that require assessment.
The Environment Agency	Coastal Hydrodynamics and Geomorphology	Is dredging the River Parrett a possibility? If so what studies are planned to provide the scientific evidence to support this operation.	Particular impacts of the Combwich Wharf proposals on the marine environment are assessed in **Volume 7, Chapter 18**. This includes a detailed assessment of the impact of the Combwich Wharf proposals to the environment.
The Environment Agency	Surface Water	Both sites at Williton are not located in Flood Zone 3a as stated. The western site WIL-A is predominantly located in Flood Zone 3b as shown in the current West Somerset District Council SFRA. The eastern site WIL-B is predominantly located in Flood Zone 1. The Environment Agency's current Flood Map for Williton confirms this error in the EIA Scoping Report, which should be corrected to reflect the actual baseline position.	A **Flood Risk Assessment** for Williton has been submitted with the application for development consent. It is supported by location plans.
The Environment Agency	Marine Ecology	Clarify whether the study area for marine impacts includes both the far-field effects of the discharge and its chemical constituents and the near-field effects around the intake and outfall structures and the marine jetty.	The ES assesses the potential marine ecology impacts of the HPC development (see **Volume 2 Chapter 19**). This includes a description of the study area for assessment and baseline conditions.
The Environment Agency	Marine Ecology	In respect of Marine Impacts the definition of the relevant statutory framework must be clear.	The ES assesses the potential marine ecology impacts of the HPC development (see **Volume 2 Chapter 19**). This includes reference to the applicable legislation and guidance.
The Environment Agency	Marine Ecology	The Power Station and its associated marine and coastal infrastructure impact on coastal and transitional water bodies designated under the Water Framework Directive, and its impact will need to be considered in relation to all the requirements of WFD. In addition there are relevant statutory requirements relating to salmon and other migratory fish, as well as eels, and these are relevant for example to the impact of the intake structure and cooling water intake.	The ES assesses the potential marine ecology impacts of the HPC development (see **Volume 2 Chapter 19**). This includes reference to the WFD where applicable.
The Environment Agency	Environmental Management Plans	Expect the Environmental Management Plan to provide a higher level framework in which to facilitate effective working practices, both in the construction and operational phase.	The **Environmental Management Plans** for the HPC Development are included within Annex 3 of the ES. Annex 4 of the ES includes reference to the **Environmental Management Plans** for the associated development.
The Health Protection Agency	Geology and Contaminated Land	Where appropriate, details should be included of the specific land contaminants assessed and levels recorded.	The ES assesses the impacts to land contamination of the HPC development (see **Volume 2, Chapter 14**). The assessment of land contamination impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 12**. The assessment includes the baseline conditions.
The Health Protection Agency	Noise and Vibration	Within the context of the current environment, the 43bB reported in para 5.12.9 is likely to represent a significant increase in background levels. Further consideration should be given to minimising the annoyance effect of noise, especially during the construction phase.	The proposed operational noise limit was agreed with the EHOs at SDC and WSC. A full rationale for using this limit is contained within **Volume 2, Chapter 11** of the ES. This assessment also included an explanation of the methodology used and the significance criteria attached to potential construction impacts.
The Health Protection Agency	Radioactive Waste Management	Insufficient information is provided on the waste arisings, discharges and the dose assessments that have been carried out to judge whether the proposed development is acceptable from a radiological protection viewpoint.	The ES assesses the management of spent fuel and radioactive waste arising from the HPC development (see **Volume 2, Chapter 7**).
The Health Protection Agency	Radiological	In statutory guidance to the Environment Agency concerning the regulation of radioactive discharges into the environment a value of 10μSv/y is referred to, noting that this supersedes the 20μSv/y threshold given in Command 2919. Therefore the	Radiological impacts of the HPC Development are assessed in **Volume 2, Chapter 21** of the ES. This baseline condition includes reference to appropriate EA values regarding radioactive discharges.

Consultee	ES Topic	Comment	Response
		reference to 20μSv/y in para 5.14.12 of the Scoping Report is incorrect.	
The Health Protection Agency	Health Impact Assessment	Recommends including a section that summarises the impact of the proposed development on public health, proposed mitigation measures and conclusions of the risk assessments.	Radiological impacts of the HPC development are assessed in **Volume 2, Chapter 21** of the ES. Discharges to humans are considered in this chapter. See also the **Health Impact Assessment.**
The Highways Agency	Air Quality	Adverse change to air quality should be particularly considered, including in relation to compliance with the European air quality limit values and/or in local authority designated Air Quality Management Areas.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures.
The Highways Agency	Transport	A full assessment of transport related impacts of the proposal should be carried out and reported.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**.
The Highways Agency	Transport	Environmental impacts arising from disruption during construction, traffic change and transport infrastructure change will be fully assessed and reported.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**.
The Highways Agency	Noise and Air Quality	Support further assessment of the construction and operations effects (noise and air quality), in particular relating to the motorway and wider road network in and around the M5 Junctions 23 and 24.	The ES assesses the potential noise and air quality impacts of the HPC Project, this includes traffic-related noise and air quality impacts across the road network to be affected by the Hinkley Point C Project. The assessment of noise impacts are presented in **Volume 2 Chapter 11** and **Volumes 3-10 Chapter 9** and air quality in **Volume 2 Chapter 12** and **Volumes 3-10 Chapter 10.**
The Highways Agency	Transport / Habitats Regulation Assessment	Consideration under the Conservation (Natural Habitats) Regulations 1994 of the effects on the Severn Estuary SPA/SAC/Ramsar may include "Associated Off site development". Therefore, this is relent to potential changes in the effects of the motorway and trunk road network around M5 Junction 23.	The ES assesses the potential impacts on the marine and terrestrial ecological features, this includes potential impacts on designated sites including the Severn Estuary SPA, SAC and Ramsar site (see the terrestrial ecology, marine ecology and marine environment chapters). As required by the Conservation (Natural Habitats) Regulations 1994, EDF Energy have also undertaken an assessment (**Habitats Regulations Assessment**) to inform the appropriate assessment to be undertaken by the *competent authority.*
The Highways Agency	Surface Water	Development must not lead to any surface water flooding on the strategic road network carriageway.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**), including flood risk impacts to the HPC and also off-site third party receptors. A separate **Flood Risk Assessment** has also been undertaken. The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This assessment includes an assessment of surface water impacts on the transport network surrounding the HPC Development.
Trinity House	Navigation	The ES should include a Navigational Risk Assessment to assess how the development may affect existing navigation in the area. This assessment should include: a traffic survey of existing vessel traffic routes and types - the survey area should include movements within Bridgwater Bay within 5 nm of Hinkley Point, and the entrance to the River Parrett; consideration of the proposed works during both construction and operation - this can be used to inform any consideration of the requirement for additional aids to navigation and/or navigational marking; consideration of whether any lighting from the site will adversely affect navigation in the area (or could be mistaken by mariners for an aid to navigation); and measures to be taken to reduce potential interference with the night vision of mariners.	The ES assesses the potential impacts of the HPC development to navigation (see **Volume 2 Chapter 26**). This includes an assessment the impacts to navigation of the HPC Development.
Vale of Glamorgan	Air Quality	ES should consider impacts on air quality.	The ES assesses the impacts to air quality of the HPC development (see **Volume 2, Chapter 12**). The assessment of air quality impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 10**.
Vale of Glamorgan	Hydrology and Water Quality	ES should consider impacts on water quality.	The ES includes an assessment of potential impacts on water quality both on water courses within an connected to the HPC Project sites, and the marine environment. The assessment of water quality impacts on the marine environment is detailed in **Volume 2 Chapter 18** and the impacts on terrestrial water courses detailed in the Surface Water chapters in **Volumes 2-10.**

Consultee	ES Topic	Comment	Response
			Impacts on the marine environment at Combwich are provided in The ES includes a landscape and visual assessment of the potential impacts of the HPC Project (see **Volume 2 Chapters 22**). The assessment of the landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. This includes an explanation of the appropriate study area for assessment **Volume 7**.
Vale of Glamorgan	Landscape and Visual	ES should include a landscape assessment, particularly as viewed from the south east Vale coastline.	The ES includes a landscape and visual assessment of the impacts of the HPC development (see **Volume 2, Chapter 22**). The assessment of landscape and visual impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 15**. These assessments views from the south east Vale Coastline.
Vale of Glamorgan	Radiological	ES should consider potential radiological effects.	Radiological impacts of the HPC Development are assessed in **Volume 2, Chapter 21** of the ES.
Wales and West Utilities Limited	N/A	No comments.	N/A
Welsh Assembly Government	Coastal Hydrodynamics and Geomorphology	In the context of rising background sea and air temperatures, the ES should include consideration of the long-term effects of waste heat discharges.	The effects of the thermal discharge upon marine water quality and marine ecological receptors are considered in Volume 2, Chapters 18 and 19 of the ES.
Welsh Assembly Government	Sustainability	The ES should include full consideration of opportunities productively to use waste heat from the site or an explanation of why this is not possible.	The **Sustainability Statement** is a separate document which supports the DCO Application.
Welsh Assembly Government	Construction of Hinkley Point C, Operation of Hinkley Point C, Decommissioning of Hinkley Point C	Include a full assessment of the potential harm to human health, wellbeing and the environment of non-radioactive issues (construction, operation and decommissioning of the power station will create a range of non-radioactive wastes, emissions and discharges.	Radiological impacts of the HPC Development are assessed in **Volume 2, Chapter 21** of the ES.
Welsh Assembly Government	Operation of Hinkley Point C	What are the potential radioactive emissions from the power station site during an operational emergency or as the result of a terrorist attack, and what evidence is in the ES of steps that will be taken to prevent the potential harmful effects of this. Consideration of this item should include identification of the maximum credible accident potentially able to affect the site and the potential maximum effect of a terrorist attack on the site.	In accordance with the EIA regulations, the ES includes a description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from - (a) the existence of the development; (b) the use of natural resources; (c) the emission of pollutants, the creation of nuisances and the elimination of waste, and the description by the applicant or appellant of the forecasting methods used to assess the effects on the environment. The ES, where reasonably practicable, considers credible accident/emergency scenarios
Welsh Assembly Government	Operation of Hinkley Point C	What are the management structures and safeguards by which the power station operators will ensure that they stay within the environmental and operational requirements of the appropriate regulatory bodies.	The ES has assessed the operational phase of the HPC as described in **Volume 2, Chapter 4**.
Welsh Assembly Government	Radioactive Waste Management	Potential long term effect on human health, wellbeing and the environmental of proposals to store spent fuel on site. To include clear proposals for the spent fuel store, including its protection against a possible terrorist attack.	The ES describes the management of spent fuel and radioactive waste arising from the HPC development (see **Volume 2, Chapter 7**). Radiological impacts of the HPC Development are assessed in **Volume 2, Chapter 21** of the ES.
Welsh Assembly Government	Radioactive Waste Management	Potentially harmful effects of the management of radioactive waste and spent fuel on site. Including the potential use of near surface/near site disposal, and of the transport of radioactive waste and spent fuel for further management and disposal.	The ES details the management of spent fuel and radioactive waste arising from the HPC development (see **Volume 2, Chapter 7**). Radiological impacts of the HPC Development are assessed in **Volume 2, Chapter 21** of the ES.
Welsh Assembly Government	Radiological	Want to know the effect, in the long term and the short term, of radioactive discharges to land, air and water during the normal operation of the power station, including the management of radioactive waste and spent radioactive fuel.	Radiological impacts of the HPC Development are assessed in **Volume 2, Chapter 21** of the ES.
Welsh Assembly Government	Health Impact Assessment	Strongly advocate the use of a Health Impact Assessment. If not used, then equivalent information should be presented in the ES.	The effects of the HPC Project on human health are assessed in the **Health Impact Assessment**.
Welsh Assembly Government	Consultation	Ensure full and open public engagements and consultation in relation to any proposals.	The ES refers to the consultation that was carried out where relevant to the EIA. See also the **Consultation Report**.
Welsh Assembly Government	Terrestrial Ecology and Ornithology and	Include as assessment of the potential impacts of the proposed development on protected sites and species as well as the risks of log-term accumulation of all	This has been included in **Volume 2, Chapters 19** and **20** which consider the impacts of the

Consultee	ES Topic	Comment	Response
	Marine Ecology	emitted radioactive and non-radioactive contaminants. (To include Welsh coastal terrestrial sites across the estuary from the power station.)	HPC Development on Marine Ecology and Terrestrial Ecology and Ornithology.
Wembdon Parish Council	Socio-economic	Increased demand for residential property.	The ES considers the associated developments as part of the overall Hinkley Point C Project, with socio-economic impacts of the HPC Project assessed in **Volume 2 Chapter 9**. The potential socio-economic impacts of each associated development site are assessed within site-specific volumes of the ES (see Chapters 7 of **Volumes 3-10**). This includes an assessment of impacts on residential property where appropriate.
Wembdon Parish Council	Socio-economic	Increased pressure on public services including the primary school.	The ES considers the associated developments as part of the overall Hinkley Point C Project, with socio-economic impacts of the HPC Project assessed in **Volume 2 Chapter 9**. The potential socio-economic impacts of each associated development site are assessed within site-specific volumes of the ES (see Chapters 7 of **Volumes 3-10**). This includes an assessment of impacts to public services including schools where appropriate.
Wembdon Parish Council	Socio-economic	Loss of community identity due to an influx of temporary and permanent workers	The ES considers the associated developments as part of the overall Hinkley Point C Project, with socio-economic impacts of the HPC Project assessed in **Volume 2 Chapter 9**. The potential socio-economic impacts of each associated development site are assessed within site-specific volumes of the ES (see **Chapters 7** of **Volumes 3-10**). This includes an assessment of impacts to the local community where appropriate.
Wembdon Parish Council	Socio-economic	Anti social and law and order problems from the large influx of unaccompanied male workers.	The ES considers the associated developments as part of the overall Hinkley Point C Project, with socio-economic impacts of the HPC Project assessed in **Volume 2 Chapter 9**. The potential socio-economic impacts of each associated development site are assessed within site-specific volumes of the ES (see **Chapters 7** of **Volumes 3-10**). This includes an assessment of impacts to community safety where appropriate.
Wembdon Parish Council	Transport	Increased traffic congestion on the BNDR (Homburg Way), Quantock Road, and the A39 between Bridgwater and Cannington will lead to traffic taking a rat-run through Wembdon, along Wembdon Hill and Wembdon Rise.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The assessment has identified a number of measures to reduce the traffic impacts, particularly during construction when the HGV and workforce movements are at peak, this includes a travel plan, route diversions and a number of highway improvements (including modifications to existing road alignments or junction/roundabout arrangements; and enhanced safety measures). These are detailed in the ES and **Transport Assessment.**
Wembdon Parish Council	Transport	A reduction on road safety, in particular the crossings of the BNDR at Chilton Street, Wembdon Rise and at the Quantock Road roundabout and also the crossing at Wembdon Rise for primary school children.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The assessment has identified a number of measures to reduce the traffic impacts, particularly during construction when the HGV and workforce movements are at peak, this includes a travel plan, route diversions and a number of highway improvements (including modifications to existing road alignments or junction/roundabout arrangements; and enhanced safety measures). These are detailed in the ES and **Transport Assessment.**
Williton Parish Council	Air Quality	Increase on emissions and reduced air quality.	The ES assesses the potential air quality impacts associated with the HPC Project, including the construction, operation and where applicable the post-operational use of the development. The assessment also included the assessment of traffic-related impacts on air quality (see **Volume 2, Chapter 12** for HPC and **Volumes 3-10 Chapter 10** for each of the associated development sites). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures.
Williton Parish Council	Amenity and Recreation	Impact on the rights of way network.	The ES assesses the potential amenity and recreation impacts of the HPC development (see **Volume 2, Chapter 25**). This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures. This includes an assessment of the impacts to the public rights of way.
Williton Parish Council	Surface Water	Concerned about flooding issues.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This includes a description of the baseline

Consultee	ES Topic	Comment	Response
			environment, the methodology, predicted impacts and mitigation measures. This includes reference to flooding issues where relevant. See also the Flood Risk Assessments that have been submitted with the application.
Williton Parish Council	Surface Water	Impact on utilities e.g. water supply and drainage.	The ES assesses the impacts to surface water of the HPC development (see **Volume 2, Chapter 16**). The assessment of surface water impacts for each of the associated development sites are provided in **Volumes 3-10, Chapter 13**. This includes a description of the baseline environment, the methodology, predicted impacts and mitigation measures. This includes an assessment to water supply and drainage, as far as appropriate for the ES.
Williton Parish Council	Socio-economic	Recruitment from the local community and schools.	The ES considers the associated developments as part of the overall Hinkley Point C Project, with socio-economic impacts of the HPC Project assessed in **Volume 2 Chapter 9**. The potential socio-economic impacts of each associated development site are assessed within site-specific volumes of the ES (see Chapters 7 of **Volumes 3-10**). This includes an assessment of local recruitment where appropriate.
Williton Parish Council	Socio-economic	Concerned about the increase on population on the village and surrounding locality.	The ES considers the associated developments as part of the overall Hinkley Point C Project, with socio-economic impacts of the HPC Project assessed in **Volume 2 Chapter 9**. The potential socio-economic impacts of each associated development site are assessed within site-specific volumes of the ES (see Chapters 7 of **Volumes 3-10**). This includes an assessment of impacts on local populations.
Williton Parish Council	Socio-economic	Impact on shops.	The ES considers the associated developments as part of the overall Hinkley Point C Project, with socio-economic impacts of the HPC Project assessed in **Volume 2 Chapter 9**. The potential socio-economic impacts of each associated development site are assessed within site-specific volumes of the ES (see Chapters 7 of **Volumes 3-10**). This includes an assessment of impacts to retail uses where appropriate.
Williton Parish Council	Socio-economic	Impact on education and health.	The ES considers the associated developments as part of the overall Hinkley Point C Project, with socio-economic impacts of the HPC Project assessed in **Volume 2 Chapter 9**. The potential socio-economic impacts of each associated development site are assessed within site-specific volumes of the ES (see Chapters 7 of **Volumes 3-10**). This includes an assessment of impacts to education and health where appropriate.
Williton Parish Council	Transport	Concerned about the exit route from the Tower Hill site; traffic issues surrounding Egremont Corner; concern of the A39 and the need for significant improvements.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The assessment has identified a number of measures to reduce the traffic impacts, particularly during construction when the HGV and workforce movements are at peak, this includes a travel plan, route diversions and a number of highway improvements (including modifications to existing road alignments or junction/roundabout arrangements; and enhanced safety measures). These are detailed in the ES and **Transport Assessment.**
Williton Parish Council	Transport	Impact on transport.	The ES assesses the potential transport impacts of the HPC Project including the traffic associated with the HPC development and also the traffic associated with the construction, operational and post-operational uses of the associated developments (see **Volume 2 Chapter 10** and **Annex 7 Transport Assessment**). The assessment of the direct transport impact for each of the associated development sites are provided in **Volumes 3-10**, **Chapter 8**. The assessment has identified a number of measures to reduce the traffic impacts, particularly during construction when the HGV and workforce movements are at peak, this includes a travel plan, route diversions and a number of highway improvements (including modifications to existing road alignments or junction/roundabout arrangements; and enhanced safety measures). These are detailed in the ES and **Transport Assessment.**

Note:

N/A refers to ‘not applicable’

APPENDIX 7E: ASSESSMENT OF TRANSBOUNDARY IMPACTS

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7E.1.1 EDF Energy has considered whether the proposed development is likely to have significant transboundary impacts, and is of the view that no such impacts are likely. Significant transboundary impacts would require consultation with other European Economic Area States under the Espoo Convention. The Infrastructure Planning Commission (IPC) Advice Note 12 (June 2011) (Ref. 7E.1) provides further information on the requirements, and sets out how the IPC will meet its obligations in this regard, as set out in Regulation 24 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009.

7E.1.2 A wide range of activities are listed in Annexe 1 of the Espoo Convention, which includes all thermal power stations with a heat output of 300 megawatts and all nuclear power stations. Thus it is necessary to consider whether the development is likely to have a significant transboundary impact.

7E.1.3 The development is subject to Environmental Impact Assessment (EIA), and therefore the physical extent of the likely impacts has been established at the scoping stage, and in discussion with the relevant statutory consultees and local authorities. Relevant impacts for transboundary assessment include air quality, marine water quality, marine ecology and radiological impacts. Air Quality impacts are assessed in **Volume 2 Chapter 12 of the Environmental Statement (ES)**. Impacts on the marine environment in terms of water quality and ecology are assessed in **Volume 2, Chapters 18 and 19.** Radiological impacts on human and non-human species are assessed in **Volume 2, Chapter 21.** The likely impacts determined through a thorough environmental impact assessment do not extend beyond the County of Somerset and the Severn Estuary.

7E.1.4 The nearest Espoo Convention signatory states outside the UK are the Republic of Ireland and France. The nearest territorial waters of these states are approximately 230 km (to Irish territorial waters off South Eastern Ireland) and 160 km (to French territorial waters off the Cherbourg peninsula) from Hinkley Point, and are therefore well beyond the area in which impacts are likely.

7E.1.5 Possible adverse effects on nature conservation sites of European and national importance were identified in the Government's strategic assessment, requiring further studies as part of the project level EIA. Offshore impacts, arising from cooling water intake and discharge, are the subject of Habitats Regulations Assessment, because of the potential for impact on the Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar, the River Wye SAC and River Usk SAC. However, the extent of any impacts does not extend beyond the Severn Estuary and therefore there is no possibility that any adverse effects would have a transboundary impact on another Europoean Economic Area (EEA) member State. The **Hinkley Point C Project Report to Inform Habitats Regulations Assessment** provides further information on the potential impacts and accompanies the application for development consent.

7E.1.6 Hinkley Point is one of 8 sites in England and Wales deemed potentially suitable at a strategic level for new nuclear power station development, and is designated as such in the National Policy Statement for Nuclear Power generation (EN-6). Government undertook an Appraisal of Sustainability and Habitats Regulations Assessment at the strategic level in its analysis of potential sites. Significant transboundary effects arising from the construction of new nuclear power stations are not considered likely by the Government. Paragraph 1.7.4 of the National Policy Statement for Nuclear Power Generation (EN-6) provides that:

> *"Significant trans-boundary effects arising from the construction of new nuclear power stations are not considered likely. Due to the robustness of the regulatory regime there is a very low probability of an unintended release of radiation, and routine radioactive discharges will be within legally authorised limits."*

7E.1.7 The impact of routine radioactive discharges on the environment around all existing nuclear power stations sites (including Hinkley Point) is monitored by the relevant authorities, and reported publicly in an annual report on Radioactivity in Food and the Environment (the "RIFE" Report) published jointly by the Environment Agency, Food Standards Agency, Scottish Environment Protection Agency and Northern Ireland Environment Agency. The results clearly show that authorised discharges from nuclear power stations do not pose a significant risk to public health and that all public radiation doses remain well within legal limits.

7E.1.8 Article 37 of the Euratom Treaty requires Member States to provide the European Commission (EC) with information on any plan to construct, modify or dismantle an installation that may give rise to discharges of radioactive effluents that is liable to result in the radioactive contamination of the water, soil or airspace of another Member State. A submission under Article 37 of the Euratom Treaty for EDF Energy's proposed facility at HPC was submitted by the Department of Energy and Climate Change to the EC on 9th September 2011. This includes information enabling an analysis of the potential environmental impact of normal operation and unplanned releases of radioactivity that may occur in the event of an accident. This submission (which is not a public document that EDF Energy can provide) concludes that the radiological impact of accidental releases on the water, soil, air space and human health in other EU Member States is insignificant and does not require intervention under current guidelines of the United Nations International Atomic Energy Agency. The EC has not yet responded to the submission.

7E.1.9 The following documents have also informed EDF Energy's assessment of the likelihood of significant transboundary impacts:

- EDF Energy's radioactive substances discharge permit application submitted to the Environment Agency on 28th July 2011 which concludes that the local effects of routine discharges on non human biota from routine discharges were below internationally recognised screening levels;
- **Volume 2, Chapters 7** and **8** of the ES which assesses the impacts associated with the management and disposal of hazardous wastes;
- The Pre-Construction Environmental Report submitted as part of the Generic Design Assessment Process for the EPR design - Chapters 11 (Radiological Impact Assessment) and 12 (Non-Radiological Impact Assessment) and the Pre-

Construction Safety Report submitted as part of the Generic Design Assessment Process - Sub-Chapter 14.6 (Radiological consequences of design basis accidents) which concluded that local impacts would be within relevant regulatory limits and constraints; and

- The Reasons for the Secretary of State's Decision as Justifying Authority on the Regulatory Justification of the EPR reactor (October 2010) - Chapter 6 (Radiological Health Detriment), Chapter 8 (Environmental Detriment) and Chapter 9 (Safety, Security and Safeguards).

7E.1.10 The documents listed above provide additional evidence that significant effects on the environment of other nation states are not likely.

7E.1.11 EDF Energy has also carried out a screening exercise using the matrix in Annex 4 of IPC Advice Note 12 (see **Table 7E.1**)

Table 7E.1: Screening Matrix for likely Significant Effects of HPC on the Environment of another EEA State

Relevant Considerations	Commentary
Characteristics of the Development	
Size of the development	Hinkley Point C will be a modern nuclear power station with two pressurised water reactors and associated infrastructure for generating approximately 3,260 MW of electricity. The land area of the permanent development would be approximately 70 hectares, and the maximum height of the reactor buildings would be approximately 65 m above ground level. Offshore structures will be required for intake and discharge of cooling water, extending up to approximately 3.5 km offshore.
Use of natural resources	Cooling water will be drawn from and returned to the Severn Estuary. Other fresh water supplies used for plant operations will be obtained from the local water supply company. Uranium for reactor fuel will be imported to the UK from outside of the EEA.
Production of waste	Very low level, low level and intermediate level waste will be produced during normal operation of the station. Management and disposal of these wastes is strictly regulated. These wastes will be stored on site in secure facilities or despatched to authorised disposal facilities in the UK. Spent nuclear fuel (which is not classified as waste) will be managed in accordance with Government policy which requires secure storage on site until a national disposal facility is available. Conventional wastes will arise from the operation of the site typical of an industrial facility of a comparable scale. These will be minimised by applying the waste hierarchy and will be disposed of in accordance with applicable environmental protection legislation.
Pollution and nuisances	An Environmental Impact Assessment has been carried out to assess all likely significant impacts on air quality, land, groundwater and the marine environment arising from activities during construction and operation of the power station. Measures to avoid, reduce and mitigate likely significant impacts will be put in place.

Relevant Considerations	Commentary
Risk of accidents	The UK Government believes that new nuclear power stations would pose very small risks to safety, security, health and proliferation (of nuclear materials). Government also believes that the UK has an effective regulatory framework that ensures that these risks are minimised and sensibly managed by industry (Source: White Paper on Nuclear Power, January 2008) Nuclear safety is regulated by the Office for Nuclear Regulation (ONR) through a nuclear site licence which places conditions on the Licensee to assure the safety of all aspects of power station construction, operation and decommissioning. This Licence must be in place ahead of construction of safety critical parts of the plant. The risk of accidents and possible radiological impacts on the airspace, land, water and humans in other EU member states is also covered by the Euratom Treaty obligations. The UK Government has made a submission to the European Commission, as required by Article 37 of the Treaty. This submission was made in September 2011 and provides the information to show that the radiological impact of routine and accidental discharges would be insignificant and it can be concluded therefore that significant effects on the environment of other EEA states are not likely. The proposed EPR design of reactor has been the subject of a regulatory justification process. The Secretary of State (SoS) at the Department of Energy and Climate Change has decided that the generation of electricity using the EPR is Justified under the Justification of Practices Involving Ionising Radiation Regulations 2004. The SoS considers that the likelihood of an accident or other incident occurring at an EPR giving rise to a release of radioactivity is very small.
Use of technologies	Hinkley Point C will comprise two modern pressurised water reactors, using nuclear fission of uranium to produce heat which is transferred to steam that powers conventional turbines and generators.
Geographical Area	
What is the extent of the area of a likely impact under the jurisdiction of another country?	None.
Location of Development	
What is the existing use?	Arable and grassland, with some small areas of woodland.
What is the distance to another country? (Name countries)	In this context “country” means other EEA States that are signatories to the Convention. Ireland – 230 km (to South West Ireland territorial waters) France – 160 km (to Cherbourg peninsula territorial waters)
Cumulative Impacts	
Are other major development close by?	Hinkley Point B Nuclear Power Station is operational. Hinkley Point A Nuclear Power Station which is being decommissioned. The cumulative impact of these developments has been assessed in EDF Energy’s Environmental Impact Assessment and is reported in the Environmental Statement.

Relevant Considerations	Commentary
Carrier	
By what means could impacts be spread?	Airborne or waterborne spread of impacts is possible. However, any spread of impacts is already included within the EIA process.
Environmental Importance	
Are particular environmental values (e.g. protected areas – name them) likely to be affected?	A report to inform a Habitats Regulations Assessment has concluded that the proposed development is unlikely to have significant adverse impacts on the protected areas listed below after mitigating measures have been implemented.
Capacity of the natural environment	Adequate (demonstrated through the EIA process).
Wetlands, coastal zones, mountain and forest areas, nature reserves and parks, Natura 2000 sites, areas where environmental quality standards already exceeded, densely populated areas, landscapes of historical, cultural or archaeological significance	Areas potentially affected include: • Severn Estuary Special Protection Area (SPA) • Severn Estuary Special Area of Conservation (SAC) • River Wye SAC • River Usk SAC A report to inform a Habitats Regulations Assessment has concluded that the proposed development is unlikely to have a significant adverse effect on the integrity of these sites. This will be provided with the Environmental Statement accompanying the application. No areas have been identified where there is potential for significant adverse impacts on sites of environmental importance in other EEA states.
Extent	
What is the likely extent of the impact (geographical area and size of the affected population)	No adverse environmental impacts have been identified which extend beyond the County of Somerset or the Severn Estuary. Terrestrial impacts are mainly limited to the administrative districts of West Somerset and Sedgemoor for which the total population is approximately 141,000 (2001 Census).
Magnitude	
What will the likely magnitude of the change in relevant variables relative to the status quo, taking into account the sensitivity of the variable?	Cooling water will be discharged at a temperature of up to about 12°C higher than the intake temperature. This has been assessed in detail to inform the Habitats Regulations Assessment. This Environmental Statement shows that there is: • Negligible change to public exposure to radioactivity from power station operation, compared with natural background • Negligible impacts from power station operation on noise and air quality compared with background levels
Probability	
What is the degree of probability of the impact? Is the impact likely to occur as a consequence of normal conditions or exceptional situations, such as accidents?	This Environmental Statement shows that impacts during normal operation are limited to the immediate locality. Probability of any accident or incident leading to offsite radiological or other impacts is very low (source: White Paper on Nuclear Power, January 2008). Significant transboundary impacts on the environment of other EEA states are not therefore considered likely from either normal operation or exceptional situations, such as accidents.

Relevant Considerations	Commentary
Duration	
Is the impact likely to be temporary, short-term or long-term?	Our assessment is that transboundary impacts from accidents will be below current guidelines of the United Nations International Atomic Energy Agency. This information is included in the Government's submission to the European Commission under Article 37 of the Euratom Treaty. Any transboundary impacts are therefore unlikely to be significant.
Is the impact likely to relate to the construction, operation or decommissioning phase of the activity?	There are no potential transboundary impacts during construction. Our assessment is that transboundary impacts from accidents during operation or decommissioning will be so low that according to United Nations International Atomic Energy Agency guidelines the time and effort to exercise control by a regulatory process may not be warranted, i.e. they are effectively so low as to be exempt from regulatory control. This information is included in the Government's submission to the European Commission under Article 37 of the Euratom Treaty. Significant transboundary impacts on the environment of other EEA states from construction, operation or decommissioning are therefore unlikely.
Frequency	
What is likely to be the temporal pattern of the impact?	Not relevant. There is no temporal pattern of impact.
Reversibility	
Is the impact likely to be reversible or irreversible?	Not relevant. Our assessment is that transboundary impacts from accidents during operation or decommissioning will be so low that according to United Nations International Atomic Energy Agency guidelines the time and effort to exercise control by a regulatory process may not be warranted, i.e. they are effectively so low as to be exempt from regulatory control. This information is included in the Government's submission to the European Commission under Article 37 of the Euratom Treaty.

Reference

7E.1 IPC. Advice note twelve: Development with significant transboundary impacts consultation. HMSO, 2011.

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DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 2

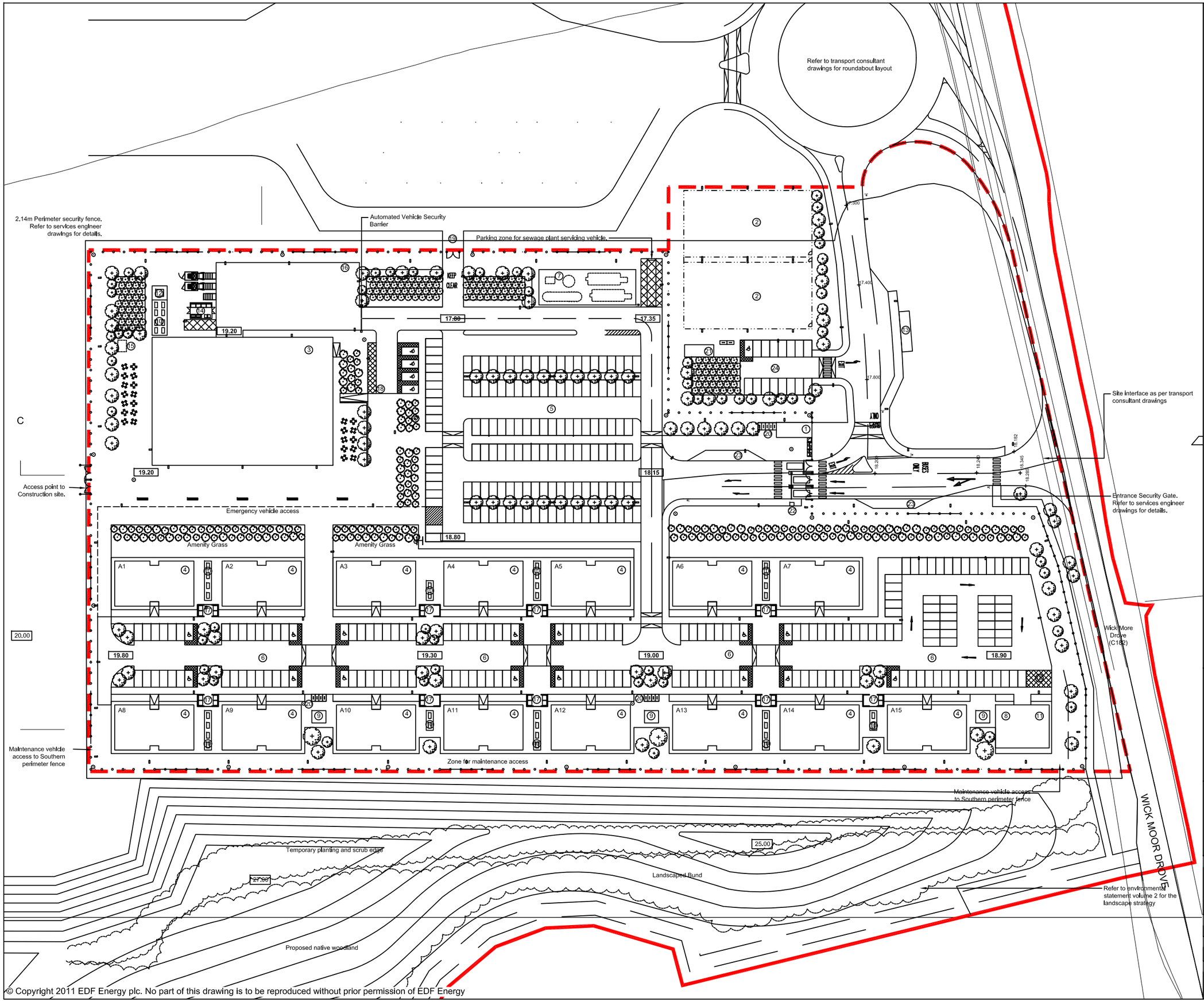
FIGURE TITLE:

HINKLEY POINT C SITE LAYOUT AND LANDSCAPE RESTORATION

FIGURE NO:		REVISION:
FIGURE 2.1		01
DATE:	DRAWN:	SCALE:
SEPT 2011	Y.M	1:2000@A0

SCALE BAR

0 10 20 30 40 50 60 70 80 90 100 200
metres



KEY

- PROPOSED DEVELOPMENT SITE BOUNDARY
- PROPOSED HPC ACCOMMODATION CAMPUS DEVELOPMENT SITE BOUNDARY
- H FIRE HYDRANT LOCATIONS
- CCTV CAMERA LOCATIONS
- PERIMETER SECURITY FENCE
- PROPOSED EXTERNAL LIGHTING

1. SECURITY BUILDING
2. 2NO. FIVE-A-SIDE PITCHES WITH ALL WEATHER SPORTS SURFACE AND COVER NETTING
3. AMENITY BUILDING
4. ACCOMMODATION BUILDINGS.
5. CENTRAL PARKING COURT
6. LOCALISED PARKING COURT
7. SEWAGE PLANT AND SERVICES STRUCTURE.
8. DOMESTIC WATER PLANT.
9. PACKAGED SUBSTATION COMPOUND.
10. AIR SOURCE HEAT PUMP COMPOUND.
11. FIRE HYDRANT COMPOUND.
12. PRIMARY ELECTRICAL INTAKE.
13. BUS SHELTER
14. REFUSE COMPOUND
15. SMOKING SHELTER
16. SERVICING YARD
17. LOCALISED REFUSE COMPOUND
18. DEDICATED MOTORCYCLE PARKING
19. SECONDARY EMERGENCY ACCESS
20. CYCLE STORAGE
21. TOILET BUILDING
22. SECURITY CABIN
23. LAY-BY
24. PUBLIC CAR PARKING

10.00 EXISTING LEVEL (SHOWN IN METRES AOD)

10.00 PROPOSED LEVEL (SHOWN IN METRES AOD)

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DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

FIGURE TITLE:

HINKLEY POINT C ACCOMMODATION CAMPUS PROPOSED SITE MASTERPLAN

FIGURE NO: FIGURE 3.1

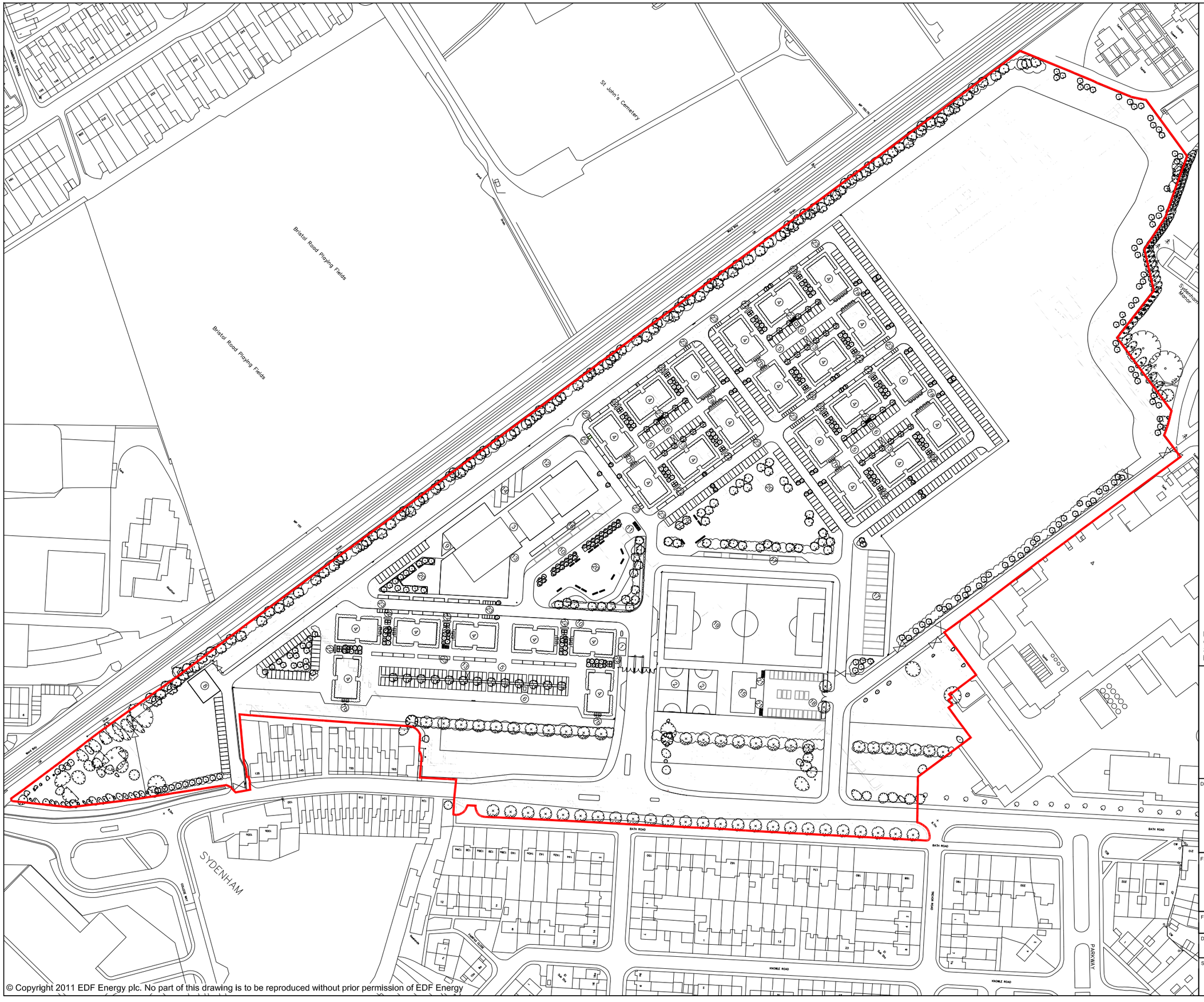
REVISION: 01

DATE: SEPT 2011

DRAWN: J.G

SCALE: 1:1000 @A3

SCALE BAR 0 25 50 metres



KEY

- PROPOSED DEVELOPMENT SITE BOUNDARY
- PRIMARY SECURITY FENCE
- SECONDARY FENCE
- TIMBER FENCE
- SPORTS FENCING
- GATED ACCESS

1. SECURITY BUILDING
2. FIVE-A-SIDE PITCHES
3. AMENITY BUILDING
4. ACCOMMODATION BUILDING
5. CAR PARK
6. PACKAGED SUB-STATION
7a. AIR SOURCE HEAT PUMP ENCLOSURE- TYPE 1
7b. AIR SOURCE HEAT PUMP ENCLOSURE- TYPE 2
8. FIRE HYDRANT & DOMESTIC WATER STORAGE PLANT
9. ELECTRICAL TRANSFORMER-AMENITY BUILDING
10. BUS STOPS
11. CYCLE PARKING FOR STAFF
12. MAIN REFUSE COMPOUND
13. SMOKING SHELTERS
14. SECURE DELIVERY/SERVICING ZONE
15. CHANGING ROOMS
16. BUS SHELTERS
17. OVERNIGHT BUS PARKING
18. PUBLIC PARKING FOR RECREATIONAL FACILITIES
19. FOOTBALL PITCH-RECREATIONAL
20. COMMUNAL OPEN SPACE
21. CYCLE PARKING FOR SPORTS FACILITIES
22. LOCAL REFUSE COMPOUND
23. MOTORCYCLE PARKING

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

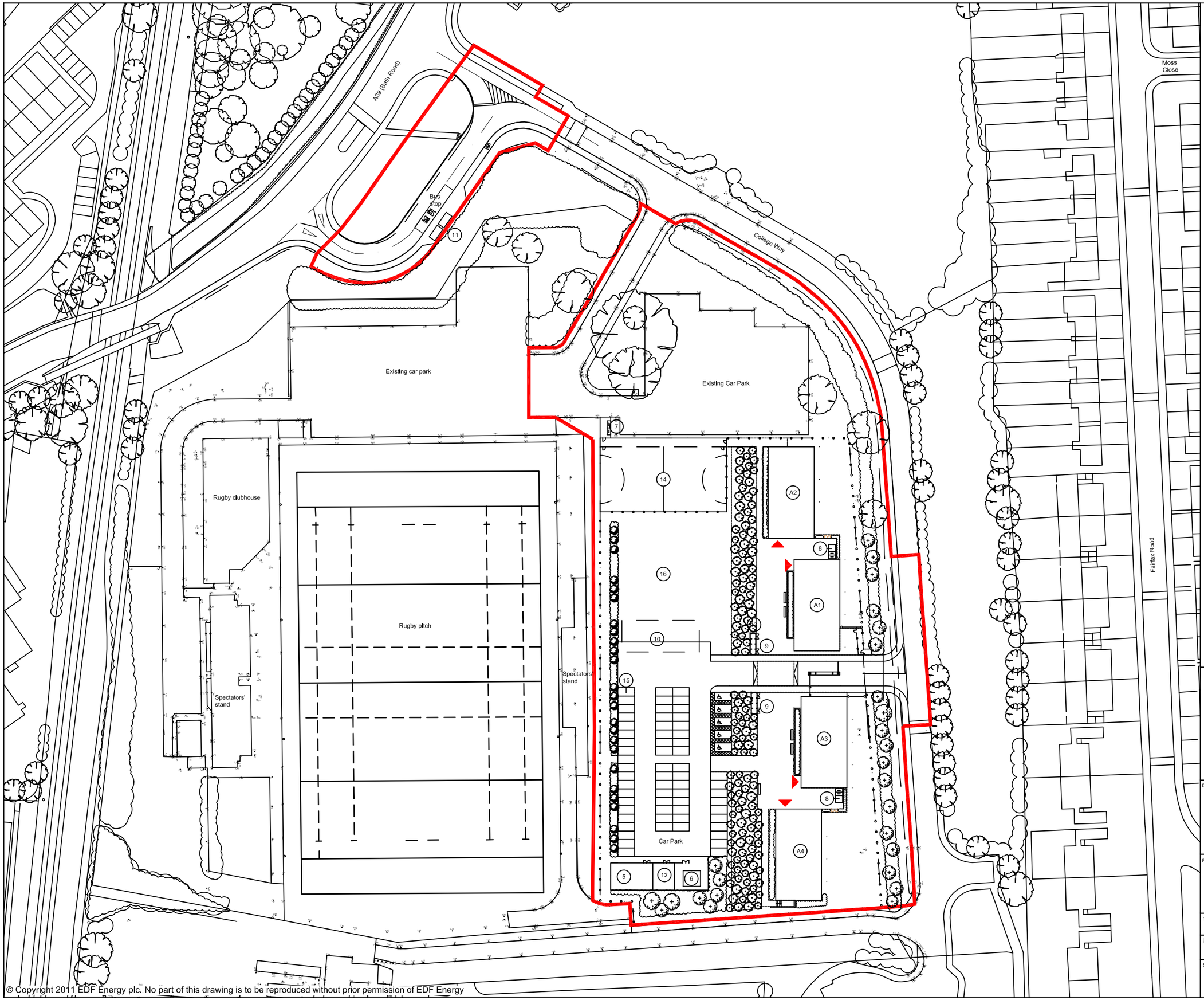
FIGURE TITLE:

BRIDGWATER A PROPOSED SITE MASTERPLAN

FIGURE NO:	REVISION:
FIGURE 3.2	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:2000 @A3

SCALE BAR 0 50 100 metres



KEY

- PROPOSED DEVELOPMENT SITE BOUNDARY
- 1.8M HIGH SECURITY FENCE
- 5.0M HIGH FENCE TO SPORTS PITCH, WITH NETTING OVER ENCLOSURE
- ACCOMMODATION ENTRANCE
- Lighting post
- CCTV camera post
- A1 Admin/security and accommodation building (36 bedrooms, drawing no. 830300)
- A2 Accommodation building (38 bedrooms, drawing no. 830306)
- A3 Accommodation building (38 bedrooms, drawing no. 830306)
- A4 Accommodation building (38 bedrooms, drawing no. 830306)
- 5 Fire hydrant plant
- 6 Mechanical plant
- 7 Cycle rack
- 8 Cycle storage and smoking shelter (drawing no. 830326)
- 9 Refuse compound
- 10 Temporary canteen building
- 11 Bus shelters
- 12 Rainwater harvesting storage plant
- 13 Fire hydrant
- 14 All weather 5-a-side football pitch
- 15 Motorcycle parking bay
- 16 Amenity space
- 7.200 Existing site levels (metres AOD)
- 7.200 Proposed site levels (metres AOD)

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EDF ENERGY

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

FIGURE TITLE:

BRIDGWATER C PROPOSED SITE MASTERPLAN

FIGURE NO:	REVISION:
FIGURE 3.3	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:1000@A3

SCALE BAR 0 10 25 50 metres

KEY

- PROPOSED DEVELOPMENT SITE BOUNDRY
- DETENTION POND
- EARTH BUNDS FOR TEMPORARY STORAGE OF ARISINGS AND TOPSOIL
- BADGER / OTTER FENCING
- SECURITY FENCING
- LOCKABLE SECURITY GATES
- LOCKABLE BARRIERS
- EXISTING PUBLIC RIGHT OF WAY
- PEDESTRIAN WALKWAY IN CARRIAGEWAY
- DISABLED PARKING BAYS
- GENERAL EARTHWORKS SLOPE

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EDF ENERGY

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

FIGURE TITLE:

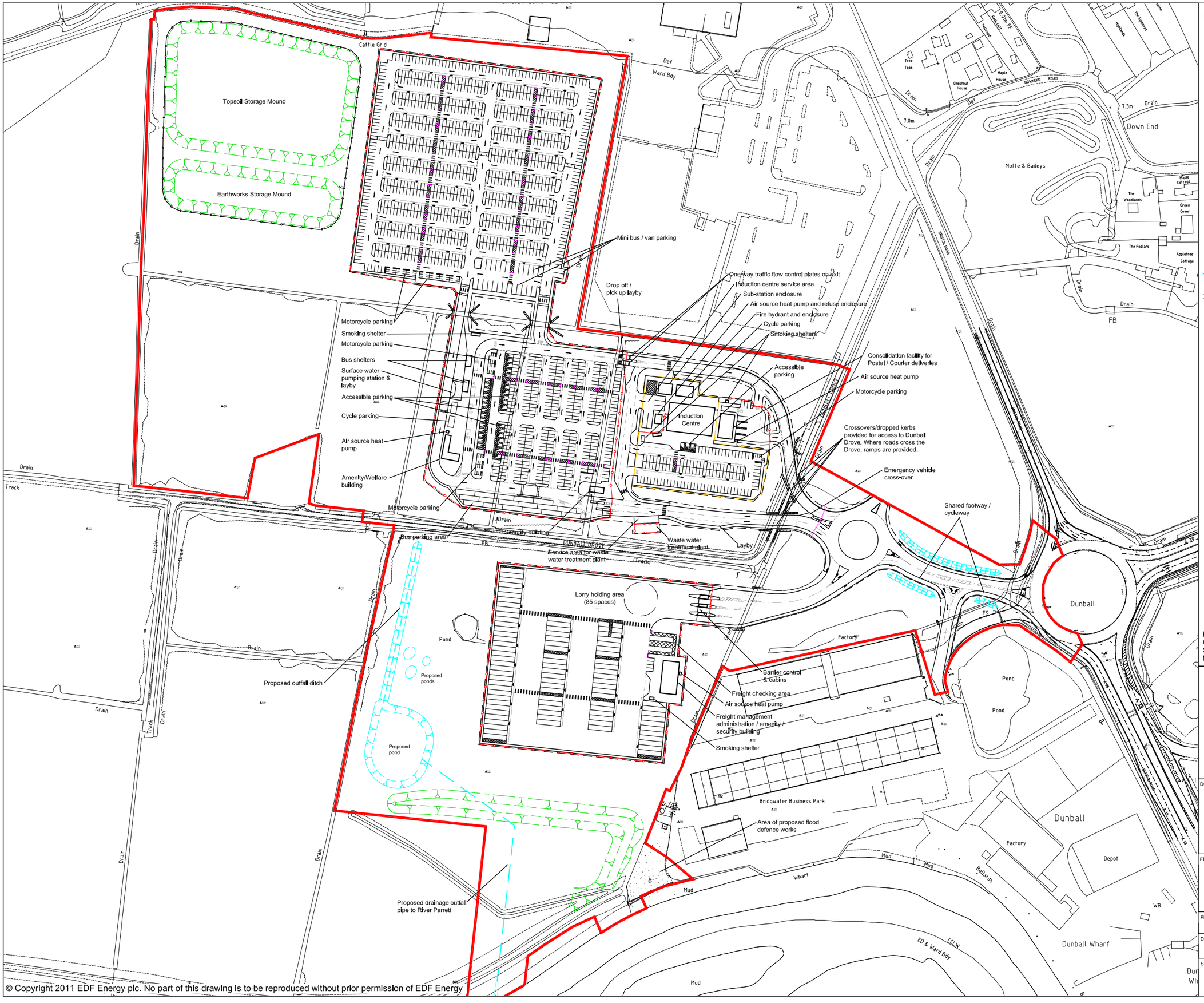
CANNINGTON PARK AND RIDE PROPOSED SITE LAYOUT

FIGURE NO:	REVISION:
FIGURE 3.4	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:2500@A3

SCALE BAR

0 10 25 50 100
metres



KEY

- PROPOSED DEVELOPMENT SITE BOUNDARY
- DETENTION POND
- EARTH MOUNDS FOR STORAGE OF ARISINGS AND TOPSOIL
- VERGE
- BADGER / OTTER FENCING
- SECURITY FENCING - 1.8M HIGH
- SECURITY FENCING - 2.4M HIGH
- LOCKABLE SECURITY GATES (1.8M HIGH)
- LOCKABLE SECURITY GATES (2.4M HIGH)
- LOCKABLE BARRIERS
- RAISING ARM BARRIERS
- RAISED SPEED CUSHION
- RAISED SPEED HUMPS
- RAISED SPEED TABLES
- DITCH CULVERT & HEADWALL
- GABION WALLS OR SIMILAR
- PEDESTRIAN WALKWAY IN CARRIAGEWAY
- ACCESSIBLE PARKING BAYS
- GENERAL EARTHWORK SLOPES
- PEDESTRIAN WALKWAY THROUGH PARKING AREAS
- TACTILE PAVING
- ONE WAY TRAFFIC CONTROL PLATES
- BOLLARDS
- PROPOSED DITCH

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EDF ENERGY

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

FIGURE TITLE:

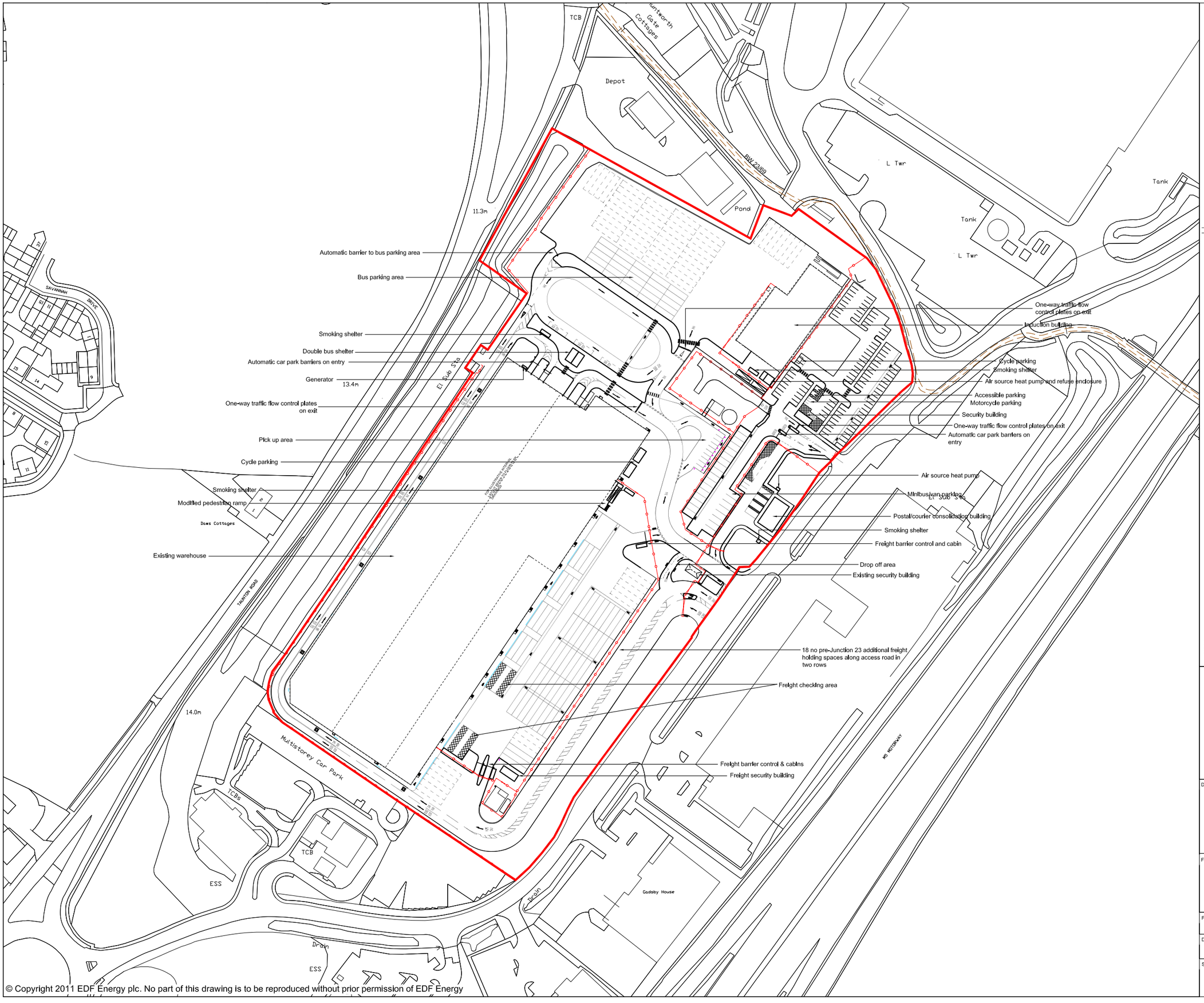
JUNCTION 23 PROPOSED SITE MASTERPLAN

FIGURE NO:	REVISION:
FIGURE 3.5	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:2500@A3

SCALE BAR

0 10 25 50 100
metres



KEY

- PROPOSED DEVELOPMENT SITE BOUNDARY
- SECURITY FENCING (2M HIGH)
- GUARDRAIL
- LOCKABLE SECURITY GATES (2M HIGH)
- RISING ARM BARRIERS
- RAISED SPEED CUSHION
- PRE-JUNCTION 23 ADDITIONAL FREIGHT HOLDING SPACES
- BOLLARDS
- PEDESTRIAN WALKWAY IN CARRIAGEWAY
- ACCESSIBLE PARKING BAYS
- ONE WAY TRAFFIC FLOW CONTROL PLATES
- BW*/** EXISTING PUBLIC RIGHT OF WAY

N W E S

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

FIGURE TITLE:

JUNCTION 24 PROPOSED SITE MASTERPLAN

FIGURE NO:	REVISION:
FIGURE 3.6	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:2000@A3

SCALE BAR 0 5 10 metres

Mini Bus/Van Parking
Motorcycle Parking
Rising arm barrier control on entry
Security Shelter
Bus Stand
Kiss and Drop Layby
Overnight Bus Parking
Welfare/Security/Amenity Building
Cycle Parking
Bus Shelters
Smoking Shelter
Bus Shelters
Waste water treatment plant below ground
One Way traffic flow control plates on exit
Lorry Park
Storm Water attenuation tank below ground
Earth bund for storage of topsoil
Existing earth bund shortened
Existing Access retained
Access to be retained
Smithyard Cottage
B3190
33.6m
31.6m

KEY

- PROPOSED DEVELOPMENT SITE BOUNDARY
- EARTH BUNDS FOR TEMPORARY STORAGE OF ARISINGS AND TOPSOIL
- SECURITY FENCING (1.8M HIGH)
- LOCKABLE SECURITY GATES (1.8M HIGH)
- RAISING ARM BARRIERS
- BOLLARDS
- PEDESTRIAN WALKWAYS IN CARRIAGEWAY
- DISABLED PARKING BAYS
- VISIBILITY SPLAY
- EXISTING OVERHEAD CABLES
- GENERAL EARTHWORKS SLOPES
- ONE WAY TRAFFIC FLOW CONTROL PLATES
- PEDESTRIAN CROSSINGS
- SWALES
- WASTEWATER TREATMENT PLANT
- EXISTING TREES

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EDF ENERGY

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

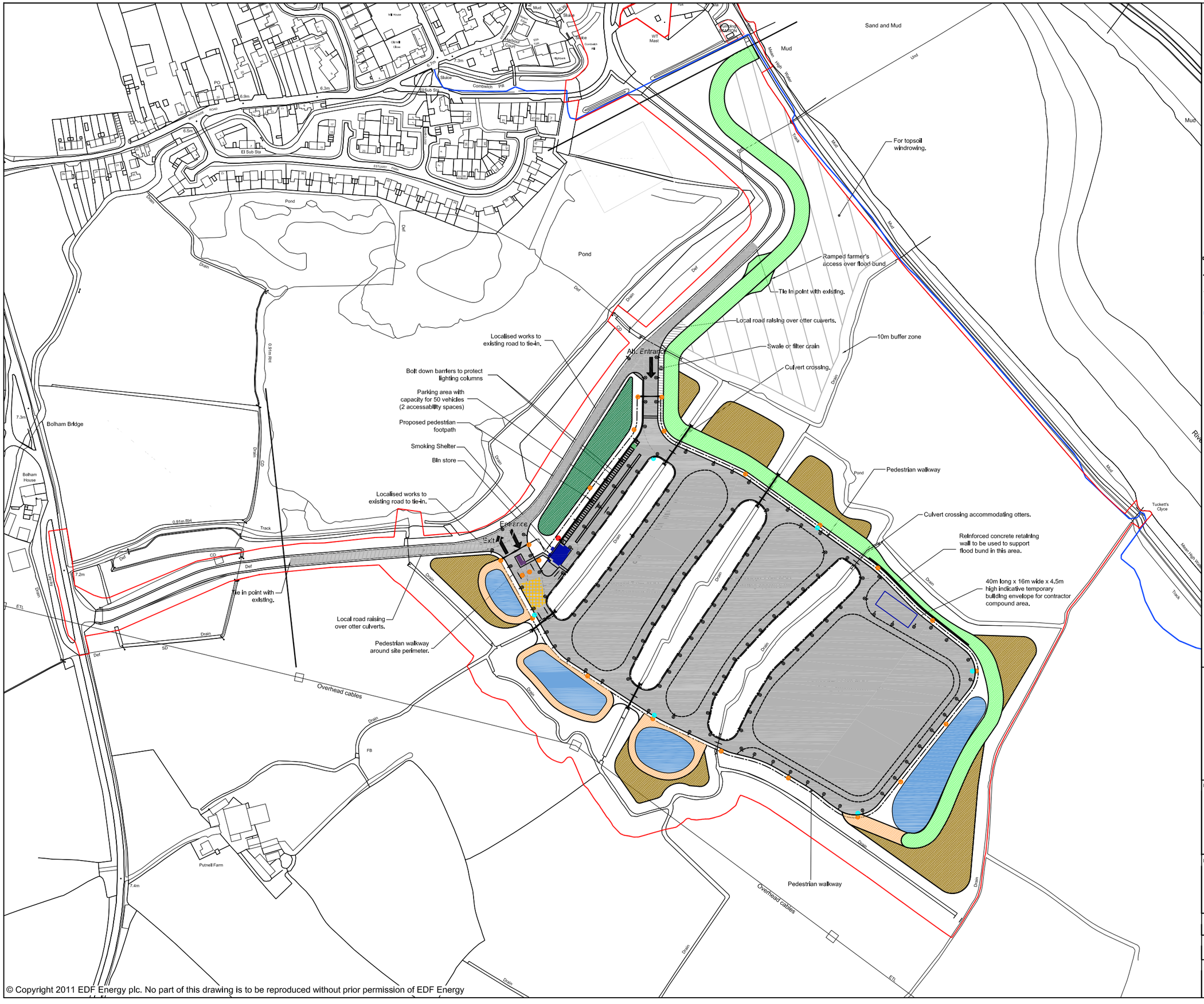
FIGURE TITLE:

WILLITON PROPOSED SITE MASTERPLAN

FIGURE NO:	REVISION:
FIGURE 3.7	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:1000@A3

SCALE BAR
0 10 25 50
metres



KEY

- PROPOSED DEVELOPMENT SITE BOUNDARY
- IMPERMEABLE FLEXIBLE PAVEMENT
- WELFARE / AMENITY / ADMINISTRATION BUILDING
- SECURITY BUILDING
- SUBSTATION
- ATTENUATION POND INCORPORATING REED BED
- LANDSCAPED TOPSOIL STORAGE (1:3 SLOPE)
- NEW FLOOD DEFENCE BUND (1:3 SLOPE) TOP OF BUND LEVEL (INCLUDING TOPSOIL) = 7.5M AOD
- NOISE BUND (4M HIGH, 1:3 SLOPE) TOP OF BUND LEVEL (INCLUDING TOPSOIL) = 11.3M AOD
- NEW POND FLOOD DEFENCE BUND (1:3 SLOPE)TOP OF BUND LEVEL (INCLUDING TOPSOIL) = 6.9M AOD
- SECURITY GATE
- CULVERT
- CULVERT ACCOMMODATING OTTERS
- PUBLIC RIGHT OF WAY - RIVER PARRETT TRAIL
- FIXED CAMERA MAST, 4M HIGH
- PTZ CAMERA MAST, 6M HIGH
- PTZ (6M HIGH) & FIXED CAMERA MAST (4M HIGH)
- LIGHTING COLUMNS
- FIRE FIGHTING WATER SUPPLY TANK

N W E S

EDF ENERGY

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

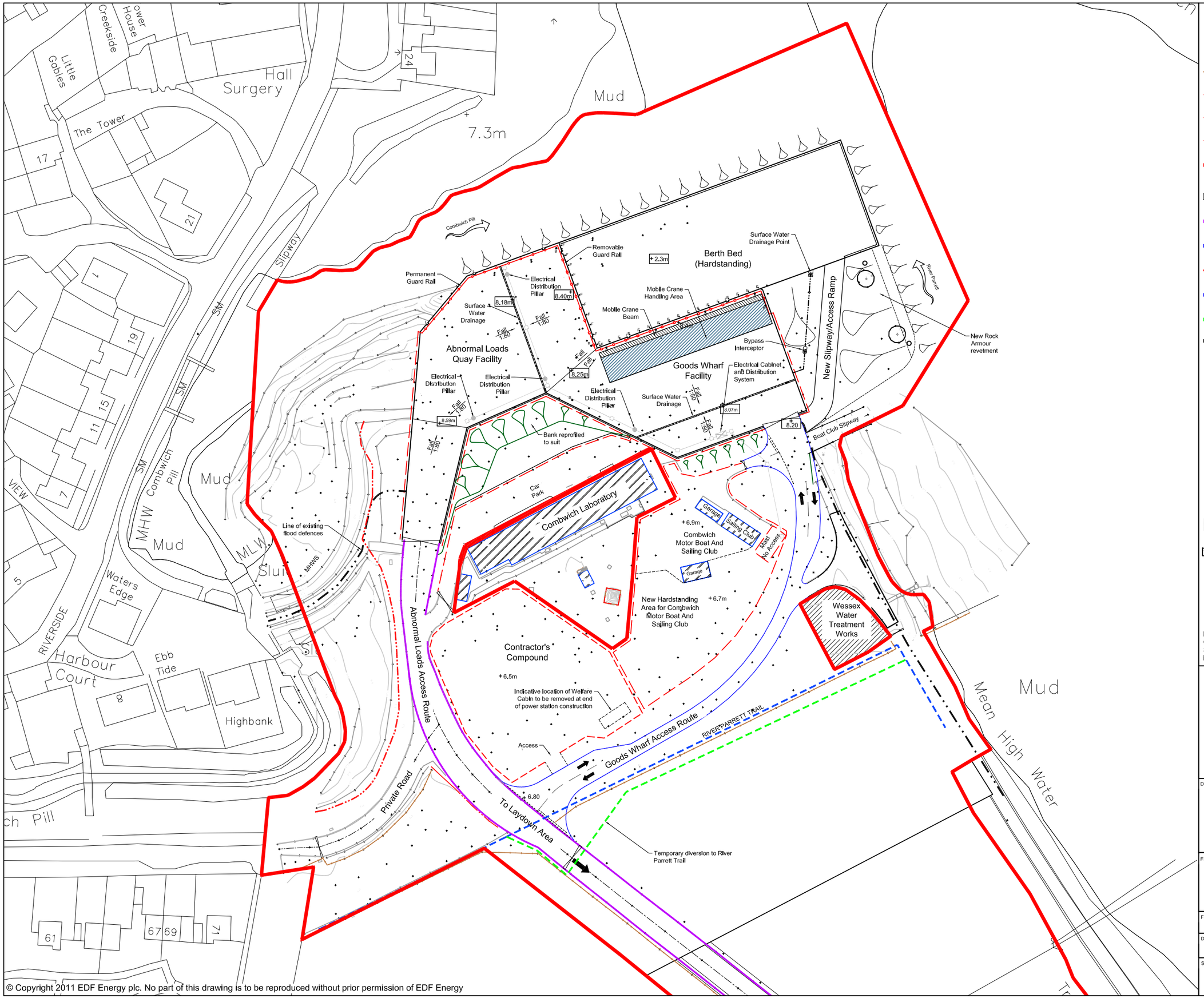
FIGURE TITLE:

COMBWICH FREIGHT LAYDOWN FACILITY
PROPOSED SITE LAYOUT

FIGURE NO:	REVISION:
FIGURE 3.8	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:3500@A3

SCALE BAR
0 10 50 100 200
metres



KEY

- PROPOSED DEVELOPMENT SITE BOUNDARY
- EXISTING FENCE
- FENCING (1.8M)
- PERMANENT GUARD RAIL (1.1M)
- REMOVABLE GUARD RAIL (1.1M)
- ACOUSTIC SCREEN FENCE (2.0M)
- GATE
- ABNORMAL LOADS ACCESS ROUTE
- GOODS WHARF ACCESS ROUTE
- CONTRACTOR'S COMPOUND
- RIVER PARRETT TRAIL
- TEMPORARY DIVERSION TO RIVER PARRETT TRAIL
- FLOOD DEFENCE LEVEL
- MOBILE CRANE HANDLING AREA
- B BOLLARD
- F FENDER
- L LADDER
- BUILDING
- ELECTRICAL DISTRIBUTION PILLAR
- ELECTRICAL JUNCTION BOX
- 10.00 EXISTING LEVEL (SHOWN IN METRES AOD)
- 10.00 PROPOSED LEVEL (SHOWN IN METRES AOD)

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EDF ENERGY

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

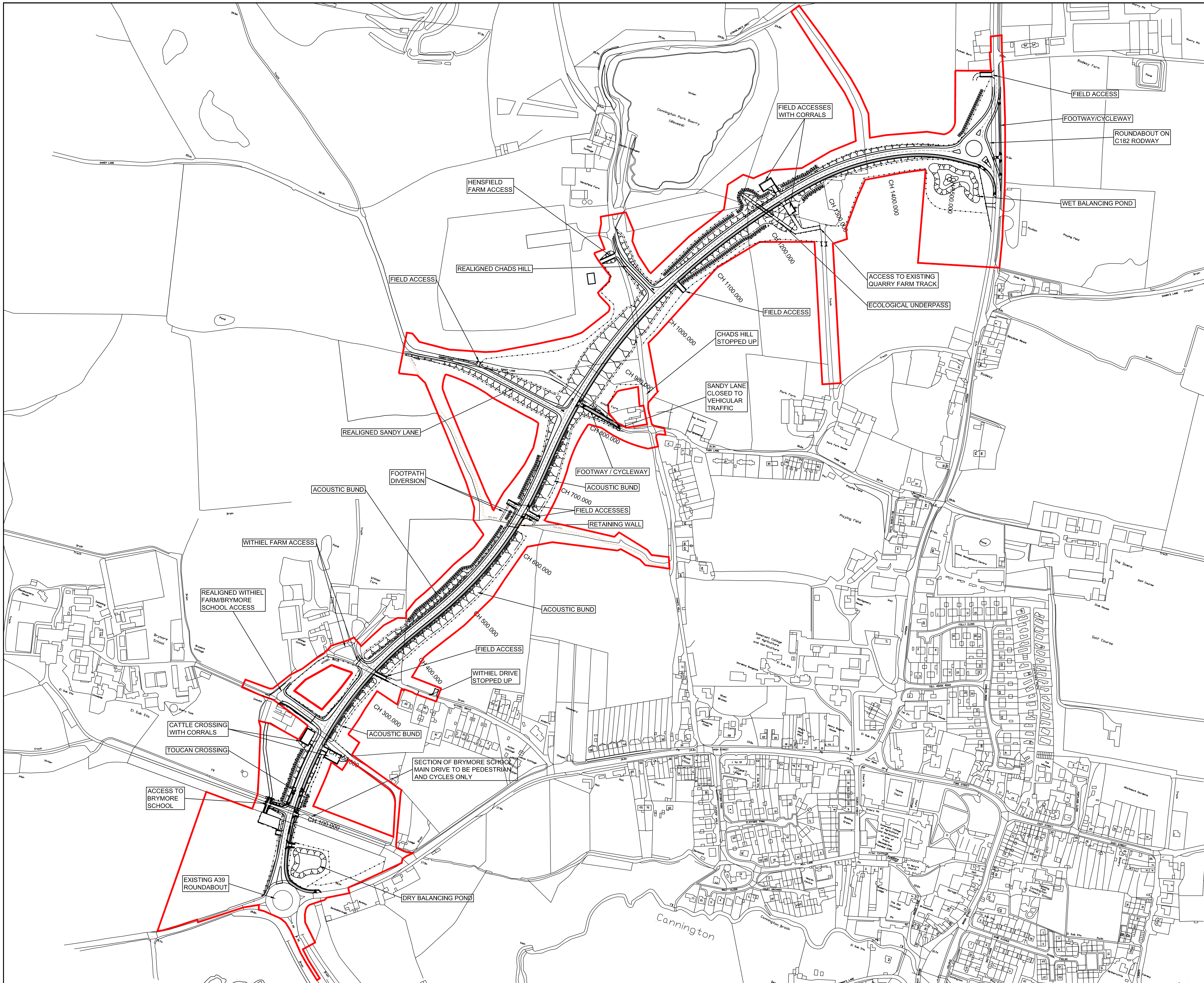
FIGURE TITLE:

COMBWICH WHARF PROPOSED SITE LAYOUT

FIGURE NO:	REVISION:
FIGURE 3.9	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:1000@A3

SCALE BAR 0 10 25 50 metres



KEY

	PROPOSED DEVELOPMENT SITE BOUNDARY
	PROPOSED FENCE
CH 1400.000	PROPOSED CHAINAGE (SHOWN IN METRES)
	PROPOSED DITCH
	EARTHWORKS SLOPE

N W E S

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

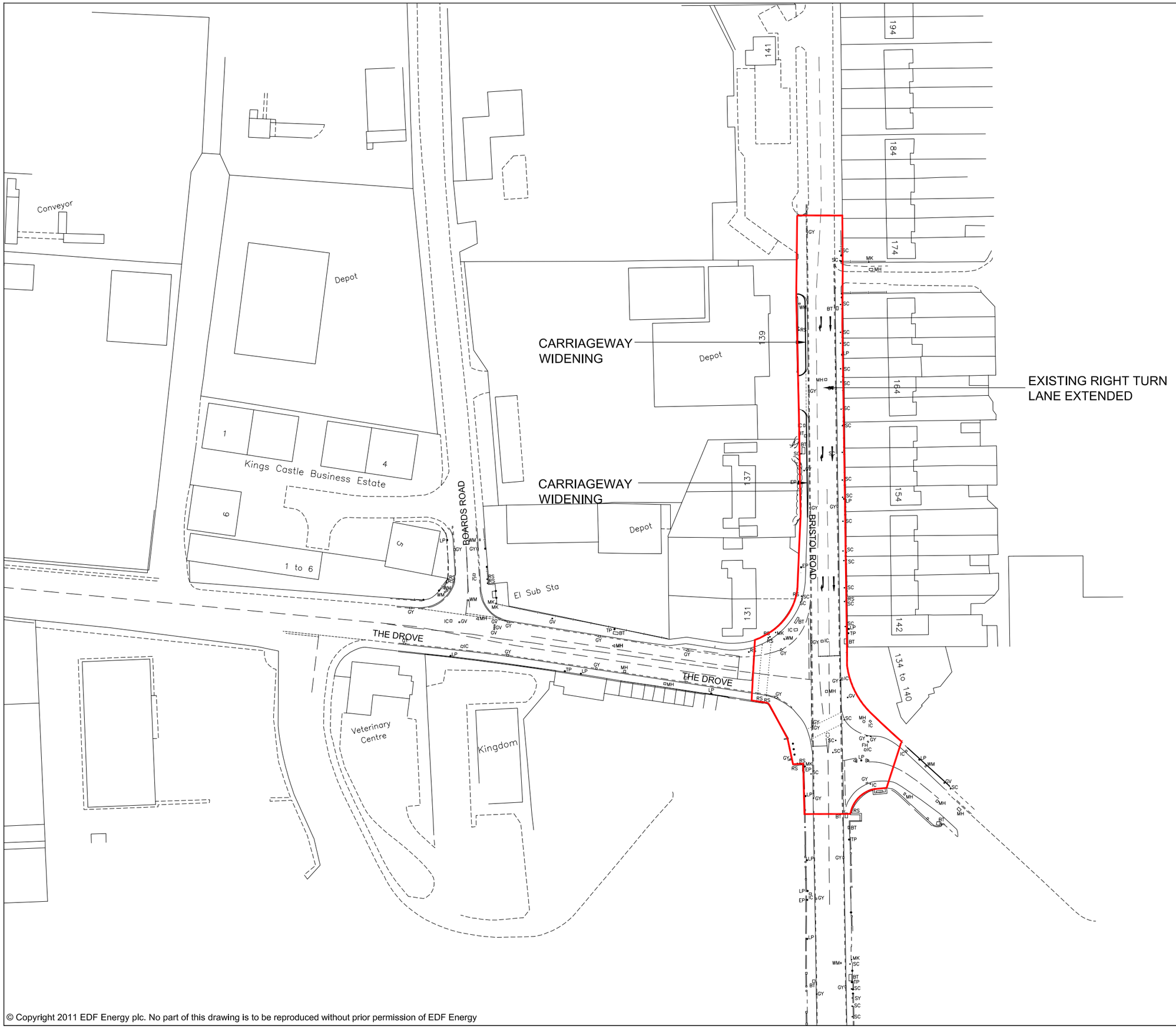
FIGURE TITLE:

CANNINGTON BYPASS PROPOSED GENERAL ARRANGEMENT PLAN

FIGURE NO:		REVISION:
FIGURE 3.10		01
DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:5000@A3

SCALE BAR

0 50 100 200 metres



KEY

PROPOSED DEVELOPMENT SITE BOUNDARY

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

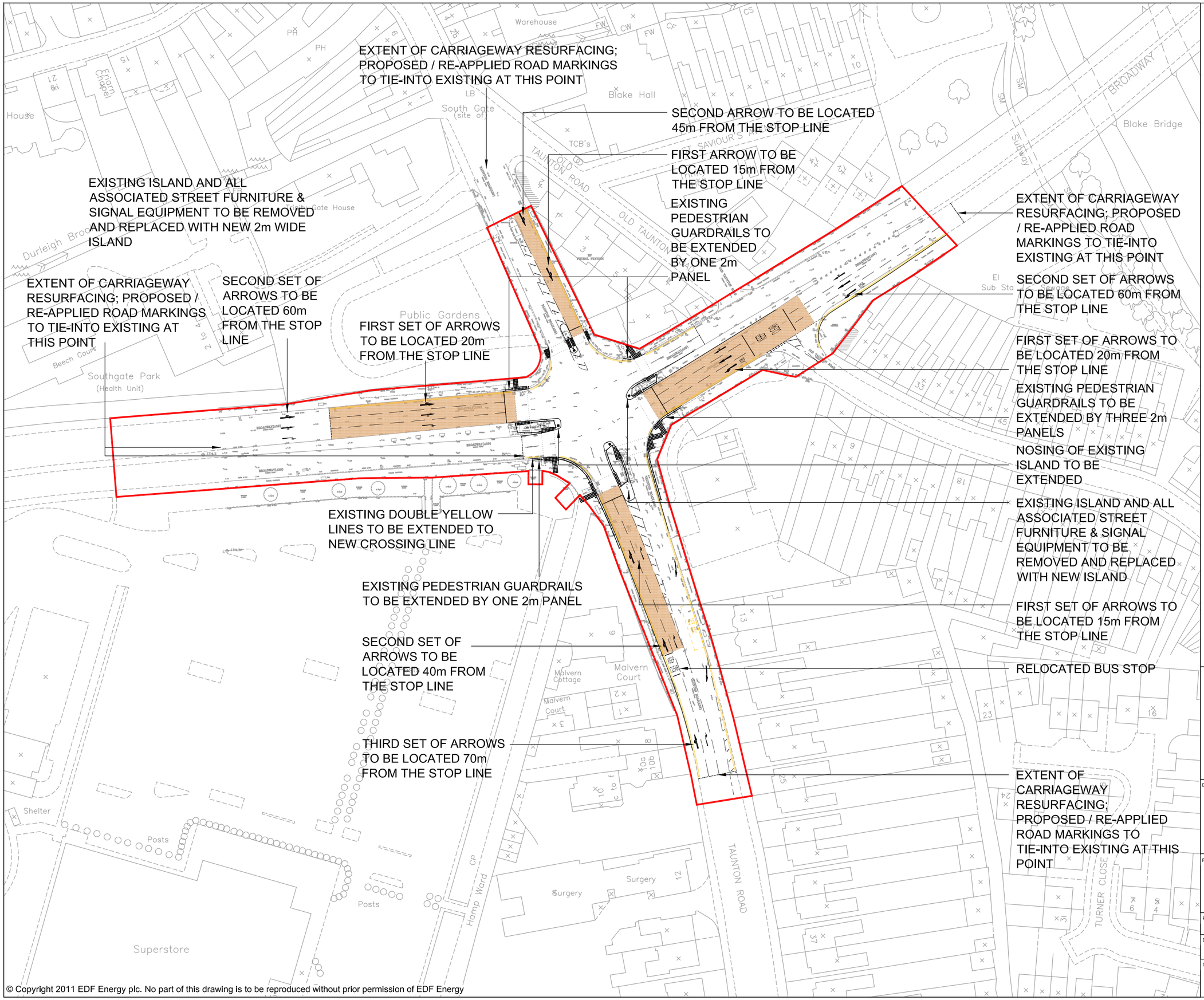
FIGURE TITLE:

A38 BRISTOL ROAD/THE DROVE JUNCTION HIGHWAY IMPROVEMENT GENERAL ARRANGEMENT

FIGURE NO:	REVISION:
FIGURE 3.11	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:1000@A3

SCALE BAR 0 10 20 50 metres



KEY

PROPOSED DEVELOPMENT SITE BOUNDARY

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DOCUMENT:

HINKLEY POINT C PROJECT ENVIRONMENTAL STATEMENT VOLUME 1 CHAPTER 3

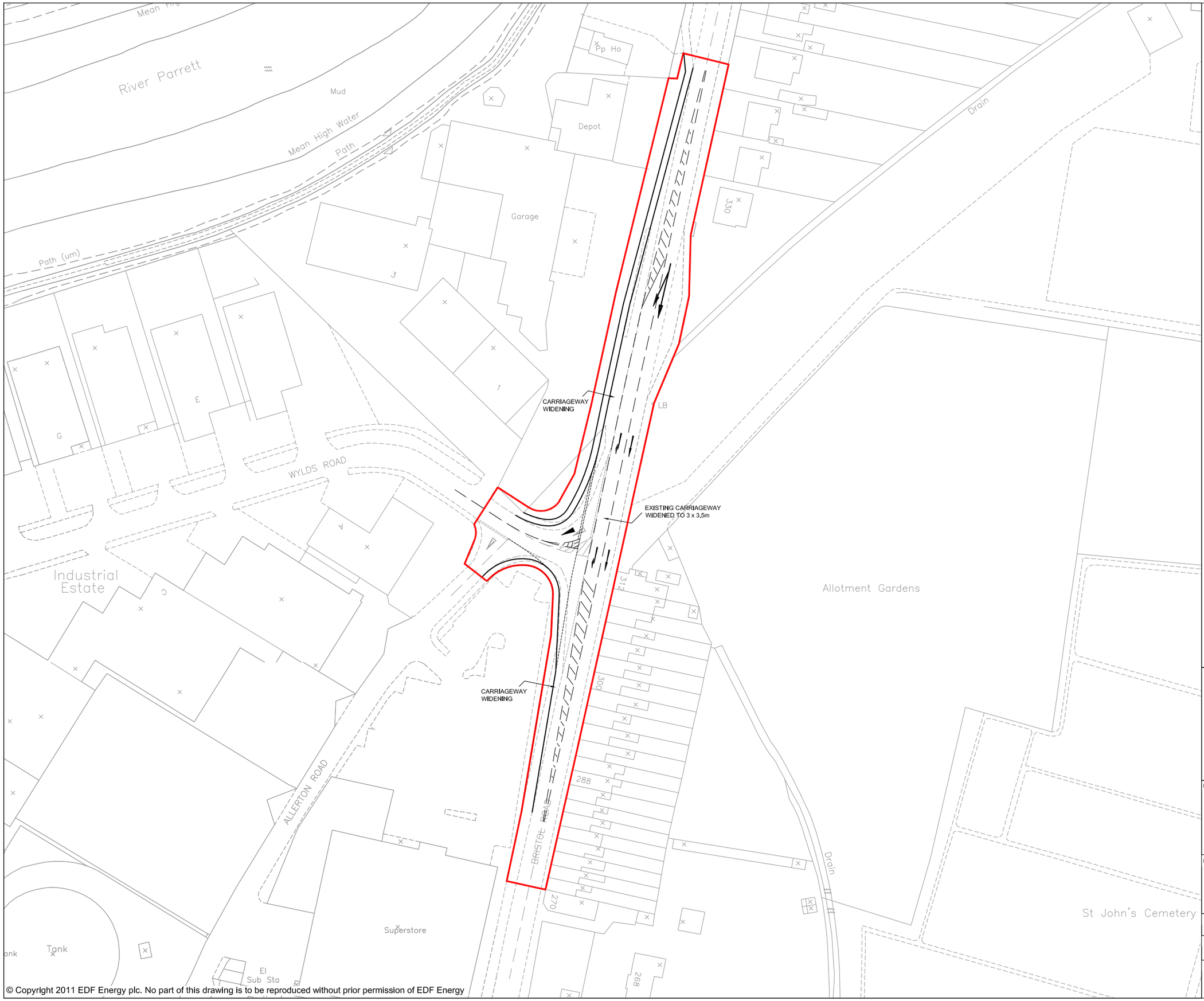
FIGURE TITLE:

A39 BROADWAY/A38 TAUNTON ROAD JUNCTION HIGHWAY IMPROVEMENT GENERAL ARRANGEMENT

FIGURE NO:	REVISION:
FIGURE 3.12	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:1000@A3

SCALE BAR 0 10 20 50 metres



KEY

PROPOSED DEVELOPMENT SITE BOUNDARY

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EDF ENERGY

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

FIGURE TITLE:

A38 BRISTOL ROAD/WYLDS ROAD
JUNCTION HIGHWAY IMPROVEMENT
GENERAL ARRANGEMENT PLAN

FIGURE NO:		REVISION:
FIGURE 3.13		01
DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:1000@A3

SCALE BAR 0 10 20 50
metres

NEW DEDICATED LEFT TURN SLIP LANE

NEW ISLAND

CARRIAGEWAY WIDENING

ISLAND TO BE REVISED

ISLAND TO BE REVISED

NEW ISLAND

NOTE: EXISTING TRAFFIC SIGNAL INSTALLATION REVISED TO SUIT NEW ARRANGEMENTS

WESTERN WAY

Western Way

Bristol Road (A38)

Barham Close

BARHAMS CLOSE

WYLDS ROAD

Riders House

Transform Industrial Estate

The Drove

East Quay

Town Centre

Great Mills

Tank

Tanks

Tanks

Tank

Path (um)

Flood Bank / Footpath (38)

CHEMICAL STORAGE AREA

Compactor

Bike Shed

Storage Racks

Access to H.M. Prison

Access to RIDERS

El Sub Sta

1 to 2

7 to 8

KEY

PROPOSED DEVELOPMENT SITE BOUNDARY

N

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DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

FIGURE TITLE:

WYLDS ROAD/THE DROVE JUNCTION HIGHWAY IMPROVEMENT GENERAL ARRANGEMENT PLAN

FIGURE NO:		REVISION:
FIGURE 3.14		01
DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:1000@A3

SCALE BAR 0 10 20 50 metres

Brook

Swimming Pool

Sandford House

Sandford Waters

Quantock Lodge

PROPOSED TRAFFIC ISLAND

NEW UNCONTROLLED PEDESTRIAN CROSSING

EXTENT OF CARRIAGEWAY RESURFACING; PROPOSED / RE-APPLIED ROAD MARKINGS TO TIE-INTO EXISTING AT THIS POINT

PROPOSED 28m ICD ROUNDABOUT

PROPOSED TURNING HEAD

EXTENT OF CARRIAGEWAY RESURFACING; PROPOSED / RE-APPLIED ROAD MARKINGS TO TIE-INTO EXISTING AT THIS POINT

PROPOSED TRAFFIC ISLAND

NEW 1.2m WIDE FOOTWAY

EXTENT OF CARRIAGEWAY RESURFACING; PROPOSED / RE-APPLIED ROAD MARKINGS TO TIE-INTO EXISTING AT THIS POINT

B 3339

A 39

QUANTOCK ROAD

Perrymoor Brook

Ward Bdy

SANDFOR

Track

MS

GP

CS

Def

SD

KEY

PROPOSED DEVELOPMENT SITE BOUNDARY

N

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S

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

FIGURE TITLE:

A39 NEW ROAD/B3339 SANDFORD HILL ROUNDABOUT HIGHWAY IMPROVEMENT GENERAL ARRANGEMENT PLAN

FIGURE NO: FIGURE 3.15

REVISION: 01

DATE: SEPT 2011

DRAWN: J.G

SCALE: 1:1000@A3

SCALE BAR 0 10 20 50 metres

NOTE:
PROPOSED ROAD MARKINGS TO BE RECONFIGURED AROUND WHOLE OF JUNCTION IMPROVEMENT

CARRIAGEWAY WIDENING

PROPOSED SIGNAL CONTROLED JUNCTION

CARRIAGEWAY WIDENING

PROPOSED SIGNAL CONTROLED JUNCTION

KERB BUILDOUT

CARRIAGEWAY WIDENING

CARRIAGEWAY WIDENING

PROPOSED SIGNAL CONTROLED JUNCTION

KEY

PROPOSED DEVELOPMENT SITE BOUNDARY

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

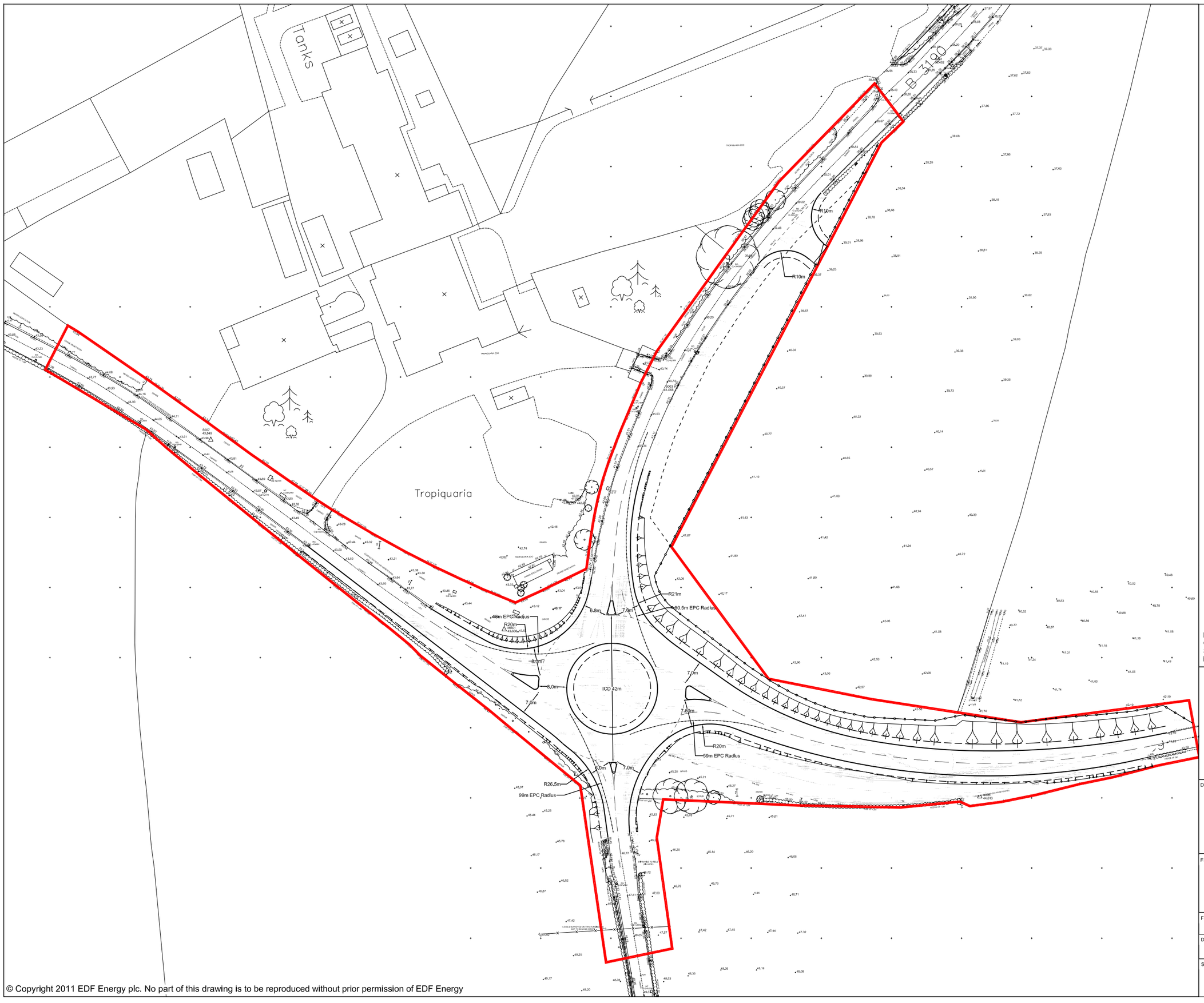
FIGURE TITLE:

M5 JUNCTION 23 ROUNDABOUT HIGHWAY IMPROVEMENT GENERAL ARRANGEMENT PLAN

FIGURE NO:	REVISION:
FIGURE 3.16	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:2500@A3

SCALE BAR 0 10 25 50 100 metres



KEY

PROPOSED DEVELOPMENT SITE BOUNDARY

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DOCUMENT:

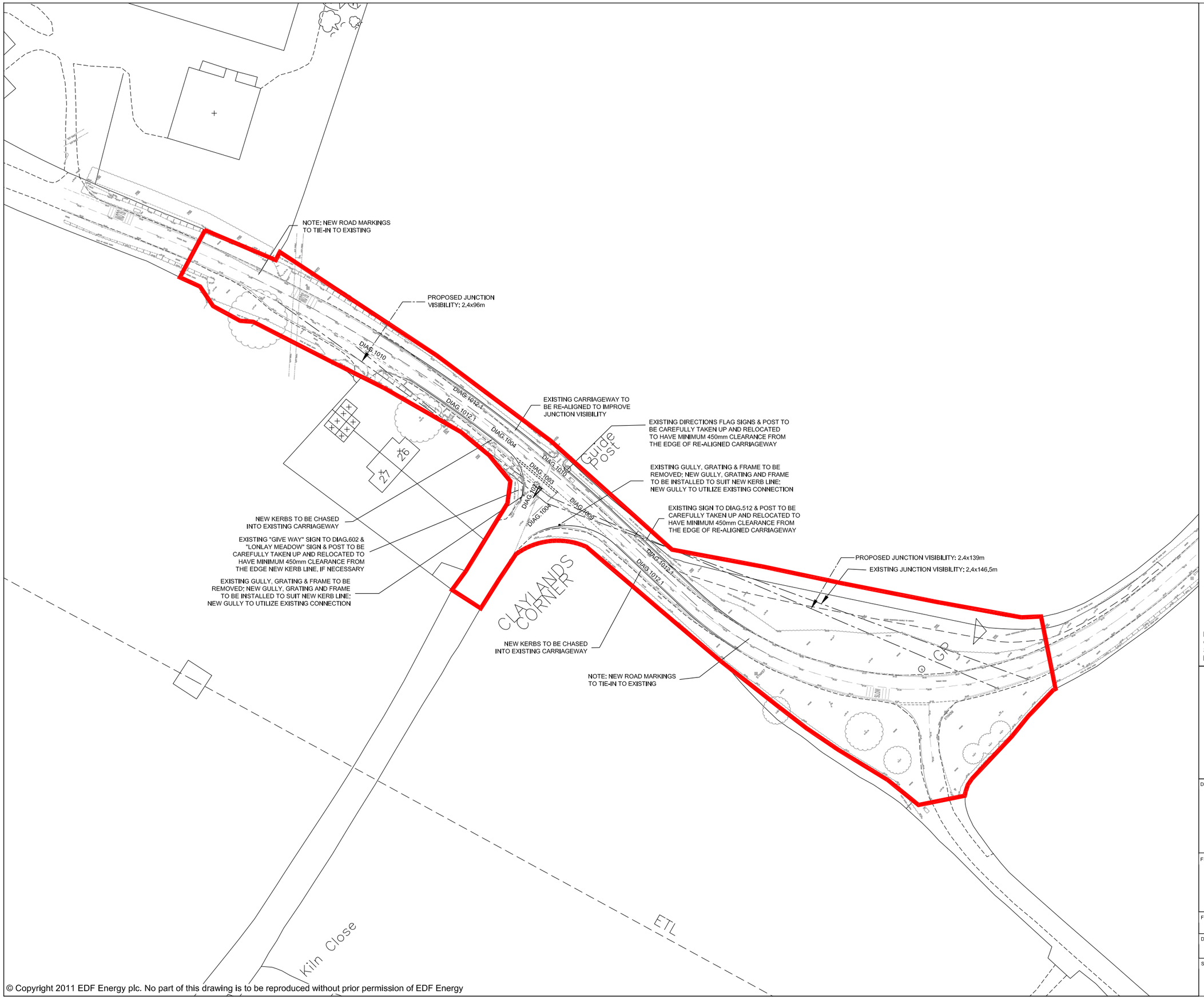
HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

FIGURE TITLE:

WASHFORD CROSS ROUNDABOUT
HIGHWAY IMPROVEMENT GENERAL
ARRANGEMENT PLAN

FIGURE NO:		REVISION:
FIGURE 3.17		01
DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:1000@A3

SCALE BAR 0 10 20 50
metres



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DOCUMENT:

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ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

FIGURE TITLE:

CLAYLANDS CORNER JUNCTION HIGHWAY IMPROVEMENT GENERAL ARRANGEMENT PLAN

FIGURE NO:	REVISION:
FIGURE 3.18	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:1000@A3

SCALE BAR 0 10 20 50
metres

EP

Pond

PROPOSED WIG WAG PUSH BUTTON DEMAND UNIT TO BE MOUNTED 1.8m ABOVE GROUND LEVEL AND LOCATED 20m FROM WICK MOOR DROVE. PUSH BUTTON WILL BE ILLUMINATED WHEN DEMAND HAS BEEN INSERTED TO INDICATE WIG WAGS ARE WORKING. WHEN THE PUSH BUTTON IS PRESSED ONCE THE WIG WAG SIGNALS WILL BE ACTIVATED, A HORSE RIDER CAN THEN PRESS THE PUSH BUTTON AGAIN TO CANCEL THE DEMAND AND SWITCH THE WIG WAGS OFF.

PROPOSED 3m WIDE TRACK

Issues

Wick Villa

LB

GP

Wick Cottage

PROPOSED ELECTRICITY SUPPLY PILLAR AND SMALL CASE WIG WAG CONTROLLER TO HOUSE ALL CABLES TERMINATIONS ADJACENT TO ELETRICITY PILLER

EXISTING POST & SIGNS TO BE RELOCATED

PROPOSED 4x4m WAITING AREA

PROPOSED GULLY TO BE CONNECTED TO EXISTING MANHOLE

PROPOSED WIG WAG SIGNAL HEAD AND SIGN TO DIAG.550.1

PROPOSED WIG WAG PUSH BUTTON DEMAND UNIT TO BE MOUNTED 1.8m ABOVE GROUND LEVEL AND LOCATED 30m FROM WICK MOOR DROVE. PUSH BUTTON WILL BE ILLUMINATED WHEN DEMAND HAS BEEN INSERTED TO INDICATE WIG WAGS ARE WORKING. WHEN THE PUSH BUTTON IS PRESSED ONCE THE WIG WAG SIGNALS WILL BE ACTIVATED, A HORSE RIDER CAN THEN PRESS THE PUSH BUTTON AGAIN TO CANCEL THE DEMAND AND SWITCH THE WIG WAGS OFF.

PROPOSED WIG WAG SIGNAL HEAD AND SIGN TO DIAG.550.1

FARRINGDON HILL LANE

441

440

Caravan Park

Caravan Park

Pond

Mud House C

Drain

Drain

Drain

Mud House Copse

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DOCUMENT:

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FIGURE TITLE:

C182 FARRINGDON HILL LANE, HORSE CROSSING HIGHWAY IMPROVEMENT GENERAL ARRANGEMENT PLAN

FIGURE NO: FIGURE 3.19

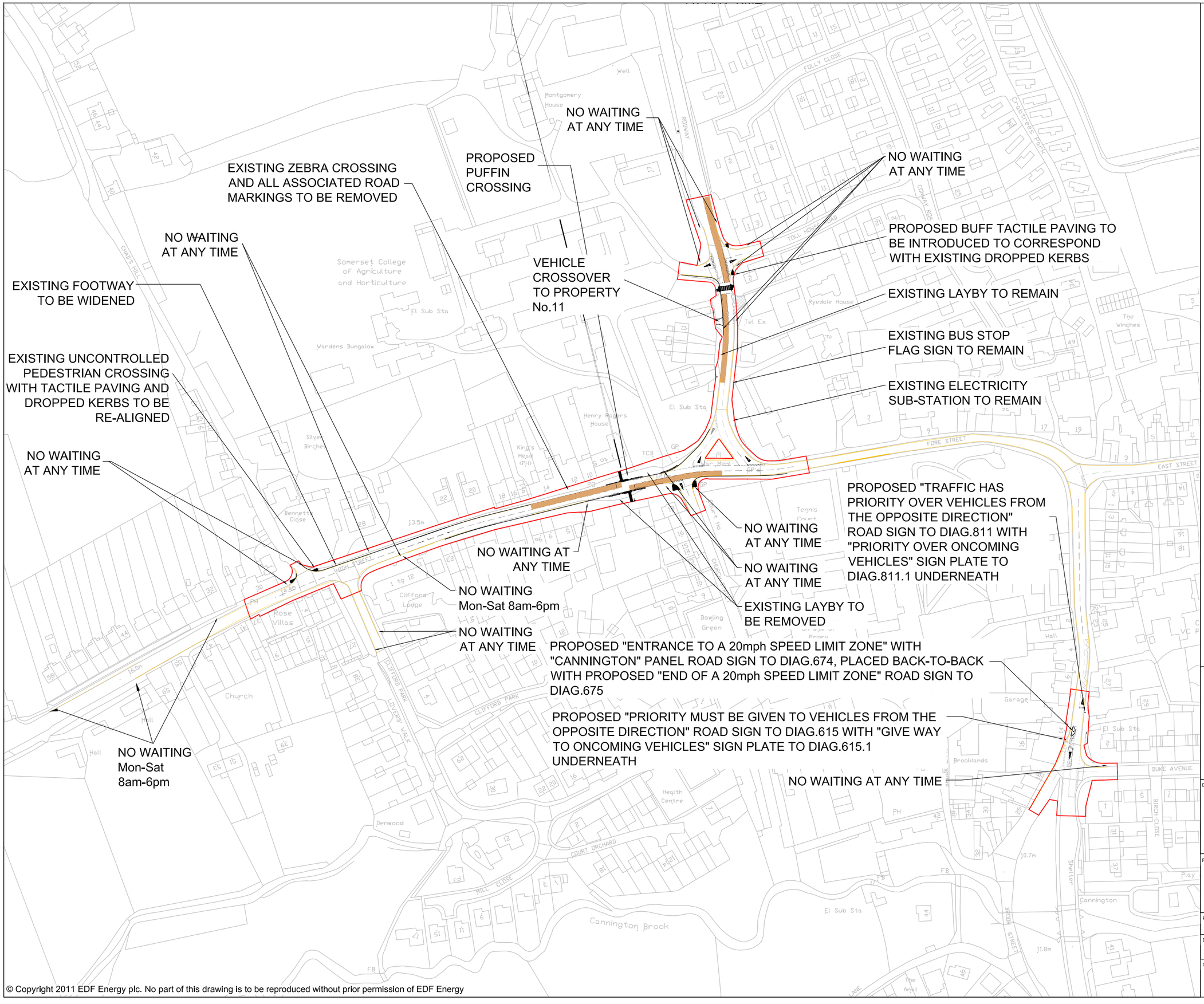
REVISION: 01

DATE: SEPT 2011

DRAWN: J.G

SCALE: 1:2000@A3

SCALE BAR 0 20 40 100 metres



KEY

PROPOSED DEVELOPMENT SITE BOUNDARY

DOCUMENT:

HINKLEY POINT C PROJECT
ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

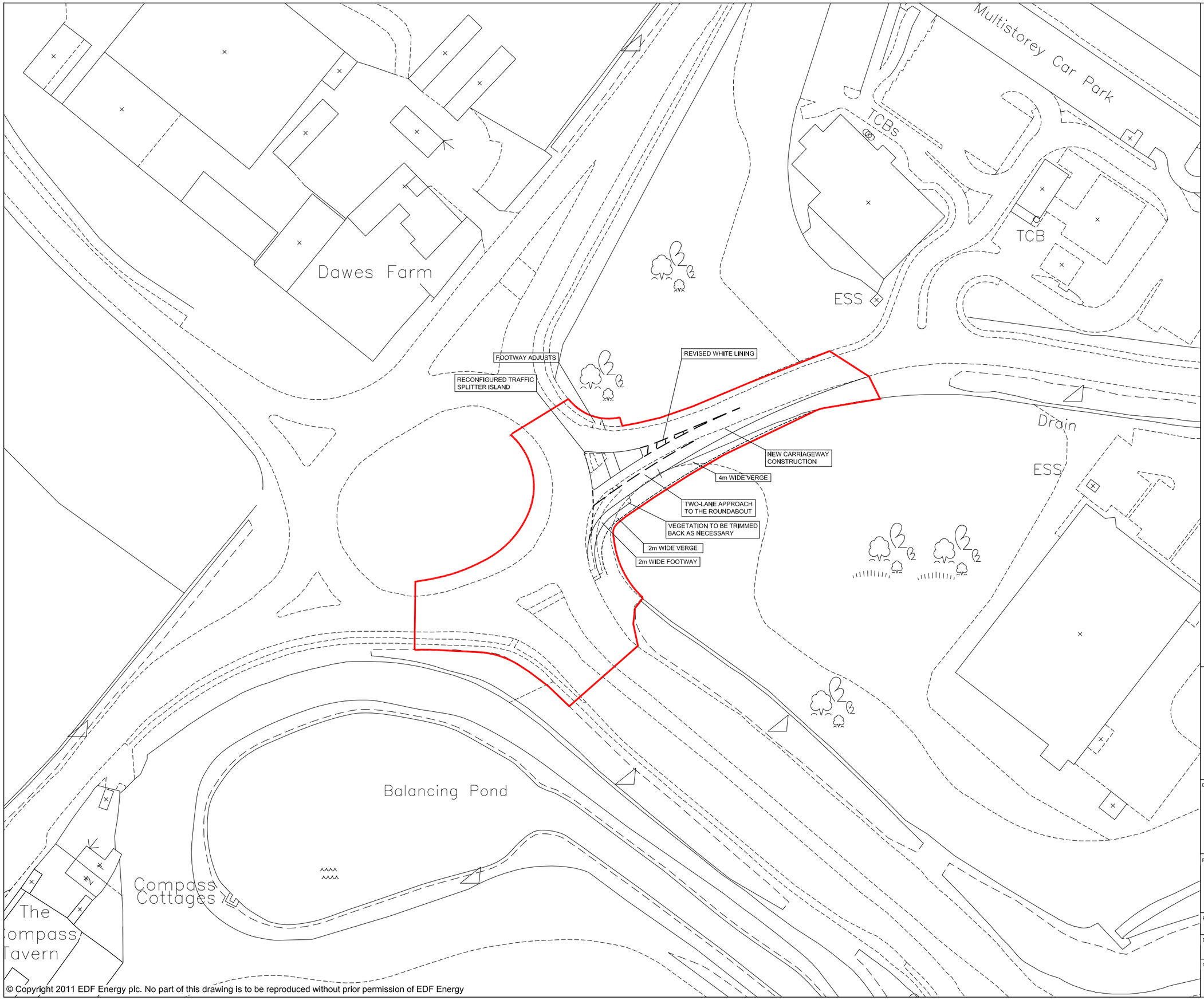
FIGURE TITLE:

CANNINGTON TRAFFIC CALMING MEASURES HIGHWAY IMPROVEMENT GENERAL ARRANGEMENT PLAN

FIGURE NO:	REVISION:
FIGURE 3.20	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:2000@A3

SCALE BAR 0 20 40 100 metres



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DOCUMENT:

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ENVIRONMENTAL STATEMENT
VOLUME 1 CHAPTER 3

FIGURE TITLE:

HUNTWORTH ROUNDABOUT HIGHWAY IMPROVEMENT GENERAL ARRANGEMENT PLAN

FIGURE NO:	REVISION:
FIGURE 3.21	01

DATE:	DRAWN:	SCALE:
SEPT 2011	J.G	1:1000@A3

SCALE BAR 0 10 20 50
metres