Defence Equipment and Support

Submarine Dismantling Project - Strategic Environmental Assessment

Scoping Report

June 2010

Defence Equipment & Support

MINISTRY OF DEFENCE

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Report for

In-Service Submarines
Defence Equipment and Support
Ministry of Defence

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Defence Equipment and Support

Submarine Dismantling Project

Strategic Environmental Assessment Scoping Report

June 2010

Prepared by Entec UK Limited and Defence Estates for Defence Equipment and Support, Ministry of Defence.

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1. Introduction

1.1 Context

Project ISOLUS (Interim Storage Of Laid-Up Submarines) was established in 2000 to define, develop, procure and implement a timely solution for the dismantling, disposal and/or re-cycling of the UK's de-fuelled nuclear submarines at the end of their life. The project, which extends over a 60 year period, encompasses the provision of facilities, personnel and processes to dismantle the 27 de-fuelled nuclear submarines (of past and current classes). This entails:

- reducing the submarines to achieve intermediate-level and low-level radioactive waste streams, non-radioactive waste streams and recyclable/ re-useable materials;
- providing interim storage on land for the resultant intermediate level waste (ILW) until at least 2040 (pending the availability of the proposed Geological Disposal Facility (GDF)); and
- the eventual decommissioning of the dismantling and storage facilities used in this process.

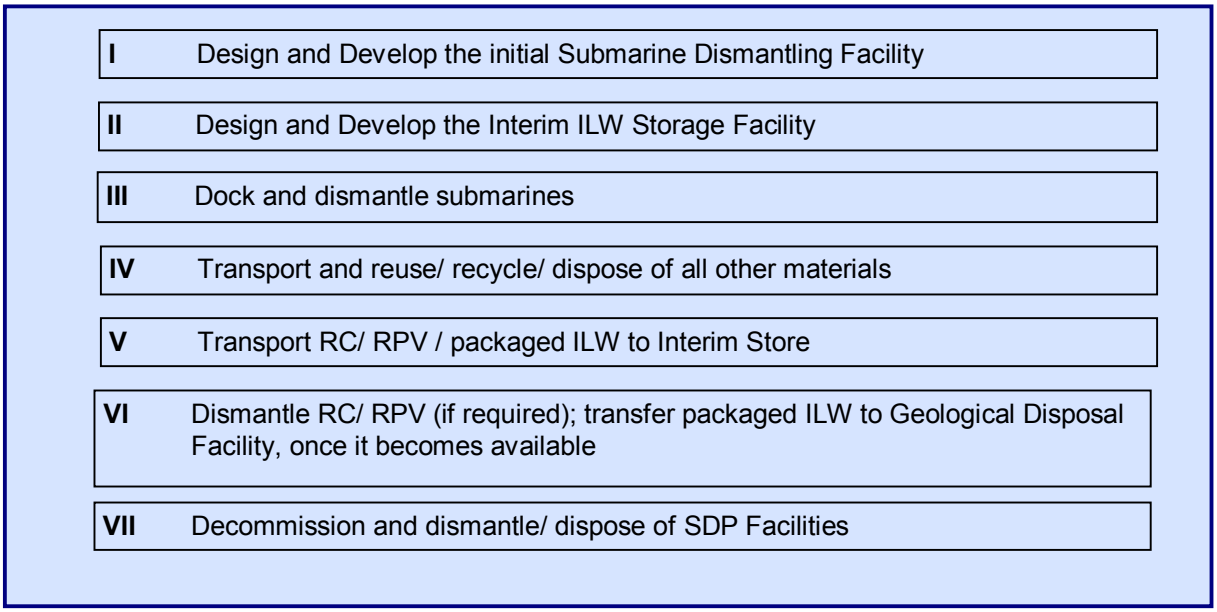
In May 2009, project ISOLUS was formally renamed the Submarine Dismantling Project (SDP) to more accurately reflect the scope of work.

Recognising the importance that public acceptability would play in the development of any solution, Ministerial commitments were made that public consultation would be undertaken before any major decisions are taken. Two Public Consultations on the project have been held to date, carried out by independent researchers at the Centre for the Study of Environmental Change at Lancaster University (see www.submarinedismantling.co.uk for further information).

The third Public Consultation will be conducted in due course on the proposed options for the SDP. The Strategic Environmental Assessment (SEA) Environmental Report will be available for this consultation and will inform the project as a whole, with assessments being undertaken of the key stages of the project (see (**Figure 1.1**). These stages will include:

- the location, development and operation of the initial submarine dismantling facilities;
- the location, development and operation of the interim ILW storage facilities;
- the technical options for submarine dismantling;
- the processing-related operations including, transport and waste management of wastes, including ILW, Low Level Waste (LLW), hazardous and inert materials;
- the eventual decommissioning of dismantling and storage facilities.

Figure 1.1 Key Stages and Activities of the SDP



The SEA assessment will firstly assess the likely significant environmental effects (including short and long term direct, indirect and cumulative effects) associated with each of the above stages, at a generic/ strategic level. It will then provide consideration of the potentially significant environmental impacts at those existing Licensed or Authorised sites which have been identified as being credible candidates to undertake SDP activity. The assessments will be particularly useful in illustrating the key potential environmental impacts arising from implementing the reasonable alternatives for each of these stages to help inform the consultation process.

The third Public Consultation, of which the SEA will be a part, will then inform decisions about the dismantling process, the dismantling site and the interim storage site for ILW arisings (required because the proposed Geological Disposal Facility which will eventually house the ILW is not expected to be available to the MOD until *at least* 2040.)

This assessment is strategic in nature. Whilst it will consider of a range of potential sites for dismantling and interim storage, it does not constitute a detailed site-level assessment. Following decisions on the proposed options for locating the dismantling and storage sites, detailed site-specific issues will be addressed through the consenting process for individual developments. This will include Environmental Impact Assessments associated with Town & Country Planning and nuclear decommissioning, Environmental Permitting, and/ or Habitats Regulation Assessment, as appropriate. The practices involved in the SDP may also be subject to the separate process of justification under the Justification of Practices Involving Ionising Radiation Regulations 2004.

Although the strict applicability of the SEA Regulations to the SDP remains unclear, the MOD will undertake an environmental assessment incorporating the requirements of the SEA Directive on the SDP proposals, as this is considered to be good practice. This precautionary position will help ensure that potential environmental implications of the proposals are assessed up-front and hence available to

inform the decision making process. The approach will follow both MOD[1] and wider government[2] guidance.

1.2 Purpose of this Report

This generic Scoping Report is the first formal output of the SEA process. The purpose of this report is:

- to set out our proposed approach for the preparation of the Environmental Report; and
- to provide the SEA scoping consultation bodies with sufficient information to enable them to comment on the information which, in their view, should be included in the Environmental Report, to ensure that the scope and detail of the SEA are appropriate and comply with the relevant statutory requirements[3].

The SEA scoping bodies comprise the Statutory Consultees referred to in the SEA Regulations and include representatives from England, Scotland, Wales and Northern Ireland. MOD also intends to consult with other relevant Government Departments and agencies, including (but not limited to) the Department of Health, DWP, DEFRA, DECC, DCLG and the UK Nuclear Decommissioning Authority. Comments from those bodies will be invited during a five week consultation period from the date on which the bodies receive the draft Scoping Report. We will also place the Scoping Report and Non-Technical Summary on the internet, via (www.submarinedismantling.org.uk), and will consider comments from the public and any interested parties who respond within the five week consultation period. Responses received will inform the final version of the generic Scoping Report.

This generic Scoping Report will then be updated to include relevant information on individual sites which have been assessed as being potentially feasible for SDP activities. This update will be consulted upon in the same manner. Together, this information (this generic report and the site-specific update) will set the scope and level of detail of the information to be included in the SEA assessment and the subsequent Environmental Report, which will identify, describe and evaluate the likely significant effects on the environment of implementing the SDP options (which constitute the 'reasonable alternatives' under the Directive.)

The SEA Environmental Report will be published for public consultation at the same time as the draft SDP proposals, as part of the third SDP public consultation exercise.

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[1] The Environmental and Sustainability Appraisal Tool Handbook (Chapter Two: SEA) MOD, 2006. http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/DefenceEstateandEnvironmentPublications/DefenceEstates/SustainabiltyAndEnvironmentalAppraisalToolHandbook.htm

[2] A Practical Guide to the Strategic Environmental Assessment Directive. ODPM (now the Department for Communities and Local Government), 2006. http://www.communities.gov.uk/publications/planningandbuilding/practicalguidesea).

[3] Directive 2001/42/EC on the assessment of certain plans and programmes on the Environment, enacted through the Environmental Assessment of Plans and Programmes Regulations 2004.

1.3 The Requirements for SEA

SEA became a statutory requirement following the adoption of the European Union's Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment. This was transposed into UK legislation on the 20 July 2004 as *Statutory Instrument No.1633 - The Environmental Assessment of Plans and Programmes Regulations 2004*. The objective of the SEA Directive is:

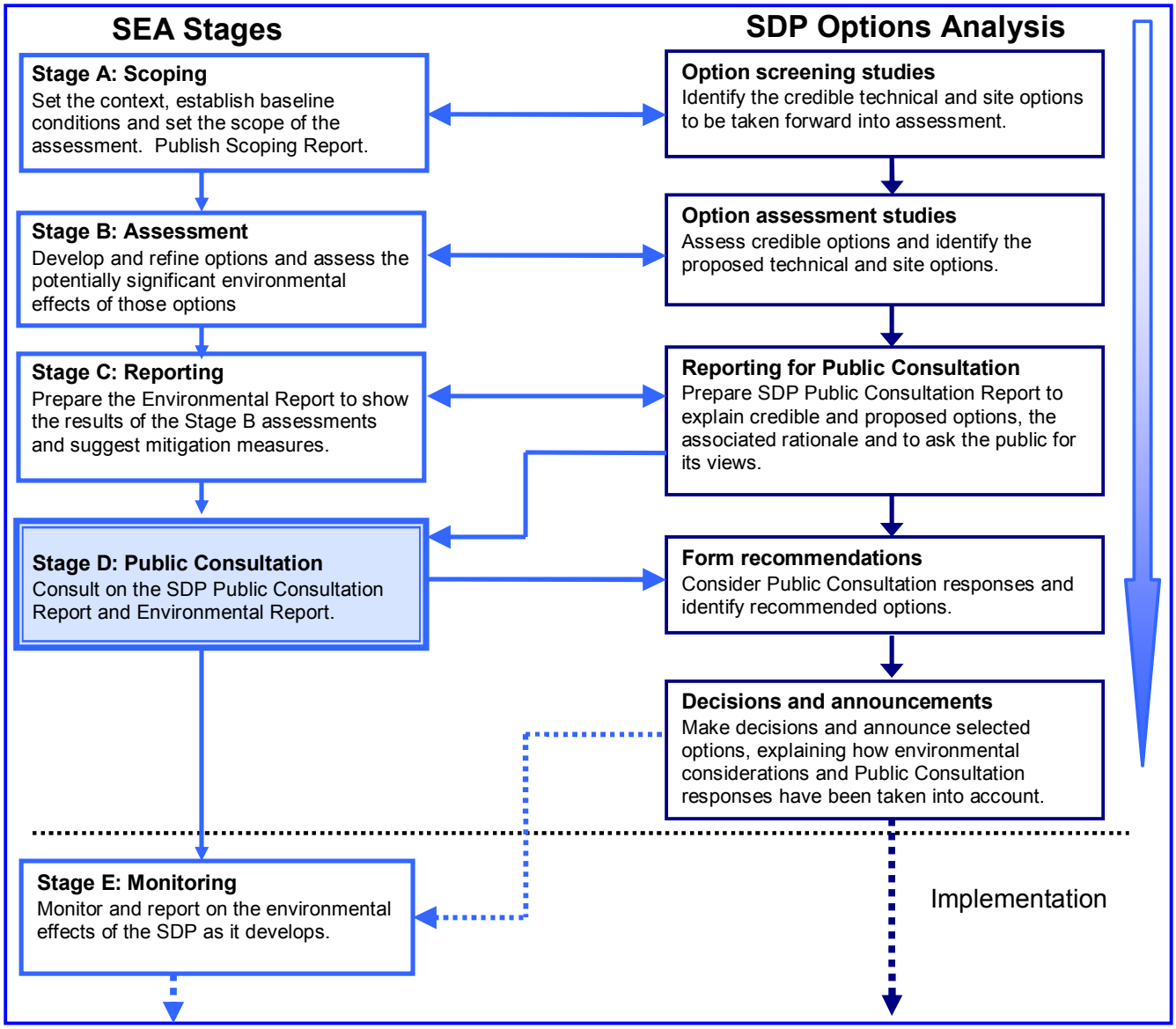
> '*To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to contributing to sustainable development*'.

Throughout the course of the development of a plan or programme, the aim of the SEA is to identify the associated environmental effects of implementing the plan or programme and to propose measures to avoid, manage or mitigate any significant adverse effects and to enhance any beneficial effects. The main requirements and stages of the SEA are:

- determining the scope of the assessment and agreeing the proposed approach to assessment with Scoping Consultees (Stage A);
- assessing the likely direct, indirect and cumulative effects of the proposed SDP strategic options (Stage B);
- recording those effects in an SEA Environmental Report (Stage C);
- undertaking a consultation exercise on the SEA Environmental Report and the SDP proposals (Stage D);
- integrating the SEA findings into the final decisions on how to proceed with SDP (Stage D);
- informing the public about that decision and the extent to which the SEA and consultation findings have been taken into account (Stage D); and
- undertaking periodic monitoring of the associated impacts of the selected options (Stage E).

These stages (and the resulting outputs) are set out in **Figure 1.2**.

Figure 1.2 Overview of the SEA Process within the context of the SDP



Note: These stages are based on guidance in '*A Practical Guide to the Strategic Environmental Assessment Directive'*, ODPM (2005) and '*The Environmental and Sustainability Appraisal Tool Handbook for the MOD Estate (Volume Two: SEA)', MOD (2006).*

The following activities have been undertaken to complete Stage A and produce this Scoping Report (in line with the ODPM and MOD guidance):

- **Identifying other relevant plans and programmes**: A review has been undertaken of international, European and national level plans and programmes, to establish how the SDP could be affected by outside factors, and to help identify any relevant environmental protection objectives which need to be taken into account during the SDP's preparation.

- **Collecting baseline information**: Information from a range of sources (such as Defra, the Environment Agency, the Joint Nature Conservancy Council and the Office of National Statistics) provides an analysis of the current baseline environmental conditions and an indication of their likely evolution following a 'business as usual' scenario. This will provide an evidence base for current environmental problems, prediction of effects and proposals for monitoring. It also helps in the development of SEA objectives.

- **Identifying environmental problems**: The baseline has been used to identify key environmental issues to help show where the SEA should be focussed.

- **Developing SEA objectives**: Objectives have been developed to provide a means by which the environmental performance of the SDP options can meaningfully be assessed.

The final element is to complete consultation with appropriate bodies to ensure that the SEA covers the likely significant environmental effects of the SDP.

Regulation 12 of the SEA Regulations concerns the appropriateness, scope and level of detail of the information that must be included in the Environmental Report. Schedule 2 of the Regulations (and Annex I of the Directive) provides more specific direction in this regard. This Scoping Report presents proposals for the scope and level of detail of this information for the consultation bodies to comment upon. Following the conclusion of scoping consultation, it is intended that the information in this report will be used in the Environmental Report.

1.4 Scope of the Assessment

The Submarine Dismantling Project represents (for the purposes of SEA) a national programme which consists of seven stages (see **Figure 1.1**). *Note however that the SDP is referred to throughout this report as a **project**, as this fits with the MOD's standard nomenclature.*

Stages I and II (development of dismantling and interim ILW storage facilities) are spatial in nature and involve a number of site options. Stage III (dismantling the reactor compartment) has a number of potential technical options. The generic environmental effects associated with all seven stages of the SDP will firstly be considered at Stage B of the SEA. Once the generic environmental assessment has been completed, this will inform (and be followed by) an assessment (at strategic level) of the environmental effects associated with feasible sites and technical options. A Scoping Report update will be produced for Statutory Consultees once the credible existing Licensed/ Authorised sites have been selected, to ensure that baseline conditions and relevant plans/ programmes and environmental protection objectives are accurate and robust.

1.5 Proposed Scope of the Environmental Effects to be Considered

The range of potential environmental effects to be considered by this assessment has been informed primarily by the SEA Directive and Regulations, using published government guidance[4]. Annex I of the SEA Directive requires that the assessment should include information on the "*likely significant effects on the environment, including on issues such as: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape; and the inter-relationship between the issues referred to*". In order to demonstrate consistency with the SEA Directive, these environmental categories have been used throughout this report, with further definition taken from the MOD Sustainability and Environmental Appraisal Tools Handbook (2006).

In the absence of detailed guidance on their content, a number of these environmental categories (population, human health and material assets) can be subject to varying interpretation. Within this report:

- 'Population' includes information on demographics and generic socio-economic issues;
- 'Human Health' includes information on mortality, illness and indices of perceived well-being; and
- 'Material Assets' includes information on transport, waste management, land use and materials.

This SEA is not intended to address wider socio-economic issues that are outside the scope of the Directive. Should the SEA indicate that socio-economic effects may be significant, further socio-economic impact assessment will be undertaken as appropriate. The wider public consultation (of which the SEA will be a part) will demonstrate the project logic using PESTLE analysis[5] to provide a comprehensive understanding of all the social, economic and environmental issues associated with the SDP and show how these wider issues of public interest have been taken into account to arrive at specific options.

It is acknowledged that it will be important to ensure that both studies are consistent, and that where appropriate, the SEA draws upon the PESTLE data to inform commentary on aspects of population, human health or material assets.

The SEA will include consideration of direct, indirect and synergistic issues necessary to meet the SEA requirements.

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[4] Office of the Deputy Prime Minister (2005). A Practical Guide to the Strategic Environmental Assessment Directive.

[5] PESTLE Analysis: Political, Environmental, Social, Technological, Legislative and Economic Assessment.

1.6 Presentation of the Information

To meet the SEA requirements, (and subsequently to be presented in the Environmental Report), information on the following is required:

- the current state of the environment and likely evolution without the implementation of the plan or programme;
- the environmental characteristics of areas likely to be significantly affected;
- any relevant existing environmental problems in terms of nature conservation; and
- the relationship to other relevant plans and programmes.

Section 3 presents national baseline information for the generic assessment (which includes the state of the environment, its evolution and any relevant environmental problems). **Section 4** and **Appendix C** present the information on relevant plans, programmes and environmental protection objectives. **Section 5** outlines the potentially significant effects that we propose to include in the Stage B assessment.

1.7 Scoping Report Structure

This Scoping Report is structured as follows:

NTS **Non Technical Summary:** This Section provides a summary of the Scoping Report, including information on both the SDP and the proposed approach to assessment.

Section 1 **Introduction:** This Section provides an introduction to the draft Scoping Report, including a summary of the SDP, an overview of proposed scope, report contents and an outline of how to respond to the consultation.

Section 2 **The Submarine Dismantling Project:** Outlines the SDP and the reasonable alternatives, consistent with the SDP objectives and geographic scope of the assessment.

Section 3 **Baseline Information:** Outlines how baseline conditions for the environmental categories required by the Directive will be taken into account. It includes a commentary on key existing environmental problems.

Section 4 **Other Plans and Programmes and Environmental Protection Objectives:** Outlines the relationship of the SDP with other plans or programmes and identifies those relevant environmental protection objectives which it could affect, or to which it could make a contribution.

Section 5 **Scoping of Potential Significant Effects:** Outlines the potential significant effects of the SDP proposals on the key aspects of the environment to provide an indication of the proposed scope of the assessment.

Section 6 **Assessment and Reporting:** Outlines the proposed SEA objectives and guide questions, the approach to cumulative effects assessment and reporting.

Section 7 **Summary and Next Steps:** Provides the conclusion of the draft Scoping Report and the next steps in the assessment process.

Annex A **Review of Baseline Information:** Presents in detail the national baseline conditions for the environmental categories required by the SEA Directive and their likely evolution in the event of the SDP not taking place.

Annex B **Plans and Programmes Review:** Presents in detail the relationship of the SDP with other international, European and national plans or programmes identified in Section 4.

Annex C **Abbreviations and Glossary**

Annex D **Quality Assurance Checklist**

As indicated, this scoping report presents proposals for the scope, and level of detail, of information that will be presented in the Environmental Report. To help readers understand how the structure and contents of this Scoping Report anticipate the specific requirements of the SEA legislation, **Table 1.1** sets how the information requirements are addressed in this report.

Table 1.1 SEA Information Requirements Addressed Within this SEA Scoping Report

SEA Information Requirements	Scoping Report Reference
Schedule 2 of the SEA Regulations (SI 2004 No. 1633) sets out the following information requirements:	***The following sections of this scoping report address the requirements of the SEA Regulations:***
1. An outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes.	This requirement is addressed in **Section 2, Section 4** and **Annex B** and will be further reported on in the SEA Environmental Report.
2. The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.	This requirement is addressed in **Sections 3.1, 3.2** and **Annex A**; and will be further reported on in the SEA Environmental Report.
3. The environmental characteristics of areas likely to be significantly affected.	This requirement is addressed in **Section 3.1, 3.2** and **Annex A**; and will be further reported on in the SEA Environmental Report.
4. Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds[6] and Council Directive 92/43/EEC (the Habitats Directive[7]).	This requirement is addressed in **Section 3.3** and will be further reported on in the SEA Environmental Report as specific sites are formally identified. .

[6] Council Directive 79/409/EEC on the conservation of wild birds. The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. In the UK, the provisions of the Birds Directive are implemented through the Wildlife & Countryside Act 1981 (as amended) and The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).

SEA Information Requirements	Scoping Report Reference
5. The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.	This requirement is addressed in **Section 4,**; and will be further reported on in the SEA Environmental Report.
6. The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as: biodiversity; population; human health; fauna; flora; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape; and the inter-relationship between the issues referred to in sub-paragraphs (a) to (l).	A provisional indication of the likely effects of the SDP proposed options (which constitute the 'reasonable alternatives') has been provided in **Section 5** to provide direction as to the scope of the assessment against the 12 categories within the legislation. However, it is the purpose of Stage B of the SEA process to assess the potential effects of the SDP proposals and the reasonable alternatives. In consequence, more specific detail on the likely significant effects of the SDP will be provided in the SEA Environmental Report.
7. The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.	It is not appropriate to consider this requirement at this stage in the environmental assessment process. In many cases, effects will be so site specific that environmental measures and mitigations can only be meaningfully determined through the later tiers of environmental assessment such as Environmental Impact Assessment and Habitats Regulations Assessment. However in broad terms the 'mitigation hierarchy' will be applied where practicable and results reported in the SEA Environmental Report. Examples of these types of measure are included in **Section 6.2**.
8. An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.	This requirement is addressed in **Section 2.2 and 2.3** and will be further reported on in the SEA Environmental Report.
9. A description of the measures envisaged concerning monitoring in accordance with regulation 17	It is not appropriate to consider this requirement at this stage in the environmental assessment process. In many cases effects will be so site specific that monitoring measures can only be meaningfully determined through the later tiers of environmental assessment such as Environmental Impact Assessment and Habitats Regulations Assessment. However where practicable monitoring regimes will be identified through the further SEA consultation and assessments, with results reported in the SEA Environmental Report.
10. A non-technical summary of the information provided under paragraphs 1 to 9.	A non-technical summary is provided at the start of this Scoping Report. A further Non-Technical Summary will accompany the SEA Environmental Report.

[7] Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (EC Habitats Directive). In the UK the Directive has been transposed into national laws by means of the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended). The 'Habitats Regulations' apply to the UK land area and its territorial sea (to 12 nautical miles from the coast), and are supported by government policy guidance.

1.8 Consultation on Scoping

This generic Scoping Report is being sent to the UK Statutory Consultees identified under the SEA Regulations[8]. Other relevant central Government departments and agencies will also be invited to provide input.

For the purposes of this SEA, the Statutory and Non-Statutory Consultees shall be collectively referred to as the 'Scoping Consultees.' The Scoping Report and Non-Technical Summary will be posted on the SDP web-site at the beginning of the consultation period.

This generic Scoping Report will then be updated to include relevant information on the list of individual sites which the MOD considers to be potentially credible as a base for SDP activity. This update will be consulted upon in the same manner, subject to Scoping Consultees' agreement. Collectively, the scoping information (the generic Scoping Report and the site specific update) will form the basis of the proposed scope of the assessment.

[8] The Environment Agency, English Heritage, Natural England, Northern Ireland Environment Agency, Historic Scotland, Scottish Natural Heritage, Scottish Environment Protection Agency, Cadw (Welsh Historic Monuments), Countryside Council for Wales, and the Environment Agency Wales.

1.9 Key Questions for Scoping Consultees

We would welcome your views on this generic Scoping Report. The consultation period will run from June 17th – July 23rd 2010. We are particularly interested to receive your views on the following:

1. **Do you have any comments on the proposed alternative options outlined for the SDP?** These are presented in Section 2.2 and 2.3.

2. **Do you agree with the main environmental issues identified?** These are presented within section 3 and reflect information collected from the national baseline. Are there elements (or other topics) which should be scoped in or could be scoped out of consideration during the assessment stage? If so, please describe the reasons for this.

3. **Are there additional plans, programmes and strategies which should be considered in the SEA?** These are listed in Section 4 and Appendix A. If so, please state their source, how they are relevant to the assessment of the SDP and what objectives they contain. Please also state whether the objectives they contain are captured by other plans, programmes and strategies already reviewed.

4. **Do you know of any additional baseline evidence which will help to inform the SEA process?** The key national baseline information is presented in Section 3. If there is additional information please state clearly the source of this information and how this information is relevant to the SEA.

5. **Do you agree that the proposed SEA objectives (Section 6.1) cover the breadth of issues appropriate for assessing the SDP?** If not, please state clearly what additional objectives would be relevant and whether they could be captured by extending any of the existing topics/objectives.

6. **When and how should we be seeking your opinions on site-specific information?** This scoping report provides national-level information to inform the assessments of the generic SDP options (as detailed above). Once the credible 'existing' Licensed or authorised sites have been selected, this generic scoping report will be updated with the relevant baseline information and relevant plans, programmes and environmental protection objectives. A further five week statutory consultation is then planned. Do you agree with this view? If not, please state clearly when and how you think we should do this.

7. **Do you have any further suggestions regarding the proposed approach to SEA?**

Please provide comments by 5pm on Friday July 23rd. Comments should be sent to:

Post: Phill Minas
Entec UK Ltd
17 Angel Gate
City Road
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Email: Phillip.minas@entecuk.co.uk

2. The Submarine Dismantling Project

2.1 What is the SDP?

2.1.1 Aim and Scope

The overall aim of the Submarine Dismantling Project (SDP) is to define, develop, procure and implement a timely solution for the dismantling and disposal of the UK's redundant, de-fuelled nuclear-powered submarines which inspires public confidence, is safe, environmentally responsible, secure and cost-effective. The project (which was set up in 2000 as Project ISOLUS) will provide an alternative to the continued afloat storage of the de-fuelled submarines, which will include the eventual disposal of Intermediate Level Waste (ILW) to the proposed UK ILW facility (referred to throughout this report as the UK Geological Disposal Facility, or GDF).

The scope of the SDP, which extends over a 60 year period, encompasses the following:-

- provision of facilities and expertise to dismantle the 27 de-fuelled nuclear submarines (of past and current classes[9]), re-using and recycling as much non-radiological material as possible;
- provision of interim, land-based storage facilities for the resultant ILW until at least 2040, pending the availability of the proposed UK ILW facility; and
- the eventual decommissioning of the dismantling and storage facilities used in this process.

2.1.2 What is the Background to the SDP?

When a nuclear powered submarine leaves service with the Royal Navy, a process known as De-fuel, De-equip and Lay-Up Preparation (DDLP) is undertaken. This is conducted as soon as possible, but is dependant on the availability of suitable docks and facilities. Currently, Babcock Marine at Devonport has the only nuclear Licensed site in the UK to remove the used fuel (upgraded facilities are currently being built there, and are due to come into service in 2013). The reactor is de-fueled and the fuel, the most highly radioactive material in the submarine, is removed for long-term storage at the Nuclear Decommissioning Authority (NDA) site at Sellafield, Cumbria. The remaining radioactive material (mainly irradiated steel, classed as Low and Intermediate-Level Wastes (LLW/ ILW)), is contained securely in the reactor compartment and remains in the submarine, which is stored safely afloat.

To date, 16 nuclear powered submarines have left naval service and are stored safely afloat; seven are located at Rosyth, Scotland, and nine are on the south coast of England in Devonport, five of which

[9] 6x ‘Superb’ Class; 7x ‘Trafalgar’ Class; 2x ‘Valiant’ Class; 3x ‘Churchill’ Class; HMS Dreadnought; 4x ‘Resolution’ Class; 4x ‘Vanguard’ Class.

await defueling. Whilst afloat storage has proved to be a very safe arrangement for over 20 years, it no longer fulfils MOD[10] or wider Government[11] policies, which require that nuclear decommissioning and disposal operations should be carried out "as soon as reasonably practicable." There are also issues of public perception and afloat storage capacity, which is expected to run out before 2020. The cost of maintaining the redundant submarines (all of which will be out of service by 2040) and conducting unplanned remedial work is increasing as they age, and this situation is not sustainable in the long term.

In 1998, approval was given to proceed with an in-house study into options for the interim storage of nuclear submarines following their withdrawal from service. The resulting ISOLUS Investigation Concept Phase Report[12] recommended that a land storage strategy for the ILW contained within reactor compartments was the most viable option and should be pursued. In May 2000, the recommendations of the study were accepted and Project ISOLUS was formally established. The project gained Initial Gate approval in 2002, and is currently in its Assessment Phase. In May 2009, the project was formally re-titled the Submarine Dismantling Project (SDP) to better reflect the nature of the project.

The key underpinning principles of the SDP are that:

- due to both MOD and wider Government decommissioning policies, together with storage capacity constraints, afloat storage is not a reasonable long term option;
- for defence and security reasons, the UK's redundant submarines cannot be disposed of abroad;
- all submarines will already have been de-fuelled before they are docked for dismantling;
- the GDF is not expected to be available until at least 2040, necessitating the provision of an interim ILW storage solution;
- a dockyard with sufficient depth of water will physically be required to dock and dismantle the submarines;
- all dismantling activity on the reactor compartment must take place at a site that holds an appropriate nuclear Licence and/ or Authorisation (whether this is new or an existing facility);
- most of the radiological work involved in dismantling is already established practice in submarine refitting and decommissioning of civil reactors, so there will be very few new technical procedures involved;
- the non-radiological front and rear parts of the submarine do not have to be dismantled at a nuclear Licensed or Authorised site, and could be managed at a commercial ship-breaking facility;
- the waste hierarchy will apply throughout, such that, where feasible, non-radiological materials from dismantling will be re-used or recycled (rather than be disposed of);

. [10] "MOD policy for decommissioning and the disposal of radioactive waste and residual nuclear material arising from the nuclear programme", issued 9 Oct 07.

[11] Govt policy framework: Managing Radioactive Waste Safely (MRWS), DEFRA & Devolved Administrations, 2001. 'Managing the nuclear legacy – a strategy for action.' DTI, 2002. The Decommissioning of the UK Nuclear Industry's Facilities – Amendment to Command 2919. DTI, 2004.MRWS White Paper – A Framework for Implementing Geological Disposal. 2008.

[12] The ISOLUS Investigation Concept Phase Report, issued 26 May 1999

- if the Reactor Compartment is to be stored intact, the interim ILW store will be restricted to a coastal / near-coastal site, due to transport restrictions. Storage of RPV or fully-packaged waste could, however, be more flexibly located;
- the principles of legal compliance, adopting industry good practice, openness and transparency will be fully applied to the project, and that further public consultation will be undertaken before any major decisions are made.

2.1.3 Public Consultation on SDP

Recognising the importance that public acceptability plays in the development of any solution, an iterative process of public consultation is being undertaken prior to major decisions being made. Two consultations have been held to date, conducted by independent researchers at the Centre for the Study of Environmental Change at Lancaster University:

- **Front End Consultation (FEC**): this consultation in 2001[13] was to identify what members of the public and other stakeholders considered should be taken into account when developing a solution.

- **Consultation on ISOLUS Outline Proposals (CIOP):** in 2003, four Industry groups submitted outline proposals to meet the ISOLUS/SDP requirement to the MOD[14]. These formed the subject of the CIOP, and generated a degree of controversy and criticism. The CIOP report was published in May 04; MOD's response was released through the then Minister for Defence Procurement in Feb 05[15], following extensive consultation with Other Government Departments and Devolved Administrations.

A key CIOP recommendation was that ISOLUS should be aligned with the process of the Committee on Radioactive Waste Management (CoRWM), set up by Government in November 2003 as an independent body to recommend a strategy for the long term management of the UK's legacy higher-activity solid radioactive waste. Work on identification of potential interim ILW storage sites was suspended, in order to achieve a cohesive cross-Government approach to radioactive waste management. CoRWM's report was issued on 31 July 2006[16]; Government and Devolved Administrations responded on 25 October 2006[17].

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[13] See http://www.submarinedismantling.co.uk/assets/downloads/publicconsultation/ISOLUS_consultation_report.pdf

[14] See http://www.submarinedismantling.co.uk/ConsultationCOIP.asp

[15] Min(DP)'s statement in response to the Consultation on ISOLUS Outline Proposals (CIOP), Feb 05. http://www.submarinedismantling.co.uk/assets/downloads/documentlibrary/CONSULTATION-OUTLINE-2003/02/isolus-ciop-mod-responses.pdf

[16] Managing our Radioactive Waste Safely, CoRWM's recommendations to Government, 31/07/06, http://www.corwm.org.uk/Pages/Lnk_pages/key_issues.aspx

[17] Response to the Report and Recommendations from the Committee on Radioactive Waste Management (CoRWM), By the UK Government and he devolved administrations, 25 October 2006. http://www.corwm.org.uk/Pages/Lnk_pages/key_issues.aspx

As part of a package of recommendations, CoRWM recommended geological disposal coupled with a programme of robust, safe and secure interim storage until a higher-level waste disposal facility is available. This fitted well with the strategic aims of the SDP. As a result, the MOD was able to continue developing the strategies for processing submarines and interim storage of the resultant ILW.

2.2 Key Stages, Activities and Options of the SDP

At this stage, the SDP is essentially a national programme, consisting of a number of stages:

- **Stage I: Design and Develop the Initial Submarine Dismantling Facility -** This involves providing the means (essentially the facilities, processes and personnel) to safely dock and then dismantle the nuclear elements of the 27 de-fuelled and de-equipped nuclear-powered submarines. There are generic types of land where this could take place; namely undeveloped land, previously-developed land and existing Licensed or Authorised sites. These are discussed further in Section 2.2.1.

- **Stage II: Design and Develop the Interim Storage Facility** - This involves providing the means (essentially the facilities, processes and personnel) to safely store the arising intermediate-level radioactive waste (ILW), until such time as the proposed GDF becomes available. This could take place on the three generic land types described above.

- **Stage III: Dock and Dismantle Submarines** - This involves floating and docking the de-fuelled submarines into the dismantling facility before processing them, in line with industry good practice. There are a number of technical options available for processing the submarines, and there is an opportunity to take the non-radiological fore and aft sections of the submarine to a separate, existing commercial ship recycling facility elsewhere in the UK, since these sections will not need to be processed at a nuclear Licensed or Authorised site once they have been radiologically cleared.

- **Stage IV: Reuse/ Recycle/ dispose of all wastes except ILW** - This involves maximising re-use and recycling of recovered non-radioactive materials, which will be carried out in accordance with appropriate industry good practice. Low-level radioactive waste from MOD operations is currently disposed of to the NDA's National LLW Repository in Cumbria, and continued access for SDP materials via the NDA is assumed.

- **Stage V: Move and store Reactor Compartment/ Reactor Vessel/ packaged ILW** - This involves transporting the Intermediate-Level radioactive Waste from the dismantling facility to the interim ILW store. The mode(s) of transport used to transport the ILW will depend upon the size of the packages, the location(s) of the dismantling and storage facilities and the availability of suitable transport infrastructure. The size of the intact reactor compartments is likely to severely limit opportunities for off-site transport by road or rail. Whilst the development of the proposed

GDF (and accompanying SEA) will follow a timeframe separate from the SDP proposals, the issues with the ILW eventual disposal will also be considered.

- **Stage VI: Dismantle RC/ RPV (if required); transfer packaged ILW to Geological Disposal Facility.** If the Reactor Compartment is fully dismantled at Stage III, this stage will involve transporting the fully-packaged ILW to the GDF. If, however, initial dismantling at Stage III involves separation and subsequent storage of the Reactor Compartment or the Reactor Pressure Vessel (Stage V), this Stage will see these components being dismantled to fully-packaged ILW, in a similar manner to Stage I. The fully-packaged ILW will then be transported to the GDF.

- **Stage VII: Dismantle/ dispose of SDP Facilities** - This involves safely decommissioning the dismantling and interim storage facilities described in I and II above, and returning them to a condition that is consistent with any proposed future use.

2.2.1 Stage I – Site options for Submarine Dismantling and Stage II – Site options for ILW Storage

Stage I and II are site-related, and could feasibly be undertaken on a single site (if space were available) or on separate sites. Such a site or sites would fall into one of the following generic categories:

- **Undeveloped, 'green-field' sites**. These are sites, as defined by Planning Policy Statement (PPS) 3, that have not previously been developed, such as farmland. At such a site, there would be no existing dock, facility, License or expertise to undertake the required work.

- **Previously developed, 'brown-field' sites**. These sites are defined by PPS 3 as being previously developed land which is or was occupied by a permanent structure, including curtilage and any fixed surface infrastructure. If possible, there should be sufficient existing infrastructure in place (such as a dock to accommodate the submarines), but there would be no nuclear facilities or qualified personnel available. Commercial ship-breaking facilities without a nuclear License or Authorisation would fall into this category. The non-radiological fore and aft sections of the submarine could potentially be dismantled at such a site.

- **'Existing,' nuclear-Licensed and/ or Authorised sites**. These are existing sites where specific nuclear activity/ies have been Licensed or approved[18] by the UK nuclear regulators, and where suitable nuclear expertise exists. There are only a relatively small number (around 40) of such 'existing' nuclear Licensed or Authorised sites in the UK. These sites are owned by MOD, the UK Nuclear Decommissioning Authority (NDA) and commercial operators.

[18] It is important to note the distinction that it is the undertaking of the nuclear activity per se, rather than the site itself, that is approved, although the term "Authorised/ Licensed site" is commonly used. This option encompasses MOD Authorised sites, Nuclear Decommissioning Authority Authorised sites and commercially-owned, Licensed sites.

The assessment will therefore consider the environmental effects associated with developing each of these generic site types for the dismantling facility/ies and for interim ILW storage. However, as the location of the dismantling and interim storage sites will be a determining factor in the nature and scale of the subsequent environmental effects (especially in relation to EU-designated sites), it will be necessary to identify the list of credible sites within the scope of the SEA.

An indicative list of credible sites is being developed using criteria derived from the project's requirements and taking into account the underpinning principles at section 2.1.2, the proposed environmental criteria and the responses of scoping consultees to this report.

This report will then be updated to include the indicative list of credible sites (and associated baseline data) and forwarded to scoping consultees for further consideration. The criteria that have given rise to the indicative list of credible sites will also be referred to scoping consultees as part of this further consideration but will certainly include:

- **Dismantling sites** (whether publicly or privately owned) would have to be on a coastal site to allow direct submarine access, be big enough to reasonably accept the required facilities plus the largest boat, and hold (or reasonably be capable of gaining) a nuclear License or Authorisation.
- **Storage sites** must be safely accessible for the form of the waste being transported.

Following this further scoping consultation, the scope of the SEA will be confirmed and the assessment will be undertaken on the 'reasonable alternative' options (including specific credible sites).

The environmental impacts associated with depositing LLW or ILW in National repositories will not be assessed, as these have been (or will be) subject to environmental assessment by the NDA and so are outside the scope of the SDP**.**

2.2.2 Technical Options for Processing the Submarines (Stage III)

The SDP's technical options concern the extent to which the reactor compartment is deconstructed upon initial dismantling, which will determine the form of the resulting radioactive waste and affect the design of the interim store. Three such 'technical options' for managing the Reactor Compartment have been considered:

- **Storage of the Intact Reactor Compartment (RC)** would entail cutting out and removing the entire RC from the submarine hull following withdrawal from service and laid up storage. The rest of the submarine would be dismantled using standard commercial 'ship breaking' processes. This is the current approach adopted by the USA, Russian Federation and France. The RCs would be stored, intact, on land until at least 2040, after which the GDF is assumed to be available. Only at that point would the RC be fully dismantled (as described in Stage VI). ILW would be packaged into appropriate containers for transfer to the GDF, whilst the LLW arisings would be suitably packaged and transported to the National LLW Repository (the current disposal route for such

wastes). Dose reduction measures would be applied to demonstrate the application of As Low As is Reasonable Practicable (ALARP) to minimise occupational dose during dismantling.

- **Storage of the Reactor Pressure Vessel (RPV) and Packaged ILW** - this would entail cutting into the RC and removing the Reactor Pressure Vessel (RPV), which would then be stored intact. The other components of the RC would be fully dismantled, and the low-level radioactive wastes would be packaged and transported to the LLW Repository. Once the GDF becomes available, the stored RPV would be dismantled (as described in Stage VI) and the radioactive wastes sent for long-term storage. Dose reduction measures would be applied to demonstrate the application of As Low As is Reasonable Practicable (ALARP) to minimise occupational dose during dismantling.

- **Storage of Fully-Packaged ILW** - this would entail full processing of both the RC and the RPV 'up front,' prior to interim storage. LLW would be packaged and transferred to the national LLW facility, while ILW would be suitably packaged into compliant containers and then stored on land at the interim store until the GDF becomes available. Dose reduction measures would be applied to demonstrate the application of ALARP to minimise occupational dose during dismantling.

Note that all of these options require complete dismantling of the reactor compartment to allow the ILW to be placed in the GDF – the significant difference is when this will be completed. RC and RPV storage would mean deferring full dismantling and processing of ILW until some point in the future, when the GDF becomes available.

MOD is currently reviewing these options to determine which is the most practicable, delivers best value for money and should therefore become the proposed solution. The results of this assessment will be presented in the forthcoming public consultation, alongside all other supporting studies. These options were previously subject to public consultation through the FEC and CIOP. However, it is considered appropriate to consult on them again now, because the definition of these technical options and the supporting evidence have both matured significantly since those earlier consultations.

Detailed assessment will be undertaken, and the safety case proven, through the development of a Demonstrator, which will prove the industrial process by dismantling at least one submarine. The key decisions on the Demonstrator (including location) will not be taken until after the public consultation has been completed and feedback has been assessed.

Dismantling the Non-Radiological Fore and Aft Sections

The non-radiological front and rear sections of the submarine (which form the bulk of each vessel) do not need to be dismantled at a Licensed or Authorised site. This creates the options of i) undertaking all the dismantling work at the selected Licensed/ Authorised site; or ii) undertaking the nuclear work at this facility, and sending the remaining boat sections to a commercial ship-breaking facility elsewhere in the UK, which may present opportunities to maximise value for money. It is not proposed to include assessment of any commercial ship-breaking sites within the SEA.

2.2.3 Assessment of Stages IV-VII

Stages IV-VI will be subject to a 'generic' level of assessment, in line with SEA requirements:-

- **Stage IV: Recycle/ Dispose of all Wastes except ILW -** Unlike the ILW elements, the optimum disposal route for the non-nuclear elements of the submarine (which form the bulk of the craft) will follow proven industry good practice procedures for 'ship-breaking' and for managing the resulting recyclate and waste streams. It is not considered reasonable or necessary to assess any alternative to such well-established standards. Additionally, the current disposal route for the UK's LLW is well established (with a repository for MOD LLW in operation); future disposal options have now been set out at national level[19]. It is not considered 'reasonable' or necessary to consider alternative options to this established process.

- **Stage V: Move and store RC/ RPV/ packaged ILW -** The optimum form(s) of transport will be largely determined by the physical form of the waste (e.g. as an intact RC or as fully-packaged ILW) and by the physical characteristics and transport links of the processing and storage site(s). Whilst consideration will be concentrated on the generic impacts of transport by road, rail and sea/ waterways, the feasible transport links associated with proposed sites (and any relevant environmental issues) will be considered further during the detailed assessment.

- **Stage VI: Dismantle RC/ RPV (if required); transfer packaged ILW to Geological Disposal Facility.** The potential environmental effects associated with dismantling the stored RC or RPV in the future will be covered by the generic assessment of Stages I and II, as the processes and issues are expected to be very similar. The optimum form(s) of transport for the packaged ILW will be constrained by the physical characteristics and transport links of the processing and storage site(s). The same considerations as Stage V above will be included in the assessment.

- **Stage VII: Decommission SDP Facilities** - The processing facility will be operational until around 2046, and the interim storage facility until at least 2040. Since decommissioning is so far in the future, there are significant uncertainties about the nature and magnitude of any environmental effects. More detailed assessment at this stage would therefore not be meaningful. The environmental impacts of decommissioning the facilities will be minimised at design stage through the application of the MOD 'POEMS[20]' EMS process.

2.3 Summary

The proposed application of SEA to the activities is summarised in Table **2.1.** The SEA will firstly consider the generic environmental effects associated with each stage of the SDP. This assessment will

[19] Policy for the Long-Term Management of Solid Low-Level Radioactive Waste in the United Kingdom. Publ. Defra, DTI & Devolved Administrations; 26 March 2007.

[20] MOD Project Orientated Environmental Management System

be followed by assessment of the effects that could arise from dismantling and storing ILW on specific feasible sites.

Table 2.1 Summary of the Level of Assessment for the Key Stages of the SDP

Key Stages of the Submarine Dismantling Project	Proposed Generic Level SEA Assessment for the SDP's strategic options	Proposed Site Level SEA Assessment for the SDP's strategic options
Stage I: Develop the initial dismantling facility on an undeveloped 'green-field' site, a developed 'brown-field' site or an 'existing' Licensed or Authorised nuclear site	Assessment of each generic site category	Assessment(s) of credible sites (expected to fall within the 'existing' Licensed/ Authorised site category).
Stage II: Develop of the interim storage facility for the reactor compartment, reactor pressure vessel or packaged ILW on an undeveloped 'green-field' site, a developed 'brown-field' site or an existing Licensed or Authorised nuclear site	Assessment of each generic site category	Assessment(s) of credible sites (expected to fall within the 'existing' Licensed/ Authorised site category).
Stage III: Dock and dismantle submarines	Generic assessment of each technical option.	N/A
Stage IV: Reuse/ recycle/ dispose all materials except ILW	Generic assessment of the process.	N/A
Stage V: Transport ILW to the interim storage facility	Generic assessment of the process,	Consideration of site-specific issues where relevant.
Stage VI: Dismantle RC/ RPV (if required); transfer packaged ILW to Geological Disposal Facility (ca. 2040) on	Generic assessment of the process.	N/A
Stage VII: Decommission and dismantle/ dispose of SDP facilities once all submarines have been disposed of	Generic assessment of the process.	N/A

Relative assessment of individual candidate sites will clearly contain more detail than the generic assessments, since site-specific information will be available. Whichever site(s) are eventually chosen, further site-specific environmental assessments will be needed before any development can take place. We expect that these will include (but not be limited to) Town & Country Planning Environmental Impact Assessment, Environmental Impact Assessment for Nuclear Decommissioning and Environmental Permitting[21].

[21] The Town & Country Planning (Environmental Impact Assessment) (Amendment) (England) Regulations 2008, plus devolved equivalents; the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999; and the Environmental Permitting Regulations 2010

The SDP public consultation documents will provide detailed explanations as to why certain candidate sites have been selected as potentially suitable (and hence included in the SEA), whilst others been discounted. These will be summarised in the environmental report.

These choices are presented within the context that indefinite afloat storage of redundant submarines (the 'do minimum' option) is not a reasonable long-term solution for the United Kingdom. As a result, the 'do minimum' option will be used as a baseline comparator in the SEA and not be subject to assessment in its own right, as a 'reasonable alternative.' This option will also be used as a baseline comparator in the wider public consultation process.

3. Baseline Information

3.1 Introduction

An essential part of the SEA process is to identify the current state of the environment and its likely evolution following a 'business as usual' scenario. It is only with sufficient knowledge of the existing baseline conditions that the key potential effects of the SDP proposals can be identified, characterised and assessed. The SEA also requires that the actual effects of implementing the SDP on the baseline are also monitored.

Annex I of the SEA Directive requires that the subsequent assessment (to be contained in the Environmental Report) should include information on the "*likely significant effects on the environment, including on issues such as: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape; and the inter-relationship between the issues referred to*". In order to support a comprehensive assessment of potential effects, a baseline for each of these environmental categories has been considered. **Table 3.1** presents how the proposed categories used in this report are consistent with the SEA Directive requirements.

Consistent with the requirements of Annex 1 (b), (c) and (d) of the SEA Directive, this section (**Section 3)** and **Annex A** set out summaries for each SEA category on:

- relevant aspects of the current state of the environment;
- the likely evolution of these baseline conditions without the implementation of the SDP; and
- characteristics and current problems in areas of particular environmental importance.

Table 3.1 Scope of Effects Considered by SDP Scoping Report

Annex I SEA Directive Effects	Categories Considered by SDP Scoping
Biodiversity, Flora and Fauna	Biodiversity and Nature Conservation
Population	Population including socio-economic effects
Human Health	Human Health and Wellbeing
	Human Health (Noise)
Soil	Soil and Geology
Water	Water
Air	Air
Climatic factors	Climate Change and Energy Use
Material assets	Material assets (Transport)

Annex I SEA Directive Effects	Categories Considered by SDP Scoping
	Material assets (Waste Management)
	Material assets (Land Use and Materials)
Cultural heritage, including architectural and archaeological heritage	Cultural heritage, including architectural and archaeological heritage
Landscape	Landscape and Townscape

The baseline data for this generic Scoping Report (**Annex A**) has been collected at the UK national level, which provides a contextual overview of the state of the nation in each category area. This will be used to inform the assessment of the generic issues associated with the implementation of stages I to VII of the SDP.

Baseline data at sub-regional level will be will be scoped, consulted upon, and then used to inform the assessment of the 'credible existing site' options for dismantling and storage, to be reported in the environmental report. This information will give more detailed information on local conditions and trends, particularly for Special Areas of Conservation (SAC) and Special Protection Areas (SPA) designated under Directive 79/409/EEC and 92/43/EEC[22].

3.2 National Baseline Data

Annex A provides a summary of the current and projected National baseline for each SEA category, taken from Annex I of the Directive. Information has been used from a variety of sources including Defra, the Environment Agency, Natural England and the Office of National Statistics. On occasion for some of the categories within the national baseline, there are specific data that we have not been able to identify. Where this occurs, this has been identified and consultee support is welcomed in identifying suitable sources of the outstanding information.

3.3 Key Baseline Issues

From an analysis of the baseline, its current problems and its evolution, the following issues have been identified as being particularly significant for the SDP. Under each topic, the reference to the assessment objectives indicates how these issues have been reflected within the assessment methodology (detailed in **Section 6**).

[22] A European Site is any classified SPA and any SAC from the point where the Commission and the Government agree the site as a Site of Community Importance.

3.3.1 Key Biodiversity and Nature Conservation Issues

- Areas already covered by European designations and SSSIs are predominantly well managed and improving in condition. However protected species and habitats outside of such areas are more vulnerable and often in decline. Protected habitats and species (such as sensitive coastal locations) may affect where and how SDP activities can take place.

These issues are reflected in the assessment process though Objective A (Biodiversity and Nature Conservation),Objective D (Noise and Vibration), Objective F (Water), Objective G (Air), Objective H (Climate Change and Energy Use), Objective K (Land Use and Materials) And Objective M (Landscape and Townscape).

3.3.2 Key Population and Socio-Economic Issues

- The UK population is growing; however, there is a decline in those of working age and those with requisite civil or defence-related nuclear skills and experience. This may affect when and where the SDP's radiological activities can feasibly take place.
- The UK economy is in recovery; however unemployment rates are rising and may continue to rise beyond 2010. Deprivation continues to exist in many communities, both in remote areas and inner cities.
- Budget constraints may affect current delivery plans, in line with the situation for wider national and local government.
- Defence activity generally brings positive economic impacts around its facilities and bases, due to relatively stable employment levels and inward investment.

These issues are reflected in the assessment process though links with Objective B (Population).

3.3.3 Key Health Issues for the SEA

- Health problems associated with radiological exposure are generally a minor issue in the UK; the great majority of the average public dose comes from natural sources of radiation, although testing and accidental releases do contribute to this. Background levels of natural radiation vary considerably from area to area, and any additional industrial exposure may be an important issue for those communities who are already exposed to high background levels.
- Any radiological activity poses a remote risk of accidental release into the environment, which has the potential to affect health.
- Health inequalities exist in many communities, often exacerbated by poor access to, or use of, existing health services.

These issues are reflected in the assessment process though links with Objective C (Health and Wellbeing).

3.3.4 Key Human Health (Noise) Issues

- Ambient noise levels are gradually increasing in the UK as a result of an increasing – and increasingly mobile – population. Noise nuisance is a highly subjective issue; however the cumulative impacts of noise on sensitive groups in local communities may create or exacerbate existing health issues.

These issues are reflected in the assessment process though links with Objective D (Noise and Vibration), Objective I (Transport) and Objective A (Biodiversity and Nature Conservation).

3.3.5 Key Soils and Geology Issues

- Significant areas across the UK carry a burden of contamination from industrial activity, although this is progressively being cleaned up as sites are redeveloped. Redeveloping such contaminated sites can be expensive if remediation is required.
- Development or disturbance of contaminated sites carries the risk of pollution pathways being created or re-opened for any existing ground contamination.
- Many coastal sites (especially in the south and east of the country) are already prone to erosion, due to a combination of unstable underlying geology, rising sea levels and increasing storminess.

These issues are reflected in the assessment process though links with Objective E (Geology and Soils), Objective K (Land Use and Materials) and Objective F (Water).

3.3.6 Key Water Issues

- Between 1985 and 2005, UK radioactive emissions to water fell by 87% and that trend is on-going. The majority of UK coastal waters (around 94%) conform to the requirements of the Water Framework Directive.
- The majority of UK inland waters are now in good biological and chemical condition (72% and 76% respectively). However, climate change and the effects of an increasing population are placing growing pressure on the availability and quality of surface and ground-water resources. In some parts of the country, availability of sufficient water supplies may constrain future development.
- Sea levels are rising, with worst case scenarios of a 1.9m increase in sea level by 2100 (up to 0.76m more likely). The south and east of England will experience the greatest rises, due to the additional effects of post-glacial rebalancing.

These issues are reflected in the assessment process though links with Objective F (Water), Objective H (Climate Change and Energy Use) and Objective A (Biodiversity and Nature Conservation).

3.3.7 Key Air Issues

- Air quality is generally improving in the UK due to controls on industrial emissions and the loss of heavy industry. Between 1985 and 2005, UK radioactive emissions to the atmosphere fell by 83% and that trend is on-going. However, poor air quality – particularly from vehicles – remains a significant issue for community health and for biodiversity, especially in/ downwind of urban areas and major transport networks. Air pollution is a significant cause of decline in the condition of 55 of UK SSSIs.

These issues are reflected in the assessment process though links with Objective G (Air), Objective A (Biodiversity and Nature Conservation) and Objective C (Health and Wellbeing).

3.3.8 Key Climate Change and Energy Issues

- Energy security is becoming a significant emerging issue for the United Kingdom as national fossil fuel resources are depleted; the development of the energy National Policy Statement and sub-level NPSs is attempting to address these issues. This (currently) recommends development of low/ zero carbon sources, including new nuclear power facilities.

- Despite the fact that UK greenhouse gas emissions are falling, the predicted effects of climate change (including increasing temperatures, more/ less rainfall and increasing storminess) may have a significant impact on where and how submarine dismantling can take place.

- The UK national target of an 80% cut in greenhouse gas emissions by 2050 (compared to 1990 levels) is beginning to affect all MOD activities; this will include the design and execution of SDP activity.

These issues are reflected in the assessment process though links with Objective H (Climate Change and Energy Use), Objective A (Biodiversity and Nature Conservation) and Objective F (Water).

3.3.9 Key Material Assets (Transport) Issues

- The UK has major road, rail, air and water transport infrastructures. However, all are under increasing pressure as the population increases and becomes more mobile, and as networks age.

- The transport of radiological materials by road and rail in the UK has an excellent safety record; nevertheless, any transport of such materials off-site carries a remote risk of accidental damage.

These issues are reflected in the assessment process though links with Objective I (Transport).

3.3.10 Key Material Assets (Waste Management) Issues

- In 2007, defence accounted for 2% of UK total radiological waste arisings. The SDP will however add to the accumulation of ILW and LLW in the UK that will need to be disposed of.

- There is currently no centralised UK higher-level radioactive waste storage capacity; intermediate-level waste (ILW) is generally stored at or close to the point of generation. The delivery of a national, centralised disposal capability is being planned.

- Reuse and recycling are increasingly being adopted in the waste industry. However, there are still high levels of waste being disposed of, with limited opportunity for recycling hazardous materials.

These issues are reflected in the assessment process though links with Objective J (Waste Management) and Objective K (Land Use and Materials).

3.3.11 Key Material Assets (Land Use and Materials) Issues

- Although only 5.6% of UK land is currently 'built up,' regional development targets (which aim to deliver 3 million new homes by 2020) are placing significant pressure on undeveloped land and the green-belt, as brown-field sites cannot fully deliver the requirements.

- The Defence Estate strategy is driving progressive reductions in the amount of MOD-owned land across the UK; this may impact the availability of defence land for SDP activity.

These issues are reflected in the assessment process though links with Objective K (Land Use and Materials) and Objective A (Biodiversity and Nature Conservation).

3.3.12 Key Cultural Heritage Issues

- The MOD is responsible for a significant number of designated cultural heritage sites and features (782 listed buildings and 723 scheduled monuments). Appropriate management has resulted in over 80% of these now being in good or fair condition.

These issues are reflected in the assessment process though links with Objective L (Cultural Heritage) and Objective M (Landscape and Townscape).

3.3.13 Key Landscape and Townscape Issues

- The UK has many important and protected landscapes which may be sensitive to development. The character of the UK's landscapes are broadly being maintained, however 20% show signs of neglect.

- The natural environment of the UK is much less 'rich' than 50 years ago and remains under pressure from more intense use of the land and sea; continuing economic development, climate change and increased public access.

These issues are reflected in the assessment process though links with Objective M (Landscape and Townscape), Objective A (Biodiversity and Nature Conservation) and Objective L (Cultural Heritage).

4. Review of Plans, Programmes and Environmental Protection Objectives

This section outlines the environmental protection objectives established at International, European, or UK level which are relevant to the SDP. A full review of plans and programmes is provided in **Annex B.** Information relevant to individual areas will also be presented in the scoping report update, and in the SEA Environmental Report.

4.1 Review of Plans and Programmes

The SEA scoping process needs to identify and review other relevant plans, programmes, policies and strategies (herein after referred to as 'plans and programmes') that are applicable to the SDP and outline the nature of the project's relationship with them. They are set at an international, European or national level covering a variety of topics (including spatial and resource planning). **Annex B** contains the review of the plans and programmes relevant to the SDP.

4.2 Key Environmental Protection Objectives

From the review of these plans and programmes, a number of key environmental protection objectives have been identified. These are summarised below, along with an indication of where the policy objectives are reflected in the SEA assessment objectives (discussed further in **Section 6.1)**. The key objectives and policy messages have been structured around the environmental categories taken from SEA Directive Annex I issues (and used to structure the baseline information in the previous section).

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
Biodiversity and Nature Conservation		
International / European EC Habitats Directive (Directive 92/43/EEC) places a legal requirement on EU countries to make provision for the protection of specified habitats and species. This is achieved through the designation of Special Areas of Conservation. European Commission (1979) (79/409/EEC) Directive on the Conservation of Wild Birds makes it a legal requirement that EU countries make provision for the protection of birds. This includes the selection and designation of Special Protection Areas. Ramsar Convention on Wetlands (1971) requires national designation of protected Ramsar sites and an obligation to include wetland conservation consideration in land-use planning. OSPAR Commission (2003) Biological Diversity and Ecosystems Strategy seeks to protect and enhance the ecosystems and the biological diversity of the maritime area, which are, or could be, affected as a result of human activities. Environmental Liability Directive 2004/35/EC seeks to achieve the prevention and remedying of environmental damage - specifically, damage to habitats and species protected by EC law, and to species or habitat on a site of special scientific interest for which the site has been notified.	To protect international/European protected wildlife areas (including SACs, SPAs and Ramsar sites). To contribute to the conservation of global biodiversity. To ensure that the conservation and enhancement of natural heritage including wetland conservation is reflected in land use planning. To protect and enhance the ecosystems and the biological diversity of the maritime areas. To ensure the conservation of biodiversity in order to continue to harness the derived health and wellbeing benefits for the population. To identify where operators are financially liable for threats of or actual damage to the environment under the “polluter pays” principle. To anticipate, prevent and act on causes of significant reduction or loss of biodiversity.	Objective A Biodiversity and Nature Conservation Objective C Health, and Wellbeing
National The Conservation (Natural Habitats, &c.) Regulations (1994) require sites of importance to habitats or species to be designated. This includes the establishment of Special Areas of Conservation (SAC). Any impact on such designated sites or listed species must be considered in regards to planning permission applications. The Wildlife and Countryside Act 1981 provides legislation on the protection of named floral and faunal species and the network of nationally protected wildlife areas: Sites of Special Scientific Interest (SSSI) and Special Protection Areas (SPA) for birds. The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 make provision for the conservation of wild birds and for the protection of offshore marine areas beyond 12 nautical miles from the UK coast. ODPM (2005). PPS9: Biodiversity and Geological Conservation sets out key planning considerations and guidance in relation to biodiversity including that: planning decisions should aim to maintain, and enhance, restore or add to biodiversity conservation interests. DCLG (2010) Consultation Paper a new Planning Policy Statement: Planning for a Natural and Health Environment sets out proposed policies in relation to landscape protection, soil and agricultural land quality, forestry, coastal access, heritage coast and the undeveloped coast.	To conserve and enhance biological diversity within the UK. To ensure that the quality of habitats and biodiversity is enhanced or at least conserved and take account of key priority habitats and species in decision making. To protect of the network of nationally protected wildlife areas (including SSSIs). To protect marine biodiversity with UK jurisdiction, both within and beyond UK territorial waters.	

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
MOD MOD Sustainable Development Strategy 2008 and the MOD Sustainable Development Report and Action Plan (SDRAP) 2008 details the MOD's sustainable development principles and commitments. It supersedes and embeds the government-wide Sustainable Development in Government (SDiG) agenda and Sustainable Operations on the Government Estate (SOGE) targets. The MOD Sustainable Operations on the Government Estate (SOGE): Strategic Statement on Biodiversity details the MOD's on-going commitments to managing biodiversity. MOD JSP 418, leaflet 10 – Marine Environmental Legislation – gives a framework for the operation of coastal defence sites.	To conserve, and where appropriate, enhance biodiversity as part of estate ownership, to contribute to the UK commitment to halt the loss of biodiversity by 2010 and onwards, whilst ensuring the provision of defence capabilities. To achieve this aim the MOD will be an exemplar in the management of designated sites where compatible with military requirements; ensure natural environment requirements and best practice are fully integrated into estate management practices; and contribute, as appropriate, to the UK BAP and County biodiversity strategies.	
Population		
International / European United Nations (2001) Aarhus Convention: Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters. European Directive 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment (SEA Directive) outlines public consultation requirements. European Commission. European Employment Strategy aims to achieve: full employment, quality and productivity at work and promote inclusion by addressing disparities in access to labour markets. Integrated Guideline for Growth and Jobs 2008-11, Commission of the European Communities (Committee on Economic and Monetary Affairs, 2007) outlines guiding employment principles.	To grants public rights to information, public participation and access to justice. To undertake appropriate consultation with consultation bodies and the public during the SEA process. To achieve economic development and reduction of inequalities whilst adhering to the principles of social and environmental justice and sustainable development. To promote full employment, quality and productivity at work and promoting inclusion by addressing disparities in access to labour markets. To promote the economic development of disadvantaged areas within the European Union.	Objective B Population Objective C Health, and Wellbeing
National ODPM (2001) A New Commitment to Neighbourhood Renewal: National Strategy Action Plan sets out the Government's vision for narrowing the gap between deprived neighbourhoods and the rest of the country. Strong and prosperous communities Local Government White Paper (2006) aims to provide strong, prosperous communities and delivering better public services. DCLG (2009) Planning Policy Statement 4: Planning for Sustainable Economic Growth sets out planning policies for economic development and seeks to raise the productivity of the UK economy and maximise job opportunities. PSA Delivery Agreement 1: Raise the Productivity of the UK Economy (HM Government, 2007) aims to raise the	To create strong, prosperous communities and deliver better public services. To narrow the gap between deprived neighbourhoods and the rest of the country. To achieve economic development and reduction of inequalities whilst adhering to the principles of social and environmental justice and sustainable development. To create places shaped by their communities where people are proud to live. To raise the productivity of the UK economy, maximise job opportunities, improve economic performance and reduce the gap in economic growth rates between regions. To deliver sustainable development; build prosperous	

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
rate of the UK's productivity growth over the economic cycle. Planning for a Sustainable Future: White Paper (2007) outlines sustainable economic and employment objectives. MOD, Joint Service Publication (JSP) 434 – Defence Construction in the Built Environment aims to provide best value for MOD development.	communities; promote regeneration; and tackle deprivation. To ensure more and better jobs as a result of sustainable economic development To promote the vitality and viability of town and other centres as important places for communities To create inclusive and locally distinctive rural communities whilst continuing to protect the open countryside for the benefit of all To raise the quality of life and the environment in rural areas by promoting thriving	
MOD MOD Sustainable Development Strategy 2008 and the MOD Sustainable Development Report and Action Plan (SDRAP) 2008 detail the MOD's sustainable development principles and commitments.	The delivery of Defence capability will contribute to the creation of more sustainable UK communities, and an environment in which people can fulfil their potential. To deliver this aim the MOD will: • Help build the skills of young people. • Create a workforce that is drawn from the breadth of society and ensure that the unique contribution of every individual in that workplace is respected and valued. • Provide a safe and healthy workplace. • Manage the social impacts of Defence activities on UK communities (civilian and Armed Forces). • To improve effectiveness within the context of practicality, achievability and value for money on an ongoing basis. • To provide economic, environmental and social justification for any decision to procure new facilities as opposed to the re-use of existing facilities. • Ensure that procurement strategies take full account of economic, environmental and social impacts.	
Human Health		
International / European World Health Organization European Centre for Environment and Health (2001), Health impact assessment in strategic environmental assessment (World Health Organization, Rome) provides a review of Health Impact Assessment concepts, methods and practice to support the development of a protocol on Strategic Environmental Assessment. 'Together for Health – A Strategic Approach for the EU 2008-2013' aims to foster good health in an ageing Europe.	To ensure children have safe water and clean air. To ensure that measures to improve the health and wellbeing of the population are appropriately supported. To preserve, protect and improve the quality of the environment and to protect human health. To promote good health throughout the lifespan of the population. Support Dynamic Health Systems and New Technologies.	Objective C Health, and Wellbeing Objective B Population

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
	To reduce inequities in health.	
National Department of Health (2003) Tackling Health Inequalities: A Programme for Action aims to: support families; improve social housing, education and access to services; and reduce unemployment and low incomes amongst the poorest. Department of Health (1999) Saving Lives: Our Healthier Nation White Paper aims to improve health across the UK. Health and Safety Commission, A Strategy for Workplace Health and Safety in Great Britain to 2010 and beyond aims to promote a strong health and safety culture in the workplace. Health Effects of Climate Change in the UK 2008 – An update of the Department of Health Report 2001/2002 provides measures to mitigate the effects of climate change on health.	To ensure that measures to improve the health and wellbeing of the population are appropriately supported To provide health related information to the public and help create a stronger voice for patients, service users and members of the public at a national level. To improve access to resources to improve health particularly in disadvantaged communities. To improve the health of everyone and in particular the health of the worst off. To improve social housing and reduced fuel poverty among vulnerable populations.	
MOD MOD Sustainable Development Strategy 2008 MOD Sustainable Development Report and Action Plan (SDRAP) 2008 Secretary of State's Policy Statement on Safety, Health, Environmental Protection and Sustainable Development in the Ministry of Defence (2009) MOD JSP 375, MOD Health and Safety Handbook implements top-level H&S policy. MOD JSP 392, Radiation Safety Handbook (2008) Provides MOD policy on the safe management of radiation. MOD JSP 418, leaflet 14 – Radiation - gives the framework for the safe environmental management of ionising radiation.	In addition to the MOD SD Action Plan targets detailed above in Population, the Secretary of State's policy statement requires the department to avoid work-related fatalities and minimise work-related injuries and ill-health. To comply with the letter and the spirit of UK environmental law applicable to ionising radiations so far as is reasonably practicable regardless of any Crown or Defence Exemptions. To reduce exposure of the workforce, members of the public and the environment to levels of radiation which are as low as reasonably practicable (ALARP).	
Human Health (Noise)		
International / European EU Sixth Environmental Action Plan (2002 – 2012) includes a long term objective to reduce the number of people regularly affected by long-term high noise levels. EU Directive (2002) 2002/49/EC Relating to the Assessment and Management of Environmental Noise – The Environmental Noise Directive aims to define a common approach to avoid, prevent or reduce the harmful effects of environmental noise WHO (2000) Transport, Environment and Health notes that road users generate noise which causes excessive costs to themselves, other individuals and society.	To prevent critical health effects as a result of high levels of noise in and around dwellings. To promote transport systems that do not generate noise levels which may have negative effects on human health. To avoid, prevent or reduce the harmful effects including annoyance due to exposure to environmental noise.	Objective D Health (Noise and Vibration) Objective C Health, and Wellbeing

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
National Environmental Protection Act 1990 defines the legal framework for duty of care for statutory nuisance including noise. ODPM (1994) PPG 24 Planning and Noise gives guidance on the use of their planning powers to minimise the adverse impact of noise.	To minimise the adverse impact of noise without placing unreasonable restrictions on development or adding unduly to the costs and administrative burdens of business. To ensure noise reduction occurs where there may be adverse impacts of noise on human health or protected species. To incorporate noise reduction measures in the construction of rail guided transport systems.	
MOD The MoD has an exemption from the Statutory Nuisance provisions of the Environmental Protection Act 1990 for operational activities directly related to national security. MOD, Joint Service Publication (JSP) 418, Sustainable Development and Environment Manual leaflet 15 – Statutory Nuisance – gives the framework for the control of environmental noise. The Secretary of State's Policy Statement on Safety, Health, Environmental Protection and Sustainable Development gives the framework for controlling workplace noise.	To and minimise work-related injuries and ill-health. To reduce and where possible avoid the effects and causes of statutory nuisance and to comply with all relevant UK environmental legislation. MOD establishments are not allowed to create excessive noise liable to cause a nuisance as part of activities not directly connected with the operation of equipment, training of personnel or other military operations. To make every effort to keep the disturbance to the public caused by the noise generated by military activity to a minimum. Where possible, activities generating substantial noise will be kept at a distance from residential areas, and night time activity will be limited to achieving training objectives which cannot be met during the day.	
Soil and Geology		
International / European EC (2006) Framework for the protection of soil (amending Directive 2004/35/EC) sets out requirements for the protection and classification of soil environments. EC (1991) Nitrates Directive (91/676/EEC) sets out designations and actions in relation to land draining to waters that are affected by nitrate pollution.	To ensure that soil resources are protected and that expansion of organic farmland and adoption sustainable farming techniques can be facilitated. To protect soil on the basis of the principles of: preservation of soil functions; prevention of soil degradation; mitigation of its effects; and restoration of degraded soils. To take precautionary measures where soil function may be affected. To identify areas at risk of erosion, organic matter decline, salinisation, compaction and landslides. To limit the introduction of dangerous substances into the soil, to avoid accumulation in soil that would hamper soil functions and create a risk to human health and the environment.	Objective E Geology and Soils Objective C Health, and Wellbeing Objective A Biodiversity and Nature Conservation

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
National ODPM (2005). PPS9: Biodiversity and Geological Conservation sets out planning principles in relation to conservation of geological features. 1995 Environment Act aims to protect and preserve the environment and guard against pollution to land including soils. Contaminated Land (England) Regulations 2006 SI 1380 (also equivalents for Scotland, Wales and N.Ireland) sets out provisions relating to the identification and remediation of contaminated land. Identifies sites requiring regulation as 'special sites' and adds land contaminated by radioactive substances to this classification. DCLG (2010) Consultation Paper a new Planning Policy Statement: Planning for a Natural and Health Environment sets out proposed policies in relation to landscape protection, soil and agricultural land quality, forestry, coastal access, heritage coast and the undeveloped coast.	To ensure development takes a strategic approach to the conservation, enhancement and restoration of geology; and where appropriate incorporate design features to beneficial geological features. To ensure contaminated land is identified and remediated where appropriate. To protect and preserve the environment and guard against pollution to land. To preserve, where possible, the best and most versatile agricultural land	
MOD MOD Sustainable Development Strategy 2008 MOD Sustainable Development Report and Action Plan (SDRAP) 2008 MOD JSP 418, leaflet 2 – Land Contamination – gives the framework for the control of contaminated land. MOD JSP 418, leaflet 14 – Radiation - gives the framework for safely managing land contaminated with sources of ionising radiation.	To establish a complete picture of risks associated with land quality across the Defence Estate and have in place robust mechanisms for managing those risks to an acceptable level. To maintain a Corporate EMS based on ISO 14001 across the Estate. …to maintain a view of the impacts of MOD activities and the impact of land quality on MOD activities.	
Water		
International / European European Commission (2000) The Water Framework Directive which establishes a framework for the protection of inland surface waters, transitional waters, coastal water and groundwater. Groundwater Directive (80/68/EEC) which aims to prevent the pollution of groundwater. EU Marine Strategy Framework Directive Marine Strategy Framework Directive (June 2008) aims is to protect the marine environment across Europe to protect the resource base upon which marine-related economic and social activities depend. Drinking Water Directive (98/83/EC) aims to protect the quality of drinking waster across the EU. EU Floods Directive – On the assessment and management of flood risks (2007) aims to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity.	To ensure that the water and ecological quality of freshwater and marine environments is enhanced and at least conserved. To ensure sustainable use of water resources and reduced pollution and physical impacts. To facilitate the integrated management of both the coastal zone and River Basin Districts to ensure sustainable use and protection of resources. To encourage the sustainable use of water resources and protect: aquatic ecology, drinking water, and bathing waters. To provide information to the public on bathing water quality. To protect the environment from the adverse effects of urban waste water discharges and discharges from industrial processes. To prevent the pollution of groundwater. To protect the marine environment across Europe.	Objective F Water Objective C Health, and Wellbeing Objective L Cultural Heritage Objective H Climate Change and Energy Use Objective A Biodiversity and Nature Conservation

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
	To protect the health of European water consumers To reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity.	
National Environment Agency (2009) Water for people and the environment – Water resources strategy for England and Wales. Future Water, the Government's Water Strategy for England (Feb 08) sets out objectives for water management and quality to 2030. DCLG (2006) PPS25: Development and Flood Risk aims to ensure that flood risk is taken into account at all stages in the planning process. DCLG (2010) Planning Policy Statement 25 Supplement: Development and Coastal Change sets out planning policies for managing development on coastal areas affected by coastal change. UK Strategy for Radioactive Discharges 2001-2020 (published by Defra in July 2002) aims is to prevent pollution of the maritime area covered by the OSPAR Convention from ionising radiation.	To protect the water environment in a way that allows it to adjust flexibly to changing climate. To reduce pressure on the environment caused by water taken for human use; promote water use efficiency; and protect vital water supply infrastructure. To reduce the threat of flooding to people and their property; avoid inappropriate development in areas at risk of flooding; and sustainably manage risks from flooding and coastal erosion. To improve the coastal environment particularly in urbanised or despoiled areas. To improve quality of the UK water environment and the ecology which it supports To prevent pollution of the maritime area covered by the OSPAR Convention from ionising radiation. To ensure that policies and decisions in coastal areas are based on an understanding of coastal change over time To prevent new development from being put at risk from coastal change	
MOD MOD Sustainable Development Strategy 2008 MOD Sustainable Development Report and Action Plan (SDRAP) 2008 MOD JSP 418, leaflet 19 – Water Pollution Land – gives the framework for the protection of water from pollution. MOD JSP 418, leaflet 10 – Marine Environmental Legislation – gives a framework for the operation of coastal defence sites.	To ensure all MOD sites become more water efficient to comply with Government and MOD targets. To conduct activities in accordance with government policy and to comply with the letter and spirit of environmental law. To support the aims and objectives of the UK Marine Bill, with exceptions negotiated solely to support operational capability or retain classified information.	
Air		
International / European EC Ambient Air Quality and Cleaner Air for Europe (2008) (Directive 2008/50/EC) defines and establishes objectives for ambient air quality to avoid, prevent or reduce harmful effects on human health and the environment. European Commission (1996) Air Quality Framework Directive (Directive 96/62/EC) sets mandatory limits or reductions for 11 air pollutants. EU Thematic Strategy on Air Quality (2005) sets out the CAFÉ Programme which aims to establish a longterm,	To promote cleaner transport technologies and manage the demand for transport to prevent detrimental effects to human health from air pollution. To ensure that air quality is enhanced or at least maintained and ensure that measures are adopted to support continued air quality standards To monitor and reduce trans-boundary atmospheric pollution. To ensure that information on ambient air quality is made	Objective G Air Objective C Health, and Wellbeing Objective I Transport Objective A Biodiversity and Nature

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
integrated strategy to tackle air pollution. WHO (2005) Health Effects of Transport-Related Air Pollution notes that an increase in car use across the world disproportionately affects the most vulnerable social groups.	available to the public. To maintain air quality where it is good and improving it in other cases. To attain levels of air quality that do not give rise to significant negative impacts on and risks to human health and the environment.	Conservation
National Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007) identifies potential national policy measures which modelling indicates could give health benefits. Air Quality Regulations 2000 and The Air Quality (Amendment) Regulations 2002 sets out the air quality objectives for the UK for various air pollutants. 1995 Environment Act aims to protect and preserve the environment and guard against pollution to air.	To align with the principles of sustainable development and the importance of controlling and minimising pollution. To protect and preserve the environment and guard against pollution to air.	
MOD MOD Sustainable Development Strategy 2008 MOD Sustainable Development Report and Action Plan (SDRAP) 2008 The MoD has an exemption from the Statutory Nuisance provisions of the Environmental Protection Act 1990 for operational activities directly related to national security. MOD JSP 418, leaflet 9 – Local Air Quality – and Leaflet 15 - Statutory Nuisance – give the framework for the control of air quality from MOD activities.	To comply with the provisions of relevant environmental legislation and work towards reducing the Department's contributions to, and impacts of, air pollution. Crown exemption remains for smoke, but for training and operational purposes only. To ensure all establishments operating prescribed processes (that would require an Environmental Permit) comply with the letter and spirit of the statutory requirements. To minimise gaseous and particulate emissions, particularly where they include heavy metals or other substances on the Red List of substances considered particularly harmful in water. To ensure vehicles comply with emission limits. To ensure vessels in harbour or close to shore comply with Clean Air legislation.	
Climate Change and Energy Use		
International / European United Nations (1997) The UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol to the UNFCCC sets targeted reductions in greenhouse gas emissions. EU Sixth Environmental Action Plan (2002 – 2012) takes a broad look at the environmental challenges and provides a strategic framework for the Commission's environmental policy up to 2012 including issues of climate change. 2020 Climate and Energy Package (EC, 2008) sets out far-reaching proposals aims to deliver the EU's commitments to fight climate change and promote renewable energy up to 2020.	To prevent "dangerous" human interference with the climate system, namely through reductions in the emissions of greenhouse gases. To promote renewable energy sources. To promote sustainable development with regards to: energy development, efficiency and consumption, transportation, industrial development, terrestrial and marine resource development and land use. To reduce emissions of carbon dioxide and combat the serious threat of climate change. To help transform Europe into a low-carbon economy and	Objective H Climate Change and Energy Objective G Air Objective B Population Objective F Water Objective A Biodiversity and Nature Conservation

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
	increase its energy security. To ensure that energy efficiency measures are put in place and, where possible, renewables are employed to contribute to appropriate Climate Change targets.	
National UK Climate Change Act 2008 set out a transition towards a low carbon economy in the UK and sets binding targets to achieve an 80% reduction in UK carbon emissions by 2050 (against 1990 baseline). Stern Review of the Economics of Climate Change (2007) sets out a wide range of evidence on the impacts of climate change and on the economic costs. DCLG (2007) Planning Policy Statement: Planning and Climate Change – Supplement to Planning Policy Statement 1 aims to deliver sustainable development, and in doing so a full and appropriate response on climate change. DECC (2009) The UK Low Carbon Transition Plan: National Strategy for Climate and Energy ODPM (2004) PPS22: Renewable Energy aims to encourage positive planning which facilitates renewable energy developments.	To improve carbon management and help the transition towards a low carbon economy. To promote climate change risk management in all aspects of business to ensure future resilience for communities, businesses and the environment. To pursue new development in places that are resilient to climate change; and in ways that are consistent with social cohesion and inclusion. To conserve and enhance biodiversity, recognising that the distribution of habitats and species will be affected by climate change. To reduce energy consumption, minimise detrimental effects on the climate from greenhouse gases and maximise resilience to climate change.	
MOD MOD Sustainable Development Strategy 2008 MOD Sustainable Development Report and Action Plan (SDRAP) 2008. MOD JSP 418, leaflet 4 – MOD Climate change Strategy – gives the framework for the control of climate change impacts from, and upon, MOD activities.	To be a leader amongst UK Government departments and Defence departments in EU and NATO States in the sustained reduction of CO_2 and other GHG emissions, and to ensure the continued delivery of Defence capability in a changing climate. To ensure that the emissions of the GHGs that result from defence activities are continually reduced, such that Defence will eventually not be a significant contributor to the causes of climate change. To agree and implement an effective process to enable Defence activities to continually adapt to a changing climate, such that Defence capability is not compromised and any potential benefits from the future climate are realised. To reduce dependency on fossil fuels by ensuring that military equipment, estate and services are energy efficient and use low or zero-carbon energy sources where practicable.	
Material Assets (Transport)		
International / European European Transport Policy for 2010: A Time to Decide (EC, 2001) outlines the need to improve the quality and effectiveness of transport in Europe. WHO (2000) Transport, Environment and Health notes that road users generate excessive costs to themselves, other individuals and society - through noise, pollution	To promote renewable energy usage in transport systems. To promote healthy and sustainable transport alternatives. To improve the quality and effectiveness of transport in	Objective I Transport Objective C Health, and Wellbeing Objective A Biodiversity and

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
and accidents.	Europe.	Nature Conservation Objective B Population
National PPG13 Transport (DfT, 2001) sets out guidance in relation to transport systems. DfT (2008) Delivering a Sustainable Transport System (DaSTS) aims to promote sustainable transport in the UK. DfT (2008) Carbon Pathways: Informing Development of a Carbon Reduction Strategy for Transport aims to promote low carbon transport in the UK. (DfT, 2004)The Future of Transport White Paper – A Network for 2030 sets out the vision for transport for the following 30 years that can meet the challenges of a growing economy and the increasing demand for travel, but that can also achieve environmental objectives. HM Government (2007) PSA Delivery Agreement 5: Deliver Reliable and Efficient Transport Networks that Support Economic Growth sets out a framework for investment in transport to support sustainable economic growth.	To reduce transport's emissions of CO2 and other greenhouse gases, with the desired outcome of minimising climate change. To reduce the risk of death, injury or illness arising from transport, and promote travel modes that are beneficial to health. To promote greater equality of transport opportunity for all citizens, To improve journey time reliability on the strategic road network To improve experiences of travel and reduce barriers to travel by different modes of transport. To support national economic competitiveness and growth, by delivering reliable and efficient transport networks	
MOD MOD Sustainable Development Strategy 2008 MOD Sustainable Development Report and Action Plan (SDRAP) 2008. MOD JSP 418, leaflet 16 – Travel and Transport - - gives the framework for managing the environmental impacts of defence-related transport. MOD JSP 418, leaflet 4 – MOD Climate Change Strategy - gives the framework for achieving greater efficiencies in MOD transport.	To continually reduce emissions from air, road and rail business admin travel by MOD personnel. To reduce the use of marine, land and aviation fuels as much as reasonably practicable, without impacting on operational capability, while at the same time assessing the viability of alternatives to these fuels. To develop a Defence Travel Emissions Strategy with targets and actions for all modes of transport. To reduce dependency on fossil fuels by ensuring that military equipment, estate and services are energy efficient and use low or zero-carbon energy sources where practicable. To eliminate all sources of fluorinated greenhouse gasses and ozone-depleting substances as soon as is technically and economically feasible. The development of a Defence Travel Emissions Strategy in 2009 will bring with it targets and actions for modes of business transport other than road transport.	
Material Assets (Waste Management)		
International / European European Commission (2008) Waste Framework Directive (Directive 2008/98/EC) lays down waste management principles such as the "polluter pays principle" or the "waste hierarchy". EU Thematic Strategy on the Prevention and Recycling of Waste (2002-2012) (to be reviewed in 2010) Council Directive establishing a Community framework for the nuclear safety of nuclear installations [23/06/2009]	To ensure that waste reduction is at the forefront of waste management and where disposal is unavoidable ensure a high level of protection for the environment and human health. To adopt waste management principles such as the "polluter pays principle" and the "waste hierarchy". To protect human health and the environment against harmful effects caused by the collection, transport,	Objective J Waste Objective C Health, and Wellbeing Objective A Biodiversity and Nature

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
establishes a Community framework to maintain and promote the continuous improvement of nuclear safety and its regulation. Shipments of radioactive waste (Directive 92/3/Euratom) established a system of control and prior authorisation for shipments of radioactive waste, to protect the health of workers and the general public and to avoid illicit traffic of such materials.	treatment, storage and tipping of waste. To help Europe become a recycling society that seeks to avoid waste and uses waste as a resource. To achieve and maintain a high level of nuclear safety through the enhancement of national measures and technical cooperation. To establish and maintain effective defences against radiological hazards in nuclear installations in order to protect people and the environment, etc. To prevent nuclear accidents and limit their consequences.	
National ODPM (2005) PPS10 Planning for Sustainable Waste Management sets out key planning objectives for waste management. Ionising Radiations Regulations 1999 SI 3232 requires employers to protect employees and other people against ionising radiation arising from work with radioactive substances and other sources of ionising radiation. Radioactive Material (Road Transport) (Amendment) Regulations 2003 SI 1867 sets out measures to regulate the transportation of radioactive material by road.	To decouple waste growth (in all sectors) from economic growth and put more emphasis on waste prevention and re-use. To increase diversion from landfill of municipal and non-municipal waste and secure better integration of treatment for all waste. To increase recycling of resources and recovery of energy from residual waste using a mix of technologies. To ensure waste is disposed of as near as possible to the place of production. To ensure the layout and design of new development should support sustainable waste management. To ensure workers and the public are protected from ionising radiation. To ensure radioactive material is safely transported.	
MOD MOD Sustainable Waste Management Strategy 2007 details MOD's vision for sustainable waste management (excluding explosive and radiological wastes). MOD Sustainable Development Strategy 2008 MOD Sustainable Development Report and Action Plan (SDRAP) 2008 updates the above strategy. MOD JSP 418, leaflet 18 –Waste Management- gives the framework for managing defence-related wastes. MOD JSP 418, leaflet 14 – Radiation – gives the framework for the safe environmental management of ionising radiation. MOD JSP 392, Radiation Safety Handbook (2008) Provides MOD policy on the safe management of radioactive wastes.	To recover and recycle more waste than we send to landfill by 2012. To become a zero waste to landfill organisation by 2020. To justify the use of ionising radiations before their introduction and to reduce exposure of the workforce, members of the public and the environment to levels which are as low as reasonably practicable (ALARP). The production of all waste streams (both hazardous and non-hazardous waste) from all units and/or establishments must be reduced and minimised. To manage waste in accordance with the Waste Hierarchy and waste management options must move to the preferred options of waste reduction and re-use.	

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
Material Assets (Land Use and Materials)		
International / European European Sustainable Development Strategy (2006) aims to promote sustainable consumption and production. United Nations World Summit on Sustainable Development, Johannesburg (2002) Commitments arising from Johannesburg Summit proposes broad principles which should underlie sustainable development and growth.	To adopt a sustainable approach to land use though consideration of: economic development, social inclusion, environmental protection and prudent use of resources. To promote establishment of a multi centre regional organisation structures and balanced urban system.	Objective K Land Use and Materials Objective B Population Objective A Biodiversity and Nature
National ODPM (2005) Planning Policy Statement (PPS) 1: Delivering Sustainable Development sets out the Government's vision for planning, and the key policies and principles that should underpin the planning system. ODPM (2004) PPS7: Sustainable Development in Rural Areas sets out Government objectives for rural area. UK Government Sustainable Procurement Action Plan (2007) aims for a sustainably built and managed central government estate that minimises carbon emissions, waste and water consumption and increases energy efficiency. UK Government Sustainable Development Strategy: Securing the Future (2005) and the UK's Shared Framework for Sustainable Development, One Future – Different Paths (2005) set out guiding sustainability principles for the UK.	To improve housing affordability in the market sector and ensure appropriate social housing availability. To develop and support successful, thriving, safer and inclusive urban and rural communities. To promote and enhance existing centres, by focusing development in such centres and encouraging a wide range of services in a good environment, accessible to all. To encourage well-designed and greener homes, linked to good schools, transport and healthcare. To promote development of previously developed land. To achieve a sustainably built and managed central government estate that minimises carbon emissions, waste and water consumption and increases energy efficiency. To achieve sustainably built and managed properties and roads throughout the public sector. To implement government supply-chains and public services that are increasingly low carbon, low waste and water efficient, which respect biodiversity and deliver wider sustainable development goals. To adopt an integrated approach to sustainable development which includes: economic development; social inclusion; environmental protection; and prudent use of resources. To engage in positive planning and proactive management of development, rather than simply regulation and control. To have a planning system this is transparent, accessible and accountable. To promote more sustainable patterns of development. To raise the quality of life and the environment in rural areas.	

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
MOD MOD Sustainable Development Strategy 2008 MOD Sustainable Development Report and Action Plan (SDRAP) 2008. MOD JSP 418, Chapter 17 – Sustainable Procurement – details MOD policy on materials and supply chain integrity. MOD JSP 434, Defence Construction in the Built Environment MOD Sustainable Procurement Strategy 2009 (in draft)	To procure, use and dispose of its estate, equipment, goods and services in a way that meets Government sustainable development objectives and targets, whilst ensuring the continued effective delivery of Defence capability. To become a national leader in sustainable procurement by 2009. To embed Sustainable Procurement in all aspects of MOD acquisition and throughout the Defence supply chain. To deliver sustainable defence buildings (through the application of Office of Government Commerce (OGC) minimum procurement standards, including the application of BREEAM standards or equivalent. To improve effectiveness within the context of practicality, achievability and value for money on an ongoing basis. To provide economic, environmental and social justification for any decision to procure new facilities as opposed to the re-use of existing facilities. To ensure that procurement strategies take full account of economic, environmental and social impacts.	
Cultural Heritage		
International / European European Convention on the Protection of the Archaeological Heritage 1992 establishes archaeological definitions and protection. UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage (1972) defines the natural or cultural sites which can be considered for inscription on the World Heritage List.	To identify, protect and preserving potential sites of World Heritage. To protect and sustain the historic environment for the benefit of current and future generations To identify and protect important heritage features. To collect and disseminate scientific information on cultural and archaeological heritage to aid conservation and public awareness.	Objective L Cultural Heritage

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
National ODPM (1994) PPG15: Planning and the Historic Environment makes provision for the protection of the historic environment. ODPM (1990) PPG16: Archaeology and Planning outlines guidance in relation to archaeological protection. Ancient Monuments and Archaeological Areas Act (1979) provides for the scheduling of ancient monuments and protection of archaeological sites. The Planning (Listed Buildings and Conservation Areas) Act (1990) outlines the level of protection received by listed buildings, scheduled monuments and buildings within conservation areas. Protection of Wrecks Act 1973 makes provision for the protection of heritage features associated with wrecks on the seabed. English Heritage: Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (2008) provides guidance on all aspects of England's historic environment.	To protect listed buildings, scheduled monuments and buildings within conservation areas. To protect and promote stewardship of the historic environment. To promote positive planning and management to bring about sensible solutions to the treatment of sites with archaeological remains and to reduce the areas of potential conflict between development and preservation. To adopt a presumption in favour of the physical preservation of nationally important archaeological remains and their settings, whether scheduled or not. To protect shipwreck features of historical, archaeological or artistic importance. To safeguard internationally and nationally designated historically or culturally significant sites.	
MOD MOD Sustainable Development Strategy 2008 MOD Sustainable Development Report and Action Plan (SDRAP) 2008. MOD SOGE Strategic Statement on Heritage.	To conserve and enhance the historic environment for the benefit of future generations and to reflect the ethos and heritage of the MOD. To promote the sustainable use of our historic environment, in recognition of its importance as an integral part of cultural heritage and the role it plays in supporting defence capability. Adopt the Department for Culture Media and Sport's Protocol for the Care of the Historic Government Estate. Where responsibility for management of historic property is transferred to the private sector, for example through PPP/PFI arrangements, the Protocol standards will be incorporated into contractual arrangements.	
Landscape and Townscape		
International / European European Landscape Convention of 2000 promotes protection, management and planning of landscapes throughout Europe.	Ensure that development is 'appropriate' particularly in relation to protected landscapes. To protect, manage and plan landscapes throughout Europe.	Objective N Landscape and Townscape Objective A Biodiversity and Nature Conservation Objective B Population

SEA Topic Key Plans and Programmes (see Annex B for full list)	Summary Objectives and Policy Messages (see Annex B for full list)	SEA objectives link (see Section 6.1)
National PPG 2: Green Belts (ODPM, 1995, Amended 2001) provides guidance on maintaining and enhancing attractive landscapes. ODPM (2002) PPG17: Planning for Open Space, Sport and Recreation provides guidance on the development of managed open areas. The Natural Environment and Rural Communities (NERC) Act 2006 makes provisions about the natural environment and rural communities. DCLG (2010) Consultation Paper a new Planning Policy Statement: Planning for a Natural and Health Environment sets out proposed policies in relation to landscape protection, soil and agricultural land quality, forestry, coastal access, heritage coast and the undeveloped coast.	To provide public access to the countryside and promote sustainable farming and protection of wildlife. To retain attractive landscapes, and enhance landscapes near to where people live. To improve damaged and derelict land around towns. To retain land in agricultural, forestry and related uses.	
MOD MOD, Joint Service Publication (JSP) 362 - Defence Lands Handbook aims to set out defence estate management policy.	To promote the objectives of statutory designated areas (National Parks and AONBs) wherever possible. In respect of landscape designations, reasonable measures should be undertaken to mitigate the impacts of any development proposals on landscape character. Management of sites should seek to maintain the character of the landscape by safeguarding and, where practicable, enhancing or developing significant landscape features.	

5. Scoping the Potentially Significant Environmental Effects of the SDP

This section sets out the potentially significant environmental issues of the SDP, which will be considered in more detail in the subsequent stages of the SEA. The effects outlined below are indicative and illustrate those issues that are likely to be determined as relevant during the assessment phase. Information is presented for construction, operation and decommissioning phases and includes reference to all six stages of the SDP. In many cases, potentially significant effects can only be considered in general terms, as detailed site specific information will not be determined until later tiers of environmental assessment, such as EIA or Habitats Regulation assessment are undertaken.

Where appropriate, the opportunity to scope out specific effects which are not considered relevant, or for which no effects are anticipated, is identified. However, issues (or topics) may be scoped in at later stages in the assessment process as additional information emerges. In this way, the scoping stage is seen as an ongoing and iterative process and as the SDP is developed, alternatives are considered and opinions expressed during consultation are reviewed.

5.1 Biodiversity and Nature Conservation

The significance of any local construction effects to biodiversity, flora or fauna will depend upon site location relative to sensitive local receptors. Such effects will generally be uncertain until specific sites are identified.

5.1.1 Construction Phase

- Internationally and nationally important biodiversity sites are only likely to be significantly affected if there are adverse effects to the conservation features (whether a habitat or species) that underpin the reasons for the designation. Levels of disturbance to designated sites could increase from SDP construction. Where the potential for any adverse effect on the conservation objectives of a European designated site could arise, individual proposals will be subject to a Habitat Regulations Assessment and formal discussion with the relevant statutory conservation body (e.g. Natural England, Scottish Natural Heritage or the Countryside Council for Wales).

- Construction of new or upgraded facilities may have an indirect impact on habitats and species through supply chain impacts, for example through the sourcing of mineral, aggregate or timber resources. Such potentially significant effects from resource use are therefore scoped in for further assessment.

- Both land take and construction disturbance effects (such as noise or dust) are likely to be of greater magnitude where ‘green-field’ or ‘wild’ brown-field sites, as opposed to developed or existing Licensed/ Authorised sites are developed. Land take effects on localised biodiversity, flora and fauna are likely to be permanent; whilst construction disturbance effects are likely to be of short duration and can be mitigated. The degree to which both land take and disturbance

effects are significant will depend on factors including: the scale of construction required and the proximity to protected species or habitats. Both potentially significant effects from land take and construction disturbance are therefore scoped in for further assessment.

- The construction phase may require large material movements with consequent impacts on biodiversity, flora and fauna adjoining local transport networks. Such effects are likely to be of short duration and which can be mitigated, but are scoped in for further assessment.

- Potentially significant effects to biodiversity, flora and fauna may also occur due to accidental discharges to water, air or land either from materials used during construction, or from the creation of new pollution pathways for existing contaminants on the site. Such potentially significant effects are therefore scoped in for further assessment.

5.1.2 Operation Phase

- Operational activities at the dismantling site will be closely regulated and subject to stringent health and safety standards. To a large extent these measures will also safeguard local biodiversity. However, this does not provide a basis for scoping potentially significant effects out of further assessment, so they are scoped in on a precautionary basis.

- Operational activities resulting in elevated disturbance levels (such as noise or vibration) are likely to be sustained throughout the submarine dismantling process, but are unlikely to have a large radius of effect. Such disturbance is likely to be associated with the operation of plant and power tools, and will be similar in nature to current refit and repair activities. Although environmental measures would necessarily be in place to manage disturbance, potentially significant effects are scoped in on a precautionary basis.

- Operational discharges of both radioactive and non-radioactive liquids, gases and solid wastes (including dusts) will largely be managed through environmental permitting regimes, so there is little risk of significant effects on biodiversity from normal operations. Nevertheless, the potential for significant effects are scoped in for further assessment, due the potential for the receiving environment to be sensitive and/or protected.

- Removal or cut up of the reactor compartment carry a remote risk of unforeseen accidental discharges of both radioactive and non-radioactive contaminants to water, air or land, which could affect biodiversity. Potentially significant effects from accidental discharges are therefore scoped in for further assessment.

- Dismantling and interim storage will both entail the use of transport. Activity will be relatively small in magnitude relative to local and national transport levels, but sustained throughout the operational phase. Potentially significant effects on biodiversity from transport (including the remote risk of accident) are scoped in for further assessment in the ‘transport’ section.

- Once the RC, RPV or packaged ILW has been placed into interim storage, it is assumed that there will be limited activity at the site until the GDF becomes available and the waste is processed and/ or moved. Potential effects from operation of the interim storage site are associated with on-site transport, movement of storage containers and potential further processing of the RC or RPV. Potential effects from accidental discharges are therefore scoped in for further assessment.

- Interim storage will be closely regulated and subject to stringent health and safety standards. However, there is a remote risk of accidental emissions from unforeseen breaches of storage containers coupled with pollutant pathways into the air, land or water. Such potentially significant effects to biodiversity are therefore scoped in for further assessment.

5.1.3 Decommissioning Phase

- Decommissioning of the dismantling and interim storage facilities (following the movement of stored radioactive wastes to a permanent disposal facility) will have similar impacts to those of the construction phase (such as dust, wastes and noise). Although these are unlikely to have a significant effect on biodiversity the issue is scoped in for further assessment on a precautionary basis.

5.2 Population

The significance of effects on local populations are likely to depend upon site location, the nature of the adjacent community, prevailing economic conditions, labour market conditions and the workforce skills required. Such effects will generally be uncertain until specific sites are identified.

5.2.1 Construction Phase

- The construction phase will undoubtedly require labour. Effects on employment from the construction phase are therefore scoped in for further assessment.

- The construction of the dismantling and interim storage facilities is unlikely to require significant development of specialist construction skills. The potential for significant effects to local skills development is therefore not taken forward for further assessment.

- The construction phase may require large material movements, with consequent effects on populations adjoining local transport networks. These are likely to be of short duration and can be mitigated, but are scoped in for further assessment on a precautionary basis.

- The construction required for both the dismantling and interim storage facilities is likely to require significant investment in products, services and people. It is expected that such investment would benefit local economies and service providers; however, it will depend upon the scale and duration of the proposals, the level of investment, procurement practices, the site location, prevailing economic conditions and labour market conditions. Potentially significant effects on local economies are therefore scoped in for further assessment.

- Effects to the wider economy may also be significant and construction may take advantage of products and services from across the UK. The potential significant effects to the wider economy are therefore scoped in for further assessment.

5.2.2 Operation Phase

- The operational phase will create and support jobs, skills development and inward investment, in proportion to the scale of the operations themselves. This is expected to be greatest for the dismantling operation, which will require a mix of manual, semi-skilled and skilled workers. Potential effects of job creation and inward investment are therefore scoped in for further assessment.

- The proximity of industrial operations to deprived communities may exacerbate existing deprivation issues. Potential effects on deprivation levels of communities already suffering from single or multiple deprivations are therefore scoped in for further assessment.

- SDP activities could create additional demands on local community infrastructure (depending on the number of additional employment opportunities created, the extent to which the additional employment opportunities will be met by local people and the circumstances of each employee). Potentially significant effects to local service provision requirements are therefore scoped in for further assessment.

- Operational activities (including transport) may result in increased levels of disturbance from noise or traffic. Such disturbance is likely to be sustained throughout the dismantling process, but is unlikely to have a large radius of effect. Although controls measures would necessarily be in place to minimise disturbance, the potential for significant effects on local populations is scoped in.

5.2.3 Decommissioning Phase

- In the long-term, there may be a reduction in investment, skills development and employment opportunities once the SDP is complete. Such effects are not likely to be significant, due to the transferable skills associated with those roles. Potentially significant effects from long-term labour market changes on completion of the SDP are therefore not taken forward for further assessment.

- Decommissioning of the dismantling and interim storage facilities may create additional disturbance for local populations, through additional through traffic, noise, dust etc. The scale of the impact will depend on the size and complexity of the facilities. Such disturbance is likely to be sustained throughout the decommissioning process, but is unlikely to have a large radius of effect. Although measures would necessarily be in place to manage levels and durations of disturbance; the potential for significant effects is scoped in on a precautionary basis.

5.3 Human Health

The significance of any local construction effects to human health will depend upon site location and nature relative to sensitive local receptors. Such effects will generally be uncertain until specific sites are identified.

5.3.1 Construction Phase

- The construction of the dismantling and the interim storage facilities is not expected to have any potentially significant health and safety risks beyond those encountered on a normal construction

project, since all standard precautions will be taken to safeguard workers and the public. However, this issue is scoped in for further assessment on a precautionary basis.

- The construction phase may require large material movements on and off site, with consequent implications for health and safety, particularly adjoining local transport networks. Such effects are likely to be of short duration and can be minimised, but are scoped in for further assessment on a precautionary basis.

- There is a remote risk of health effects from accidental discharges of construction-related materials to water, air or land, or from the creation of new pollution pathways for existing contaminants on the site (for example where contaminated land or sediment is disturbed). Such effects are therefore scoped in for further assessment.

5.3.2 Operation Phase

- Operational activities at the dismantling site will be closely regulated and subject to stringent health and safety standards. However, this does not provide a basis for *unilaterally* scoping potentially significant effects associated with 'normal' operations out of further assessment. Each issue should be considered on its merits.

Dismantling

- Dismantling operations on the reactor compartment will result in those workers involved being exposed to ionising radiation, although this is not expected to be as high as for day-to-day operations on in-service submarines due to radioactive decay in the laid-up submarines. No elevated exposure is expected under normal conditions for other workers in the area or for the wider community. The potential for effects on workers health is scoped in for further assessment.

- Operational discharges of liquids, gases and solid wastes to the environment will be closely managed through environmental permitting regimes; such discharges are therefore unlikely to have any significant effects on people's health. However, the importance of perceived risks to health from radiological discharges means that the potential for significant effects to occur must be scoped in for further consideration.

- Dismantling activities always carry a remote risk of unforeseen accidental discharges of radioactive or non-radioactive contaminants, which could potentially affect the health of workers and the local population. The effects of such accidental discharge are therefore scoped in for further assessment, on a precautionary basis.

Transport

- Dismantling and interim storage will both require transport activities, the nature of which will be dictated by the form of the waste. Such activities are likely to be small in magnitude relative to local and national transport levels, but sustained throughout the operational phase. Transport carries health and safety implications, particularly for workers and the communities adjoining transport networks. Such effects are likely to be of short duration and can be minimised, but are scoped in for further assessment on a precautionary basis.

- The transport of radioactive materials to the interim storage site will be strictly regulated and subject to stringent packaging and health and safety requirements to prevent workers or the public

from being injured or exposed to any accidental emissions from radioactive material. There is always a remote risk of an accident resulting in injury or release of harmful materials or radiation into the environment. Nevertheless, the importance of safety issues, particularly for radioactive materials, necessitates this issue to be scoped in for further assessment on a precautionary basis.

Storage

- Once the RC, RPV or packaged ILW has been placed into interim storage, it is assumed that there will be limited activity at the site until the GDF becomes available and the waste is processed and/ or moved. Potential effects from operation of the interim storage site are associated with on-site transport, movement of storage containers and potential further processing of the RC or RPV.

- These operational activities are strictly controlled by health and safety requirements to prevent workers or the public from being injured or exposed to radiation. Nevertheless, the importance of safety issues, particularly for radioactive materials, necessitates this issue to be scoped in for further assessment on a precautionary basis.

5.3.3 Decommissioning Phase

- Decommissioning may lead to an increase in permitted and unforeseen discharges of dusts, effluent and run-off to the environment. The scale of the impact will depend on the size and complexity of the facilities. Operational discharges to the environment will be managed through environmental permitting regimes in force at the time; such discharges are therefore very unlikely to have any significant effects on health. Again, however, the importance of safety issues necessitates this issue to be scoped in for further assessment.

5.4 Human Health (Noise)

The significance of noise impact will depend upon site location relative to local populations and other sensitive local receptors. Such effects will generally be uncertain until sites are identified.

5.4.1 Construction Phase

- Use of plant and tools has the potential to generate levels of noise which may have health and safety implications for construction works and site visitors. However, statutory construction health and safety requirements will require noise minimisation and appropriate safety equipment to be used, including the use of ear defenders. Potential significant effects to workers and site visitors from construction noise are therefore not taken forward for further assessment.

- Construction is expected to generate similar noise levels to any industrial construction project, with effects being relatively localised. Although standard noise reduction measures would need to be employed to reduce levels of disturbance where required, the potential for health effects from construction noise are scoped in for further assessment.

- The construction phase may require large material movements with consequent impacts on noise levels adjoining local transport networks. Such potential significant effects are likely to be of short duration and reversible, but are scoped in for further assessment.

5.4.2 Operation Phase

- As for the construction phase, occupational noise levels may be significant. However, health and safety requirements will again require appropriate mitigation measures to be taken before operations can proceed. Potential significant effects on workers and site visitors are therefore not assessed further.

- Operational activities (including transportation) may result in elevated noise levels (e.g. through the use of grinding and cutting tools, pressure hammers etc) throughout the submarine dismantling process. These are likely to be localised in nature and not have a large radius of effect. However, in combination with other noise from local industry, traffic etc. they may be locally significant. Although measures will be taken to minimise noise disturbance, the potential for health effects are scoped in for further assessment on a precautionary basis.

- Interim storage is unlikely to generate levels of noise that could significantly affect worker or public human heath. However any further processing may do so, as detailed above. Potential effects from on-site activity at the interim storage site are therefore are therefore scoped in for further assessment.

Decommissioning Phase

- Decommissioning of the dismantling and interim storage facilities is expected to generate similar noise levels to those encountered on a normal demolition project, with the duration of disturbance proportional to the size and complexity of the facilities. Any effects are likely to be localised in nature. However, in combination with other noise from local industry, traffic etc. they may be locally significant. Although measures will be taken to minimise noise disturbance, the potential for health effects are scoped in for further assessment on a precautionary basis.

5.5 Soil and Geology

The significance of construction on soils and geology will depend upon site location relative to sensitive local receptors. Such effects will generally be uncertain until specific sites are identified.

5.5.1 Construction Phase

- It is unclear at this stage whether development of the dismantling or interim storage sites (which are planned to be on-surface facilities) would directly affect any geological SSSI features or Regionally-Important Geological Sites. This will become clearer once the indicative site list is clarified. This issue is therefore scoped in for further assessment.

- Development is likely to result in permanent loss of the soil resource. The degree to which these effects are significant will depend on factors including the scale of construction, the amount of permanent land take and the importance of soil type affected. Effects will be greater where the soil has been activity used, for example agricultural use on green-field, as opposed to brown-field, sites. Potentially significant effects from land take are therefore scoped in for further assessment.

- There is a small risk of significant effects on the soil from accidental discharges to land (including via air or water) during construction. There is also a risk of new pollution pathways being created for existing contaminants on the site. This risk is greater for an existing site or previously-developed land where contaminated land or sediment could be disturbed. The potential for significant effects are therefore scoped in for further assessment.

- There is a risk that construction, demolition or change of use may affect land stability and/ or erosion rates, on- or off-site. The nature of the effects will depend on the geology and physical nature of the area, the size of the development and the extent to which piling and other invasive construction techniques are used. Such potential effects are therefore scoped in for further assessment.

5.5.2 Operation Phase

- Operational discharges of radioactive and non-radioactive liquids, gases and/or solid wastes will be strictly managed through permitting regimes. Such discharges are therefore unlikely to cause significant effects on the soil resource or geological features and are not considered further.

- Dismantling activities always carry a remote risk of unforeseen accidental discharges of radioactive or non-radioactive contaminants to land. The effects on such an accidental discharge are therefore scoped in for further assessment, on a precautionary basis.

- Operational activities associated with interim storage will be limited and are unlikely to significantly affect soils or geology. However, any further processing may do so, as detailed above. Potential effects from on-site activity at the interim storage site are therefore are therefore scoped in for further assessment.

- Although the interim storage site will be closely regulated, there remains a remote risk of an unforeseen breach of the storage containers, which could potentially affect land. Such potentially significant effects are therefore scoped in for further assessment, on a precautionary basis.

5.5.3 Decommissioning Phase

- Decommissioning may lead to an increase in discharges of dusts, effluent, solid wastes and run-off to the soil. The scale of the impact will depend on the size and complexity of the facilities. Discharges will be managed through environmental permitting regimes in force at the time, minimising the risk of significant impact from ‘normal’ decommissioning operations; however the possible risk of unforeseen discharges necessitates this issue to be scoped in.

5.6 Water

The significance of any effects on water resources and the water environment will depend upon site location relative to sensitive local receptors. Such effects will generally be uncertain until specific sites are identified.

5.6.1 Construction Phase

- Construction activities will necessarily involve the discharge of waste water and run-off. Although required surface and ground water control and protection measures would be employed during construction, there remains the possibility that water quality in streams, rivers, inshore waters or aquifers could be affected. Potential effects on water quality are therefore scoped in for further assessment.

- Development will lead to increased land-take, with development of green-field sites likely to lead to a relatively higher increase in runoff rates (and subsequent flood risk) than developing a previously-developed site. The degree to which development increases local flood risk will depend on factors including the scale of construction, the elevation, topography and geology of the site, the local water infrastructure and projected rain-fall. The potential for development to increase local flood risk is therefore scoped in for further assessment.

- Construction activities have the potential to be affected by flooding. This may result in flood damage to facilities, disruption of activity or the potential mobilisation of hazardous material both on and off site. Flood risk assessments will inform site selection and appropriate flood defence measures will be used; however the potential effects of flooding at dismantling and disposal construction sites are scoped in for further assessment.

- There is a risk of significant effects from accidental discharges (including via air or land) of construction materials or excavated soil or sediment. This is a particular risk where dredging activities are required. There is also a risk of new pollution pathways being created for existing contaminants on the site (especially for previously-developed land where contaminated land or sediment could be disturbed). The potential for significant effects are therefore scoped in for further assessment.

- There is a small risk of significant effects on the water environment from accidental discharges to land (including via air or water) during construction. There is also a risk of existing pollution becoming mobilised. This risk is greater for an existing site or previously-developed land where contaminated land or sediment could be disturbed. The potential for significant effects are therefore scoped in for further assessment.

5.6.2 Operation Phase

- SDP operations will both use and discharge fresh water. Depending on the nature and scale of operations, this may have an indirect effect on water resources, particularly in dryer areas or those with existing drainage capacity problems. The effects of water use and discharge are therefore scoped in for further assessment.

- Operational activities may be affected by flooding, particularly in low-lying and/or coastal areas. This may result in flood damage to facilities, disruption of activity or the potential mobilisation of hazardous materials (although all radioactive materials would necessarily be held safely in a sealed and water-tight environment). Appropriate flood defence measures will be incorporated into site designs; nevertheless, the effects of flooding are scoped in for further assessment.

- Operational discharges of both radioactive and non-radioactive liquids, gases and solid wastes will be strictly managed through environmental permitting regimes. Such discharges are therefore

unlikely to cause significant effects on the water environment; nevertheless they are scoped in for further assessment on a precautionary basis.

- Dismantling and storage activities always carry a remote risk of unforeseen accidental discharges of radioactive or hazardous contaminants, which could affect the water environment. This would be a particular issue where a site is close to an internationally or nationally-designated freshwater or marine environment. Although the risk is very small, the effects of accidental discharge are scoped in for further assessment, on a precautionary basis.

5.6.3 Decommissioning Phase

- Decommissioning of the dismantling and interim storage facilities may lead to an increase in both permitted and unforeseen discharges to ground or surface waters. The scale of the impact will depend on the size and complexity of the facilities. Operational discharges of to the environment will be managed through tightly-controlled permitting regimes in force at the time; such discharges are therefore unlikely to have any significant effects on water quality. However, the potential for significant effects to occur is scoped in for further consideration on a precautionary basis.

- Decommissioning may lead to an increase in discharges of pollutants into the water environment. Discharges of to the environment will be managed through environmental permitting regimes in force at the time, minimising the risk of significant impact. However the possible risk of unforeseen discharges necessitates this issue to be scoped in.

5.7 Air

The significance of effects on air quality will depend upon site location relative to sensitive local receptors. However, such effects will generally be uncertain until specific sites are identified.

5.7.1 Construction Phase

- The construction of both the dismantling and the interim storage facilities is expected to generate dust and particulate levels similar to those encountered on any construction project. The amount of dust will be proportional to the amount of excavation required, and the pollution potential will tend to be higher for previously-developed sites where contamination could expected. Effects are likely to have a relatively small radius of effect, with longer-range impacts expected in the direction of the prevailing wind. Although standard dust reduction measures would be employed where required, the potential for the effects on air quality from construction dust are scoped in for further assessment.

- The construction phase may require large material movements with consequent impacts on air quality adjoining local transport networks. Such potential significant effects are likely to be of short duration and reversible, but are scoped in for further assessment on a precautionary basis.

- Air quality effects may also occur due to (accidental) discharges to air (including via land or water) from materials used during construction, or from the creation of new pollution pathways for existing contaminants on the site. Such potentially significant effects are therefore scoped in for further assessment.

5.7.2 Operation Phase

- The dismantling process may result in direct and indirect emissions of gasses and particulates to air. These will be controlled through environmental permitting regimes; and as such, emissions are not envisaged to have significant effects on air quality. However, the potential for significant effects is scoped in for further consideration on a precautionary basis.

- Dismantling and interim storage will both require transport activities. Vehicle movements are likely to be relatively small in magnitude compared to local and national transport levels, but sustained throughout the operational phase. Potentially significant effects to air quality from operational transport are therefore expected to be limited, but are scoped in on a precautionary basis.

- Dismantling activities always carry a remote risk of accidental discharges of radioactive or non-radioactive contaminants to air (including via land or water). The effects of such accidental discharge are scoped in for further assessment, on a precautionary basis.

- Once radioactive waste has been placed in the interim storage facility, it is assumed that there will be limited activity at the site until the GDF becomes available and the waste is processed and/ or moved. Operational emissions to air will be associated with generators and mobile plant. These operational activities are unlikely to significantly affect air quality; however, any further processing may do so, as detailed above. Potential effects on air from interim storage site are therefore are therefore scoped in for further assessment.

- There is a remote risk of an unforeseen breach of the storage containers, potentially allowing pollutants into the air. Although the risk is very small, the effects of accidental discharge are scoped in for further assessment, on a precautionary basis.

5.7.3 Decommissioning Phase

- Decommissioning may lead to an increase in discharges of pollutants to air. Discharges of to the environment will be managed through environmental permitting regimes in force at the time, minimising the risk of significant impact. However the possible risk of unforeseen discharges necessitates this issue to be scoped in.

5.8 Climate Change and Energy Use

5.8.1 Construction Phase

- Construction activities will use energy and hence cause the direct and indirect emission of CO_2 and other greenhouse gasses. The magnitude of effects depends on the size of the development the type of materials used and the distance travelled - construction traditionally uses material with high embodied carbon values, such as concrete and steel. This issue therefore is scoped in for further assessment.

- Climate change effects such as sea level rise and intensified weather events have the potential to affect the construction of both the dismantling site and the interim storage site. Such effects may

result in damage to facilities, disruption of activity or the mobilisation of hazardous material both on- and off-site. This issue is scoped in for further assessment.

5.8.2 Operation Phase

- The significance of climate change on operational activities will be predicated upon the location of the site. Such effects will generally be uncertain until specific sites are identified.
- Dismantling (and associated transportation) has the potential to be energy intensive and result in direct/ indirect greenhouse gas emissions. At this stage, total carbon footprint of the operational phase is uncertain; however the potential for climatic effects is scoped in for further assessment.
- The interim storage activities are not expected to be energy intensive, although any subsequent waste processing may be. There is the opportunity to drive significant energy efficiency in the development and in transportation; this issue is therefore scoped in for further assessment.

5.8.3 Decommissioning Phase

- Decommissioning and any associated remediation activities are expected to have an energy demand (and greenhouse gas emissions profile) similar to other industrial demolition projects. This issue is scoped in for further consideration on a precautionary basis.

5.9 Material Assets (Transport)

The significance of any construction effects to transport infrastructure will generally be uncertain until specific sites are identified. Note that the effects of transport on other environmental receptors such as air quality, climate change, health etc. are discussed in those sections, rather than in this section.

5.9.1 Construction Phase

- The construction phase at both the dismantling and interim storage sites may require large numbers of vehicle movements to transport construction materials to site and remove construction waste. Such movements will have consequent impacts on local and regional transport networks, the magnitude of which will depend on the sensitivity and capacity of those networks. Potential significant effects are likely to be of short duration, but are scoped in for further assessment.
- The transport requirements of the construction phase may necessitate improvements to local transport networks. The potential effects of transport network improvements are therefore scoped in for further assessment.

5.9.2 Operation Phase

- The SDP will involve dismantled components and materials being transported off-site to the Interim ILW storage facility and/or a commercial ship-breaking facility.

- The significance of dismantling on local and regional transport infrastructure will generally be uncertain until specific sites are identified; however, an increase in the overall number of vehicle movements (when compared to baseline conditions) may be expected. The form of the waste (e.g. RC, RPV, packaged waste) will dictate the potential for out-size loads to be moved off-site, necessitating infrastructure improvements and causing disruption. As these effects would be sustained throughout the operational phase, such issues are scoped in for further assessment.

- Increased traffic during the operational phase may affect noise levels felt by communities and wildlife close to the affected transport networks. Such noise effects are likely to be small in magnitude relative to existing traffic noise levels, but sustained throughout the operational phase. In consequence, noise effects on the local community are unlikely to be significant, but are scoped in on a precautionary basis.

- The operation phase at both the dismantling and interim storage sites may result in increased use of local and regional transport networks. Increased use may have consequent impacts on local and regional transport networks, the magnitude of which will depend on the sensitivity and capacity of those networks. This issue is therefore scoped in for further assessment.

- Transportation always carries a risk of an unforeseen accident. Where radioactive materials are being carried, the public perception that there may be a risk of radioactive discharge requires that the issue of transport safety is considered further, even though the actual risk of any discharge is remote.

5.9.3 Decommissioning Phase

- Decommissioning of the dismantling and interim storage facilities will require the use of transport infrastructure in a similar manner to the construction phase, with the scale and duration of disturbance proportional to the size and complexity of the facilities. Effects are likely to be most obvious locally to the facilities. This issue is scoped in for further consideration on a precautionary basis.

5.10 Material Assets (Waste Management)

5.10.1 Construction Phase

- Facility construction will inevitably give rise to construction wastes, including excavated material. Waste volumes will depend on the scale of development, design, the materials used and the construction and site waste management practices adopted. Potentially significant effects from construction waste are therefore scoped in for further assessment.

5.10.2 Operation Phase

- The SDP is essentially a waste management project. Dismantling activities will generate radioactive, non-radioactive and hazardous waste streams. The magnitude of effects will depend on the volume of wastes generated, the capacity of existing waste management infrastructure and the viability of recycling and reuse options. Although the impact of these wastes on the

environment will be managed through environmental permitting and other statutory regimes, this issue is scoped in for further assessment.

- Once the RC, RPV or packaged ILW has been placed into interim storage, it is assumed that there will be limited operational wastes arising until the material is removed to the GDF and the facility is decommissioned. Waste will be generated, however, if the RC or RPV is stored, as this will necessitate further dismantling, which may take place at the storage site(s). This issue is therefore scoped in for further assessment.

- The interim storage site will be secure and closely regulated. There is a remote risk of unforeseen breaches of waste storage containers; however the waste will be in a secure, solid form, and the risk of waste being released into the environment is not considered significant. It is therefore proposed that this issue is not considered further.

5.10.3 Decommissioning Phase

- Decommissioning and any associated remediation is expected to generate a significant amount of materials that may become waste. Non-hazardous materials may be reused, recycled or disposed of as waste; hazardous wastes (which may include a small quantity of LLW) will require a specialist disposal route. The volume of waste will depend on the size and complexity of the facilities. Effects of decommissioning waste on the environment and on existing waste management capacity is scoped in for further assessment.

5.11 Material Assets (Land Use and Materials)

5.11.1 Construction Phase

- Construction is likely to require the development of land. The scale of effects will depend on the size of plot required, location, current land use, surrounding land uses, and the potential effects of climate change. Such effects will generally be uncertain until specific sites are identified.

- The use of ‘existing’ nuclear Licensed sites for dismantling and interim storage decreases the likelihood that undeveloped, ‘green-field’ sites will need to be used, as existing Licensed sites are likely to be surrounded by previously-developed land. However, the potential use of undeveloped land cannot be excluded. The potential for the loss of ‘green-field’ land is therefore scoped in.

- Construction is likely to require extensive use of building materials and services. The potential effects of this on supply chains and on limited or sensitive natural resources (such as minerals, rare metals and timber products) is scoped in for further assessment.

5.11.2 Operation Phase

- The significance of operational effects will depend upon site location and the size of the dismantling and interim storage facilities. Such effects will generally be uncertain until specific sites are identified.

- The majority of land use effects are associated with the initial land take during construction and any consequent land use change. As the operational activities constitute the proposed land use, the potential significant effects of operational activities on land use are not taken forward for further assessment.

- Effects on neighbouring land might occur as a result of operational actives at the dismantling or interim storage sites, although the precise nature and risk of such effects has yet to be defined. This is scoped in for further assessment on a precautionary basis.

5.11.3 Decommissioning Phase

- Decommissioning and any associated remediation is expected to leave the sites in a suitable state for either reuse or redevelopment. Any effects on the supply of previously developed land will depend on the size of the site, the level of remediation and the range of uses to which the remediated site could be suitable. Therefore, the potential for significant effects on patterns of land use are scoped in for further consideration.

5.12 Cultural Heritage

The significance of any local construction effects on cultural heritage will depend upon site location relative to sensitive local receptors. Such effects will generally be uncertain until specific sites are identified.

5.12.1 Construction Phase

- Construction has the potential to affect unknown archaeological features. Any effects are likely to be very localised in areas of ground disturbance, and the potential for disturbance is likely to depend on the size of the land take, the historic context of the site and the density of previous finds. The potential effects of construction archaeology are therefore scoped in for further assessment.

- Construction also has the potential to affect the setting of existing heritage features. Any effects could potentially have a large radius of effect, depending on viewpoints and the local historic context. The potential effects of construction on the setting of heritage features are therefore scoped in for further assessment.

- Use of construction plant and ground-disturbing activities such as piling and HGV movements have the potential to generate vibration and dust, which may adversely affect sensitive historic/ designated structures in the immediate vicinity of the site and/or access roads. This issue is scoped in for further assessment on a precautionary basis.

5.12.2 Operation Phase

- Operational activities are not expected to involve ground disturbance. The potential for significant effects to unknown archaeology from operational activities are therefore not taken forward for further assessment.

- Visual and other impacts (such as dust) from operational activities and off-site transport could *potentially* affect the setting and value of cultural heritage features. These could potentially have a large radius of effect, depending on viewpoints and the local historic context. This issue is therefore scoped in for further assessment.

- ILW will be periodically placed in the interim storage facility, so there will be very limited activity associated with storage. Potential disturbances are therefore only associated with on-site transport and placement of storage containers. Such activities are unlikely to significantly affect cultural heritage, so are not considered further.

5.12.3 Decommissioning Phase

- Decommissioning and any associated remediation are not expected to result in greater below ground disturbance than has already occurred during the construction phase. Consequently effects of decommissioning on below ground archaeology are not considered further.

- Decommissioning may generate disturbance (such as noise, traffic and dust); as well as potentially changing the built environment if structures are removed or replaced. Such effects have the potential to affect the setting of cultural heritage features. Although measures would necessarily be in place to manage levels and durations of disturbance; the potential for significant effect on heritage features are scoped in, on a precautionary basis.

5.13 Landscape and Townscape

The significance of any local construction effects on the landscape will depend upon site location relative to sensitive local receptors and the degree of change in the prevailing landscape and townscape character. Such effects will generally be uncertain until specific sites are identified.

5.13.1 Construction Phase

- Construction activity has the potential to affect landscape and townscape. Any effects could potentially have a large radius of effect, depending on viewpoints and local topography. This issue is therefore scoped in for further assessment.

- Construction activities are more likely to result in significant effects where developments are within (or have viewpoints from) conservation areas, or designated landscapes. This issue is scoped in for further assessment, on a precautionary basis.

- Landscape effects are likely to be of greater magnitude where undeveloped land (and previously developed land which has reverted to a ‘wild’ state) are affected, as such sites are perceived to contribute more positively to prevailing landscape character. The effects of developing such land is scoped in for further assessment, on a precautionary basis.

5.13.2 Operation Phase

- The provision of facilities and subsequent operational activities at the dismantling site may entail changes in landscape or townscape character. These potential effects of are therefore scoped in for further assessment.

- Interim storage is not expected to be associated with significant landscape or visual effects, so is not considered further.

5.13.3 Decommissioning Phase

- Decommissioning is expected to generate disturbance (such as noise, traffic and dust); as well as potentially changing the built environment if long-standing structures are removed or replaced. Such effects have the potential to affect the setting of landscape or townscape features, as well as the amenity value of landscapes themselves. Although measures would necessarily be in place to manage levels and durations of disturbance, the potential for significant effect on landscapes and townscapes are scoped in, on a precautionary basis.

6. Assessment and Reporting

This section presents the proposed framework for undertaking the SEA including the draft objectives and guide questions (**Section 6.2**). The draft objectives reflect the issues arising from the analysis of the environmental baseline, its evolution and the review of plans, programmes and strategies (see **Section 3 and 4, Annex A** and **Annex B**). The method of considering cumulative effects in the Environmental Report is described in **Section 6.3**. The proposed form and content of the Environmental Report is outlined in **Section 6.4**.

6.1 Proposed SEA Categories, Objectives and Guide Questions

The establishment of appropriate objectives and guide questions is central to the assessment process and provides a method to enable the consistent and systematic assessment of the effects of the SDP.

What are SEA Objectives?

'Objectives specify a desired direction for change and how they should *focus on outcomes*, not how the outcomes will be achieved (e.g. not specifying targets). They should focus on the ends rather than the means; on the state of the environment rather than the pressures on it. For instance, they should focus on "improving biodiversity" or "improving access", rather than say establishing wildlife areas or protecting rail corridors (Therivel, R. (2005) *SEA in Action*).

The draft SEA objectives described in this section have been informed by examination of the baseline evidence, incorporating the identification of key issues, and the review of plans and programmes and the issues summarised in the previous sections. Their development also reflects guidance contained in *The Environmental and Sustainability Appraisal Tool Handbook for the MOD Estate (Volume Two: SEA)* (MOD 2006). Broadly, the objectives present the preferred environmental outcome which usually involves minimising detrimental effects and enhancing positive effects.

Guide questions are proposed for each objective and have been developed to provide a detailed framework against which the SDP proposals can be assessed. A general assumption that underpins the proposed objectives is that all existing legal requirements will be met, and as such, statutory compliance has not been reflected individually in the objectives or guide questions.

The objectives and assessment questions listed in **Table 6.1** will be reviewed following the consultation period. Please note that some of the guide questions begin to anticipate the more site specific effects outlined in Section 5. Following the update of the Scoping Report to include more site specific contextual information, these questions (along with the objectives) will be reviewed.

Table 6.1 Proposed SEA Themes, Objectives and Guide Questions

Assessment Category & Overall Objective	Proposed Assessment Questions *Will the SDP Proposals…*
A. Biodiversity and Nature Conservation Protect and enhance habitats, species and ecosystems.	Affect animals or plants, including protected species? Affect important conservation sites? Affect the structure and function of natural systems (ecosystems)? Affect public access to areas of wildlife interest? Have an impact on fishery resources?
B. Population Promote a strong, diverse and stable economy with opportunities for all; minimise disturbance to local communities and maximise positive social impacts.	Affect the social infrastructure and amenities available to local communities? Affect local population demographics and/ or levels of deprivation in surrounding areas? Affect opportunities for investment, education and skills development? Affect the number or types of jobs available in local economies? Affect how diverse and robust local economies are? Affect the sense of positive self-image and the attractiveness of surrounding areas as places to live, work and invest in?
C. Health & Wellbeing Protect and enhance health, safety and wellbeing of workers and communities; minimise any health risks associated with processing submarines.	Affect the health or safety of SDP workers, or other people working at the proposed sites? Affect the health, safety and well-being of local communities? Affect local healthcare infrastructure and provision?
D. Health (Noise & Vibration) Minimise disturbance and stress to people, wildlife and historic buildings caused by noise and vibration.	Result in significant changes in noise and vibration sources or levels? Affect noise and vibration levels to sensitive receptors (e.g. people, wildlife and historic buildings)?
E. Geology and Soils Minimise threats to the extent and quality of soils and geological resources.	Have an effect on soil quality, extent and/ or density? Have an effect on contamination levels? Affect geological conservation sites and important geological features? Affect land stability? Affect coastal processes and/ or erosion?
F. Water Maximise water efficiency, protect and enhance water quality and minimise flood risk.	Affect demand for water resources? Affect the amount of waste water and surface runoff produced? Cause any changes in radioactive or other hazardous discharges to water? Affect the quality of groundwater, surface waters or sea water? Affect the distribution and quality of freshwater or marine sediments? Affect existing flood risks? Be significantly affected by flooding from any source?

Assessment Category & Overall Objective	Proposed Guide Questions *Will the SDP Proposals…*
G. Air Minimise emissions of pollutant gases and particulates and enhance air quality.	Affect air quality? Cause a change in radioactive emissions to air? Affect emissions of ozone-depleting substances? Create a nuisance for people or wildlife (for example from dust or odours)?
H. Climate Change and Energy Use Reduce energy consumption, minimise detrimental effects on the climate from greenhouse gases and maximise resilience to climate change.	Create a change in the amount of carbon dioxide and other greenhouse gases emitted? Be significantly affected by climate change (for example rising sea levels and more extreme weather events)? Affect how climate change might impact on the wider environment? Promote or impede the use of energy efficiency measures, low carbon and/ or renewable energy sources? Have wider implications for the mitigation of climate risks?
I. Material Assets (Transport) Minimise the detrimental impacts of travel and transport on communities and the environment, whilst maximising positive effects.	Affect the number and frequency of heavy, oversized, radioactive and/ or hazardous loads being transported off-site, particularly through population centres and other sensitive receptors? Increase or decrease traffic congestion around SDP sites? Increase or decrease accident risks around SDP sites?
J. Material Assets (Waste Management) Minimise waste arisings, promote reuse, recovery and recycling and minimise the impact of wastes on the environment and communities.	Increase the amount of radioactive waste to be disposed of? Affect the amount of hazardous waste to be disposed of? Affect the amount of non-hazardous wastes produced? Affect the capacity of existing waste management systems, both nationally and locally? Maximise re-use and recycling of recovered components and materials? Help achieve government and national targets for minimising, recovering and recycling waste? Affect the environmental risks associated with managing radioactive and hazardous wastes?
K. Land Use and Materials Contribute to the sustainable use of land and natural and material assets.	Change patterns of land use on or around SDP sites? Affect any existing or proposed redevelopment/ regeneration programmes? Lead to the loss of undeveloped land or green spaces? Increase the burden on limited natural resources such as aggregates or wood? Promote the use of sustainable design and construction practices and help the government achieve its targets for the built environment?

6.2 Completing the Assessment

The assessment of the SDP proposals will be undertaken by testing the options against the SEA objectives and detailed assessment questions identified in this Scoping Report. Commentary on impacts will include:

- the nature and scale of the potential environmental effects (what is expected to happen);
- when the effect could occur (timing);
- what mitigation measures might be appropriate for potentially significant negative effects;
- what options there are to enhance positive effects;
- assumptions and uncertainties that underpin the appraisal; and
- what additional information will be required to address uncertainties and to undertake more detailed site-specific assessment.

Effects will be characterised as short, medium or long term. It is proposed that, for SDP, short term effects = up to 5 years after each activity begins; medium term effects = 5 years to the end of the activity; long term effects = after the activity has ceased. *Consultees' views on this proposal are welcomed.*

Tables 6.2 and 6.3 set out the proposed assessment framework developed to meet the requirements of the SEA Directive. It contains the SEA themes, objectives and guide questions. **Table 6.2** will be used to record the assessment of the generic effects associated with each SDP stage and with developing the three generic site types ('green-field,' 'brown-field' and 'Existing' Licensed/ Authorised sites). **Table 6.3** will be used to record the assessment of the effects associated with developing individual Licensed or Authorised sites.

Table 6.2 Proposed assessment framework for generic site options

Options / Objectives	Option 1: 'Greenfield' site	Option 2: 'Brownfield' site	Option 3: 'Existing' Licensed/ Authorised Site
A. Biodiversity and Nature Conservation Protect and enhance habitats, species and ecosystem functionality.	**Context:** The UK Government is committed to promoting sustainable development by conserving and enhancing biodiversity and the integrity of the habitats on which wildlife depends. This is set out in a number of documents such as the *Habitat Regulations* (as amended 1998), *UK Sustainable Development Strategy, PPS9 Biodiversity and Geological Conservation* and the Biodiversity Strategy for England *Working with the grain of nature* (2002). A variety of legislation exists to enforce this in a number of circumstances (e.g. Countryside and Rights of Way Act (1981, 2000) and the Environmental Protection Act (1990)). There are also a number of European Directives which place requirements on the UK and other Member countries to make the provision for the protection of specified habitats and species. The MOD is the UK's largest public owner of sites designated for nature conservation, including 171 SSSI and their equivalent in Northern Ireland, Areas of Special Scientific Interest (ASSIs). Over 110 also had international and European nature conservation designations. In March 2008 the following percentages of MOD managed SSSIs were in target condition: 85% in England (against a Government target of 95% by 2010), 68% in Scotland (target 95% by 2010), 78% in Wales (target 85% by 2013) and 57% in Northern Ireland (target 95% by 2013). The Defence Lands Handbook (JSP 362,		

Options / Objectives	Option 1: 'Greenfield' site		Option 2: 'Brownfield' site		Option 3: 'Existing' Licensed/ Authorised Site	
	1980), following amendment, reflects the need for appropriate assessment regarding EU protected sites. A Memorandum of Understanding exists between the MOD and Defra which enables mutual agreement to be agreed on planned activities. Similarly, the MOD has a Joint Declaration of Intent with statutory bodies including Natural England, Scottish Natural Heritage and the Countryside Council for Wales. This requires the MOD to consult the statutory bodies before changing patterns of landuse, activities or changes in intensification of use.					
	Score: Negative	-	**Score:** Positive	+	**Score:** Major positive	++
	Key Impacts: **Uncertainty:** **Mitigation:**		**Key Impacts:** **Uncertainty:** **Mitigation:**		**Key Impacts:** **Uncertainty:** **Mitigation:**	

Table 6.3 Proposed assessment matrix for specific sites

Assessment Category and Objective	Likely Effects (including direct , indirect, cumulative and synergistic effects, and possible mitigation measures)	Timescale		
		Short-Term	Medium-Term	Long-Term
A. Biodiversity and Nature Conservation: Protect and enhance habitats, species and ecosystem functionality.	A description of the biodiversity and nature conservation effects of each option will be provided here, with reasoning and justification included…	-	0	0
B. Population: Promote a strong, diverse and stable economy with opportunities for all, minimise disturbance to local communities and maximise positive social impacts.	A description of the population effects of each option will be provided here…	++	+	0
C. Health, Safety and Wellbeing Protect and enhance health, safety and wellbeing of communities and minimise potential risk associated with processing radioactive and non-radioactive materials.	A description of the health and wellbeing effects of each option will be provided here…	0	0	+
….etc				

++ Strongly Significant positive effect	+ Significant positive effect	0 No significant effects	- Significant negative effect	- - Strongly significant negative effect

Note: This draft SEA matrix is for illustrative purposes only. The full matrix will be finalised after comments have been received on the SEA categories, objectives and appraisal criteria.

Box 6.1 provides examples of the factors that are likely to be considered when determining the relative significance of a potential effect (and will be in addition to the information that is provided in Annex II of the SEA Directive). The SEA Directive includes the following as material factors to be considered:

- the probability, duration, frequency and reversibility of the effects;
- the cumulative nature of the effects;
- the trans-boundary nature of the effects;
- the risks to human health or the environment (e.g. due to accidents);
- the magnitude and spatial extent of the effects (geographical area and size of the population likely to be affected);
- the value and vulnerability of the area likely to be affected; and
- the effects on areas or landscapes which have a recognised national, European or international protection status.

Box 6.1 Examples of Factors that Could Influence the Determination of Significance

Significant Effect	Minor Effect
Extensive	Localised
Will affect many people	Will affect few people
Large change in environmental conditions	Small change in environmental conditions
Effect will be unusual or particularly complex	Effect will be ordinary or simple
Will affect valuable or scarce features or resources	Will not affect valuable or scarce features or resources
High risk that environmental standards will be breached	Low risk that environmental standards will be breached
High likelihood that protected sites/areas/features will be affected	Low likelihood that protected sites/areas/features will be affected
High probability of effect occurring	Low probability of effect occurring
Irreversible	Reversible
Mitigation difficult	Mitigation straightforward

Identifying effective mitigation measures will also be a fundamental part of the SEA. **Box 6.2** provides information on types and examples of mitigation measures that might be proposed. However, any mitigation measures that are identified will be suggestions only and may not necessarily be the responsibility of MOD and/or Contractor(s) to implement. No attempt will be made to estimate financial costs for mitigation.

Box 6.2 Suggested Mitigation measures

Mitigation measures may include:

a. Enhancement – where there are no negative impacts, but measures are adopted to achieve a positive move towards the sustainability objectives;

b. Avoidance or reduction – where negative impacts are avoided or minimised;

c. Mitigation – where negative impacts occur but measures can be put in place to ameliorate them; and

d. Compensation – where negative impacts occur that cannot be mitigated (e.g. an area of habitat that is unavoidably damaged may be compensated for by recreating similar habitat elsewhere). Compensation is a last resort.

Examples of how mitigation measures could be incorporated into the SDP proposals could include:

e. Applying technical measures during the implementation stage of an option (e.g. application of design principles or considerate constructors' scheme);

f. Undertaking further research to provide more information on major issues and resolve uncertainties;

g. Undertaking further assessments to assess specific issues in depth (e.g. Archaeological Evaluation, Appropriate Assessment or Built Environment Assessments such as BREEAM, CEEQUAL or DREAM);

h. Applying ongoing management tools (e.g. Environmental Management System or Construction Environmental Management Plan); and

i. Working with partners such as the Environment Agency, Local Authority or Regional Development Agency.

6.3 Considering Cumulative Effects

The SEA Directive, and its implementing regulations in the UK, requires that secondary, cumulative and synergistic effects are considered as part of the assessment.

Table 6.4 Definitions of Secondary, Cumulative and Synergistic Effects

Type of Effect	Definition*
Secondary (or indirect)	Effects that do not occur as a direct result of the SDP, but occur at distance from the direct impacts or as a result of a complex pathway. Examples of a secondary effect of the SDP would include the materials (and embedded carbon) used in the construction of the dismantling and interim storage facility.
Cumulative	Effects that occur where several individual activities which each may have an insignificant effect, combine to have a significant effect. Examples of a cumulative effect of the SDP could include the potential effects on a European designated site, where a habitat or species is vulnerable and the cumulative effects of disturbance and pollutant emissions arising from construction and operation causes a significant impact.
Synergistic	Effects that interact to produce a total effect that is greater than the sum of the individual effects. This may also relate to the potential for additive synergy between radioactive materials and non-radioactive materials, such as other chemical compounds, asbestos etc).

*Adapted from SEA guidance, ODPM (2005)

For the assessment of cumulative effects to be effective, guidance indicates that these effects should be considered throughout the stages of assessment in preference to being seen as a separate assessment. In the course of completing this Scoping Report, this was achieved by:

- collecting baseline information and completing a review of plans and programmes which took a broad view of potential impacts (please refer to **Section 3, 4 and 5**); and
- ensuring appropriate reference is made to guidance such as that produced by Institute of Ecology and Environmental Management which includes consideration of potential direct, indirect and cumulative effects arising from activities on European designated sites (SACs and SPAs) and sites of national nature conservation importance (SSSIs and NNRs).

A matrix similar to that shown in **Table 6.5** could be used to summarise the effects of each of the stages considered for the SDP proposals. The cumulative effects of each of the stages can then be summarised and their relative positive and negative effects considered.

Table 6.5 Example of a Cumulative Assessment Matrix (illustrative purposes only)

Stage	Stage I Location and development of dismantling and processing facility				Stage II Location and development of Interim Storage Facility				Stage III etc…			
Sustainability Objectives	Biodiversity & Nature Conservation	?	Energy & Climate Change	0	Biodiversity & Nature Conservation	+	Energy & Climate Change	+	Energy & Climate Change	++	Energy & Climate Change	++
	Communities & Social Values	0	Transport	0	Communities & Social Values	+?	Transport	+	Transport	+?	Transport	+
	Health, Safety & Well-Being	+	Waste	+	Health, Safety & Well-Being	0	Waste	?	Waste	0	Waste	?
	Noise & Vibration	+	Land Use & Built Environment	+	Noise & Vibration	?	Land Use & Built Environment	+	Land Use & Built Environment	?	Land Use & Built Environment	?
	Geology & Solis	0	Economy & Employment	+	Geology & Solis	++	Economy & Employment	++	Economy & Employment	++	Economy & Employment	+
	Water & Drainage	+	Historic Environment	0	Water & Drainage	++	Historic Environment	-	Historic Environment	++	Historic Environment	--
	Air Quality	0	Landscape & Townscape	0	Air Quality	++	Landscape & Townscape	++	Landscape & Townscape	++	Landscape & Townscape	+
	• Positive impacts because…. • Negative impacts because… • Impacts dependent on…..				• Positive impacts because…. • Negative impacts because… Impacts dependent on…..				• Positive impacts because…. • Negative impacts because… Impacts dependent on…..			

6.4 Environmental Report Content

The assessment of potential effects will then be presented in the SEA Environmental Report which will be published alongside the other public consultation documents for the SDP. The Environmental Report has the following purpose:

- To ensure that the significant potential environmental (and, where relevant, social and economic) impacts associated with the different SDP options are identified, characterised and assessed.
- To propose measures to mitigate the adverse effects identified and, where appropriate, to secure enhancement of any potential positive effects.
- To provide a framework for monitoring the potential impacts arising from the adoption of the selected SDP option.
- To provide sufficient information to those affected so that the SDP achieves it's stated aims with respect to public consultation and stakeholder engagement.

In accordance with the requirements of Schedule 2 of the SEA Regulations (which reproduce the SEA Directive Annex I issues), the SEA Environmental Report will consist of:

i. A Non-technical Summary
ii. A chapter setting out the scope and purpose of the assessment
iii. A chapter setting out the main objectives of the SDP and its relationship to other relevant plans and programmes. This will include consideration of all stages of the SDP
iv. A chapter setting out the relevant aspects of the current state of the environment, the likely evolution of the baseline and any existing problems which are relevant to the SDP
v. A chapter setting out the proposed approach to assessment including the relevant environmental protection objectives
vi. A chapter outlining the likely significant environmental effects of the SDP options (e.g. the 'reasonable alternatives' within the project), including cumulative effects, mitigating measures, uncertainties and risks. This will also include issues associated with transport of waste and the eventual decommissioning of the dismantling and storage facilities. The reasons for selecting the proposed options and any difficulties encountered in completing the assessment will be explained
vii. A chapter presenting views on implementation and monitoring
viii. An appendix outlining how the Quality Assurance checklist identified in the ODPM SEA Guidance has been met.

Please also refer to **Table 1.1 (Section 1)** which sets how the information gathered in this Scoping Report (and the later 'existing' site update) will be used to support the completion of the Environmental Report, in line with the SEA requirements.

7. Summary and Next Steps

This generic Scoping Report presents the initial findings of the initial stage (Stage A) of the assessment process for undertaking the SEA of the SDP. The structure is derived from good practice guidance provided by ODPM (now DCLG) and the MOD. It has been prepared to meet the requirements of the SEA Directive and associated Regulations. It fulfils the requirements relevant to Stage A, as outlined within the Quality Assurance Checklist presented in **Annex D**.

Comments from Scoping Consultees will be invited during the five week consultation period on the proposed methodology, objectives, and other information set out within this report. Following the end of consultation, the comments received will be considered and the assessment process amended as appropriate. The scoping report will be updated to include consultation responses and appropriate information on the credible Licensed or Authorised sites that will have been identified through a parallel site selection work-stream. Further consultation will then take place with Scoping Consultees on the updated scoping report and site short-list. The information will also be placed in the public domain.

The next stages of the SEA process (Stages B and C) involve the prediction and evaluation of the effects that the credible SDP options are likely to have. The assessment will identify and characterise the impacts associated with the implementation of specific aspects of the SDP and will propose, where appropriate, mitigating measures for adverse impacts as well as opportunities to enhance beneficial aspects.