

2. EA Methodology

Environmental Appraisal
Volume I

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2. EA METHODOLOGY

2.1 Introduction

This Chapter sets out the overall approach to the Environmental Appraisal (EA) undertaken by the High Explosives Fabrication Facility (HEFF) consultancy team. In addition, this Chapter describes the definition of impact significance and the method of assessing environmental and social impacts arising as a result of the project. This Chapter also presents a review of key sensitive receptors in proximity to the site and indicates how and where these receptors are considered in the EA.

The contents and conclusions of the EA are based on the scheme design, site investigation work, baseline surveys, modelling and assessment, together with expert knowledge of the consulting team. Evolution of the design and an analysis of alternatives considered are presented in *Chapter 4: Alternatives and Design Evolution*; while the proposed design of the Proposed Facility is presented in detail in *Chapter 5: The Proposed Development* and in the accompanying Planning Application documents.

2.2 Approach

This EA has been prepared with reference to current guidance for Environmental Impact Assessments (EIA). In particular, the EA has been prepared with due consideration to:

- Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (amended 2000) (Ref. 2-1);
- The Town and Country Planning (Environmental Impact Assessment) (Amendment) Regulations 2006 (Ref. 2-2);
- Department of Environment, Transport and the Regions (DETR) Circular 02/99 Environmental Impact Assessment (Ref. 2-3);
- Preparation of Environmental Statements for Planning Projects that require Environmental Assessment: Good Practice Guide, Department of the Environment (DoE) 1995 (Ref. 2-4);
- Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Impact Assessment, 2004 (Ref. 2-5);
- Office of the Deputy Prime Minister (ODPM) Environmental Impact Assessment – A Guide to Procedures, 2001 (Ref. 2-6); and
- Defence Estates, Technical Bulletin 01/12 – Environmental Impact Assessment, Estates Development Unit, Defence Estates (2001) (Ref. 2-7).

Whilst the Secretary of State for Communities and Local Government has determined that the HEFF proposals are exempt from the EIA Regulations, an EA has been undertaken which will include all of the necessary information to allow an informed decision to be made on the merits of the planning application. This commitment by AWE is in line with the Secretary of State for Defence Policy Statement within JSP 418, which states that "where the Ministry of Defence

(MOD) has been granted specific exemptions...from legislation...it will introduce standards and management arrangements that are, so far as reasonably practicable, at least as good as those required by the legislation".

2.3 Methodology

This EA has been based on a number of related activities, as follows:

- Consultation with statutory and non-statutory consultees to identify and understand key issues concerning the site redevelopment, in particular development constraints and considerations;
- Consideration of local, regional and national planning policies and guidelines;
- Consideration of significance criteria;
- Design review and assessment of alternatives;
- Review of secondary information, previous environmental studies and publicly-available information and databases;
- Physical surveys and monitoring;
- Preparation of desk-top studies; and
- Modelling and assessment.

The EA has considered the likely impact of the Proposed Development on its neighbours, local environment, local and regional economy, and wider project area. Positive, negative, short and long-term impacts have been considered. Where mitigation measures have been identified to either eliminate or reduce adverse impacts, these have been incorporated into the project design. Any remaining, or 'residual', impacts have also been identified and classified in accordance with a standard set of significance criteria (refer to Section 2.7.3).

2.4 EA Requirements

2.4.1 EIA Applications

Applications for development that are covered under the EIA Regulations are termed 'EIA applications'. The actual requirement for an EIA is either mandatory, or conditional depending on the classification of the development project. This is based, in turn, on the likelihood of significant impacts arising.

The Regulations also make provision for the Secretary of State to determine whether a development can be exempted from the EIA Regulations (under Regulation 4).

EIA applications are divided into Schedule 1 applications (major developments) and Schedule 2 applications (other developments) under the regulations, which govern all planning applications subsequent to March 1999.

Schedule 1 development constitute those proposals that are likely to have significant environmental effects, such as major chemical or petrochemical plants

and construction of ground, or air transportation facilities. For all other developments, which fall under Schedule 2, the need for an EIA is determined on the basis of set criteria as follows:

1. The development falls within one of the classes of development stated in Schedule 2; AND
2. EITHER it exceeds the size threshold for that class of development in Schedule 2; OR it is in a sensitive area; AND it is likely to have significant effects on the environment.

The selection criteria are not just related to the scale of the development, but also consider the sensitivity of the environment affected by a proposed development.

The HEFF development falls within the description in Column 1, Paragraph 10(b) of Schedule 2, and with a development area of 14.3 hectares (ha), the site significantly exceeds the stated threshold of 0.5 ha as defined in Column 2 of Schedule 2.

2.4.2 Exemption from the EIA Regulations

The Secretary of State for Communities and Local Government has considered the application by the Ministry of Defence for a Direction under Regulation 4(4)(a)(i) of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (SI 1999/293) as amended by the Town and Country Planning (Environmental Impact Assessment) (Amendment) Regulations 2006 (SI 2006/3295) in respect of the HEFF project (to be located within the existing AWE Aldermaston site).

Having regard to the information supplied to her, the Secretary of State is satisfied that this Direction is justified because the development forms part of a project serving national defence purposes and in her opinion compliance with these regulations would have an adverse effect on those purposes.

Accordingly, in exercise of the powers conferred on her by Regulation 4(4)(a)(ii) of the EIA Regulations, the Secretary of State hereby directs that the requirements of those Regulations shall not apply to the proposal for the HEFF project.

On this basis, an EA has been prepared generally in accordance with the applicable regulations in order to assess the potential environmental impacts of the Proposed Development on existing baseline conditions within the application site and the local area, which is in line with the commitments of the Secretary of State for Defence outlined above. Sensitive information relating to the operational processes of HEFF have been omitted from this EA, although the impacts associated with these processes have been assessed.

2.5 Scoping and Consultation

The process of consultation enables the development of a comprehensive and balanced EA. Views of key statutory and non-statutory consultees serve to focus the environmental studies and to identify specific issues, which require further

investigation. Consultation is also an ongoing process, which enables mitigation measures to be incorporated into the project design, as it evolves, thereby limiting adverse effects and enhancing benefits.

In order to assist in the formulation of the EA scope and assessment methodologies, a number of meetings have been held with consultees relevant to a number of the EA technical studies, in particular landscape and visual, ground conditions, water resources and transport.

Additionally, AWE holds a quarterly Local Liaison Committee with local parish and council representatives at which the development plans at AWE Aldermaston and Burghfield are discussed.

2.6 Sensitive Receptors

The EA process incorporates the identification and assessment of impacts to potentially sensitive receptors resulting from the demolition, construction and operational phases of the Proposed Development. These receptors include land subject to any regional, national or international designation, permanent residential properties, local roads and rights of way, the business community, buildings of cultural significance, and the archaeological heritage of the local area. Key sensitive receptors are identified in Table 2-1 along with identification of the specific EA Chapter which addresses these issues.

Table 2-1 Sensitive Receptors

Category	Description of Receptor	Chapter Reference
Listed Buildings	Aldermaston Court	Chapter 13: Landscape and Visual
National & Local Landscape Designations	North Wessex Downs Area of Outstanding Natural Beauty (AONB); Aldermaston Court Historic Park; Wasing Park Historic Park; The Wyne Park; Stratfield Park.	Chapter 14: Archaeology and Cultural Heritage
Conservation Areas	Aldermaston Village; Tadley Village; & Stichester.	Chapter 13: Landscape and Visual
National & Local Ecological Designations	West Meadows SSSI; Wasing Woods Pond SSSI; Decoy Pit	Chapter 14: Archaeology and Cultural Heritage
		Chapter 15 Ecology

Category	Description of Receptor	Chapter Reference
Archaeological Resources	Brimpton Common Bell Barrow Aldermaston Airfield Ermin Street Holloway in Wasing Wood Decoy Pond Aldermaston to Baughurst Toll Road and Coin find location Aldermaston Court Ginn's Bank	Chapter 14: Archaeology and Cultural Heritage
Commercial and Residential Property	Residential properties immediately south, west and east of the site. Industrial Estate north of the site. Caravan Park immediately north-west of the site. Court Farm, north-east of site Residential properties and business parks in the wider surroundings to the north, south, east and west.	Chapter 6: Demolition and Construction Chapter 9: Transport Chapter 11: Noise and Vibration Chapter 12: Socio-economic
Education and Community Use	Tadley Community Primary School Aldermaston Primary School Cedars School	Chapter 12: Socio-economic

2.7 Structure of Technical Chapters

To ensure a consistent approach to undertaking each of the technical assessments, and for ease of reading, a standard approach has been taken to the structure of each technical assessment Chapter (Chapters 7-16) in the EA. Technical assessment Chapters are provided for each environmental and social issue detailing the planning policy context, assessment methodology, significance criteria, baseline conditions, likely impacts and proposed mitigation measures. An outline of the typical EA technical assessment Chapter structure is provided below.

2.7.1 Introduction

The introduction details the authorship of the technical study, provides a brief summary of what is considered in the Chapter and provides relevant background information.

2.7.2 Assessment Methodology

The methods used in undertaking the technical study are outlined in this section, with reference to published standards (e.g. British Standards (BS), and relevant guidelines (e.g. Design Manual for Roads and Bridges (DMRB); IEMA guidelines).

2.7.3 Significance Criteria

The significance of residual impacts has been evaluated with reference to definitive standards, accepted criteria and legislation where available. Where it has not been possible to quantify impacts, qualitative assessments have been carried out, based on available knowledge and professional judgement. Where uncertainty exists, this has been noted in the relevant assessment Chapter.

The significance of residual impacts has been determined, with reference to specific impact criteria for each assessment topic. These criteria apply the common EA approach of classifying impacts according to whether they are major, moderate or minor impacts and considered to be adverse, negligible or beneficial.

Specific criteria for each issue has been developed, giving due regard to the following:

- Extent and magnitude of the impact;
- Impact duration (short, medium or long-term);
- Impact nature (direct or indirect, reversible or irreversible);
- Whether the impacts occur in isolation; are cumulative or interactive;
- Comparison with environmental quality standards; and
- Sensitivity of the receptor.

For issues where definitive quality standards do not exist, significance has been based on the:

- Local, district, regional or national scale, or value of the resource affected;
- Number of receptors affected;
- Sensitivity of these receptors; and
- Duration of the impact.

In order to provide a consistent approach to the various studies undertaken, and thereby to enable comparison between impacts on different environmental components, the following terminology has been used in the EA to define residual impacts:

- **Beneficial:** Advantageous or positive impact to an environmental resource or receptor that may be:

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- **Minor:** Slight, very short or highly localised impact of no significance;
- **Moderate:** Limited impact (by extent, duration or magnitude) that may be considered significant; and
- **Major:** Considerable impact (by extent, duration or magnitude) of more than local significance.

- **Negligible:** Imperceptible impacts to an environmental resource or receptor;
- **Adverse:** Detrimental, or negative impacts to an environmental resource or receptor which may be:
- **Minor:** Slight, very short or highly-localised impact of no significance;
- **Moderate:** Limited impact (by extent, duration or magnitude) which may be considered significant; and
- **Major:** Considerable impact (by extent, duration or magnitude) of more than local significance or in breach of recognised acceptability, legislation, policy or standards.

Each of the technical Chapters provide the criteria, including sources and justification, for quantifying the different levels of residual impact. Where possible, this has been based upon quantitative and accepted criteria (e.g., the National Air Quality Standards (NAQS), or noise assessment guidelines).

In the context of the project description, short to medium-term impacts are considered to be those associated with the construction phase. Long-term impacts are those associated with the completed development. Local impacts are those affecting nearby and neighbouring receptors, whilst those affecting Berkshire and northern parts of Hampshire as a whole are considered to be at a regional level, whilst impacts that affect different parts of the country, or the U.K as a whole, are considered to be at a national level.

2.7.4 Planning Policy Context

This section of each Chapter includes a short summary of applicable policies (adopted or emerging in draft) at the national, regional and local level.

2.7.5 Baseline Conditions

In order to assess the potential impact of the Proposed Development, it is necessary to determine the environmental conditions that currently exist on the site. These are known as 'baseline conditions' and form the starting point for which any impacts related to the Development may affect the site or wider area. Unless otherwise stated, the EA baseline has been taken as the current conditions on-site within each chapter. Further reference is made to aspects of the baseline that may be sensitive to the Proposed Development.

2.7.6 Potential Impacts and Mitigation Measures

This section considers potential impacts resulting from the Proposed Development during the site clearance and construction phase, and once the

Development is operational. The section addresses short-medium term (construction phase) and long-term (operational phase) impacts.

The section describes each identified potential impact and outlines any suitable mitigation measures. Quantitative descriptions are included as far as possible. The proposed mitigation measures are designed to offset, or reduce any significant adverse effects and can relate to any of the following three key phases of the project.

- **Design:** (e.g. incorporation of the attenuation ponds into the scheme to integrate with the water resources assessment and the drainage design);
- **Construction:** (e.g. commitment to the management of demolition waste); and
- **Operation:** (e.g. commitment to the control of operational noise from services).

2.7.7 Cumulative Impact Assessment

The EA has also given consideration to 'cumulative impacts'. By definition these are impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the Proposed Development. For the cumulative assessment, two types of impact have been considered:

- The combined effect of individual impacts, for example noise, airborne dust or traffic on a single receptor; and
- The combined impacts of several development schemes which may, on an individual basis be insignificant but cumulatively have a significant effect.

There are a number of new build projects scheduled for the AWE Aldermaston site between 2005 and 2015 and these form the basis for the assessment of cumulative effects. This is in the context of the investment in sustaining key skills and facilities at the AWE. The New Office Accommodation (NOA) project was granted planning permission from West Berkshire Council in January 2007 and construction work has begun. Therefore, NOA has been assessed as part of the baseline and does not form part of the cumulative assessment.

The cumulative scenario comprises the remaining Projects scheduled in the AWE Site Development Context Plan (SDCP), (including indicative floorspace):

- Manufacturing/Production – 34,500 m²;
- Testing/Research – 21,500 m²;
- Computing/Communications – 4,700 m²;
- Office and Business Support Accommodation (excluding NOA) – 28,306 m².

In addition to the forthcoming development at AWE, a number of external schemes have been considered as part of the cumulative assessment. These are highlighted in Table 2-2.

Table 2-2 External Cumulative Schemes

Development	Detail	Status October 07
Land Adjacent to Kennet Works Bath Road Padworth West Berkshire	Residential development comprising 12 houses (3 bedroom) and one 3 bed detached bungalow.	Under Construction
Halfway Garage Bath Road Padworth Reading RG7 5HX	24 Apartments	Approved – construction not started
Land at Basingstoke Road Aldermaston West Berkshire	Residential development comprising 99 dwellings (including 30 affordable dwellings) together with access roads and footways, the provision of public open space and landscaping and the demolition of one dwelling (Orchard Dene).	Under construction/partially complete
Berkshire Business Park (Eastern Park) Reading Road Aldermaston	150,000 sq ft of High Technology	Under Construction
Berkshire Business Park (Easton Park) Reading Road, Aldermaston, Reading, Berkshire	Development of buildings for B1, B2 and B8 purposes	Under Construction
Land at Fishermans Lane Aldermaston West Berkshire	29 Dwellings with associated roads and public open space	Approved – construction not started

For the purposes of the cumulative assessments within this EA, each technical contributor has further considered potential cumulative effects and has provided an overview of key issues and potential impacts.

2.7.8 Residual Impact Assessment and Conclusions

Impacts of the Proposed Development that remain following the implementation of all available mitigation measures are known as 'residual impacts'. These are discussed for each of the potential impacts, and their significance level is identified. Where applicable, technical Chapters include a summary table of impacts arising, including impact significance. These tables are designed to enable a comparison of environmental impacts across different environmental aspects and to clearly identify the residual impacts arising.

2.8 Assumptions and Limitations

A number of assumptions have been made during the development of the EA, which are set out below. Assumptions specific to certain environmental aspects are discussed in the relevant Chapters of the EA. The main assumptions considered comprise:

- The assessment uses 2007 as the 'Baseline Year' (unless otherwise stated). It is expected that the construction of the scheme will be completed over a period of 24 months;
 - The environmental influence of the proposals is likely to extend beyond the boundary of the application site. The spatial extent of this influence will depend upon the nature of the environmental topic under consideration, for example air quality changes are likely to affect a wider area than changes in noise. Preliminary investigations have indicated that the spatial extent of the environmental study areas may be grouped into three zones, namely:
 - The core area of the Application site outlined in red;
 - A local area approximately 100-500m beyond the core area; and
 - A strategic area beyond the core area, the extent of which varies depending on the technical area assessed.
 - The principal land uses adjacent to the site remain as they are at the time of the EA submission;
 - Information provided by third parties, including publicly-available information and databases is correct at the time of publication; and
 - The assessment of cumulative impacts is based on information contained within the SDCP 2005-2015 and the available information relating to the NOA consented scheme
- The EA has been subject to the following limitations:
- The nature of the EA requires objective and subjective assessment to be made of predicted impacts. Quantitative assessment methods are used wherever practicable. However, it has been necessary to adopt qualitative methods for some topics. Any assumptions made in conducting the EA are clearly stated, and any limitations noted;
 - Baseline conditions are accurate at the time of the physical surveys, however, due to the dynamic nature of the environment, conditions may change with time; and

- As stated within section 2.4, the HEFF project has been exempted from the EIA Regulations due to the nature of the proposals in the context of national defence. As such, while the impacts of the proposals have been stated, some of the details of the operational processes have necessarily been omitted in line with the exemption granted.

2.9 References

Ref. 2-1	Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999.
Ref. 2-2	The Town and Country Planning (Environmental Impact Assessment) (Amendment) Regulations 2006.
Ref. 2-3	DETR (1999); 'Circular 02/99 - Environmental Impact Assessment'.
Ref. 2-4	HMSO (1995); 'Preparation of Environmental Statements for Planning Projects that require Environmental Assessment: Good Practice Guide'.
Ref. 2-5	Institute of Environmental Management and Assessment (IEMA) (2004); 'Guidelines for Environmental Impact Assessment'.
Ref. 2-6	Office of the Deputy Prime Minister (ODPM) (2001); 'Environmental Impact Assessment - A Guide to Procedures'.
Ref. 2-7	Defence Estates, Technical Bulletin 01/12 - Environmental Impact Assessment, Estates Development Unit, Defence Estates (2001).
Ref. 2-8	AWE (2005) AWE Aldermaston & Burghfield: Site Development Context Plan 2005-2015.