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DESIGN AND ACCESS STATEMENT

PROJECT HYDRUS

REPLACEMENT FACILITY

Application for Planning Permission for a replacement hydrodynamics research facility including an operations building with lightning protection system, a support building, an electrical substation, and associated landscaped areas including a Sustainable Drainage System together with construction related infrastructure including access roads, construction compound, fencing, gates and ancillary facilities.

AWE Aldermaston, Berkshire

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APPENDICES

1. INTRODUCTION

1.1 This Design & Access Statement (DAS) supports the planning application for a replacement hydrodynamics research facility including an operations building with lightning protection system, a support building, an electrical substation, and associated landscaped areas including a Sustainable Drainage System (SuDs) together with construction related infrastructure including access road, construction compound, fencing, gates and ancillary facilities. The proposals are submitted in support of the UK Nuclear Weapons Programme at the Atomic Weapons Establishment Aldermaston site (AWE)A, as illustrated in Figure 1 Site Location Plan.

1.2 The proposed facility will provide 16,907 square metres gross floor space. The scheme has been called project Hydrus.

1.3 The purpose of the design and access statement is to provide a summary of the rationale for the current planning application in design terms so that the proposals may be clearly and succinctly understood in terms of the principles and concepts that have informed them.

1.4 The statement is submitted in accordance with the requirements referenced in Government Circular 01/2006 (DCLG): Guidance Changes to the Development Control System to the effect that all planning applications (with some exceptions) be supported by a synopsis of the design approach taken, and how this has been considered with regard to the objective of establishing or reinforcing an accessible and equitable public realm.

1.5 The design and access statement does not form part of the planning application, as stated in the Circular.

1.6 In accordance with national and local design guidance the following sections set out the rationale behind the development proposals in terms of the use, amount, layout, scale, landscaping, appearance and access.

Purpose of the Proposed Development

1.7 AWE is the sole repository of the UK's nuclear warhead capability. Since 1950 it has been responsible, as directed by the Ministry of Defence (MOD), for the design, build, maintenance and decommissioning of UK's warheads. Key to this operation is the capability to undertake hydrodynamics research which underpins the reliability and safety of the UK's nuclear deterrent. Currently these operations are carried out at the Aldermaston site.

1.8 The existing facilities are housed in a number of buildings, most of which were constructed in the late 1950s or early 1960s. The current facilities operate safely and comply with all environmental requirements but it is acknowledged that safe and environmentally sustainable operations cannot continue indefinitely in the buildings as they currently exist. Various option studies have concluded that extensive refurbishment of buildings is not viable. Therefore, in order to retain long term capability, a new facility at (AWE)A is required.

Proposed Scheme

1.9 The proposed scheme is summarised below and detailed in the attached figures:

- Figure 1: Site Location Plan
- Figure 2: Illustrative Masterplan of AWE Aldermaston
- Figure 3: Hydrus Project Area
- Figure 4: Opportunities and Constraints Plan
- Figure 5: Concept Layout Plan
- Figure 6: Birds Eye View

1.10 The Proposed Development comprises the following components that fall within the Application site:

- Hydrus site – the proposed development comprising the Operational Hydrus Facility;
- Temporary use during construction in the Central Area Construction Enclave and construction site access using existing AWE site roads from, and including A340 Gate; and
- Use of the temporary West End Construction Enclave.

1.11 Some of the areas within the overall application site have already been granted temporary planning consent, and have been subject to environmental appraisal as part of other AWE planning applications, these include; WECE (part of New Office Accommodation ref 06/02326/COMIND); CACE (part of HEFF, ref 07/02438/COMIND). Full consent has also been granted for the A340 Gate (Paices Hill) improvements.

Development Context

1.12 The development context has been defined within the Site Development Context Plan. This was prepared in the later half of 2005 and updated in April 2008 and drawn up in relation to the operational requirements of AWE. It was supported by a Strategic Sustainability Appraisal of the predicted development programme over the next 10 years in accordance with the principles in the MOD Sustainability and Environmental Tool Kit Handbook. The Hydrus proposal has been included in the SDCP since 2005 and is identified by reference 9 and 10.

National and Local Policy Context

1.13 The design principles used in this site are based on National and Local Guidance including:

- Design and Access Statements, how to write, read and use them, CABE, 2006, reprinted 2007.
- DCLG Circular 01/2006 Guidance on changes to the Development Control System, June 2006.
- Planning Policy Statement (PPS) 1: Delivering Sustainable Development, ODPM (February 2005).
- Better Places to Live – A Companion Guide to PPS3, DTLR and CABE (2001).
- The Value of Urban Design, CABE, UCL & DETR (2001).
- Urban Design Compendium, English Partnerships (August 2000).
- South East Plan (2009).
- West Berkshire Local Plan Policies (saved policies).

1.14 The statement is structured on the guidance provided by CABE on DASs. However, it is important to be aware of the particular circumstances of this case, predominantly due to the very specific nature of the planned development and the heavily constrained context in which it is being proposed. These factors limit the scope for decision-making in respect of the use, amount and location of the proposed development, which are essentially predetermined by the operational requirements of such a facility and the sensitivity of its surroundings.

1.15 Notwithstanding, in addition to design guidance, any decisions about the overall scale, massing and appearance of the proposals must be carefully considered and measured against the recommendations of AWE's long-term SDCP 08 as well as potential impacts of such proposals on the wider site context.

2. SITE APPRAISAL

Site Location and Context

2.1 AWE Aldermaston is located 15km to the southwest of Reading and 13km to the east of Newbury. It is situated immediately to the north of the settlement of Tadley, within the district of West Berkshire abutting the Hampshire County border to its south. It is within Aldermaston Parish. The AWE site lies on the eastern side of the A340. The A340 links the A4 at Aldermaston Wharf (4km to the north; to the east of Woolhampton) with Basingstoke (11km to the south). It is bounded to the north by Portland

House/Aldermaston Court, to the east by Red Lane and to the south by Reading Road. See Figure 1: Site Location Plan.

2.2 There are five vehicular access points into AWE Aldermaston. All the access points have security gates; furthermore the entire site is enclosed by a security fence and is subject to stringent security controls. See Figure 2: Illustrative Master plan and Figure 3: Hydrus Project Area. The site is located towards the northern boundary of AWE Aldermaston, within an area which was previously developed and only recently cleared.

2 .3 AWE Aldermaston extends to 285ha. The red line planning application extends to 14.03 ha although the new facility will only involve re-development of 6.47 ha, the remaining land within the red line being used to manage construction activities and access.

Character and Built Form

2.4 The character of AWE Aldermaston can be defined as consisting of dense infrastructure, which has evolved from the runways, extensive areas of hard surfacing and buildings from World War II. The built form mainly consists of regular buildings, which are of an industrial and office character. It has a dense infrastructure of streets, which reflects the former use of the site as an air force base, with heating pipes that run above the surface adding to the general clutter of the site. There are large areas of car parking utilising parts of the runways. Generally, the heights of the buildings are consistent throughout the site, however some modern buildings are taller and larger providing higher levels of glazing, these buildings are designed to higher sustainable standards. The extensive ongoing construction work also forms part of the character, for the short term.

2.5 The Hydrus site and its immediate surrounding areas can be defined as primarily industrial on a flat topography at the northern perimeter of the site. There are large areas of car parking between the buildings behind inner security fence and roads. The Hydrus site has been cleared of all the buildings.

Access & Movement to the Proposed Site

2.6 The two access points as illustrated in Fig 4: Opportunities and Constraints Plan are the Construction Access off A340 and the West End Access off A340 Paices Hill and Aldermaston Road. These access points have recently been upgraded by constructing roundabouts as part of Project Gemini (NOA). There are gates at each access point for security checks. The West End Construction Enclave (WECE) accessed from the Aldermaston West Gate provides facilities for: HGVs and LGVs searching and document check prior to entering the site, construction worker document check, car parking and welfare, construction lay down. These areas have been used for these purposes since 2006 in support of the construction of the Gemini and Orion facilities.

2.7 Access for operations can take place at 5 gates located around the site.

History

2.8 AWE Aldermaston is the headquarters of AWE operations and has long been associated with defence, originally being a site of a World War II Airfield. It has since played a central role in national defence for more than 50 years, responsible for the entire life cycle of the United Kingdom’s nuclear war heads, from initial research, design, through component manufacture and assembly, to in-service support and, finally, decommissioning and disposal.

Landscape Character

2.9 The landscape character of the immediate surroundings of AWE Aldermaston together with the visual assessment associated with the Hydrus development is summarised in Chapter 13 of the Hydrus DEEA Volume 1

2.10 The character can be summarised as:

- Aldermaston Park Pasture and Woodland Fringe - lies to the north of the site, with an area of parkland, heath associated paddocks, plantations and woodlands forming part of the Grade II Registered Park of Aldermaston Court. This area is characterised as having medium or high landscape value and as being moderately sensitive to change. Historic landscape elements such as Grim's bank and the course of the Roman Road are included within this landscape setting.

- Haughurst Hill Heath - associated pasture and woodland - lies to the west of the site, which comprises of mixed agricultural, residential and wooded areas ranging from the local hill tops at Brimpton Common and Ashford Hill. This area is characterised as having medium value, which is moderately sensitive to change.

- Tadley Urban Area – lies to the south, where the town of Tadley has developed since the 1950s, surrounded by agricultural and heathland landscapes. The landscape quality of this area is assessed as low value and low sensitivity to change.

- Kennet Valley Gravel Beds - lies to the north, where extensive water bodies, extraction and landfill mark the river floodplain, with the edge of urban Reading to the north and east.

Cultural Heritage

2.11 Chapter 14 of the Hydrus DEEA Volume 1 provides an assessment of the potential impacts of the proposed Hydrus development at AWE Aldermaston on the cultural heritage of the site.

2.12 Historic characterisation was commissioned by AWE in view of the increasing recognition of the heritage value of 20th Century military installations, and the need to take their historical development into consideration when planning development. The document has been adopted by AWE and has been reviewed by English Heritage. The characterisation process provides the basis for assessing archaeological potential and other environmental constraints. This process has distinguished attributes of different areas of the site and identified them as Character Areas.

2.13 The application site is predominantly within the northernmost part of the large area characterised as being EX2 – Northern area storage. This area, which occupies most of the eastern half of the AWE site, is associated with the processing and storage of explosives in characteristic mounded structures. Most of the character area is still laid out as it was when first established, but the buildings, roadways and foundations within the Hydrus site have been removed.The area which is regarded as being of medium heritage value, still retains scattered elements of its earlier parkland character.

2.14 There are no Registered Battle field in the vicinity of the Hydrus Development Site, the closest being 12km away, at Newbury.

2.15 There is one registered Park within one km of the Hydrus Site. This is Aldermaston Park which lies immediately to the north of the proposed development. This is listed as Grade II. The designated area of Aldermaston Park includes the Grade I listed Church of St Mary and the Grade II* listed Aldermaston Manor Court and North West, North, Middle and Church Gate Lodge. It also includes ten other Grade II listed buildings, structures and tombs. The entirety of the Hydrus Development Site formerly lay within part of the park which was requisitioned for airfield use during the Second World War and is excluded from the designated area. The proposed development thus has the potential to affect the setting of the park and associated structures and needs to be sensitive in its approach in regard to this matter.

Ecology

2.16 Chapter 15 of the DEEA provides a description of the ecological character of the proposed development site. A phase 1 habitat survey identified the following areas of value:

- Broadleaved and Coniferous scattered parkland trees – of value due to age and opportunities for nesting and foraging birds and bats.

- Semi-improved acid grassland – of value for invertebrates, foraging bats and birds, and herpetofauna.
- Semi-improved neutral grassland – potential habitat for reptiles, invertebrates, foraging bats and small mammals.
- Wet ditch – potential to support reptiles, invertebrates and small mammals.
- Tall ruderals – fills gaps between woodland, scrub and grassland.
- Ephemeral/short perennial – value to black redstarts, and reptiles.

2.17 Measures will need to be provided to reduce the effects of the development. Mitigation measures will also need to provide for the protected species.

Summary

2.18 The proposed site is located at the northern edge of AWE Aldermaston on a previously developed site.

2.19 Generally the proposed development site is devoid of any significant environmental features other than a few trees which will be retained and incorporated within the comprehensive and detailed landscape scheme. Established roads and gates provide opportunities for access to the site during construction and operation.

2.20 Adjacent land at Aldermaston Manor and Park will be moderately sensitive to change both from a landscape and heritage aspect.

3. DESIGN PRINCIPLES

3.1 The design principles formulated for the Hydrus development incorporate the following key requirements as set out in the SDCP05 and repeated in the SDCP08 namely:

- Creation of a working environment that facilitates business effectiveness and efficiency;
- Provision of a modern working environment for staff in order to retain and attract new staff;
- Contribution to an improved image and character of AWE towards a 'Science and Technology Park'; and
- Working towards the Government's aims to make sites and buildings more sustainable.

3.2 The application of these design principles for the Hydrus development is discussed below.

Use

3.3 The future use of the proposed development is fixed as a replacement hydrodynamics research and development facility including an Operations Building with lightning protection system, a support building, and electrical substation, and associated landscaped areas including a Sustainable Drainage System (SuDs). Construction related infrastructure is also proposed including access road, construction compound, fencing, gates and ancillary facilities.

3.4 The development proposals are summarised as follows:

- Operations Building (gross external footprint of 9,621 square metres providing a floor space of 14,176 square metres).
- A support building (gross external footprint of 2226 square metres providing a floor space of 2515square metres).
- An electrical substation with a footprint of 216 square metres.
- A sustainable drainage system.
- External works and landscape strategy (access and circulation routes, lighting, grasses mounds, hedgerows, shrubs and tree planting, and a living sedum "green" roof to the support Building and the electrical sub station.

- A permanent water borehole with an associated head works chamber (constructed under permitted development).

Location

3.5 The site is located at the north-west edge of the AWE boundary close to the Grade II listed landscaped grounds Historic Park and Grade II* listed Manor house.

Amount

3.6 The amount of new development is related to the specific operational requirements of the Hydrus facility. It should consider the short, medium and long-term flexibility of proposed building, and how these could be internally altered or extended in a controlled future expansion.

Size, Scale and Massing

3.7 The size and scale of proposed development is limited as far as possible in the context of providing a facility for Hydrodynamics research. It is envisaged that to encompass all the existing facilities under one roof will require a large building; however the height of the building should be restricted as far as is practicable in response to the wider site development strategy and in response to landscape and visual considerations and generally sit well within the wider countryside context.

3.8 A valid design approach is one in which the requirements are met with:

- Functional and practical solutions that have the benefit of ensuring proposals respond more robustly to the task of improving the facility and improving the overall quality of the area.
- Distinctive structural/ architectural aesthetic that has the benefit of ensuring proposals respond more robustly to the task of lifting the overall quality of the public realm, and promote an increasingly distinctive and legible working environment.

3.9 As a general rule, buildings should be regularly arranged and geometrically aligned with the road network, allowing efficient access and servicing. These include the provision of adequate levels of natural light and ventilation, and the provision of emergency access to all parts of the building.

3.10 Existing buildings at AWE Aldermaston vary considerably in terms of size and scale according to the specific operational requirements. In the case of the proposed facility, thought should be given to the way in which the design of new development could be lifted beyond the purely utilitarian requirements of a functional building.

Access and Parking

3.11 The proposed development should utilise the existing accesses into the site.

Landscape

3.12 Development proposals should be set within a landscaped area and maximise existing opportunities. Appropriate low-level screen planting should also be provided within the site to provide sufficient tree cover in the area.

3.13 Landscape design proposals should be drawn up with advice from an ecologist in respect to species choice and habitat creation.

4.0 DESIGN PROPOSAL

Design

4.1 The design approach for this proposal is for a sustainable and high quality development in the context of ensuring that the proposal responds robustly to the task of providing a replacement hydrodynamics research and development facility.

4.2 The new building will have a distinctive structural / architectural aesthetic that has the benefit of lifting the overall quality of the public realm, and part of a programme to gradually promote an increasingly distinctive and legible working environment. In order to deliver optimum efficiencies and benefits the new building will accommodate all the required processes within a single building, with equipment placed in a logical manner with respect to location, process, flow, juxtaposition and interaction with other functions.

4.3 The design has considered in detail all appropriate technologies for sustainability and energy efficiency to reduce energy consumption within the remit of AWE requirements. High levels of glazing are provided for all areas of the facility where practicable to maximise natural daylight.

Locational Context

4.4 The site is located at the north-west edge of the AWE boundary close to grade II listed landscaped grounds and a manor house. There have been three key sightlines established with the local planning authority; two long distance views from the south west and north east and a view directly from the manor house to the central area of the site along an historic avenue of trees which defines a strong contextual alignment axis. The perimeter location of the Hydrus site near a publicly accessible grade II listed setting makes it unique from other AWE sites. The topography of the site forms a localised area of high ground, falling away to the south, but otherwise is generally flat with a small number of trees mainly along the southern perimeter.

4.5 A number of fundamental design philosophies were incorporated into the architecture to address the intent of the overarching town planning guidance which can be summarised as: *a quality of architecture which minimises the visual impact of the development*. Key design decisions were made during the early concept design stage and are concisely defined by the strategies adopted for: the site layout, the form, proportion and massing of the buildings and structures, and the articulation of the elevations expressed through the use of materials and finishes.

Site layout

4.6 The site approximates to a diamond shape with the central area comprising the larger proportion. The historic avenue of trees projects a line through this central area of the site and it is this axis originating from the centre of the south elevation of the manor house, combined with the intersection of the broad central space of the site, which determines the position of the Operations Building. This is an intuitive design decision as well as a practical one, offering clear technical and engineering advantages to the layout of the site. The axial positioning of the main building allows a direct and clear relationship with the historic setting. Attempts to conceal the building to the left or right of the axis would have been counterproductive due to the scale of the building and the constricting western and eastern areas of the site. Offset positions were considered but revealed a partial view of the building from the avenue, resulting in a misalignment, and an awkward visual imbalance. A direct alignment ‘looks right’ and provides a solid balanced proportion of architecture and landscape contextual setting, more acceptable to the eye. The Support Building is located to the east of the Operations Building, away from the central axis and has a direct association with the entry gate. The substation is located as far as possible to the west of the site, removing it from any visual impact or association with the avenue axis.

Form and massing of buildings and structures

4.7 Having established a clear rational for the position of the buildings, forms were developed which sought to diminish the massing and scale of the facilities by the use of recessive and continuous shapes,

minimising silhouettes and skyline impacts. An early decision to use a single primal roof form for the Operations Building was the key to this philosophy. The roof form, a flattened dome, brings the scale and massing down towards the ground, encompassed by a smooth circular edge. This smooth continuous over-sailing roof acts as a counterfoil to the complexities and demands of the building's plan form below. Based on an octagon, the footprint has several projections for functional reasons, all of which are unified by the embrace of the sinuous roof form above.

4.8 The Operations Building requires an aerial lightning protection system comprising masts and suspended cables connected with clamped nodes and plates. The masts are the dominant feature of the development's skyline so significant creative energy was expended to arrive at a solution enabling the least visual clutter. The number of the masts, their relative positions to the building's footprint and the site's context was carefully considered to produce an integrated architecture of building and structure which additionally addressed the near distance avenue vista.

4.9 The eight masts are arranged in four pairs, each 'locked' onto alternate facets of the octagon. Two pairs are aligned with the historic avenue axis to produce a strong and deliberate relationship with the historic landscape context. Whilst this is a powerful interaction with the avenue it is also a visually stable and balanced relationship. Other options considered included offset single mast alignments but these produced a more awkward, unbalanced and less clear visual relationship with the avenue. Furthermore, technical issues of mast base positions in relation to the site's infrastructure proved problematic.

4.10 The masts were initially considered as lattice towers which enabled a traditional engineering response, but it was immediately apparent the volume of visual clutter would have significant greater visual impact and would not successfully address the overarching town planning guidance for recessive and visually 'quiet' forms. The solution was to design and engineer circular section masts with a gently tapering shape, diminishing to the smallest dimension at the tip as could be achieved.

4.11 In the same way as the continuous and smooth roof form will not generate strong shading across its surface, the masts will cast only a soft and graduated shadow upon themselves. The roofscape includes vents for air, smoke and process extracts which typically form a surface detail, some of which are visible in the silhouette of the roofscape, but as minor elements.

4.12 The smaller scale Support Building utilises a functional three-stepped roof form with the greater part of the mass and height stepping away from the Operations Building. The Substation is a single storey 'pavilion' scale of building.

Articulation of the elevations expressed through the use of materials and finishes

4.13 The elevations of the Operations Building comprise the eight principle flanks of its octagonal geometry, intersected by several projections to accommodate points of access and experimental equipment. These projections of the envelope break up the massing and scale of the principle elevations which are vertically articulated in three horizontal bands, providing a base, middle, and a top.

4.14 The base uses the device of a visually heavy plinth to 'anchor' the elevations to the ground plane whilst providing a practical response to the needs for a robust material at access points around the building. The plinth acts as a unifying element, collecting the mêlée of low level personnel doors within its height and providing a solid base for the upper sections. The panels are jointed vertically so as to produce a 3:1 length to height panel proportion, accentuating the horizontality and 'gravity' of the lower section. The use of the building prevents the inclusion of glazing.

4.15 The middle section represents in proportional terms the dominant area at approximately two-thirds of the height of the elevations and is vertically configured in modular panels delineated by fins extending beyond the face of the cladding, producing a 1:2 length to height vertical panel proportion contrasting with the weight and horizontality of the plinth below. The fins add depth and shading as well as modulation, framing each panel in combination with top and bottom sections, the latter acting as the sill across the top of the plinth. Depth is further accentuated by an open slatted arrangement of vertical strips between the fins allowing a clearly perceived depth behind the slats, producing a three dimensionally layered elevation

articulated in depth as well as height. This open layering of planes contrasts with the solidity and rough texture of the plinth strata firmly rooted to the ground below. The potential for birds nesting between the slats has been considered, leading to the philosophy of designing large vertical gaps and narrow ledges, which will not provide the protection and security that nesting birds seek, and allowing ease of visual inspection.

4.16 Above the middle section is a continuous band of functional louvres, expressed as a ribbon of fine horizontal lines connecting with the dominant roof overhang via the soffit. The main roof is the dominant massing element, forming a constantly changing and sometimes deep shadow on the elevations, generating a complex and changing sun dial pattern of light and shade, as the sun moves around the building. Despite the large roof area, only an elegant, smooth and continuous 'aerofoil' edge will be visible at close quarters as it carousels around each of the eight principle elevations. In combination with the octagonal footprint, the recessive and continuous roof form will present 'Tardis'-like, only an indication of the greater mass of the building at any one time.

4.17 A palette of materials and finishes has been developed which compliments both the articulation of the elevations and the intent to minimise the visual impact of the buildings, working holistically with the overall form and massing of the architecture. A photographic record of the building materials and samples is included in Annex 11 to the Planning Supporting Statement.

4.18 The plinth material is proposed to be re-constituted stone pre-cast concrete comprising white, grey and black stone aggregate flecks giving an overall grey- silver colour. The finish is proposed to be heavily textured and further accentuated with deeply recessed horizontal strikes creating a bold and powerful base.

4.19 For the middle section, timber with a natural self-finish is proposed, acting as a softening counterfoil to the materials textures and colours above and below. The use of a lighter natural material framed by self finished aluminium metal fins will contrast with the functional metallic sharpness above and the weight of the stone plinth below, achieving a contemporary but enduring character and an expressed proportioned articulation of the elevations. The use of timber as the principle cladding material will tangibly 'flag' the project's sustainability credentials, which are otherwise embedded within the internal workings of the facilities.

4.20 The continuous band of louvres is proposed as a natural metal aluminium finish, matching the fins below, connecting to and complimenting the zinc finish of the main roof.

4.21 The roof edge is finished in smooth zinc, formed from continuously radiused panels in plan and section from the soffit to the gutter line. Above the gutter the main roof is finished in zinc standing seam producing a fine texture of lines, set out to a pattern responding to the positions of the four pairs of lightning masts. The zinc, natural metal and timber finishes will patina and weather over time, revealing tones of muted silvers and greys, complimenting the overarching philosophy of recessive and continuous forms.

4.22 The three projections from the south elevations are secondary elements to the main roof form and walls. A clear and deliberate gap is maintained between the roofs of the projections and the main roof soffit to reinforce this physical and philosophical separation, so that the main roof edge continues uninterrupted a full 360 degrees. As a clear departure from the typical eight elevational facets of the principle walls an opportunity is presented for a contrasting articulation and materiality to the muted natural greys and silvers of the base, middle and top. The projections are proposed to be pure massings of white synthetic render without articulation – the exact opposite of the architecture of the principle walls. Each will act as a foil to the other, the 'white canvases' complimenting and reinforcing the layering, textures and natural weathering of the articulated walls beyond.

4.23 The lightning masts are proposed to be finished in a white-grey, a true white but more muted and satin egg-shell in finish than a hard polar bright white. The standard 'British sky' condition is 'bright overcast' and it is the established and accepted practice, through precedents such as wind farms and flag poles, that a white colour for mast structures will, for more of the time during the course of a year, have less visual impact than any other colour.

4.24 The entrance lobby is a circular form, echoing the main roof form and materials to provide a weather protected entrance and orientation point, visible from the Support Building entrance. With reference to the three projections from the south elevations, the entrance lobby presents the opportunity for a contrasting articulation and materiality to the muted natural greys and silvers of the base, middle and top. Supporting the lobby roof with radiating fin shaped painted steel columns finished in white to match the lightning masts, the space is contained by no more than the columns and balustrades of the stairs and floor edges of the circular lobby space.

4.25 The smaller Support Building takes its cue from the Operations building in all but roof form, instead following a straight forward functional three-stepped roof with minimal roof edges and parapets, beyond which three flat green roofs contribute to the bio-diversity of the site's ecology. Being an occupied building, glazing is used to provide natural light, ventilation and views out for the occupants.

4.26 The Substation takes its cue from the Support Building with an adaptation of the elevational articulation philosophy and a flat green roof, but due to its infrastructure function has no glazing.

4.27 The strata of materials from the reconstituted stone plinth at ground level, through the timber and self-finished metal framed middle areas to the metal louvres and smooth dished form of the zinc clad roof produce a careful meld and orchestration of visual weight and texture, natural finish, colour and hierarchy, to produce an appropriately scaled articulation of the elevations, complimenting the overall form and massing to produce an architecture of minimum visual impact. The buildings respond directly to the site's context, aligning with the historic avenue of trees and the wider park landscape.

Sustainability and Energy Efficiency

4.28 Since 2nd January 2007 there has been a requirement to assess the environmental performance of new buildings, which is regarded by the UK's construction & property sectors as the measure of best practice in environmental design and management.

4.29 When designing the new facility all sustainable methods of construction and materials were considered. It responds to the South East Plan Policy CC4. It adopts and incorporates sustainable construction standards and techniques, which include:

- High standards of energy efficiency that exceed current standards required by the Building Regulations and reflect best practice;
- Designing to increase the use of natural lighting, heat and ventilation, and the provision of a proportion of energy demand from renewable sources; and
- Reduction and increased recycling of construction and demolition waste and procurement of low-impact materials.

4.30 The design of the building aims to achieve a DREAM excellent rating. The development strategy incorporates energy efficiency within the design.

4.31 AWE's aim is to achieve sustainable development, which meets the needs of the present, without compromising the ability of future generations to meet their own needs. Sustainability is a core part of the Site Development Context Plan (SDCP 08). These strategies will guide the implementation of the proposed development through the following strategies:

- Energy and water efficient building design and reduction of carbon dioxide (CO2), emissions through the AWE Energy Strategy;
- Minimising environmental impact and disruption to local residents during construction through the AWE Code of Construction Practice (CoCP);
- Reducing single occupancy car travel and encouraging sustainable transport modes through the AWE Travel Plan;
- Managing and minimising construction waste through the CoCP; and
- Delivering the SDCP 08 and maintaining biodiversity.

Waste

4.32 Wherever possible, materials have been selected from the Waste and Resources Action Programme building material approved list. This is primarily to take advantage of their environmental and recyclable properties, as well as their material qualities both now and when the building is eventually decommissioned in the future.

Drainage

4.33 All drainage proposals will comply with the MOD Sustainability Handbook. The objectives that apply to this development are to safeguard fresh water resources and water quality; safeguard the health and productivity of inland waters and seas; reduce the threat of persistent or diffuse pollutants to the environment and human health; prevent damage to property by flooding; and ensure that the waters are clean to sustain wildlife and communities.

4.34 The details of the measures taken to minimise pollution and control surface water run off are discussed in detail in the DEEA.

4.35 The AWE Surface Water Drainage Strategy informs an approach to Sustainable urban Drainage System (SuDS). A surface water drainage system that minimises the effect of the redevelopment on the receiving system is required. Hence, the surface water drainage for the site will be collected by a new sewerage system, which will discharge into the existing drainage system. This minimises the effect of the redevelopment on the receiving system.

4.36 Specific attenuation facilities were discussed with the Environment Agency and the point at which the surface water needs to be attenuated to meet EA design criteria. The locations of these facilities within the boundary of the AWE site at the point where the flows enter an EA regulated watercourse has been agreed with EA.

Accessibility

4.37 The Transport Assessment accompanying the planning application assesses the impact of the proposed development on the surrounding network.

4.38 The design of the development has incorporated the requirements of all users as required by Part M of Building Regulations 2004, and other guidance as stated in the DEEA, where reasonable and practical. The details of all the access requirements are listed in the DEEA.

4.39 There is no car parking or disabled parking provided on site. However, there is a disabled drop off point provided at the entrance.

Drainage

4.40 All drainage proposals comply with the MOD Sustainability Handbook.

Green Roof

4.41 The three roofs on the support building, and the roof of the electricity substation, will all be extensive green roofs.

4.42 These will bring the benefits of improved microclimate by absorption of solar radiation, stabilisation of the building temperature through mass, and improved rainwater management through delayed rainfall run off, contributing to a sustainable drainage solution. The planting on the roofs would also increase biodiversity across the site.

4.43 The extensive green roofs will be of a proprietary single ply roof waterproofing system, topped with an aggregate / lightweight growing medium.

4.44 The roofs will be planted with closely grown low plants able to withstand frost and drought, with low nutrient requirements and a high capacity for regeneration, enabling them to survive adverse weather conditions. A typical plant palette would include:-

Sedum album
Sedum reflexum
Sedum hisponicumglaucum
Sedum lydium
Sedum sexangulare
Sedum acre 'Aureum'

4.45 These species would be planted either in a pre-grown mat system, rolled out onto the substrate to give an 'instant' green roof, or established through a combination of plug planting with hydro-seeding.

4.46 The roofs are designed to be limited access, with a yearly inspection for checking flashing and drainage outlets and twice yearly visits for the removal of unwanted plants.

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5.0 CONCLUSION

5.1 This statement shows how the proposed development has been informed by the very specific operational constraints in place at the Aldermaston site, along with concern for the wider issues affecting the sustainability of the AWE sites as set out in the SDCP 08.

5.2 Potential impacts and mitigation measures at the construction and operation phase are taken into account, and the residual effect of the proposed scheme on the cultural heritage is considered to be negligible.

5.3 The proposed replacement facility will provide a replacement Hydrodynamics research and development facility. .

5.4 The current proposal calls for a significant departure from previous eras of development in which the specific function of the building was predominately the driving factor in its siting, design and external appearance.

5.5 The modern design of the building provides a comprehensive landscape proposal of hard and soft landscaping including the retention of the existing copse. This would result in an improvement of the local character of the site.

5.8 The proposed building exceeds the basic requirements of the brief to provide a manufacturing facility, and adds value in respect of its unique approach to design for the following reasons:

- The building will be distinctive in its own right.
- The building will be discrete when viewed from within the wider surrounding landscape.
- The building will be functional for visitors and staff..
- The building will be efficient, in modernising the facility and relocating it centrally at AWE Aldermaston, thus moving towards economic efficiency and consistent with the SDCP 08, thus meet the demands of AWE and Ministry of Defence.
- The building will be sustainable, designed with its eventual decommissioning in mind and incorporating sustainable building technology such as the use of SuDs to provide storage for flows

generated by 1:100 year event and prevent silt wash to surrounding areas during the 1:10 year event to ensure that the runoff water would not increase with the proposed development.

5.9 For these reasons it is considered that the current development proposals will provide a good benchmark for the ongoing redevelopment and rationalisation of the Aldermaston site, setting a high standard of design in the process of meeting the present and future operational requirements at AWE.

5.10 The sustainability measures applied to the development have been designed to achieve a DREAM excellent rating.

5.16 A Code of Construction Practice will be adopted during the construction process.