

# Appendices to the Habitats Regulations Assessment Site Report for Dungeness

**EN-6: Revised Draft National Policy Statement for Nuclear Power Generation** 

#### Habitats Regulations Assessment of the revised draft Nuclear National Policy Statement

Habitats Regulations Assessment (HRA) screening and Appropriate Assessment (AA) of the revised draft Nuclear NPS including potentially suitable sites, has been undertaken in parallel with the Appraisal of Sustainability (AoS). These strategic assessments are part of an ongoing assessment process that will continue with project level assessments. Applications to the IPC for development consent will need to take account of the issues identified and recommendations made in the strategic, plan level HRA/AA; and include more detailed, project level HRA as necessary.

#### The Habitats Regulations Assessment is provided in the following documents:

#### **HRA Non-Technical Summary**

#### Main HRA Report of the revised draft Nuclear NPS

Introduction Methods Findings

#### Annexes to the Main HRA Report: Reports on Sites

Site HRA Reports Technical Appendices

All documents are available on the website of the Department of Energy and Climate Change at www.energynpsconsultation.decc.gov.uk

This document is the Appendices to the HRA site report for Dungeness.

This document has been produced by the Department of Energy and Climate Change based on technical assessment undertaken by MWH UK Ltd with Enfusion Ltd and Nicholas Pearson Associates Ltd.

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# **Appendix 1: European Site Characterisations**

Natura 2000 Site Identification				
Natura 2000		Radius (measured from c	entral grid reference point, M	IAGIC)
Designation	5km	10km	15km	20km
SAC	Dungeness	None	None	None
SPA	Dundeness to Pett Level	• None	• None	None
Ramsar (proposed)	Dungeness to Pett Level	None	• None	None

## **Natura 2000 Site Characterisations**

## Special Areas of Conservation (SAC)<sup>1</sup>

1. Dungeness

## Special Protection Areas (SPA)<sup>2</sup>

1. Dungeness to Pett Level

## Ramsar Sites<sup>3</sup> (pRamsar)

1. Dungeness to Pett Level (proposed)

All core site specific information unless otherwise stated has been referenced from the Countryside Council for Wales and Natural England Sources (<u>European Management Plans</u>) (Nature on the Map) and the Joint Nature Conservation Committee website (<u>Protected Sites</u>).

<sup>&</sup>lt;sup>1</sup>Special Areas of Conservation (SACs) are classified under the Habitats Directive and provide rare and vulnerable animals, plants and habitats with increased protection and management.

<sup>&</sup>lt;sup>2</sup> Special Protection Areas (SPAs) are classified under the Birds Directive to help protect and manage areas which are important for rare and vulnerable birds because they use them for breeding, feeding, wintering or migration. Together SAC's and SPA's make up the Natura 2000 series.

<sup>&</sup>lt;sup>3</sup> Ramsar sites are designated under the Convention on Wetlands of International Importance. The broad objectives are to stem the loss and progressive encroachment on wetlands now and in the future. These are often coincident with SPA sites designated under the Birds Directive. Although RAMSAR sites are not considered part of the Natura 2000 network, they are treated the same way as Natura 2000 sites.

## **Special Areas of Conservation**

**Site Name: Dungeness** 

• Location (lat/long): 005710 E/505508 N

• JNCC Site Code: UK0013059

Size: 3223.56 (ha)Desingation: SAC

	Dungeness SAC
Site Description	The Dungeness foreland has a very extensive and well-developed shoreline, although with sparse vegetation and in places some human disturbance. It is one of two representatives of Annual vegetation of drift lines on the south coast of England. The strandline community on this site comprises Babington's orache <i>Atriplex glabriuscula</i> , which occurs mostly on the accreting eastern shoreline, although it is also present on the eroding southern shoreline.
	Dungeness is the UK's largest shingle structure and represents the habitat type on the south-east coast of England. The total area of exposed shingle covers some 1,600 ha, though the extent of the buried shingle ridges is much greater. Despite considerable disturbance and destruction of the surface shingle, the site retains very large areas of intact parallel ridges with characteristic zonation of vegetation. It still has the most diverse and most extensive examples of stable vegetated shingle in Europe, including the best representation of scrub on shingle, notably prostrate forms of broom <i>Cytisus scoparius</i> and blackthorn <i>Prunus spinosa</i> . A feature of the site, thought to be unique in the UK, is the small depressions formed within the shingle structure, which support fen and open-water communities – known as Open Pit features. Such depressions are deep enough within the shingle deposit to intercept the underlying groundwater table.
	Dungeness contains a large number of waterbodies. This extensive site hosts a large and viable

	Dungeness SAC
	great crested newt <i>Triturus cristatus</i> population in a range of natural and anthropogenic habitats. These include natural pools and those resulting from gravel extraction and other activities. Terrestrial habitat of importance for feeding and shelter is provided by a range of open shingle vegetation with scrub in the vicinity of some of the waterbodies.  (Source: <a href="http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUcode=UK0013059">http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUcode=UK0013059</a> )
	(Codico. Interior www.jinoc.gov.dia i rotostodolos i todolostici i rodolostici i rodol
Qualifying Features	Annex I habitats that are a primary reason for selection of this site
	<ul> <li>1210 Annual vegetation of drift lines</li> <li>for which this is one of only four known outstanding localities in the UK</li> </ul>
	which is considered to be rare as its total extent in the UK is estimated to be less than 100 hectares
	1220 Perennial vegetation of stony banks
	for which this is considered to be one of the best areas in the UK
	Annex II species that are a primary reason for selection of this site site
	1166 Great crested newt Triturus Cristatus
	for which this is considered to be one of the best areas in the UK
	(Source: <a href="http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0013059">http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0013059</a> )
	Lichen heath communitiy is part of the Perennial vegetation of stony banks. Lichen heaths are sensitive to changes in air quality, and are prone to the smothering effects of dust.
Conservation Objectives	The Conservation Objectives for this site are:

	Dungeness SAC
	To maintain in favourable condition:  O Annual vegetation of drift lines, O Perennial vegetation of stoney banks  To maintain in favourable condition, the habitats and population of: O Great Crested Newt  (Source: Dungeness to Pett Level Coatstal Habitat Management Plan, 2002  http://www.eclife.naturalengland.org.uk/champs/pdf/CHaMP.pdf)
Component SSSIs	Dungeness, Romney Marsh and Rye Bay SSSI is a nationally important site by reason of a diverse range of biological and geological features, specifically the coastal geomorphology of Dungeness and Rye Harbour and the following nationally important habitats: saltmarsh, sand dunes, vegetated shingle, saline lagoons, standing waters, lowland ditch systems, and basin fens. The SSSI is a nationally important site with a diverse coastal landscape comprising on a number of habitats which appear to be unrelated to each other, however all of them exist today because coastal processes have formed and continue to shape a barrier or extensive shingle beaches and sand dunes across an area of intertidal mud and sand flats. The site contains the largest and most diverse area of shingle beach in Britain, with low lying hollows in the shingle providing nationally important saline lagoons, natural freshwater pits and basin fens.  Dungeness and Rye Harbour comprise the largest cuspate foreland (a low-lying triangular foreland) in Britain and form part of a system of barriers beaches that can be traced 40 km from Fairlight to
	nationally important site with a diverse coastal landscape comprising on a number of habitats which appear to be unrelated to each other, however all of them exist today because coastal processes have formed and continue to shape a barrier or extensive shingle beaches and sand dunes across an area of intertidal mud and sand flats. The site contains the largest and most diverse area of shingle beach in Britain, with low lying hollows in the shingle providing nationally important saline lagoons, natural freshwater pits and basin fens.

	Dungeness SAC						
	shingle ridges/geomorphology, cuspate foreland (ness) development and associated sediments, such as marsh interface deposits and peat. The major phases of development of the foreland are represented in a series of morphological and sedimentological zones each of which provide distinct and critical evidence. Natural changes are beneficial to the shingle feature within the SAC, in that erosion should balance accretion. The continuing evolution of the foreland is itself of interest. The site is responding to a a variety of influences including reduction in sediment supply, coastal defence works, recycling for beach management, training walls at Rye Harbour and sea-level rise, including that caused by climate change. However despite these influences the site continues to evolve, and understanding the ongoing evolution, including comparison of historical changes and the influence of human activity, is a key element of the interest.  Component SSSI (194 units) condition summary:						
	SAC component site	Favourable	Unfavourable recovering	Unfavourable no change	Unfavourable declining	Destroyed, part destroyed	
		57.38%	33.89%	6.71%	2.02%	0.00%	
	(Source:http:// =S&reference		ralengland.org.uk	:/Special/sssi/repo	rtAction.cfm?repc	ort=sdrt18&cate	egory
Key Environmental Conditions (factors that maintain site integrity)	<ul><li>Protect these development</li><li>Selective scr</li></ul>	e areas from ac and coastal d	ctivities that may defense schemes ent and grazing or	rest, or drying out of damage or obscure to recreational pre mowing may be n	e them. Such acti ssures.		

Dungeness SAC
<ul> <li>Management may be necessary to prevent encroachment of trees and scrub.</li> <li>(Source: Views About Management, Dungeness, Romney Marsh and Rye Bay SSSI <a href="http://www.english-nature.org.uk/special/sssi/images/uploaded_files/2000533.pdf">http://www.english-nature.org.uk/special/sssi/images/uploaded_files/2000533.pdf</a>)</li> <li>Minimal abstraction of water.</li> <li>Minimal air pollution.</li> </ul>
(Appropriate Assessment of the Draft South East Plan, 2006 <a href="http://www.southeast-ra.gov.uk/southeastplan/key/app_assess/appropriate_assessment-nov06.pdf">http://www.southeast-ra.gov.uk/southeastplan/key/app_assess/appropriate_assessment-nov06.pdf</a> )
<ul> <li>Annual Vegetation of Drift Lines</li> <li>No decrease in linear extent, width of community, and % cover of vegetation from baseline. Extent must take account of natural variation of this habitat as a result of dynamic coastal conditions.</li> <li>No increase in linear extent or area constrained by introduced structures or landforms or operations.</li> <li>No disruption to the natural patterns of erosion and accretion within the site, or increase in the number of coastal defence operations disrupting the natural supply of sediment to the site.</li> <li>Maintain substrate through natural processes with sufficiently low levels of humaninduced disturbance to allow driftline vegetation to complete its vegetation cycle.</li> <li>Maintain the presence and broad distribution of stands of Atriplex glabriuscula dominated community and other local variants of drift line vegetation across the feature, allowing for natural variation.</li> </ul>
Perennial Vegetation of Stony Banks     No decrease in extent or area from previous studies. Vegetation allowed to recover naturally in areas where it has been lost due to human-induced disturbance. Extent must take account of natural variation of this habitat as a result of dynamic coastal

	Dungeness SAC
	<ul> <li>Processes.</li> <li>No increase in linear extent or area constrained by introduced structures or landforms.</li> <li>No disruption to the natural patterns of erosion and accretion within the site, or increase in the number of coastal defence operations disrupting the natural supply of sediment to the site.</li> <li>Maintain proportion of shingle/sand/organic matter, regulated entirely by natural processes.</li> <li>Maintain range of specialist vegetation and its zonation preciously recorded on the site, taking account of natural variation. One or more of the characterising species for each range of communities should be at least frequent if the communities have been previously recorded on the site.</li> <li>No reduction in extent of vegetation cover exhibiting relationship to geomorphological structure, taking account of natural variation.</li> </ul>
	<ul> <li>Great Crested Newt         <ul> <li>Maintain the range of the newts across the site, and the number of breeding ponds (bearing in mind that newt distribution in a metapopulation may vary naturally over a period of time).</li> <li>No loss of area or fragmentation of site. No barriers to newt movement between ponds.</li> </ul> </li> <li>(Source: Dungeness to Pett Level Coatstal Habitat Management Plan, 2002 http://www.eclife.naturalengland.org.uk/champs/pdf/CHaMPs/Dungeness%20Final%20CHaMP.pdf)</li> </ul>
SAC Condition Assessment	See SSSI condition status. SAC is currently in favourable condition.

	Dungeness SAC
Vulnerabilities (includes existing pressures and trends)	<ul> <li>The shingle vegetation is very vulnerable to disturbance by vehicles and walkers, although the coastal shingle (drift-line) vegetation has much greater potential for recovery than the perennial vegetation of shingle banks that occurs further inland. Extensive areas are now managed as a Nature Reserve at both Dungeness and Rye Harbour, with emphasis on interpretation of the sites's value and on appropriate public access. A ranger helps to enforce local bylaws which aim to prevent damaging from trampling, motorbike activity and illicit gravel extraction.</li> <li>The wetlands which support great crested newts were formerly grazed, maintaining open unshaded vegetation. This practice largely ceased in the 1950s, and since then there has been invasion of ponds by willows shading the water. Management by hand has now been undertaken to reduce this problem, and restoration of light grazing is being investigated.</li> <li>Abstraction of water is thought to have damaged some of the shingle wetlands as well as components of the perennial vegetation of the shingle beach. This will be addressed through the relevant review provisions of the Habitat Regulations.</li> <li>The site is close to an active airport which carries a potential risk from pollution, although current levels of air traffic and motor vehicles are not thought to cause a problem.</li> </ul>
	<ul> <li>(European Data Form for SAC UK0013059         http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0013059)     </li> <li>Perennial Vegetation of Stoney Banks</li> <li>Sediment supply - The ongoing development of a shingle feature depends on a continuing supply of shingle, for example, through sorm events. This supply can be lacking due to changes in coastal processes by coast defence structure, offshore aggregate extraction or artificial redistribution as is the case at Dungeness.</li> <li>Natural mobility - Shingle structures are rarely stable in the long term and movement is likely to be accelerated by climate change resulting in sea level rise and increased storminess.</li> <li>Exploitation - Shingle structures have been regarded as a convenient source of aggregates, and have been subject to varying degrees of extraction resulting in severe alteration of morphology and vegetation (for example. Dungeness). Industrial plant, defence infrastructure and even</li> </ul>

Dungeness SAC
<ul> <li>housing have been built on shingle structures (for example Dungeness). At Dungeness water is abstracted from the groundwater system; there is some evidence of drought stress on the vegetation, but it is difficult to distinguish the effects of water abstraction from those of gravel extraction.</li> <li>Access - Shingle is fragile; the wear and tear caused by access on foot, and particularly by vehicles, has damaged many sites.</li> <li>Grazing - Some areas of shingle were traditionally grazed. At many sites this management has ceased leading to domination of willow carr on wetlands and changes to vegetation structure. Impacts on breeding birds and other species are not fully understood.</li> <li>Air Pollution - Based on assessment of relevant literature, this habitat is potentially sensitive to air pollution.</li> <li>(Source: Conservation Status Assessment for H1220 Perennial Vegetation of Stoney Banks)</li> </ul>
http://www.jncc.gov.uk/pdf/Article17/FCS2007-H1220-audit-Final.pdf)
<ul> <li>Annual Vegetation of Drift Lines</li> <li>Main pressures as described above in Conservation Status Assessment of Perennial Vegetation of Stoney Banks.</li> <li>In addition seed dormancy, seed size, dispersal, sediment size, depth of burial, temperature, nutrient supply, disturbance during growth all influence colonization.</li> </ul>
(Source: Conservation Status Assessment for H1210 Annual Vegetation of Drift Lines <a href="http://www.jncc.gov.uk/pdf/Article17/FCS2007-H1210-audit-Final.pdf">http://www.jncc.gov.uk/pdf/Article17/FCS2007-H1210-audit-Final.pdf</a> )
<ul> <li>Great Crested Newt</li> <li>Main threats and pressures and threats on this species and its habitat include: Cultivation, modification of cultivation practices, abandonment of pastoral systems, removal of hedges and</li> </ul>

	Dungeness SAC
	copses, forestry clearance, mineral extraction activities, urbanised areas, human habitation, industrial or commercial areas, communication networks, water pollution, landfill etc., management of water levels, silting up, drying out, eutrophication, and predation.  (Conservation Status Assessment for S1166 <i>Triturus cristatus</i> – Great Crested Newt <a href="http://www.jncc.gov.uk/pdf/Article17/FCS2007-S1166-audit-Final.pdf">http://www.jncc.gov.uk/pdf/Article17/FCS2007-S1166-audit-Final.pdf</a> )
Landowner/ Management Responsibility	<ul> <li>Dungeness NNR is part owned by Natural England.</li> <li>The RSPB manage part of the NNR as a reserve.</li> </ul>
HRA/AA Studies undertaken that address this site	<ul> <li>HRA of Thurock Unitary Authority Core Strategy, 2007         Disturbance and trampling by humans and dogs is a key threat to bird species of shingle banks such as Dungeness SPA/SAC, which is a breeding site for Mediterranean gulls, common turns and little turns.         (Source: <a href="http://www.thurrock.gov.uk/planning/strategic/pdf/ldf">http://www.thurrock.gov.uk/planning/strategic/pdf/ldf</a> preferred ear hra.pdf     </li> <li>Appropriate Assessment of the Draft South East Plan, Volume 2, 2006</li> </ul>
	<ul> <li>(Source: <a href="http://www.southeast-ra.gov.uk/southeastplan/key/app_assess/appropriate_assessment-vol2.pdf">http://www.southeast-ra.gov.uk/southeastplan/key/app_assess/appropriate_assessment-vol2.pdf</a>)</li> <li>Non-technical Summary of the Review of Consents Site Action plan for Dungeness SAC.         Of 193 permissions assessed for impact upon the SAC only one could not be shown not to have an adverse effect. The remaining one will be modified.     </li> </ul>

## **Special Protection Areas**

Site Name: Dungeness to Pett Level<sup>4</sup>

Location: 505550 N/ 004459 E JNCC Site Code: UK9012091

Size: 1474.04 (ha) Designation: SPA

	Dungeness to Pett Level SPA
Site Description	Dungeness to Pett Level is located on the south coast of England, on the border of East Sussex and Kent between Hastings and New Romney. This is a large area containing a wide variety of coastal habitats, ranging from shingle beaches through to various types of wetlands and open water. Dungeness is a shingle beach of international importance as a large cuspate shingle foreland with a complex pattern of ridges reflecting its accretion and development over hundreds of years. The Open Pits contain a natural succession of wetlands from species-rich fen through to sallow carr. The nearby gravel pits have developed features of interest along their margins, as well as an open water interest, and, together with the Open Pits, are used by important numbers of wintering wildfowl.
	Rye Harbour has a smaller shingle beach which, together with the pits at Dungeness, supports breeding terns and gulls. The grazing marshes at Pett Level and Rye Harbour have close-cropped swards grazed by sheep where arable farming has not been introduced and support wintering wildfowl, including Bewick's Swan <i>Cygnus columbianus bewickii</i> . The numerous ditches that intersect these marshes have developed a rich aquatic flora and invertebrate fauna, and provide important habitat for migrating Aquatic Warbler <i>Acrocephalus paludicola</i> . Rye Harbour and Camber

<sup>&</sup>lt;sup>4</sup> Natural England have indicated that there are proposals to extend the SPA and add in additional qualifying features, and to rename the extended SPA Dungeness, Romney Marsh and Rye Bay SPA, but that this may be subject to change before formal notification is complete. The consultation on this is due to end in December 2010. http://www.naturalengland.org.uk/regions/south\_east/ourwork/dungenessconsultation/default.aspx

	Dungeness to Pett Level SPA
	Sands, and Rye Saltings, include saltmarsh, sand-flats and mud-flats that provide valuable feeding areas for wintering waterbirds. As a whole, the SPA is important for breeding (Common Tern Sterna hirundo, Little Tern S. albifrons, and Mediterranean Gull Larus melanocephalus) and wintering waterbirds (Bewick's Swan, and Shoveler Anas clypeata), and passage warblers (Aquatic Warbler Acrocephalus paludicola) - many feeding outside the SPA in nearby shallow waters. Bewick's Swans also feed on arable fields outside the SPA.  (Source: <a href="http://www.jncc.gov.uk/default.aspx?page=2046">http://www.jncc.gov.uk/default.aspx?page=2046</a> )
Qualifying Features	The qualifying features are Annual vegetation of drift lines of national importance. Nationally important wintering populations of Tundra Swan and northern Shoveler and breeding populations of Mediterranean Gull, Common Tern and Little Tern; on passage populations of Aquatic Warbler; and over wintering populations of Bewick's Swan and Shoveler (Annex I of the Bird Directive). This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:
	During the breeding season:
	A6.90 Common Tern Sterna hirundo, 266 pairs representing at least 2.2% of the breeding population in Great Britain (5 year mean, 1993-1997)
	A6.92 Little Tern Sterna albifrons, 35 pairs representing at least 1.5% of the breeding population in Great Britain (5 year mean, 1993-1997)
	A6.81 Mediterranean Gull Larus melanocephalus, 2 pairs representing at least 20.0% of the breeding population in Great Britain (5 year mean, 1993-1997)

	Dungeness to Pett Level SPA
	On passage:
	A6.100 Aquatic Warbler Acrocephalus paludicola, 30 individuals representing at least 44.8% of the population in Great Britain (Count as at 1997)
	Overwinter:
	A6.15 Bewick's Swan Cygnus columbianus bewickii, 179 individuals representing at least 2.6% of the wintering population in Great Britain (5 year peak mean, 1992/3-1996/7)
	This site also qualifies under <b>Article 4.2</b> of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:
	Overwinter:
	A6.33A Shoveler Anas clypeata, 419 individuals representing at least 1.0% of the wintering Northwestern/Central Europe population (5 year peak mean 1991/2 - 1995/6)
	(Source: <a href="http://www.jncc.gov.uk/default.aspx?page=2046">http://www.jncc.gov.uk/default.aspx?page=2046</a> )
Conservation Objectives	To maintain, in favourable condition, the habitat for the populations of Annex 1 species of European importance (Bewick's Swan, Common Tern and Mediterranean Gull), with particular reference to: <ul> <li>Standing water</li> <li>Shingle</li> <li>Marshy Grassland</li> </ul>
	Arable     Coastal waters

	Dungeness to Pett Level SPA
	o Shingle islands
	To maintain, in favourable condition, the habitats for the populations of migratory bird species of European importance (Shoveler), with particular reference to: <ul> <li>Standing water</li> <li>Marshy grassland</li> </ul>
	To maintain, in favourable condition, the habitat for the populations of Annex 1 species of European importance (Little Tern and Common Tern), with particular reference to: <ul> <li>Standing water</li> </ul>
	(Source: Dungeness to Pett Level Coastal Habitat Management Plan, 2002 <a href="http://www.eclife.naturalengland.org.uk/champs/pdf/CHaMP.pdf">http://www.eclife.naturalengland.org.uk/champs/pdf/CHaMP.pdf</a> )
Component SSSIs	The following four component SSSIs are listed on the JNCC SPA description for Dungeness to Pett level ( <a href="http://www.jncc.gov.uk/default.aspx?page=2046">http://www.jncc.gov.uk/default.aspx?page=2046</a> )
	<ul> <li>Camber Sands and Rye Saltings</li> <li>Dungeness</li> <li>Pett Level</li> <li>Rye Harbour</li> </ul>
	Rye Harbour does not fall within the SPA boundary according to the latest MAGIC data. However no information could be gathered on the other three SSSIs. They are not listed in Natural England's database and according to the MAGIC data the only SSSI within the SPA boundary is Dungeness, Romney Marsh and Rye Bay. It is therefore deduced that Camber Sands and Rye Saltings, Dungeness, and Pett Level SSSIs have been amalgamated to form one SSSI named Dungeness,

	Dungeness to Pett Level SPA					
	Romney Marsh and Rye Bay.					
	Dungeness, Romney Marsh and Rye Bay SSSI Component SSSI (194 units) condition summary					
	SAC component site	Favourable	Unfavourable recovering	Unfavourable no change	Unfavourable declining	Destroyed, part destroyed
		57.38%	33.89%	6.71%	2.02%	0.00%
Key Environmental Conditions (factors that maintain site integrity	(Source: <a href="http://www.sssi.naturalengland.org.uk/Special/sssi/reportAction.cfm?report=sdrt18&amp;category=S&amp;refe_rence=2000533">http://www.sssi.naturalengland.org.uk/Special/sssi/reportAction.cfm?report=sdrt18&amp;category=S&amp;refe_rence=2000533</a> )  Key environmental conditions to support site integrity and site vulnerability are:  The site is vulnerable to coastal erosion, especially the areas of coastal shingle at Dungeness and Rye Harbour, which are likely to erode in the longer term due to natural processes. The site is reasonably well protected from visitor disturbance, although possible disturbance from nearby airfield is being investigated – minimal noise and air pollution. Recreational and leisure activities are a problem in some areas particularly at North Point Pit, which is used for wind surfing – manage recreational pressures. Much of the shingle is uncultivated and is either nature reserve or open land. The site is vulnerable to changing agricultural practices, especially ploughing of grassland for arable crops, or changes to turf production or adjacent land, which may influence the site's bird population.  Much of the grassland within the SPA is beauty grassed and there is a continuing problem with					

Dungeness to Pett Level SPA
Generic
<ul> <li>Maintenance of grazing/mowing regimes</li> <li>Maintenance of groundwater and surface level water levels</li> <li>Sufficient space between the site and development to allow for managed retreat of intertidal habitats and avoid coastal squeeze</li> <li>Unpolluted water</li> <li>Absence of nutrient enrichment</li> <li>Absence of non-native species</li> <li>Balance of saline and non-saline conditions</li> </ul>
(Source: Appropriate Assessment of the Draft South East Plan, 2006 <a href="http://www.southeast-ra.gov.uk/southeastplan/key/app_assess/appropriate_assessment-nov06.pdf">http://www.southeast-ra.gov.uk/southeastplan/key/app_assess/appropriate_assessment-nov06.pdf</a> )  Species-specific
A6.15 Bewick's Swan Cygnus columbianus bewickii This species shows a high level of winter site fidelity in the UK (Rees 1987). Furthermore, movements between sites within a given winter are infrequent (Rees and Bacon 1996), although such movements can occur, especially in response to severe weather conditions. Bewick's Swans over winter on shallow freshwater lakes, marshes or slow-moving rivers near or adjacent to extensive grasslands liable to flooding (Rees et al. 1997b; Rees 1990). In Ireland, they feed predominantly on permanent wet grassland and, in the past, brackish coastal lagoons (Kennedy et al. 1954). In recent decades this species has increasingly taken to foraging on agricultural land, especially waste root crops, grain stubbles and winter cereals (MacMillan 1969; Merne 1972; Owen and Cadbury 1975; Rees et al. 1997b). In general, they feed by day and return to wetland areas to roost overnight. They are highly gregarious and often occur in flocks of several hundreds.

	Dungeness to Pett Level SPA
	A6.90 Common Tern Sterna hirundo Common Terns breed around coasts and beside inland freshwater bodies. Coastal sites are mainly small rocky islets, shingle beaches, sand-spits and dunes, as well as among short vegetation (occasionally more scrubby growth). Inland sites include shingle banks in rivers, islands in lakes and gravel pits, marshes and shallow lagoons. More artificial sites, including waste ground, specially made floating rafts and even gravel-covered flat-roofs, are occasionally used. Most feeding takes place within 3–10 km of the colony.
	A6.92 Little Tern Sterna albifrons Breeding occurs at scattered colonies around much of the coast of Britain and Ireland, from the north of Scotland to the south coast of England. All British and Irish Little Terns nest on the coast, utilising sand and shingle beaches and spits, as well as tiny islets of sand or rock close inshore.
	A6.100 Aquatic Warbler Acrocephalus paludicola Aquatic Warblers depend on the availability of large areas of reedbed habitat for feeding prior to autumn migration and at staging points along the course of the route to their wintering areas. They use these staging points to feed and rest in order to replenish their fat reserves, before commencing the long flight over the sea to France or Spain.
	A6.33A Shoveler Anas clypeata Within Britain the breeding strongholds are the Norfolk Broads, the north Kent Marshes and the East Anglian fens, with birds widely scattered elsewhere in eastern and central England, becoming scarcer in upland areas and the south-west. Approximately 419 individuals (representing at least 1.0% of the wintering Northwestern/Central European population) overwinter at this SPA.
SAC Condition Assessment	See SSSI condition status
Vulnerabilities (includes	This site is vulnerable to coastal erosion, particularly the areas at Dungeness and Rye Harbour,

	Dungeness to Pett Level SPA
existing pressures and trends)	which are likely to erode in the longer term due to natural processes.
,	Breeding bird populations are at serious risk of predation by species such as fox, badger and mink. There is a localised programme of pest control on part of the site. The site is reasonably well protected from visitor disturbance, although the possible disturbance from aircraft using a nearby airfield is being investigated. Recreational and leisure activities are a problem in some areas, particularly North Point Pit which is used for wind surfing. The area is zoned to try and control this activity.
	Much of the shingle is uncultivated and is either nature reserve or open land. The site is vulnerable to changing agricultural practices, particularly ploughing of grassland for arable crop, or changes to turf production on adjacent land, which may influence the site's bird population. These practices could be controlled by management agreements. Most of the grassland within the SPA is heavily grazed and there is a continuing problem of lowering water levels; both problems are being addressed through management agreements and water level management plans.
	(Source: Dungeness to Pett Level SPA European Standard data form <a href="http://www.jncc.gov.uk/pdf/SPA/UK9012091.pdf">http://www.jncc.gov.uk/pdf/SPA/UK9012091.pdf</a> )
	A6.92 Little Tern Sterna albifrons The greatest threat to Little Tern colonies is from human disturbance. The concentration of the largest colonies on beaches in south-east England coincides with the highest density of people living in Britain and wanting to use those same beaches. The period of greatest decline, from the 1930s to the 1960s, coincided with a great boom in numbers of people making trips to the seaside, with only a short respite during the war years. Once alerted by the 1967 census to the seriousness of the situation, protection measures, including wardening, signs and fencing, have had remarkable success in safeguarding a number of colonies, with considerable increases in numbers of nesting pairs at several sites in both Britain and Ireland. Predation is a factor at some colonies and fencing is

	Dungeness to Pett Level SPA
	widely used to keep out Red Foxes <i>Vulpes vulpes</i> . High summer tides (especially storm-surges) regularly flood some colonies, but nests have successfully been moved up the beach in some places. Blown sand is also a significant factor causing nest losses.
	A6.100 Aquatic Warbler Acrocephalus paludicola  Decline in numbers is thought to be largely the result of habitat loss due to land drainage for agriculture and industrial development, as well as the abandonment of traditional farming practices (Tucker and Heath 1994).
	A6.33A Shoveler Anas clypeata However, trend analysis is difficult because of the tendency of Shovelers to breed in areas subject to rapid natural change, with flooding and fluctuating water tables resulting in large year-to-year variation in numbers. There has also been a decline in numbers associated with loss of wetland habitat, which is already restricted because of its specialised method of feeding. Approximately 419 individuals (representing at least 1.0% of the wintering Northwestern/Central European population) overwinter at this SPA.
Landowner/Management Responsibility	Unknown
HRA/AA Studies undertaken that address this site	<ul> <li>HRA of Thurock Unitary Authority Core Strategy, 2007         <a href="http://www.thurrock.gov.uk/planning/strategic/pdf/ldf">http://www.thurrock.gov.uk/planning/strategic/pdf/ldf</a> preferred ear hra.pdf</li> <li>Disturbance and trampling by humans and dogs is a key threat to bird species of shingle banks such as Dungeness SPA/SAC, which is a breeding site for Mediterranean gulls, common turns and little turns.</li> </ul>
	London Ashford Airport (Lydd) Statement to Inform on the predicted impacts from the proposed runway extension at LAA on the Dungeness to Pett Level SPA

Dungeness to Pett Level SPA
http://www.ukplanning.com/ukp/showCaseFile.do?councilName=Shepway+District+Council&appNumber=Y06/1648/SH  Construction impacts are predicted to cause a negligible impact on the SPA, with no land take. An increase in visual and noise disturbance at the SPA as a result of increased Air Traffic Movements (ATMs). A bird hazard risk assessment predicts that there will be an increased bird strike risk, which would require mitigation Increased passenger numbers and ATMs are predicted to create a moderate significant impact on the SPA. All the predicted impacts can be reduced to low significance with appropriate mitigation.  Little Cheyne Court Wind Farm Appropriate Assessment, Cited in Holder and Lee (2007) Environmental protection, Law and Policy. 2 <sup>nd</sup> ed. No likely significant effect on passage species such as the Whimberel and Aquatic Warbler, and no threat to the integrity of their population. Effects on wintering species predicted to be of negilgable magnitude and not significant.  Appropriate Assessment of the Draft South East Plan, Volume 2, 2006 http://www.southeast-ra.gov.uk/southeastplan/key/app_assess/appropriate_assessment-vol2.pdf

#### **Ramsar Sites**

**Site Name: Dungeness to Pett Level Ramsar (proposed)** 

Location: 50 55 50 N/ 00 44 59 E

JNCC Site Code: UK11023

Size: undetermined

**Designation: Ramsar (proposed)** 

	Dungeness to Pett Level Ramsar (proposed)
Site Description	The Dungeness foreland, Rye Harbour and Pett Level is at present a proposed Ramsar site <sup>5</sup> . The site includes parts of Romney Warren, Dungeness, Walland Marsh, Camber Sands and Rye Saltings, Rye Harbour and Pett Level SSSI's encompassing all of the existing Dungeness and Pett Level SPA and much of the Dungeness SAC. The proposed Ramsar site is a wetland that comprises a mosaic of habitats, including shingle beaches, artificial lakes, grazing marshes, intertidal sands and mudflats. It provides breeding and winter habitats for important assemblages of wetland bird species, particularly wildfowl, waders and terns.
Qualifying Features	Dungeness to Pett Level Coastal Habitat Management Plan, 2002 (http://www.eclife.naturalengland.org.uk/champs/pdf/CHaMP.pdf)  Ramsar criterion 2a  • Supports a number of rare species of plants: • least lettuce (Lactuca saligna), • rootless duckweed (Wolffia arrhiza),

<sup>&</sup>lt;sup>5</sup> The consultation on the proposed Ramsar is due to end in December 2010 and can be accessed at http://www.naturalengland.org.uk/regions/south\_east/ourwork/dungenessconsultation/default.aspx

	Dungeness to Pett Level Ramsar (proposed)
	<ul> <li>soft hornwort (Ceratophyllum submersum),</li> <li>brackish water crowfoot (Ranunculus baudotii),</li> <li>hair-like pondweed (Potamogeton trichoides),</li> <li>divided sedge (Carex divisa),</li> <li>marsh mallow (Althaae officinalis)</li> <li>sea-heath (Frankenia laevis)</li> </ul>
	<ul> <li>The variety of habitats also support a diverse invertebrate assemblage. More than fifteen wetland Red Data Book (RDB) species have been recorded from the site, including:</li> <li>ground beetle Omophron limbatum,</li> <li>aquatic weevil Bagous cylindrus,</li> <li>two species of hoverfly,</li> <li>three species of aquatic beetles and the</li> <li>medicinal leech (Hirudo medicinalis)</li> </ul>
	<ul> <li>Ramsar criterion 3c</li> <li>Supports, in winter, an internationally important population of Bewick's swan. In the five winter period 1992/93-1996/97 an average peak count of 179 birds was recorded, representing 1.1% of the North-West European wintering population.</li> <li>The site is also notable for nationally important wintering populations of other waterfowl populations (see summary in Section 2.1 on the SPA interests).</li> <li>The site also supports a nationally important population of whimbrel (<i>Numenius phaeopus</i>) during spring and autumn passage periods. An average peak count of 275 birds was recorded during the five year period 1987-1991, representing about 5.5% of the British passage population.</li> </ul>
Conservation Objectives	Refer to Dungeness SAC/SPA
Component SSSIs Key Environmental	Refer to Dungeness SAC/SPA     Pofor to Dungeness SAC/SPA
Rey Environmental	Refer to Dungeness SAC/SPA

	Dungeness to Pett Level Ramsar (proposed)	
Conditions (factors that maintain site integrity		
Ramsar Condition Assessment	N/A	
Vulnerabilities (includes existing pressures and trends)	Refer to Dungeness SAC/SPA	
Landowner/ Management Responsibility	N/A	
HRA/AA Studies undertaken that address this site	Appropriate Assessment of the Draft South East Plan, Volume 2, 2006 .	

# **Appendix 2: Plans and Programmes Review**

## **Regional Plans**

Plan	Potential impacts that could cause 'in-combination' effects
Kent and Medway Structure Plan: Deposit Plan	Chapter 9: Climate change and managing our natural resources
	Key issues for Kent:
	Understanding and tackling the effects of global climate change
	<ul> <li>Moving to greater use of renewable resources of energy and greater energy efficiency</li> </ul>
	Reducing pollution and improving air quality
	<ul> <li>Prudent management of water resources for the future</li> </ul>
	Managing flood risk
	Responding to climate change will require concerted action at national and international level. Kent must play its part and adapt to the changes already underway. The Plan will help to achieve this by:  • Enduring development decisions take account of climate change
	<ul> <li>Bringing about reduced greenhouse gas emissions</li> <li>Promoting more sustainable solutions for protection against flooding and coastal erosion</li> </ul>
	Promoting efficient water use
	Bringing about improving air quality
	Reducing energy demand and promoting renewable energy

Plan	Potential impacts that could cause 'in-combination' effects
	POLICY NR1: ENERGY GENERATION Proposals for energy generation will be assessed by the local planning authorities in terms of:  • Their impact on landscape and nature conservation, health, built environment, air quality, atmosphere (including the level of emissions) and water resource interests; and  • The effectiveness of proposed mitigation measures; and  • The proximity of proposals to the energy source and their contribution to meeting the energy needs of local communities; and  • The prospective life of energy plants and, where appropriate, the site restoration measures proposed.  POLICY NR4; POLLUTION IMPACTS In assessing proposals Local authorities will take into account:  a. Impact on prevailing background pollution levels; and  b. The cumulative impacts of proposals on pollution levels; and  c. The ability to mitigate adverse pollution impacts; and  d. The extent and potential extremes of any impacts on air quality, water resources.  Development which would result in, or significantly contribute to, unacceptable levels of pollution, will not be permitted.  POLICY NR7: WATER QUALITY  Development will not be permitted where it would give rise to an unacceptable impact on the quality or yield of Kent's watercourses, coastal waters and/or ground water resources.

Plan	Potential impacts that could cause 'in-combination' effects
	POLICY NR9: DEVELOPMENT AND FLOOD RISK  Development will be planned to avoid the risk of flooding and will not be permitted:  i. if it would be subject to an unacceptable risk of flooding or where it would increase the risk of flooding elsewhere or require construction of new defences;  ii. where it would prejudice the capacity and integrity of flood plains or planned flood protection or coastal defence measures;  iii. where it will hinder the implementation of future flood protection or coastal defence measures;  iv. if it would adversely affect the ability of the land to drain.  Where development is necessary in areas at risk of flooding it should be designed and controlled to mitigate the impact of flood risk.  POLICY NR10: FLOOD PROTECTION  The development of new of replacement flood protection or coastal defence measures that are in accordance with a Catchment Management Plan, Shoreline Management Plan or Coastal Defence Strategies will be supported. Where these are required to service a development their provision and maintenance should be funded as part of the development.
Habitat Action Plan (HAP) for Coastal Vegetated Shingle (Kent County Council – 1997)	Current factors affecting the habitat: Sediment supply: The health and ongoing development of a shingle feature depend on a continuing supply of shingle. This may occur sporadically as a response to storm events rather than continuously. It

Plan	Potential impacts that could cause 'in-combination' effects
	is frequently lacking owing to interruption of coastal processes by coast defence structures, by offshore aggregate extraction or by artificial redistribution of material within the site (eg Dungeness). Attempts have been made to rectify the situation by mechanical reprofiling, which is likely to fail in the long run because it does not address the lack of new material, or by beach recharge.
	Natural mobility: Shingle features are rarely stable in the long term. Many structures exhibit continuous longshore drift, and ridges lying parallel to the shoreline tend to be rolled over towards the land by wave action in storm events. This movement has a knock-on effect on lowlying habitats behind the shingle. Movement is likely to be accelerated by climate change resulting in sea level rise and increased storminess.
	Exploitation: Shingle structures have been regarded as a convenient source of aggregates, and have been subject to varying degrees of extraction resulting in severe alteration of morphology and vegetation (for example Dungeness and Spey Bay) or almost total destruction of major parts of the feature (for example Rye Harbour). Industrial plant, defence infrastructure and even housing have been built on shingle structures (for example Dungeness, Orfordness, Spey Bay), destroying vegetation and ridge morphology. At Dungeness water is abstracted from the groundwater system; there is some evidence of drought stress on the vegetation, but it is difficult to distinguish the effects of water abstraction from those of gravel extraction.
	Access: Shingle vegetation is fragile; the wear and tear caused by access on foot, and particularly by vehicles, has damaged many sites.

Plan	Potential impacts that could cause 'in-combination' effects
	The causes include military use, vehicle access to beaches by fishermen, and recreational use. Such disturbance can also affect breeding birds.
	Grazing: In a few cases areas of shingle were traditionally grazed, but this management has now largely ceased, leading to domination by willow carr on wetlands and changes to vegetation structure. The impacts of removal of grazing on breeding birds and other shingle species are not fully understood.
	Management, research and guidance: Shingle sites which are reserves and/or hold designations receive some protection from further damage, but many of them have been damaged in the past, and there is little positive management of the habitat. It is often impossible to control recreational use by third parties. The main exception is Orfordness, which was acquired by the National Trust in 1993 and is a candidate SAC. Here, EU LIFE funding has been obtained for rehabilitation of the site and experimental re-creation of the ridge system, and public access is being controlled. The management plan for the MoD's holding on Dungeness proposes positive measures for the re-establishment of vegetation.
	A survey of the major vegetated shingle structures of Great Britain was commissioned by NCC in 1987. The results were published by JNCC in 1993 and 1994, and comprise a new classification of shingle vegetation and descriptions of all major and many minor vegetated shingle sites.
	The UK Government has set out its commitment to sustainable

Plan	Potential impacts that could cause 'in-combination' effects
	management of the coast in a number of publications. These include DETR's (formerly DoE) Policy Guidelines for the Coast and Planning Policy Guidance - Coastal Planning (PPG 20), and SO's Coastal Planning (NPPG 13). A Coastal Planning Technical Advice Note has been prepared for Wales. DoE(NI)'s Planning Strategy for Rural Northern Ireland has provisions relating to development, access and conservation of the coast. MAFF and the Welsh Office have also produced a Strategy for Flood and Coastal Defence in England and Wales and DETR has produced Coastal Zone Management - Towards Best Practice. DETRs Coastal Forum was set up in 1994; similar fora have recently been initiated in Scotland and Wales, and one is expected shortly in Northern Ireland.  Environmental Impact Assessment is a statutory requirement for certain proposed developments where there is likely to be a significant effect on the environment.

# Local

Plan	Potential impacts that could cause 'in-combination' effects
Dover District Council Local Plan POLICY AS7, 2006	Little information on the specifics of Dover Western Docks is available despite being highlighted as a potentially relevant project or initiative. Generic impacts associated with such projects may include:  • Land take/habitat fragmentation/disturbance • Changes in coastal dynamics may have impacts further along the coast, impacting on sensitive ecosystems such as those within Dungeness SPA and SAC • Increased air traffic movements can lead to increase diffuse air pollution, affecting air quality • Increased growth will require further provision for infrastructure,
The decision on the application to carry out a decommissioning project at Dungeness A power station under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999: A report prepared by the Health and Safety Executive. 2006	<ul> <li>waste management and minerals supply</li> <li>Increases in noise and light pollution</li> <li>Black redstart nest within the power station and the impact of decommissioning would be a permanent negative effect of key significance. As identified in the environmental statement, this impact would be reduced to not significant by the provision of suitable mitigation. This includes appropriately designed nesting boxes prior to the commencement of site works, minimisation of habitat loss where reasonably practicable and employee awareness programmes for identification of active nest sites.</li> <li>The impact on badgers of the decommissioning project has been assessed as negligible and not significant. In discussions with</li> </ul>

Plan	Potential impacts that could cause 'in-combination' effects
	consultees Magnox Electric Ltd have given assurances that a watching brief will be maintained on badgers to capture changes in distribution over time.
	The impact on the single early spider orchid has been assessed as not significant when mitigation measures including fencing and general dust mitigation measures are implemented. The impact on red hempnettle and lichens has also been assessed as not significant with mitigation measures in place. In addition, Magnox Electric Ltd have provided further assurances in discussions with consultees that dust monitoring will be implemented in appropriate locations and if deposition is revealed that could affect vegetation then appropriate mitigation would be put in place and reported in the environmental management plan.
	Magnox Electric Ltd has no abstraction points or licence. With regard to the potential impacts of any de-watering activities on groundwater levels, mitigation measures including sheet piling and recharge barriers will be employed if necessary to minimise the extent of groundwater level change. Magnox Electric Ltd have provided further assurances in discussions with licensees that it will consult fully with all interested parties regarding this issue. In addition any significant de-watering operations would require prior authorisation from the Environment Agency.
	The assessment of vibration from traffic and demolition identified impacts as negligible and not significant. Noise impacts on properties

Plan	Potential impacts that could cause 'in-combination' effects
Hastings Local Development Framework. Appropriate Assessment of the Core Strategy – Preferred Approaches, Consultation Version, May 2008.	within 2km of the site have been identified as a medium term key significant adverse effect. Mitigation measures will be employed to reduce these impacts, including; noise barriers, use of equipment with silencers, use of a site contact, informing local residents of exceptional activities, restrictions on hours for certain work. Assessment of the reduction in noise from the implementation of mitigation measures will not be possible until detailed working plans are defined, and therefore will be reported in the environmental management plan.  Hastings Borough Council prepared an Appropriate Assessment in inform the Sustainability Appraisal and Core Strategy. The AA tested whether the Core Strategy was likely to have an adverse impact on the integrity of the Hastings Cliffs SAC and the Pevensey Levels Ramsar site.
	The screening process revealed that both European sites could possibly be affected by the options presented in the Core Strategy Preferred Approaches. The assessment concluded that whether considered alone or in combination with other plans, Hastings Borough's Core Strategy at the preferred approach stage would not result in options that promote development that is likely to have a significant effect on a European site. It was concluded that an Appropriate Assessment was not required.
Rother District Local Plan	The Rother District Local Plan was adopted on 10th July 2006. This Local Plan sets out the vision and strategy for land use and development in Rother District. It includes specific planning policies and proposals that will be applied to manage development and change up to 2011. The Council is currently preparing its Local Development

Plan	Potential impacts that could cause 'in-combination' effects
	Framework, which will replace the relevant policies of the Local Plan (when adopted).

# Other plans and programmes

Plan	Potential impacts that could cause 'in-combination' effects
Kent Joint Municipal Waste Management Strategy, 2007	The planned increases in household waste recycling and composting may lead to increased transport movements, contamination, increased dust, noise and odour.
Kent Waste Local Plan, 2007	Proposals may be given permission that could contribute to an 'incombination effect'. The main impact associated with waste projects are:  I and take  increased transport movements  contamination  wastewater  topography alteration  aggregates removal
Kent Minerals Local Plan: Construction Aggregates, 1993	<ul> <li>Mineral extraction near and within the Dungeness N2K sites may cause the following impacts:</li> <li>direct loss of designated land or the indirect loss of important surrounding habitat, leading to disturbance and fragmentation</li> <li>increased transport movements would lead to increased diffuse air pollution and a reduction in air quality</li> <li>dust noise and odour associated with industrial processes have the potential to impact upon sensitive species which may form part of the qualifying interests of designated sites</li> <li>There is the potential for high concentrations of metals and organic</li> </ul>

Plan	Potential impacts that could cause 'in-combination' effects
	<ul> <li>materials to cause changes in water quality</li> <li>Mineral extraction would lead to changes in topography, impacting on surface water run off and potentially increasing flooding risks</li> <li>Aggregates removal will have effects on groundwater flow and water quality</li> </ul>
East Sussex, Brighton and Hove Waste Local Plan. February 2006 to 2015	<ul> <li>Generic impacts relating to waste management include:</li> <li>increases in transport movements, contributing to atmospheric pollution loading</li> <li>potential for contamination</li> <li>pressure on land availability</li> <li>accumulation of toxic substances, wastewater</li> <li>Increased demand for water resources</li> <li>Topography alteration and Aggregates removal</li> </ul>
London Ashford Airport, Terminal Building Environmental Statement, 2006	<ul> <li>Construction impacts on the SPA are predicted to cause a 'negligible significant impact' as stated in the airport applicant's Environmental Statement. It should be noted that this conclusion is contested by Natural England.</li> <li>The altered fleet mix and increased air traffic movements are predicted to create a moderate significant impact on the SPA. All impacts can be reduced to low significance with appropriate mitigation</li> <li>(Source: http://www.ukplanning.com/ukp/doc/Report-4941733.pdf?extension=.pdf&amp;id=4941733&amp;location=VOLUME4&amp;cont entType=application/pdf&amp;pageCount=45)</li> </ul>

Plan	Potential impacts that could cause 'in-combination' effects
London Ashford Airport, Runway Extension, Environmental Statement, 2006, prepared by CEAM, IEMA, Lincoln.	<ul> <li>The necessary infrastructure identified within the scoping report is:</li> <li>An extension to the existing runway to the north by 0.29 km, with an additional started extension of 0.15 km; and</li> <li>Construction of a new terminal building in two phases for 500,000 passengers per annum and 2 million passengers per annum respectively, resulting in a terminal building of up to 25,000m²</li> <li>(Source: <a href="https://www.kentnet.org.uk/laag/scoping_opnion_dec05.pdf">www.kentnet.org.uk/laag/scoping_opnion_dec05.pdf</a>)</li> </ul>
Kent Local Transport Plan 2006-11	<ul> <li>Potential transport-related development in flood risk areas (for example at ports and Lydd airport)</li> <li>Adverse impacts on local air quality (for example from promoting local bus services, expansion of international traffic through the ports and the Channel Tunnel, expansion of Kent's airports)</li> <li>Impacts on water quality arising through polluted runoff arising from ports and airport expansion and associated traffic</li> <li>Impacts on biodiversity arising from ports and airport expansion</li> <li>Potential impacts on landscape arising from expanded ports and airports</li> <li>Potential loss of greenfield land as a result of transport-related development (for example at Lydd airport)</li> <li>Increased traffic to / from ports and airports</li> <li>Increases in carbon dioxide emissions as a result of airport expansion</li> <li>Adverse impacts on health arising from noise, air and visual pollution arising from increase in road traffic, ports and airport expansion</li> </ul>

Plan	Potential impacts that could cause 'in-combination' effects
	(Source: http://www.kent.gov.uk/NR/rdonlyres/18971F5F-47CB-4137-ACE5-6C9C48918D70/0/app8seastatement.pdf)
East Sussex Local Transport Plan (2), 2006-2011	<ul> <li>Generic impacts relating to transport plans include:</li> <li>Land take – Habitat fragmentation</li> <li>Increased traffic movements – changes in air quality and disturbance</li> <li>Infrastructure – noise and light pollution; changes in hydrological cycle; water quality</li> <li>Increased population and therefore recreation-disturbance</li> <li>Dust noise and odour associated with industrial processes – changes in air quality; disturbance</li> </ul>
The Rother Catchment Abstraction Management Strategy, 2006	Increases in population in the area will put more pressure on the Dungeness shingle aquifer despite the 'no water available' policy. Effluents from a power station may contribute to changes in already vulnerable ground water quality.
Shoreline Management Plan for the Beachy Head to South Foreland, 1996	Effects of coastal management are complex and can be vast. Changes in natural systems may impact upon the qualifying features of Dungeness SAC, Dungeness to Pett levels SPA and Dungeness pRamsar site, particularly the annual vegetation of drift lines. However it should be noted that a 'do nothing approach to coastal management may have equally damaging effects.

Plan	Potential impacts that could cause 'in-combination' effects
Folkestone to Rye Coastal Defence Strategy Study,2001	Effects of coastal management are complex and can be vast. Changes in natural systems may impact upon the qualifying features of Dungeness SAC, Dungeness to Pett levels SPA, and Dungeness and Pett Levels proposed Ramsar site, particularly the annual vegetation of drift lines. However it should be noted that a 'do nothing approach to coastal management may have equally damaging effects.
Folkestone to Cliff End Flood and Erosion Management Strategy, 2008	<ul> <li>The schemes proposed are vast and will cause changes to natural systems that may impact upon the qualifying features of Dungeness SAC, Dungeness to Pett levels SPA and Dungeness and Pett Levels proposed Ramsar site.</li> <li>There is likely to be direct impact within the above designations and permission is likely due to overriding public interest.</li> </ul>
	<ul> <li>Impacts will include:         <ul> <li>Land take</li> <li>Construction impacts such as lighting, noise, disturbance, increased traffic movement</li> <li>Changes in hydrological regime, water quality and run off</li> </ul> </li> <li>It should be noted that a 'do nothing approach to coastal management may have equally damaging effects'.</li> <li>An SEA has been produced. An Appropriate Assessment has also been produced but is not currently available.</li> </ul>

Plan	Potential impacts that could cause 'in-combination' effects
Dungeness and Pett Level Coastal Habitat Management Plan (CHaMP), 1999-2003	<ul> <li>the purpose of the CHaMP is to inform the policy selection process of the SMP.</li> <li>the CHaMP examines the possible long term implications of sea level change, coastal defence activity and the effect on habitats within the Natura 2000 network of internationally protected sites.</li> </ul>
Water Resource Management Plan – Strategic Environmental Assessment May 2008	The Environment Report forms part of the Strategic Environmental Assessment of the draft Water Resources Management Plan prepared by South East Water. The draft Water Resources Management Plan sets out South East Water's forecast of the demand for water in its supply area over the 25 year period from 2010 to 2035.
Environment Agency's Review of Consents	Environment Agency are reviewing all permissions that they have granted before the Habitat Regulations came into force – called 'Review of Consents.' They have prioritised EU sites for review on the basis of potential risk by EA regulated activities, and aim to complete the review of all the sites by March 2010. Finalised documents were not available to review at the time of writing.
The Marine and Coastal Access Bill (in progress)	This Bill completed its Committee stage on 21 April 2009, and started the Report stage on 5 May 2009.  The purpose of the Bill is to introduce a new planning system for the marine area, improve and simplify arrangements for managing marine development and ensure greater protection for the marine environment and biodiversity, and provide greater recreational access

Plan	Potential impacts that could cause 'in-combination' effects
	to the English coast.
	The government is committed to establishing an ecologically coherent network of well managed Marine Protected Areas (MPA's) by 2012. The Bill defines the MPA network as comprising European Marine Sites (that is SPA's and SAC's) together with Marine Conservation Zones (MCZ's). Ministers will be responsible for designating MCZ's following public consultation. This network will conserve rare, threatened and representative species and habitats to conserve or enhance biodiversity and ecosystems.
	The MPA network is likely to include a range of protection levels ranging from highly protected sites or parts of sites where no extractive, depositional or other damaging activities are allowed, to areas with only minimal restriction on activities that are needed to protect features.
	There will also be provision for a long-distance route around the coast of England with an associated margin of land for access to wider spreading room to include beaches, cliffs, rocks and dunes, for public access on foot for walking and other recreational activities.
	'In combination effects' may arise from increased recreational pressures along the coast as a result of the Bill however as one of the main aims of the bill is greater protection of the marine environment the overall impacts would be expected to be positive.

Plan	Potential impacts that could cause 'in-combination' effects
Lifetime plan – Dungeness A Site summary 2006/07, Nuclear Decommissioning Authority and Magnox Electric Ltd, 2006.	Following the Care and Maintenance work, The Final Site Clearance work would involve clearing all remaining buildings including the reactors. Following ground remediation and landscaping, the site will be de-licensed and returned to its natural shingle state, being designated as a SSSI.
	Further information was requested from nominator in May 2009 regarding decommissioning impacts of Dungeness A and B, although nothing was received at the time of finalising the appendices/report.
	Generic impacts associated with such decommissioning work may include:  • Habitat disturbance
	Changes in coastal dynamics may have impacts further along the coast, impacting on sensitive ecosystems such as those within Dungeness SPA and SAC
	<ul> <li>Increased air traffic movements can lead to increase diffuse air pollution, affecting air quality</li> <li>Increases in noise and light pollution</li> </ul>

#### Discarded Plans and Projects, and reasons for discarding

Framework for Regional Employment and Skills Action (FRESA) for the South East: targets include increasing employment opportunities.

- England Rural development Programme, Appendix A7, South east Region: goals focus on encouraging a sustainable rural economy while safeguarding wildlife and countryside.
- GROW Programme 2005: 3 year programme, no longer applicable.
- South East Biodiversity Framework: Targets focus on maintaining and restoring biodiversity and site of importance.
- Vision for Kent: Community Strategy for Kent: Provides objectives for improving the economic, environmental and social wellbeing of the county of Kent over the next 20 years
- Kent Environmental Strategy: Goal is to ensure the Kent environment meets present needs without compromising the ability of
  future generations to meet their own needs by protecting and enhancing natural habitats, wildlife and landscape, minimising
  waste and pollution and promoting sustainable development solutions 2.
- Stour CAMS: There are many wetland sites in this CAMS area that have great ecological importance, most are concentrated in the area downstream of Canterbury. None of the sites identified are within 20km of the proposed Dungeness site and there is no direct evidence to suggest that abstraction is adversely affecting the biodiversity within them.
- North Kent and Swale CAMS: CAMS area not near development site.
- Medway CAMS: not available.
- Kent Mineral Local Plan (Chalk and Clay/Oil and Gas): No proposal areas within or near to Dungeness N2K designations.
- Hastings Local Development Framework. Appropriate Assessment of the Core Strategy Preferred Approaches, Consultation Version, May 2008, Hastings Borough Council. Within the boundary of Hastings lies Dungeness SAC and Dungeness to Pett Level SPA. Both N2K sites were screened out due to their distances, for the Hastings Core Strategy to have an effect on either the site integrity or conservation objectives.
- East Sussex Brighton and Hove Structure Plan 1991 2011. Outside area of development.

# **Appendix 3: Likely Significant Effect (LSE) Screening Table**

#### SIGNIFICANT EFFECTS SCREENING (INCORPORATING IN-COMBINATION ASSESSMENT)

#### European sites within 20km of the nominated site

	Designation	Distance to nominated site boundary
Dungeness	SAC	Partly within
Dungeness to Pett Level	SPA	Adjacent in part (to existing access road identified as within nominated site); and within 0.5km of main part of nominated site
Dungeness to Pett Level	Proposed	Unknown
	Ramsar	

# **Dungeness SAC**

# **Source: Construction (duration approx 5 years)**

Dungeness SAC Construction (duration approx 5 years)	
	Water Resources/Quality
Potential Impacts: Pathway	Potential effects on water quality and drainage from earthworks/ excavations and infrastructure provision (sedimentation, pollution incidents through water courses and cycles).
Potential effects on the SAC: Receptor	Changes in organic and nutrient loading can change the species composition of the vegetated communities present in this SAC.
	Contamination by synthetic and non-synthetic compounds is an issue for the coastal habitats present. Toxins can bind to sediments, affecting supporting species including those designated within this SAC.
	Loss of surface water features including Open Pits, changes in water levels.
Risk of Likely Significant Effect	The nominated Site lies within this SAC.
(LSE)?	The maintenance of good water quality and the existing sedimentary and hydrological regime are key environmental conditions required at this site.
	Any change in water quality or increase in nutrient loads will impact directly upon the designated communities and species within the SAC. There is therefore potential for significant effects upon this SAC.
Potential Impacts -	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take

	Dungeness SAC Construction (duration approx 5 years)	
	Water Resources/Quality	
other Plans and Programmes	Kent Local Transport Plan 2006-11 – water and air quality, land take  The Rother Catchment Abstraction Management Strategy – water abstraction	
Risk from 'In Combination' Effects?	Likely	
AA Required?	Yes	

Dungeness SAC Construction (duration approx 5 years)	
	Air Quality
Potential Impacts: Pathway	Potential local impacts from increased development/ traffic growth, and the emissions arising from construction activity. Likely to be restricted to a local level for example dust/ particulates
Potential effects on the SAC: Receptor	Air Quality
	An increase in airborne pollutants can lead to nutrient loading and changes to water quality from aerial deposition, impacts on sensitive lichen heath communities.
	Indirect impacts include changes to water quality from aerial deposition.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies within this SAC. The maintenance of good air quality is essential to protect the ecological integrity of the SAC and has been identified as a key vulnerability for the designated communities and species within the SAC. Any potential effects of increased nutrient loading from air borne pollutants and their subsequent deposition upon communities within the SAC need to be considered in the context of known scale/ known environmental conditions.  There is therefore potential for local significant effects upon this SAC.
Potential Impacts - other Plans and Programmes	Kent Joint Municipal Waste Management Strategy – air pollution  Kent Waste Local Plan – land take, air quality
	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take
	Kent Local Transport Plan 2006-11 – water and air quality, land take
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take

Dungeness SAC Construction (duration approx 5 years)	
Air Quality	
Risk from 'In	Likely
Combination' Effects?	
AA Required?	Yes

	Dungeness SAC Construction (duration approx 5 years)
	Disturbance (noise, light, visual)
Potential Impacts: Pathway	Construction activity (scheduled for up to 5-6 years) likely to result in significant local increases in noise events, light pollution and visual disturbance in and around the immediate vicinity of the site.
Potential effects on the SAC: Receptor	Physical disturbance arising from noise and vibration to coastal communities and their component species and to the structural integrity of the designated habitats has the potential adversely impact upon the SAC.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies within this SAC. Physical disturbance through noise and vibration impacts of the development can impact upon the structural integrity of the designated habitats and upon the species which they support.
Potential Impacts - other Plans and Programmes	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take  Kent Local Transport Plan 2006-11 – water and air quality, land take
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take
Risk from 'In	Decommissioning of Dungeness A – noise and visual disturbance, air quality  Likely
Combination' Effects?	
AA Required?	Yes

Dungeness SAC Construction (duration approx 5 years)	
	Habitat Loss and Fragmentation
Potential Impacts: Pathway	General construction of facilities and infrastructure, temporary works areas, construction of cooling water culverts, extension of site into 'buffer' habitats, possible development at the coastal fringes
Potential effects on the SAC: Receptor	Construction activities have the potential to result in the direct loss of habitat and the ecological communities they support. Loss of important geomorphology including buried features
Risk of Likely Significant Effect (LSE)?	The nominated Site lies within this SAC. Coastal habitats and species which are designated within this SAC are particularly vulnerable to physical loss including direct loss of habitat, reduction in extent, and changes to hydrology and sediment transport regimes arising from construction on the coastal fringe. Loss of habitat is considered to be significant.  Barriers to habitat and species migration.
Potential Impacts - other Plans and Programmes	Kent Joint Municipal Waste Management Strategy – air pollution  Kent Waste Local Plan – land take, air quality
	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take  Kent Local Transport Plan 2006-11 – water and air quality, land take
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take
Risk from 'In Combination' Effects?	Likely
AA Required?	Yes

Dungeness SAC Construction (duration approx 5 years)	
	Coastal Squeeze
Potential Impacts: Pathway	Construction of infrastructure and facilities relating to the operation of the nuclear power station may result in an encroachment upon land at the coastal fringes. All supporting habitats are sensitive to removal by land reclamation and construction activity.
Potential effects on the SAC: Receptor	Designated habitats and species are located along the coastal fringe and are therefore particularly vulnerable to the physical loss of supporting habitats and changes to hydrology and sedimentation regimes arising from construction. Should construction encroach into the coastal fringe this may result in a loss of these habitats along with other supporting habitats, as well as altering environmental conditions otherwise necessary to maintain designated habitats and species in a favorable condition.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies within this SAC. The habitats and species designated within this SAC are vulnerable to any physical loss or change to the structure of their supporting habitats or connected habitats affected further along the coastline.  The current footprint of the development remains unknown therefore likely significant effects may occur.
Potential Impacts - other Plans and Programmes	Kent Waste Local Plan – land take, air quality  Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take  Kent Local Transport Plan 2006-11 – water and air quality, land take  Shoreline Management Plans – habitat management  Coastal Defence Strategy Studies – habitat management  Dover District Council Local Plan – air quality, noise and visual disturbance, land take

Dungeness SAC Construction (duration approx 5 years)	
Coastal Squeeze	
Risk from 'In	Uncertain
Combination' Effects?	
AA Required?	Yes

### **Source: Operation (duration approx 60 years)**

Dungeness SAC Operation (duration approx 60 years)	
	Water Resources/ Quality
Potential Impacts: Pathway	Potential impacts on water quality and drainage from planned and accidental discharges (radioactive and non-radioactive), and from the abstraction and discharge of water for cooling (heated water up to 10° warmer than the receiving environment).
Potential effects on the SAC: Receptor	Changes in organic and nutrient loading, discharge of biocides used to clean cooling infrastructure, and increased water temperature of abstracted water returned to the sea can promote algal growth and directly impact upon designated communities within the SAC.  Abstraction removes water from the natural cycle, affecting groundwater supply which may impact upon sustaining other aquatic habitats within this SAC including fens, localized waterbodies and pools which support designated species, leading to habitat degradation and species loss.
Risk of Likely Significant Effect (LSE)?	Potential for operation effects of changes to water quality and temperature to result in adverse effects on water quality need further investigation to determine whether changes are likely to be significant.  Abstraction of water may result in impacts to hydrological regimes within this SAC.
Potential Impacts - other Plans and Programmes	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take  Kent Local Transport Plan 2006-11 – water and air quality, land take  The Rother Catchment Abstraction Management Strategy – water abstraction
Risk from 'In Combination' Effects? AA Required?	Likely Yes

	Dungeness SAC Operation (duration approx 60 years)	
	Air Quality	
Potential Impacts: Pathway	Potential local impacts from increased development/ traffic growth (nitrogen oxides, sulphur dioxide).	
·	Potential impacts from planned (argon-41, krypton-85 and tritium) and accidental radioactive emissions.	
Potential effects on the SAC: Receptor	An increase in airborne pollutants can lead to nutrient loading and changes to water quality from aerial deposition.	
	Indirect impacts include changes to water quality from aerial deposition.	
	Changes in air quality can impact upon sensitive designated communities within the SAC.	
Risk of Likely Significant Effect (LSE)?	The nominated site lies within this SAC. The maintenance of good air quality is essential to protect the ecological integrity of the SAC and has been identified as a key vulnerability for the designated communities and species within the SAC. Any potential effects of increased nutrient loading from air borne pollutants and their subsequent deposition upon communities within the SAC need to be considered in the context of known operational scale/ known environmental conditions. There is therefore potential for local significant effects upon this SAC.	
	Accidental radioactive emissions are unlikely given the level of regulatory control. Risk of significant effects of this is therefore unlikely.	
Potential Impacts - other Plans and	Kent Joint Municipal Waste Management Strategy – air pollution	
Programmes	Kent Waste Local Plan – land take, air quality	
	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take	

	Dungeness SAC Operation (duration approx 60 years)	
Air Quality		
	Kent local Transport Plan 2006-11 – water and air quality, land take	
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take.	
Risk from 'In	Uncertain	
Combination' Effects?		
AA Required?	Yes	

	Dungeness SAC Operation (duration approx 60 years)	
	Habitat Loss and Fragmentation	
Potential Impacts: Pathway	Changes to footprint of site through operation, for example to accommodate waste storage, develop infrastructure.  Intake of water for cooling and discharge of (heated) cooling water to tidal reservoir and main estuary	
Potential effects on the SAC: Receptor	Potential loss of designated habitats as well as of supporting and buffer habitats and species.	
	Cooling water discharge can result in areas of significantly or permanently warmed water, which although small may result in changes to habitats and species composition.	
	Biocides used to clean cooling infrastructure have potential to impacts receiving environment	
Risk of Likely Significant Effect (LSE)?	The nominated Site lies within this SAC. Any changes to the footprint of the site to accommodate further infrastructure will likely lead to the loss of supporting and buffer habitats, and potentially result in the loss or degradation of habitat within the SAC.	
	Water abstraction may result in further impacts to hydrological regimes within this SAC, covering the same area, therefore impacts are likely to be significant	
Potential Impacts - other Plans and	Kent Joint Municipal Waste Management Strategy – air pollution	
Programmes	Kent Waste Local Plan – land take, air quality	
	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take	
	Kent Local Transport Plan 2006-11 – water and air quality, land take	
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take	

Dungeness SAC Operation (duration approx 60 years)	
Habitat Loss and Fragmentation	
Risk from 'In	Uncertain
Combination' Effects?	
AA Required?	Yes

### **Source: Decommissioning (duration approx 30 years)**

Dungeness SAC Decommissioning (duration approx 30 years)		
	Water Quality	
Potential Impacts: Pathway	Potential effects on water quality and drainage from [de]construction activities, earthworks, infrastructure, waste storage.	
Potential effects on the SAC: Receptor	Changes in organic and nutrient loading can impact upon the species composition of communities within the SAC.	
	Contamination by synthetic and non-synthetic compounds is potentially an issue for habitats within the SAC. Toxins can bind to sediments, affecting supporting species	
Risk of Likely Significant Effect (LSE)?	The maintenance of high water quality and existing hydrology and sedimentary regime is noted as a key environmental condition requirement at this site.	
	There is the potential for significant effect, particularly at a local level.	
Potential Impacts - other Plans and	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take	
Programmes	Kent Local Transport Plan 2006-11 – water and air quality, land take	
	The Rother Catchment Abstraction Management Strategy – water abstraction	
	<b>Decommissioning of Dungeness A</b> – noise and visual disturbance, air quality.	
Risk from 'In Combination' Effects?	Likely	
AA Required?	Yes	

Dungeness SAC Decommissioning (duration approx 30 years)	
	Disturbance (Noise, light, visual)
Potential Impacts: Pathway	Potential effects on water quality and drainage from [de]construction activities, earthworks, infrastructure, waste storage.
Potential effects on the SAC: Receptor	Changes in organic and nutrient loading can impact upon the species composition of communities within the SAC.
	Contamination by synthetic and non-synthetic compounds is potentially an issue for habitats within the SAC. Toxins can bind to sediments, affecting supporting species
Risk of Likely Significant Effect (LSE)?	The maintenance of high water quality and existing hydrology and sedimentary regime is noted as a key environmental condition requirement at this site.  There is the potential for significant effect, particularly at a local level.
Potential Impacts - other Plans and Programmes	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take  Kent Local Transport Plan 2006-11 – water and air quality, land take
	The Rother Catchment Abstraction Management Strategy – water abstraction
	<b>Decommissioning of Dungeness A</b> – noise and visual disturbance, air quality.
Risk from 'In Combination' Effects?	Likely
AA Required?	Yes

Dungeness SAC Decommissioning (duration approx 30 years)	
	Air Quality
Potential Impacts: Pathway	Potential local impacts from increased development/ traffic growth associated with decommissioning and the emissions arising from [de]construction activity. Likely to be restricted to a local level for example dust/ particulates.
Potential effects on the SAC: Receptor	An increase in airborne pollutants can lead to nutrient loading and changes to water quality from aerial deposition.
	Indirect impacts include changes to water quality from aerial deposition.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies within this SAC. The maintenance of good air quality is essential to protect the ecological integrity of the SAC and has been identified as a key vulnerability for the designated communities and species within the SAC.
	Any potential effects of increased nutrient loading from air borne pollutants and their subsequent deposition upon communities within the SAC need to be considered in the context of known operational scale/ known environmental conditions.
	There is therefore potential for local significant effects upon this SAC.
Potential Impacts - other Plans and	Kent Joint Municipal Waste Management Strategy – air pollution
Programmes	Kent Waste Local Plan – land take, air quality
	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take
	Kent Local Transport Plan 2006-11 – water and air quality, land take

Dungeness SAC Decommissioning (duration approx 30 years)	
Air Quality	
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take
	<b>Decommissioning of Dungeness A</b> – noise and visual disturbance, air quality. Potentially habitat gain through restoration
Risk from 'In	Likely
Combination' Effects?	
AA Required?	Yes

Dungeness SAC Decommissioning (duration approx 30 years)	
	Habitat Loss and Fragmentation
Potential Impacts: Pathway	Changes to footprint of site through decommissioning activities for example to accommodate waste storage, develop infrastructure.
Potential effects on the SAC: Receptor	Decommissioning activities may result in further loss of habitat and the ecological communities they support.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies within this SAC. Habitats which are designated within this SAC are particularly vulnerable to any further physical loss including direct loss of habitat, reduction in extent, and changes to hydrology and sediment transport regimes arising from additional construction on the coastal fringe relating to decommissioning. Loss of habitat is considered to be significant
Potential Impacts - other Plans and Programmes	Kent Joint Municipal Waste Management Strategy – air pollution  Kent Waste Local Plan – land take, air quality  Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take
	Kent Local Transport Plan 2006-11 – water and air quality, land take  Dover District Council Local Plan – air quality, noise and visual disturbance, land take  Decommissioning of Dungeness A – noise and visual disturbance, air quality. Potentially habitat gain through restoration
Risk from 'In Combination' Effects?	Uncertain

Dungeness SAC Decommissioning (duration approx 30 years)	
Habitat Loss and Fragmentation	
AA Required?	Yes

Dungeness SAC Decommissioning (duration approx 30 years)	
	Coastal Squeeze
Potential Impacts: Pathway	Construction of infrastructure and facilities relating to the decommissioning of the nuclear power station (for example waste storage facilities, new infrastructure) may result in an encroachment upon land at the coastal fringes. All supporting habitats are sensitive to removal by land reclamation and construction activity.
Potential effects on the SAC: Receptor	Designated habitats and species are located along the coastal fringe adjacent to the site and are therefore particularly vulnerable to any further physical loss of supporting habitats and any additional changes to hydrology and sedimentation regimes arising from additional construction of decommissioning infrastructure. Should any construction result in further encroachment onto the coastal fringe this will result in further losses of habitats and may additionally alter environmental conditions otherwise necessary to maintain designated habitats and species in a favorable condition.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies within this SAC. Coastal habitats which are designated within this SAC are particularly vulnerable to physical loss including direct loss of habitat, reduction in extent, and changes to hydrology and sediment transport regimes arising from further construction on the coastal fringe. Loss of habitat is considered to be significant
Potential Impacts - other Plans and Programmes	Kent Waste Local Plan – land take, air quality  Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take  Kent Local Transport Plan 2006-11 – water and air quality, land take  Shoreline Management Plans – habitat management  Coastal Defence Strategy Studies – habitat management

Dungeness SAC Decommissioning (duration approx 30 years)		
Coastal Squeeze		
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take	
Risk from 'In	Uncertain	
Combination' Effects?		
AA Required?	Yes	

## **Dungeness to Pett Level SPA/Ramsar (proposed)**

## **Source: Construction (duration approx 5 years)**

Dungeness to Pett Level SPA/Ramsar (proposed) Construction (duration approx 5 years)	
	Water Quality
Potential Impacts: Pathway	Potential effects on water quality and drainage from earthworks/ excavations and infrastructure provision (sedimentation, pollution incidents through water courses and cycles).
Potential effects on the SPA/Ramsar proposed: Receptor	Changes in organic and nutrient loading can change the species composition of the vegetated communities present in this SPA/proposed Ramsar.
	Contamination by synthetic and non-synthetic compounds is an issue for the coastal habitats present. Toxins can bind to sediments, affecting supporting species. Breeding and overwintering birds designated within this SPA are also subject to accumulation of toxins through the food chain, and vulnerable to changes in palatability of prey caused by [toxic] contamination.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies adjacent to this SPA/proposed Ramsar.  The maintenance of good water quality and the existing sedimentary and hydrological regime are key environmental conditions required at this site.
	Any change in water quality or increase in nutrient loads will impact directly upon the designated communities and species within the SPA/proposed Ramsar. There is therefore potential for significant effects upon this SPA/proposed Ramsar.
Potential Impacts - other Plans and	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take

Dungeness to Pett Level SPA/Ramsar (proposed) Construction (duration approx 5 years)	
Water Quality	
Programmes	Kent Local Transport Plan 2006-11 – water and air quality, land take
	The Rother Catchment Abstraction Management Strategy – water abstraction
Risk from 'In	Likely
Combination' Effects?	
AA Required?	Yes

Dungeness to Pett Level SPA/Ramsar (proposed) Construction (duration approx 5 years)	
	Air Quality
Potential Impacts: Pathway	Potential local impacts from increased development/ traffic growth, and the emissions arising from construction activity. Likely to be restricted to a local level for example. dust/ particulates.
Potential effects on the SPA/Ramsar proposed: Receptor	An increase in airborne pollutants can lead to nutrient loading and changes to water quality from aerial deposition, relevant to conditions supporting low diversity invertebrate communities that provide food sources for wintering birds.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies adjacent to this SPA/proposed Ramsar. The maintenance of good air quality is essential to protect the ecological integrity of the SPA/proposed Ramsar and has been identified as a key vulnerability for the designated communities and species within the SPA/proposed Ramsar.  Any potential effects of increased nutrient loading from air borne pollutants and their subsequent deposition upon communities within the SPA/proposed Ramsar need to be considered in the context of operational scale/ known environmental conditions.
Potential Impacts - other Plans and Programmes	Kent Joint Municipal Waste Management Strategy – air pollution  Kent Waste Local Plan – land take, air quality  Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take  Kent Local Transport Plan 2006-11 – water and air quality, land take  Dover District Council Local Plan – air quality, noise and visual disturbance, land take
Risk from 'In Combination' Effects?	Likely
AA Required?	Yes

Dungeness to Pett Level SPA/Ramsar (proposed) Construction (duration approx 5 years)	
	Disturbance (Noise, light, visual)
Potential Impacts: Pathway	Construction activity (scheduled for up to 6-7 years) likely to result in significant local increases in noise events, light pollution and visual disturbance in and around the immediate vicinity of the site.
Potential effects on the SPA/Ramsar proposed: Receptor r	Physical disturbance arising from noise and vibration to coastal communities and their component species and to the structural integrity of the designated habitats have the potential adversely impact upon the SPA/proposed Ramsar.
	Disturbance to mudflats and sandflats on the coastal zone from construction has the potential to have a direct adverse impact on internationally important wading and wildfowl bird populations.
	Overwintering birds are disturbed by sudden movements and noise which can displace them from their feeding grounds. The Bewick's Swan in particular is affected by disturbance from the landward side.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies adjacent to this SPA/proposed Ramsar. Physical disturbance through noise and vibration impacts of the development can impact upon the structural integrity of the designated habitats and upon the species which they support.
	Disturbance of birds is known to alter foraging, roosting and breeding patterns. Disturbance can therefore; result in displacement, reduced feeding capacity, effects breeding/ survival rates. The SPA is known to be of particular importance for breeding and overwintering birds. Risk of likely significant effect
Potential Impacts - other Plans and	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take
Programmes	Kent Local Transport Plan 2006-11 – water and air quality, land take
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take
	Dungeness Decommissioning Plan – noise disturbance

Dungeness to Pett Level SPA/Ramsar (proposed) Construction (duration approx 5 years)	
Disturbance (Noise, light, visual)	
Risk from 'In	Likely
Combination' Effects?	
AA Required?	Yes

Dungeness to Pett Level SPA/Ramsar (proposed) Construction (duration approx 5 years)	
	Habitat Loss and Fragmentation
Potential Impacts: Pathway	General construction of facilities and infrastructure, construction of cooling water culverts, extension of site into 'buffer' habitats, possible development at the coastal fringes
Potential effects on the SPA/Ramsar proposed: Receptor	Direct loss of habitat is likely to reduce the availability of feeding and roosting habitats for designated species and thus be detrimental to the favourable condition of the SPA interest features, including the Annex 1 species Bewick's Swan.
	Particular issues include the loss of sightlines between feeding and roosting sites for bird species as noted in conservation objectives for all SPA interest features
Risk of Likely Significant Effect (LSE)?	The nominated Site lies adjacent to this SPA/proposed Ramsar. Coastal habitats which are designated within this SPA/proposed Ramsar are particularly vulnerable to physical loss including direct loss of habitat, reduction in extent, and changes to hydrology and sediment transport regimes arising from construction on the coastal fringe. Loss of habitat is considered to be significant.
Potential Impacts - other Plans and Programmes	Kent Joint Municipal Waste Management Strategy – air pollution  Kent Waste Local Plan – land take, air quality
	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take
	Kent Local Transport Plan 2006-11 – water and air quality, land take
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take
Risk from 'In Combination' Effects?	Likely
AA Required?	Yes

Dunge	Dungeness to Pett Level SPA/Ramsar (proposed) Construction (duration approx 5 years)	
	Coastal Squeeze	
Potential Impacts: Pathway	Construction of infrastructure and facilities relating to the operation of the nuclear power station may result in an encroachment upon land at the coastal fringes. All supporting habitats are sensitive to removal by land reclamation and construction activity	
Potential effects on the SPA/Ramsar proposed: Receptor	Designated habitats and species are located along the coastal fringe and are therefore particularly vulnerable to the physical loss of supporting habitats and changes to hydrology and sedimentation regimes arising from construction. Should construction encroach into the coastal fringe this may result in a loss of these habitats along with other supporting habitats, as well as altering environmental conditions otherwise necessary to maintain designated habitats and species in a favorable condition.	
Risk of Likely Significant Effect (LSE)?	The nominated Site lies adjacent to this SPA/proposed Ramsar. The habitats and species designated within this SPA/proposed Ramsar are vulnerable to any physical loss or change to the structure of their supporting habitats or connected habitats affected further along the coastline.  The current footprint of the development remains unknown. Likely significant effects may occur.	
Potential Impacts - other Plans and Programmes	Kent Waste Local Plan – land take, air quality  Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take  Kent Local Transport Plan 2006-11 – water and air quality, land take	
	Shoreline Management Plans – habitat management	
	Coastal defence Strategy Studies – habitat management  Dover District Council Local Plan – air quality, noise and visual disturbance, land take	
Risk from 'In Combination' Effects?	Uncertain	

Dungeness to Pett Level SPA/Ramsar (proposed) Construction (duration approx 5 years)	
Coastal Squeeze	
AA Required?	Yes

### **Source: Operation (duration approx 60 years)**

Dungeness to Pett Level SPA/Ramsar (proposed) Operation (duration approx 60 years)	
	Coastal Squeeze
Potential Impacts: Pathway	Construction of infrastructure and facilities relating to the operation of the nuclear power station may result in an encroachment upon land at the coastal fringes. All supporting habitats are sensitive to removal by land reclamation and construction activity
Potential effects on the SPA/Ramsar proposed: Receptor	Designated habitats and species are located along the coastal fringe and are therefore particularly vulnerable to the physical loss of supporting habitats and changes to hydrology and sedimentation regimes arising from construction. Should construction encroach into the coastal fringe this may result in a loss of these habitats along with other supporting habitats, as well as altering environmental conditions otherwise necessary to maintain designated habitats and species in a favorable condition.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies adjacent to this SPA/proposed Ramsar. The habitats and species designated within this SPA/proposed Ramsar are vulnerable to any physical loss or change to the structure of their supporting habitats or connected habitats affected further along the coastline.  The current footprint of the development remains unknown. Likely significant effects may occur.
Potential Impacts - other Plans and Programmes	Kent Waste Local Plan – land take, air quality  Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take  Kent Local Transport Plan 2006-11 – water and air quality, land take
	Shoreline Management Plans – habitat management  Coastal Defence Strategy Studies – habitat management

Dungeness to Pett Level SPA/Ramsar (proposed) Operation (duration approx 60 years)			
	Coastal Squeeze		
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take		
Risk from 'In	Uncertain		
Combination' Effects?			
AA Required?	Yes		

Dungeness to Pett Level SPA/Ramsar (proposed) Operation (duration approx 60 years)	
	Water resources/quality
Potential Impacts: Pathway	Potential impacts on water quality and drainage from planned and accidental discharges (radioactive and non-radioactive), and from the abstraction and discharge of water for cooling (heated water up to 10° warmer than the receiving environment).
Potential effects on the SPA/Ramsar proposed: Receptor	Changes in organic and nutrient loading, discharge of biocides used to clean cooling infrastructure, and increased water temperature of abstracted water returned to the sea can promote algal growth and directly impact upon designated communities and bird species within the SPA/proposed Ramsar. Waterfowl are particularly subject to the accumulation of toxins through the food chain.  Abstraction removes water from the natural cycle, affecting groundwater supply which may impact upon sustaining other aquatic habitats within this SPA/proposed Ramsar including fens, localized waterbodies and pools which support designated species, leading to habitat degradation and species loss.
Risk of Likely Significant Effect (LSE)?	Potential for operation effects of changes to water quality and temperature to result in adverse effects on water quality need further investigation to determine whether changes are likely to be significant.  Abstraction of water may result in impacts to hydrological regimes within this SPA/proposed Ramsar.
Potential Impacts - other Plans and Programmes	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take  Kent Local Transport Plan 2006-11 – water and air quality, land take  The Rother Catchment Abstraction Management Strategy – water abstraction
Risk from 'In Combination' Effects? AA Required?	Likely Yes

Dungeness to Pett Level SPA/Ramsar (proposed) Operation (duration approx 60 years)	
	Air Quality
Potential Impacts: Pathway	Potential local impacts from increased development/ traffic growth (nitrogen oxides, sulphur dioxide).  Potential impacts from planned (argon-41, krypton-85 and tritium) and accidental radioactive emissions.
Potential effects on the SPA/Ramsar proposed: Receptor	An increase in airborne pollutants can lead to nutrient loading and changes to water quality from aerial deposition.
	Indirect impacts include changes to water quality from aerial deposition.
	Changes in air quality can impact upon sensitive designated communities within the SPA/proposed Ramsar.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies adjacent to this SPA/proposed Ramsar. The maintenance of good air quality is essential to protect the ecological integrity of the SPA/proposed Ramsar and has been identified as a key vulnerability for the designated communities and species within the SPA/proposed Ramsar.
	Any potential effects of increased nutrient loading from air borne pollutants and their subsequent deposition upon communities within the SPA/proposed Ramsar need to be considered in the context of operational scale/ known environmental conditions.
	Accidental radioactive emissions are unlikely given the level of regulatory control. Risk of significant effects of this is therefore unlikely.
Potential Impacts - other Plans and Programmes	Kent Joint Municipal Waste Management Strategy – air pollution  Kent Waste Local Plan – land take, air quality

Dungeness to Pett Level SPA/Ramsar (proposed) Operation (duration approx 60 years)		
	Air Quality	
	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take	
	Kent Local Transport Plan 2006-11 – water and air quality, land take	
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take	
Risk from 'In	Likely	
Combination' Effects?		
AA Required?	Yes	

Dungeness to Pett Level SPA/Ramsar (proposed) Operation (duration approx 60 years)	
	Habitat Loss and Fragmentation
Potential Impacts: Pathway	Changes to footprint of site through operation, for example to accommodate waste storage, develop infrastructure.
	Intake of water for cooling and discharge of (heated) cooling water to tidal reservoir and main estuary.
Potential effects on the SPA/Ramsar proposed: Receptor	Potential loss of designated habitats as well as of supporting and buffer habitats upon which designated breeding and over-wintering birds are dependent upon.
	Particular issues include the loss of sightlines between feeding and roosting sites for bird species as noted in conservation objectives for the SPA interest features.
	Cooling water discharge can result in areas of significantly or permanently warmed water, which although small may result in changes to habitats and species composition.
	Biocides used to clean cooling infrastructure have potential to impacts receiving environment
Risk of Likely Significant Effect (LSE)?	The nominated Site lies adjacent to this SPA/proposed Ramsar. Any changes to the footprint of the site to accommodate further infrastructure will likely lead to the loss of supporting and buffer habitats, and potentially result in the loss or degradation of habitat within the SPA/proposed Ramsar.
	Water abstraction may result in further impacts to hydrological regimes within this SPA/proposed Ramsar. Impacts are likely to be significant
Potential Impacts - other Plans and	Kent Joint Municipal Waste Management Strategy – air pollution
Programmes	Kent Waste Local Plan – land take, air quality

Dungeness to Pett Level SPA/Ramsar (proposed) Operation (duration approx 60 years)	
Habitat Loss and Fragmentation	
	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take
	Kent Local Transport Plan 2006-11 – water and air quality, land take  Dover District Council Local Plan – air quality, noise and visual disturbance, land take
Risk from 'In Combination' Effects?	Uncertain
AA Required?	Yes

### **Source: Decommissioning (duration approx 30 years)**

Dungeness to Pett Level SPA/Ramsar (proposed) Decommissioning (duration approx 30 years)	
	Water Quality
Potential Impacts: Pathway	Potential effects on water quality and drainage from [de]construction activities, earthworks, infrastructure, waste storage.
Potential effects on the SPA/Ramsar proposed: Receptor	Changes in organic and nutrient loading can impact upon the species composition of communities within the SPA/proposed Ramsar.
	Contamination by synthetic and non-synthetic compounds is potentially an issue for habitats within the SPA/proposed Ramsar. Toxins can bind to sediments, affecting supporting species including prey for designated breeding and overwintering bird species.
Risk of Likely Significant Effect (LSE)?	The maintenance of high water quality and existing hydrology and sedimentary regime is noted as a key environmental condition requirement at this site.
	There is the potential for significant effect, particularly at a local level.
Potential Impacts - other Plans and	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take
Programmes	Kent Local Transport Plan 2006-11 – water and air quality, land take
	The Rother Catchment Abstraction Management Strategy – water abstraction
	Decommissioning of Dungeness A – noise and visual disturbance, air quality.
Risk from 'In Combination' Effects?	Likely

Dungeness to Pett Level SPA/Ramsar (proposed) Decommissioning (duration approx 30 years)	
Water Quality	
AA Required?	Yes

Dungeness to Pett Level SPA/Ramsar (proposed) Decommissioning (duration approx 30 years)		
	Disturbance (Noise, light, visual)	
Potential Impacts: Pathway	Decommissioning activity (scheduled for up to 30 years) likely to result in significant local increases in noise events, light pollution and visual disturbance in and around the immediate vicinity of the site.	
Potential effects on the SPA/Ramsar proposed: Receptor	Physical disturbance arising from noise and vibration to coastal communities and their component species and to the structural integrity of the designated habitats has the potential adversely impact upon the communities supported within this SPA, particularly for breeding and over-winter bird species for which this SPA is designated for.	
Risk of Likely Significant Effect (LSE)?	The nominated Site lies adjacent to this SPA/proposed Ramsar. Physical disturbance through noise and vibration impacts of the development can impact upon the structural integrity of the designated habitats and upon the species which they support.	
Potential Impacts - other Plans and Programmes	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take  Kent Local Transport Plan 2006-11 – water and air quality, land take  Dover District Council Local Plan – air quality, noise and visual disturbance, land take  Decommissioning of Dungeness A – noise and visual disturbance, air quality.	
Risk from 'In Combination' Effects?	Likely	
AA Required?	Yes	

Dungeness to Pett Level SPA/Ramsar (proposed) Decommissioning (duration approx 30 years)	
	Air Quality
Potential Impacts: Pathway	Potential local impacts from increased development/ traffic growth associated with decommissioning and the emissions arising from [de]construction activity. Likely to be restricted to a local level for example dust/ particulates.
Potential effects on the SPA/Ramsar proposed: Receptor	An increase in airborne pollutants can lead to nutrient loading and changes to water quality from aerial deposition.
	Indirect impacts include changes to water quality from aerial deposition.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies adjacent to this SPA/proposed Ramsar. The maintenance of good air quality is essential to protect the ecological integrity of the SAC and has been identified as a key vulnerability for the designated communities and species within the SPA/proposed Ramsar.  Any potential effects of increased nutrient loading from air borne pollutants and their subsequent deposition upon communities within the SPA/proposed Ramsar need to be considered in the context of operational scale/ known environmental conditions.
Potential Impacts - other Plans and Programmes	Kent Joint Municipal Waste Management Strategy – air pollution  Kent Waste Local Plan – land take, air quality
	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take
	Kent Local Transport Plan 2006-11 – water and air quality, land take
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take

Dungeness to Pett Level SPA/Ramsar (proposed) Decommissioning (duration approx 30 years)	
Air Quality	
	Decommissioning of Dungeness A – noise and visual disturbance, air quality.
Risk from 'In Combination' Effects?	Likely
AA Required?	Yes

Dungeness to Pett Level SPA/Ramsar (proposed) Decommissioning (duration approx 30 years)	
	Habitat Loss and Fragmentation
Potential Impacts: Pathway	Changes to footprint of site through decommissioning activities for example to accommodate waste storage, develop infrastructure.
Potential effects on the SPA/Ramsar proposed: Receptor	Further construction activities may result in further loss of habitat and the ecological communities including breeding and overwintering bird species they support.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies adjacent to this SPA/proposed Ramsar. Habitats which are designated within this SPA/proposed Ramsar are particularly vulnerable to any further physical loss including direct loss of habitat, reduction in extent, and changes to hydrology and sediment transport regimes arising from additional construction on the coastal fringe relating to decommissioning. Loss of habitat is considered to be significant
Potential Impacts - other Plans and Programmes	Kent Joint Municipal Waste Management Strategy – air pollution  Kent Waste Local Plan – land take, air quality
	Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take
	Kent Local Transport Plan 2006-11 – water and air quality, land take
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take
	<b>Decommissioning of Dungeness A</b> – noise and visual disturbance, air quality. Potentially habitat gain through restoration
Risk from 'In Combination' Effects?	Uncertain
AA Required?	Yes

Dungeness to Pett Level SPA/Ramsar (proposed) Decommissioning (duration approx 30 years)	
	Coastal Squeeze
Potential Impacts: Pathway	Construction of infrastructure and facilities relating to the decommissioning of the nuclear power station (for example waste storage facilities, new infrastructure) may result in an encroachment upon land at the coastal fringes. All supporting habitats are sensitive to removal by land reclamation and construction activity.
Potential effects on the SPA/Ramsar proposed: Receptor	Designated habitats and species are located along the coastal fringe adjacent to the site and are therefore particularly vulnerable to any further physical loss of supporting habitats and any additional changes to hydrology and sedimentation regimes arising from additional construction of decommissioning infrastructure. Should any construction result in further encroachment onto the coastal fringe this will result in further losses of habitats and may additionally alter environmental conditions otherwise necessary to maintain designated habitats and species in a favorable condition.
Risk of Likely Significant Effect (LSE)?	The nominated Site lies adjacent to this SPA/proposed Ramsar. Coastal habitats which are designated within this SPA/proposed Ramsar are particularly vulnerable to physical loss including direct loss of habitat, reduction in extent, and changes to hydrology and sediment transport regimes arising from further construction on the coastal fringe. Loss of habitat is considered to be significant.
Potential Impacts - other Plans and Programmes	Kent Waste Local Plan – land take, air quality  Kent Minerals Local Plan: Construction Aggregates – water and air quality, land take  Kent Local Transport Plan 2006-11 – water and air quality, land take  Shoreline Management Plans – habitat management  Coastal Defence Strategy Studies – habitat management

Dungeness to Pett Level SPA/Ramsar (proposed) Decommissioning (duration approx 30 years)		
Coastal Squeeze		
	Dover District Council Local Plan – air quality, noise and visual disturbance, land take	
Risk from 'In	Uncertain	
Combination' Effects?		
AA Required?	Yes	

## **Appendix 4: HRA/ Appropriate Assessment Proforma**

### **Dungeness SAC**

Location: TR075175Size (ha): 3223.56Designation: SAC

	Dungeness SAC
Qualifying Features	Annex I habitats that are a primary reason for selection of this site  Annual vegetation of drift lines  • for which this is one of only four known outstanding localities in the UK  • which is considered to be rare as its total extent in the UK is estimated to be less than 100 hectares  Perennial vegetation of stony banks  • for which this is considered to be one of the best areas in the UK  Annex II species that are a primary reason for selection of this site  Great Crested Newt Triturus Cristatus  • for which this is considered to be one of the best areas in the UK
Conservation Objectives	To maintain in favourable condition:  o Annual vegetation of drift lines o Perennial vegetation of stony banks  To maintain in favourable condition, the habitats and population of: o Great Crested Newt

	Dungeness SAC
Key Environmental Conditions (factors that maintain site integrity)	<ul> <li>General</li> <li>Limit disturbance or removal of material interest, or drying out of peat deposits.</li> <li>Protect these areas from activities that may damage or obscure them. Such activities range from development and coastal defence schemes to recreational pressures.</li> <li>Selective scrub management and grazing or mowing may be necessary, especially where dunes have become overstabilised.</li> <li>Preventing succession.</li> <li>Minimal abstraction of water.</li> <li>Minimal air pollution.</li> <li>Impact on coastal geomorphology and coastal processes. Coastal evolution is an important element of this site.</li> <li>Retention of the surface and buried geomorphology.</li> <li>Maintenance of water levels to retain freshwater features for example Open Pits.</li> </ul> Annual Vegetation of Drift Lines <ul> <li>No decrease in linear extent, width of community, and % cover of vegetation from baseline. Extent must take account of natural variation of this habitat as a result of dynamic coastal conditions.</li> <li>No increase in linear extent or area constrained by introduced structures or landforms or operations.</li> <li>No disruption to the natural patterns of erosion and accretion within the site, or increase in the number of coastal defence operations disrupting the natural supply of sediment to the site.</li> <li>Maintain substrate through natural processes with sufficiently low levels of human-induced disturbance to allow drift line vegetation to complete its vegetation cycle.</li> <li>Maintain the presence and broad distribution of stands of Atriplex glabriuscula dominated community and other local variants of drift line vegetation across the feature, allowing for natural variation.</li> </ul>

	Dungeness SAC
	<ul> <li>Perennial Vegetation of Stony Banks</li> <li>No decrease in extent or area from previous studies. Vegetation allowed to recover naturally in areas where it has been lost due to human-induced disturbance. Extent must take account of natural variation of this habitat as a result of dynamic coastal processes.</li> <li>No increase in linear extent or area constrained by introduced structures or landforms.</li> <li>No disruption to the natural patterns of erosion and accretion within the site, or increase in the number of coastal defence operations disrupting the natural supply of sediment to the site.</li> <li>Maintain proportion of shingle/sand/organic matter, regulated entirely by natural processes.</li> <li>Maintain range of specialist vegetation and its zonation preciously recorded on the site, taking account of natural variation. One or more of the characterising species for each range of communities should be at least frequent if the communities have been previously recorded on the site.</li> <li>No reduction in extent of vegetation cover exhibiting relationship to geomorphological structure, taking account of natural variation.</li> </ul>
	<ul> <li>Great Crested Newt</li> <li>Maintain the range of the newts across the site, and the number of breeding ponds (bearing in mind that newt distribution in a metapopulation may vary naturally over a period of time).</li> <li>No loss of area or fragmentation of site. No barriers to newt movement between ponds.</li> </ul>
Vulnerabilities (includes existing pressures and trends)  Details at Appendix 1	<ul> <li>General</li> <li>Shingle vegetation is very vulnerable to trampling, and illicit gravel extraction.</li> <li>Shingle wetlands vulnerable to water abstraction.</li> <li>Potential risk from pollution, from nearby airport, although current levels of air traffic and motor vehicles are not thought to cause a problem.</li> </ul>
	Open Pit features are vulnerable to changes in water level fluctuations.      Perennial Vegetation of Stony Banks

	Dungeness SAC
	<ul> <li>Sediment supply</li> <li>Natural mobility</li> <li>Exploitation</li> <li>Access</li> <li>Grazing</li> <li>Air Pollution, in particular the Lichen heath communities</li> </ul> Annual Vegetation of Drift Lines <ul> <li>Main pressures as described above in Perennial Vegetation of Stony Banks.</li> <li>Seed dormancy, seed size, dispersal, sediment size, depth of burial, temperature, nutrient supply, disturbance during growth all influence colonization.</li> </ul> Great Crested Newt <ul> <li>Main pressures are cultivation, modification of cultivation practices, abandonment of pastoral systems, removal of hedges and copses, forestry clearance, mineral extraction activities, urbanised areas, human habitation, industrial or commercial areas, communication networks, water pollution, landfill etc., management of water levels, silting up, drying out, eutrophication, predation and inappropriate management.</li> </ul>
Predicted Impacts  What are the issues arising from the plan and how might the site be affected?	<ul> <li>Water Resources and Quality</li> <li>Increased/ altered drainage from earthworks/excavation and infrastructure provision.</li> <li>Discharges (planned or accidental – non-radioactive and radioactive).</li> <li>Changes to water temperature from controlled discharge.</li> <li>Potential impacts on water quality and quantity that could affect the integrity of the designated site.</li> <li>Changes to water levels, loss of Open Pit features.</li> <li>Air Quality</li> <li>Increase in atmospheric pollution. Local level impacts (reduced air quality, NOx gases from road/transport/ generation sources) arising from construction, operation, decommissioning activities.</li> </ul>

	Dungeness SAC
	Risk of smothering by dust of the sensitive Lichen heath communities, from increase in traffic, and decommissioning.
	Disturbance (noise, light, visual)  Construction and decommissioning likely to increase noise, light pollution and visual disturbance.
	<ul> <li>Habitat (and species) Loss and Fragmentation</li> <li>General construction of facilities, infrastructure, temporary works area, cooling water culverts could encroach into buffer habitats and coastal fringes.</li> </ul>
	<ul> <li>Fragmentation from encroachment onto surrounding habitats during construction phases.</li> <li>Impingement of fish and larvae on water intake filters.</li> </ul>
	<ul> <li>Potential for impacts on protected species that forage outside the designated areas.</li> <li>Loss of buried and surface geomorphology.</li> </ul>
	Coastal Squeeze  • Encroachment.
Potential In-	Water Resources and Quality
combination effects	Local Development Frameworks (South East, Kent, Dover):
(screening)	River Basin Management Plan for the South East
14/bat atleas plans and	Kent Minerals Local Plan: Construction Aggregates     Kent Local Transport Plan: 2005, 14
What other plans and	Kent Local Transport Plan 2006-11     The Bether Catalyment Abstraction Management Strategy
programmes could lead to in-combination	The Rother Catchment Abstraction Management Strategy
effects?	Air Quality
	Local Development Frameworks (South East, Kent, Dover):
	Kent Joint Municipal Waste Management Strategy
	Kent Waste Local Plan

	Dungeness SAC
	<ul> <li>Kent Minerals Local Plan: Construction Aggregates</li> <li>Kent Local Transport Plan 2006-11</li> <li>Dover District Council Local Plan</li> </ul>
	<ul> <li>Disturbance (noise, light, visual)</li> <li>Kent Minerals Local Plan: Construction Aggregates</li> <li>Local Transport Plan 2006-11 (Kent)</li> <li>Dover District Council Local Plan</li> <li>Dungeness Decommissioning Plan</li> </ul>
	Habitat Loss and Fragmentation Local Development Frameworks (South East, Kent, Dover):  Kent Joint Municipal Waste Management Strategy  Kent Waste Local Plan  Kent Minerals Local Plan: Construction Aggregates  Kent Local Transport Plan 2006-11  Dover District Council Local Plan
	Coastal Squeeze Local Development Frameworks (South East, Kent, Dover):  Kent Waste Local Plan  Kent Minerals Local Plan: Construction Aggregates  Kent Local Transport Plan 2006-11  Shoreline Management Plans  Coastal Defence Strategy Studies
Appropriate	Dover District Council Local Plan     Water Resources and Quality

	Dungeness SAC
Assessment  Likelihood of adverse effect on integrity:	• Current Environment Agency data <sup>6</sup> indicates that the ecological potential for rivers near to the SAC are classed as being moderate cAWB (candidate Artificial Waterbodies), the ecological status of lake near to the nominated site have not been assessed; Estuaries and coastal waters near to the nominated site are classed as being moderate cHMWB (candidate Heavily Modified Waterbodies); the EA consider that the chemical status of the river environments near to the nominated site do not need to be assessed; the chemical status of estuarine and coastal waters near to the nominated site are 'failing to achieve good' to the North-east, and 'good' to the South-west; the chemical status for groundwater and the quantitative status for groundwater near to the nominated site are both poor. Under The River Quality Objective (RQO) 2003 Compliance grading, the River Lydd was classed as a significant failure. The RQO is an agreed strategic target, expressed in terms of River Ecosystem standards, and indicates the level of water quality that a river should achieve in order to be suitable for its agreed uses. Effluents from a power station may contribute to changes in already vulnerable ground water quality. River Lydd flows into the SAC so the water quality could have impacts on the qualifying features, such as the strandline communities, or Great Crested Newts. The River Rother system may also run into the SAC, having similar implications.
	• The Denge Gravels aquifer lies within the SAC; it currently has a status of 'no water available'. Most of the abstraction pressure is from public water supply. Additional development on the area would only lead to further pressures on the water supply of the area. Climate change is an important issue facing water resource management, with the latest scenarios suggesting temperatures will rise across England, with summers in southern England becoming drier and winters wetter. Global warming is resulting in a loss of intertidal land through sea level rise; this also has implications for water availability. With rainfall becoming both more seasonal and increasing in intensity, there is potential for higher runoff and less water being able to be percolated into the aquifers, which supply the bulk of

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<sup>&</sup>lt;sup>6</sup> Draft River Basin Management Plan for the South East, Environment Agency (2008). The data used in this assessment is taken from the Draft River Basin Management Plan, which was the most up to date plan available at the time. Draft plans were presented to the Government for approval in September 2009, with final plans published in December 2009.

Dungeness SAC
public water supply in the area, leading to further pressures on the SAC.
<ul> <li>Radioactive discharges are subject to targets monitored by the Environment Agency (EA). Non-radioactive discharges, nitrate contributions are considered to be the most significant (research cited by the EA in the nuclear sector report). In particular it is noted that there can be measurable localised impacts on sea nutrient levels in the vicinity of discharges.</li> </ul>
• The EA have produced a Catchment Abstraction Management Strategy (CAM) for the River Rother, final published in Spring 2006. The process for rewriting this CAM will recommence in April 2010. The actions relevant to Dungeness, from The Rother CAM Annual Update (October 2007) were: 'The Rother Estuary Study' – Natural England to confirm the freshwater needs of the estuary. This started in 2007 and will finish in 2009; and 'The River Rother' – A joint co-operative study between the EA (Water Quality), NFU and Southern Water to evaluate the dilution needs of the river and investigate the relationship between euthrophication and flow rates. This started in 2006 and is due to finish in 2010. There is the potential for the development of the nominated site in combination with Local Plans, to give rise to potentially significant effects on the water quality and quantity available to the designated Site.
The water abstraction requirements and exact location of the nominated site are currently unknown. However through screening, the SAC was identified as possessing specific vulnerabilities relating to water resources. The annual vegetation of drift lines, the perennial vegetation of stony banks, and the Annex II species Great Crested Newts are vulnerable to contamination from the introduction of synthetic and non-synthetic toxic compounds and to any changes in nutrient and/or organic loading of both marine and groundwater supplies. Such alterations to nutrient levels could impact upon the species composition of those vegetation communities for which the SAC is designated. Increased nutrient levels leading to eutrophication within freshwater bodies and altered oxygen levels can also impact upon the survival of Great Crested Newts - a further qualifying feature of the SAC. Given that

Dungeness SAC
nominated site lies within the Dungeness SAC, and that this site is vulnerable to changes in water quality, significant effects upon the ecological integrity of this designated Site is likely.
Air Quality     Information provided by the Kent and Medway Air Quality Monitoring Network indicates that air quality in Kent is generally low.
Air Pollution Information System (APIS) noted that Annual vegetation of drift lines are not sensitive to eutrophication (being created from nitrogenous matter) or acidification. Perennial vegetation of stony banks are considered to be sensitive to eutrophication, but not to acidification. Great Crested Newts are sensitive to both eutrophication and acidification.
The EA assesses that, non-radioactive aerial emissions (sulphur dioxide, nitrogen oxides and volatile organic compounds) from nuclear power stations are extremely low compared with other regulated industries and the agency does not consider them to be an environmental priority.
<ul> <li>Air quality issues around the nominated site are considered to potentially be most significant during the construction and decommissioning phases (increase in transport etc). The potential for cumulative effects from other plans and programmes, for instance increased air pollution from increased air traffic movements, could have further impacts on air quality. The screening of the nominated site identified air quality as a specific vulnerability for the qualifying and interest features of the designated Site. As the nominated site lies within the SAC, and that this site is vulnerable to changes in air quality, significant effects upon the ecological integrity of this designated Site is likely.</li> </ul>
Disturbance (noise, light, visual)  Disturbance to habitats and associated species can arise from a number of sources. While recreational activities are frequently implicated in disturbance events, sources can also include traffic, construction activity and intermittent sounds (for example alarms/sirens). The impacts upon bird

Dungeness SAC
species in particular, using the designated habitats, are particularly significant and tend to occur on a continuum where the most disturbing activities are those that are irregular, unpredictable loud noise events and movements or vibrations of a long duration. Less disturbing events are regular, frequent, quiet and predictable patterns of sound or vibration with limited vibration (Scott Wilson, Nov 2008).
<ul> <li>Habitat Loss and Fragmentation</li> <li>Habitats within this designated Site are particularly vulnerable to any loss of habitat or other supporting habitat given its restricted extent. Habitat loss and fragmentation is of further concern for the designated species -Great Crested Newt, whose dispersal and population maintenance are directly impacted upon by habitat fragmentation and loss of suitable breeding ponds and fresh water pools, therefore significant effects upon the ecological integrity of this designated Site are likely.</li> </ul>
Coastal Squeeze  The screening identified potential for the loss of marine and sub-tidal habitats during the construction phase given that the development will encroach upon the coastal fringe. Such encroachment will exacerbate current stress levels tolerated by an existing man-made coastal defence comprising shingle embankment along the shoreline which requires continual maintenance to minimize impacts of coastal erosion and flooding. In addition, should further coastal defence measures be required as part of the proposed development, current longshore sediment transport regimes will likely be altered, having direct adverse effects upon the designated habitats which are sensitive to any alterations in sediment supply. Adverse impacts may also occur upon the balance of saline and non-saline conditions within those habitats which support species for which the SAC is designated. The proposed development will therefore likely exacerbate coastal squeeze impacts upon the SAC.
Due to the proximity of the development to the SAC, significant effects upon the ecological integrity of this designated Site are likely. In particular, the alteration to the hydrological and sediment transport regimes arising from the development of infrastructure and coastal defences at the coastal fringe will

	Dungeness SAC
	likely result in the loss and/or degradation of designated habitats, in turn impacting upon those species which they support.
Possible Avoidance and Mitigation Measures – includes recommendations for policy/proposals	<ul> <li>Water Resources and Quality</li> <li>Avoiding adverse effects on surface, ground and estuarine waters is primarily the responsibility of the Water Companies (resource planning) and the Environment Agency (abstraction licensing and discharge regulation). However, the Nuclear NPS can direct requirements for efficiency of water use and require that issues relating to supply and discharge (including potential effects on European sites) are in place prior to the implementation of the nominated site proposals.</li> </ul>
	<ul> <li>In order to prevent fish mortalities, fish protection measures should be incorporated into cooling water intake/system design.</li> </ul>
	Further studies are necessary to determine impact of discharging heated waters.
	<ul> <li>Primary data collection and subsequent laboratory analyses of samples for a full suite of parameters (including radioactive elements) are likely to be required to help define the existing hydrological regime, together with avoidance through safe operation and decommissioning/waste storage/transfer.</li> </ul>
	There is a small risk of accidental discharges/incidents of radioactive materials into the environment.  Avoidance through safe operation and decommissioning/waste storage/transfer is recommended.
	Potential impacts on hydrology/hydrogeology will need to be understood, water quality studies are necessary to determine impact.
	Air Quality

Dungeness SAC
<ul> <li>It is important that the Nuclear NPS takes account of potential air quality impacts through requirements, particularly at a local level for sustainable transport plans (for example the use of non- road transport where possible, phasing of development and robust monitoring at sites to track changes). In particular, the monitoring should account for the potential for cumulative impacts where the phasing between existing power stations and the new build overlaps.</li> </ul>
Small risk of accidental discharges/incidents of radioactive materials into environment. Avoidance through safe operation and decommissioning/waste storage/transfer.
<ul> <li>Disturbance (noise, light, visual)</li> <li>Opportunities to reduce traffic impacts could include scheduling construction delivery times to off peak traffic hours and encouraging the workforce to adopt alternative measures and practices, such as rail, cycle. Volume of traffic could potentially be reduced if the railhead was expanded and used, lessening the amount of traffic on local roads. Minimise need for encroachment of construction into sensitive areas through Site design.</li> </ul>
<ul> <li>Utilise Environmental Management Plan to minimise disturbance for instance through timing/screening.</li> </ul>
Changes to existing lighting regimes will need to be considered, and where appropriate, shielding should be used to reduce the impact as much as possible.
<ul> <li>Habitat Loss and Fragmentation/Coastal Squeeze</li> <li>Where proposals for design and build remain under development, the Nuclear NPS should seek to prioritise the avoidance of direct habitat impacts, to protect the integrity of the designated Site. Any direct impacts that cannot be avoided, or mitigated (including through alternatives) should be addressed by compensation measures agreed with the Statutory Bodies and implemented prior to the commencement of development works. The interest features on the designated sites will guide</li> </ul>

	Dungeness SAC
	the identification of potential mitigation and compensation measures. Appropriate management systems should be put in place to protect local designated Sites.
	Encouraging workforce to use alternative travel arrangements to reduce land take needed to provide parking.
	<ul> <li>In order to reduce loss or damage to surrounding habitats, the position of the nominated site, within the network of habitats will need to be considered, and if necessary, the blueprint altered, as this could have effects on dispersing birds/animals/species between designations.</li> </ul>
	Further understanding is required for species noted to be currently declining on the designated Site, before mitigation and an assessment of likely effects, can be undertaken.
Conclude no adverse effect on integrity?	<ul> <li>It is not possible at this stage of the development of the Nuclear NPS to say that proposals at the nominated site will not have significant adverse effects on the Dungeness SAC as a result of impacts to water, changes to water quality, habitat loss/ fragmentation, air quality and coastal squeeze.</li> </ul>

# Dungeness to Pett Level SPA • Location: 50 55 50 N /00 44 59 E

• Size (ha): 1474.04 • Designation: SPA

	Dungeness to Pett Level SPA
Qualifying Features	This designated Site qualifies under <b>Article 4.1</b> of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:
	During the breeding season:
	<ul> <li>Common Tern Sterna hirundo, 266 pairs representing at least 2.2% of the breeding population in Great Britain (5 year mean, 1993-1997)</li> </ul>
	<ul> <li><u>Little Tern Sterna albifrons</u>, 35 pairs representing at least 1.5% of the breeding population in Great Britain (5 year mean, 1993-1997)</li> </ul>
	<ul> <li>Mediterranean Gull Larus melanocephalus, 2 pairs representing at least 20.0% of the breeding population in Great Britain (5 year mean, 1993-1997)</li> </ul>
	On passage:
	<ul> <li>Aquatic Warbler Acrocephalus paludicola, 30 individuals representing at least 44.8% of the population in Great Britain (Count as at 1997)</li> </ul>
	Overwinter:
	<ul> <li>Bewick's Swan Cygnus columbianus bewickii, 179 individuals representing at least 2.6% of the wintering population in Great Britain (5 year peak mean, 1992/3-1996/7)</li> </ul>
	This designated Site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

	Dungeness to Pett Level SPA
	Overwinter:  • Shoveler Anas clypeata, 419 individuals representing at least 1.0% of the wintering Northwestern/Central Europe population (5 year peak mean 1991/2 - 1995/6)
Conservation Objectives	To maintain, in favourable condition, the habitat for the populations of Annex 1 species of European importance (Bewick's Swan, Common Tern and Mediterranean Gull), with particular reference to: <ul> <li>Standing water</li> <li>Shingle</li> <li>Marshy Grassland</li> <li>Arable</li> <li>Coastal waters</li> <li>Shingle islands</li> </ul>
	To maintain, in favourable condition, the habitats for the populations of migratory bird species of European importance (Shoveler), with particular reference to: <ul> <li>Standing water</li> <li>Marshy grassland</li> </ul> <li>To maintain, in favourable condition, the habitat for the populations of Annex 1 species of European importance (Little Tern and Common Tern), with particular reference to:</li>
I/a Falloward	<ul> <li>Standing water</li> </ul>
Key Environmental	Generic  Mointenance of grazing/mowing regimes
Conditions (factors that maintain site	<ul> <li>Maintenance of grazing/mowing regimes.</li> <li>Maintenance of groundwater and surface water levels.</li> </ul>
integrity)	<ul> <li>Sufficient space between the designated Site and development to allow for managed retreat of</li> </ul>

#### **Dungeness to Pett Level SPA** intertidal habitats and avoid coastal squeeze. Unpolluted water. • Absence of nutrient enrichment. Absence of non-native species. Balance of saline and non-saline conditions. **Species-specific** Bewick's Swan This species shows a high level of winter site fidelity in the UK (Rees 1987). Furthermore, movements between sites within a given winter are infrequent (Rees and Bacon 1996), although such movements can occur, especially in response to severe weather conditions. Bewick's Swans winter on shallow freshwater lakes, marshes or slow-moving rivers near or adjacent to extensive grasslands liable to flooding (Rees et al. 1997b; Rees 1990). In Ireland, they feed predominantly on permanent wet grassland and, in the past, brackish coastal lagoons (Kennedy et al. 1954). In recent decades this species has increasingly taken to foraging on agricultural land, especially waste root crops, grain stubbles and winter cereals (MacMillan 1969; Merne 1972; Owen and Cadbury 1975; Rees et al. 1997b). In general, they feed by day and return to wetland areas to roost overnight. They are highly gregarious and often occur in flocks of several hundreds. Common Tern Common Terns breed around coasts and beside inland freshwater bodies. Coastal sites are mainly small rocky islets, shingle beaches, sand-spits and dunes, as well as among short vegetation (occasionally more scrubby growth). Inland sites include shingle banks in rivers, islands in lakes and gravel pits, marshes and shallow lagoons. More artificial sites, including waste ground, specially made floating rafts and even gravel-covered flat-roofs, are occasionally used. Most feeding takes place within 3–10 km of the colony.

	Dungeness to Pett Level SPA
	Little Tern  Breeding occurs at scattered colonies around much of the coast of Britain and Ireland, from the north of Scotland to the south coast of England. All British and Irish Little Terns nest on the coast, utilising sand and shingle beaches and spits, as well as tiny islets of sand or rock close inshore.
	Aquatic Warbler Aquatic Warblers depend on the availability of large areas of reedbed habitat for feeding prior to autumn migration and at staging points along the course of the route to their wintering areas. They use these staging points to feed and rest in order to replenish their fat reserves, before commencing the long flight over the sea to France or Spain.
	Shoveler Within Britain the breeding strongholds are the Norfolk Broads, the north Kent Marshes and the East Anglian fens, with birds widely scattered elsewhere in eastern and central England, becoming scarcer in upland areas and the south-west.
Vulnerabilities (includes existing pressures and trends)	This designated Site is vulnerable to coastal erosion, particularly the areas at Dungeness and Rye Harbour, which are likely to erode in the longer term due to natural processes.
	<ul> <li>Recreational and leisure activities are a problem in some areas, particularly at Northpoint Pit which is used for wind surfing. The area is zoned to try and control this activity. Much of the shingle is uncultivated and is either nature reserve or open land.</li> </ul>
	<ul> <li>Breeding bird populations are at serious risk of predation by species such as Fox Vulpes vulpes, Badger Meles meles and Mink Mustela vision. There is a localised programme of pest control on part of the designated Site. The site is reasonably well protected from visitor disturbance, although the</li> </ul>

## **Dungeness to Pett Level SPA** possible disturbance from aircraft using a nearby airfield is being investigated. Recreational and leisure activities are a problem in some areas, particularly North Point Pit which is used for wind surfing. The area is zoned to try and control this activity. • Much of the shingle is uncultivated and is either nature reserve or open land. The site is vulnerable to changing agricultural practices, particularly ploughing of grassland for arable crop, or changes to turf production on adjacent land, which may influence the site's bird population. These practices could be controlled by management agreements. Most of the grassland within the SPA is heavily grazed and there is a continuing problem of lowering water levels; both problems are being addressed through management agreements and water level management plans. Little Tern The greatest threat to Little Tern colonies is from human disturbance. The concentration of the largest colonies on beaches in south-east England coincides with the highest density of people living in Britain and wanting to use those same beaches. The period of greatest decline, from the 1930s to the 1960s, coincided with a great boom in numbers of people making trips to the seaside, with only a short respite during the war years. Once alerted by the 1967 census to the seriousness of the situation, protection measures, including wardening, signs and fencing, have had remarkable success in safeguarding a number of colonies, with considerable increases in numbers of nesting pairs at several sites in both Britain and Ireland. Predation is a factor at some colonies and fencing is widely used to keep out Foxes. High summer tides (especially storm-surges) regularly flood some colonies, but nests have successfully been moved up the beach in some places. Blown sand is also a significant factor causing nest losses. Aquatic Warbler Decline in numbers is thought to be largely the result of habitat loss due to land drainage for agriculture and industrial development, as well as the abandonment of traditional farming practices (Tucker and Heath 1994).

	Dungeness to Pett Level SPA
	Shoveler However, trend analysis is difficult because of the tendency of Shovelers to breed in areas subject to rapid natural change, with flooding and fluctuating water tables resulting in large year-to-year variation in numbers. There has also been a decline in numbers associated with loss of wetland habitat, which is already restricted because of its specialised method of feeding.  Water Province and One 15.
What are the issues arising from the plan and how might the site be affected?	<ul> <li>Water Resources and Quality</li> <li>Potential for impacts on protected species that forage outside the designated site.</li> <li>Potential for impacts on water quality and quantity that could affect the integrity of the designated site.</li> <li>Increased/altered drainage from earthworks and excavation.</li> <li>Potential for toxic contamination from accidental leakage.</li> <li>Radioactive discharges (accidental and routine).</li> <li>Alteration of flow from abstraction.</li> <li>Changes to water temperature from controlled discharge.</li> <li>Habitat Loss and Fragmentation/Coastal Squeeze</li> <li>Potential for impacts on protected species that forage outside the designated site.</li> <li>Direct impacts, loss of species from extension of site boundary/construction of sea wall.</li> <li>Fragmentation from encroachment onto surrounding habitats during construction phases.</li> <li>Impingement of fish and larvae on water intake filters.</li> <li>Reduction of coastal margin by movement of fixed landward boundary into designated space.</li> <li>Disturbance (noise, light and visual)</li> <li>Local level impacts relating primarily to construction and decommissioning activities, also relevant offsite.</li> </ul>

	Dungeness to Pett Level SPA
	Air Quality     Potential for increased atmospheric pollution, changes to local level impacts (reduced air quality, NOx gases from road/transport/generation sources) arising from construction, operational and decommissioning activities.
Potential In- combination effects (screening)	Water Resources and Quality Local Development Frameworks (South East, Kent, Dover):  River Basin Management Plan for the South East Kent Minerals Local Plan: Construction Aggregates
What other plans and programmes could lead to in-	<ul> <li>Kent Local Transport Plan 2006-11</li> <li>The Rother Catchment Abstraction Management Strategy</li> </ul>
combinations effects?	Air Quality Local Development Frameworks (South East, Kent, Dover):  Kent Joint Municipal Waste Management Strategy  Kent Waste Local Plan  Kent Minerals Local Plan: Construction Aggregates  Kent Local Transport Plan 2006-11  Dover District Council Local Plan
	<ul> <li>Disturbance (noise, light, visual)</li> <li>Kent Minerals Local Plan: Construction Aggregates</li> <li>Local Transport Plan 2006-11 (Kent)</li> <li>Dover District Council Local Plan</li> <li>Dungeness Decommissioning Plan</li> </ul>

	Dungeness to Pett Level SPA
	Habitat Loss and Fragmentation Local Development Frameworks (South East, Kent, Dover):  • Kent Joint Municipal Waste Management Strategy  • Kent Waste Local Plan  • Kent Minerals Local Plan: Construction Aggregates  • Kent Local Transport Plan 2006-11  • Dover District Council Local Plan  Coastal Squeeze Local Development Frameworks (South East, Kent, Dover):
	<ul> <li>Kent Waste Local Plan</li> <li>Kent Minerals Local Plan: Construction Aggregates</li> <li>Kent Local Transport Plan 2006-11</li> <li>Shoreline Management Plans</li> <li>Coastal Defence Strategy Studies</li> <li>Dover District Council Local Plan</li> </ul>
Appropriate Assessment	<ul> <li>Water Resources and Quality</li> <li>Current EA data<sup>7</sup> indicates that the ecological potential for rivers near to the SPA are classed as being moderate cAWB (candidate Artificial Waterbodies); the ecological status of lake near to the</li> </ul>
Likelihood of adverse effect on integrity:	nominated site have not been assessed; Estuaries and coastal waters near to the nominated site are classed as being moderate cHMWB (candidate Heavily Modified Waterbodies); the chemical status of the river environments near to the nominated site do not need to be assessed; the chemical status of estuarine and coastal waters near to the nominated site are 'failing to achieve good' to the NE, and

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<sup>&</sup>lt;sup>7</sup> Draft River Basin Management Plan for the South East, Environment Agency (2008). The data used in this assessment is taken from the Draft River Basin Management Plan, which was the most up to date plan available at the time. Draft plans were presented to the Government for approval in September 2009, with final plans published in December 2009

Dungeness to Pett Level SPA
'good' to the SW; and the chemical status for groundwater and the quantitative status for groundwater near to the nominated site are both poor. Under The River Quality Objective (RQO) 2003 Compliance grading, the River Lydd was classed as a significant failure. The RQO is an agreed strategic target, expressed in terms of River Ecosystem standards, and indicates the level of water quality that a river should achieve in order to be suitable for its agreed uses. Effluents from a power station may contribute to changes in already vulnerable ground water quality. Many of the surrounding rivers may flow into the SPA, the water quality of these rivers have impacts on the qualifying feature birds, for instance pollution may impact on terms feeding from the rivers.  • Part of the Denge Gravels aquifer lies within the SPA, it currently has a status of 'no water available'. Most of the abstraction pressure is from public water supply. Additional development on the area would only lead to further pressures on the water supply of the area. Climate change is an important issue facing water resource management, with the latest scenarios suggesting temperatures will rise across England, with summers in southern England becoming drier and winters wetter. Global warming is resulting in a loss of intertidal land through sea level rise. This has implications for water availability. With rainfall becoming both more seasonal and of increasing intensity, could lead to higher runoff and less water being able too percolate into the aquifers which supply the bulk of public water supply in the area, leading to increased pressures on the SPA, and associated species.
<ul> <li>Radioactive discharges are subject to targets monitored by the EA and of the non-radioactive discharges, nitrate contributions are considered to be the most significant (research cited by the EA in the nuclear sector report). In particular it is noted that there can be measurable localised impacts on sea nutrient levels in the vicinity of discharges.</li> </ul>
The EA have produced a Catchment Abstraction Management Strategy (CAM) for the River Rother, final published in Spring 2006. The process for rewriting this CAM will recommence in April 2010. The actions relevant to the nominated site, from The Rother CAM Annual Update (October 2007), were: The Rother Estuary Study – Natural England to confirm the freshwater needs of the estuary. This started in 2007 and will finish in 2009; and River Rother – A joint co-operative study between the EA

Dungeness to Pett Level SPA
(Water Quality), NFU and Southern Water to evaluate the dilution needs of the river and investigate the relationship between euthrophication and flow rates. This started in 2006 and is due to finish in 2010. There is the potential for the development of the nominated site in combination with Local Plans to give rise to potentially significant effects on the water quality and quantity of the designated Site.
• Given that the water abstraction requirements and exact location of the nominated site is currently unknown, however through screening, water abstraction was not specifically identified as a specific vulnerability; the impacts of water abstraction is likely to have impacts on the qualifying bird species present within the SPA, for instance reduction in water may impact on food availability for birds including Terns and Swans. Much of the grassland within the SPA is heavily grazed and there are continuing problems of lowering water levels, many of the qualifying bird species use the grasslands to feed upon. For instance, Bewick's Swans winter on slow-moving rivers near or adjacent to grasslands liable to flooding. Aquatic Warblers have declined due to loss in habitat as a result of land drainage.
<ul> <li>Air Quality</li> <li>Information provided by the Kent and Medway Air Quality Monitoring Network indicates that air quality in Kent is generally low.</li> </ul>
<ul> <li>Air Pollution Information System (APIS) noted that the broad habitat used by Bewick's Swans is not sensitive to eutrophication or acidification. The broad habitat used by Shovelers, Common Terns and Little Terns are sensitive to both eutrophication and acidification. The broad habitat used by Mediterranean Gulls is sensitive to eutrophication but not acidification. The broad habitats used by Common Terns.</li> </ul>
The EA assesses that, non-radioactive aerial emissions (sulphur dioxide, nitrogen oxides and volatile organic compounds) from nuclear power stations are extremely low compared with other regulated industries and the Agency does not consider them to be an environmental priority.

## **Dungeness to Pett Level SPA** Air quality issues around the nominated site are considered to potentially be most significant during construction and decommissioning phases (increase in transport etc). The potential for cumulative effects from other plans and programmes, for instance increased air pollution from increased air traffic movements, could have further impacts on air quality. The screening of the nominated site identified air quality as a specific vulnerability for the qualifying and interest features of the site. As the nominated site lies adjacent and outside the SPA, the site will still be vulnerable to changes in air quality, significant effects upon the ecological integrity of this site is likely. **Disturbance (noise, light, visual)** • Disturbance to habitats and species can arise from a number of sources. While recreational activities are frequently implicated in disturbance events, sources can also include traffic, construction activity and intermittent sounds (for example, alarms/ sirens). The impacts upon bird species are particularly significant and tend to occur on a continuum where the most disturbing activities are those that are irregular, unpredictable loud noise events and movement or vibration of a long duration. Less disturbing are regular, frequent, quiet and predictable patterns of sound or vibration with limited vibration<sup>8</sup>. Breeding and overwintering birds (which are qualifying features of the Dungeness to Pett Level SPA) can expend unnecessary energy and have reduced feeding times as a result of responding to disturbance events. Displacement between feeding sites can also place pressures on available resources, placing additional pressures on supporting habitats. The net effect of these disturbance events has a direct negative impact on species survival. • The screening assessment identified disturbance as being of potential significance for the Dungeness to Pett Level SPA interest features (Bewick's Swan, and other migratory and internationally important assemblages of breeding and wintering bird species (Mediterranean Gull, Shoveler), passage warblers

<sup>8</sup> Scott Wilson (Nov 2008) EcoTowns: Sustainability Appraisal and Habitats Regulations Assessment.

Dungeness to Pett Level SPA
(Aquatic Warbler) and breeding terns (Common and Little Tern). Increased disturbance is likely to arise from a range of sources (lighting, noise and vibration) and may result in the reduction of sight lines and commuting corridors, whilst also diverting birds from their chosen roosting and feeding sites. These disturbance sources and effects may be equally relevant offsite for example through the construction road/rail access.
<ul> <li>Habitat Loss and Fragmentation</li> <li>Habitats designated within this designated Site are particularly vulnerable to any loss of its habitat or other supporting habitat given its restricted extent. Loss of any areas of habitats will impact on the bird species using these areas, therefore significant effects upon the ecological integrity of this designated Site is likely.</li> </ul>
<ul> <li>Coastal Squeeze</li> <li>The screening identified potential for the loss of marine and sub-tidal habitats during the construction phase given that the development will encroach upon the coastal fringe (the relevant area of SPA being west of the Rother Estuary). Such encroachment will exacerbate current stress levels tolerated by an existing man-made coastal defence comprising shingle embankment along the shoreline which requires continual maintenance to minimize impacts of coastal erosion and flooding. In addition, should additional coastal defence measures be required as part of the proposed development, current longshore sediment transport regimes will likely be altered with direct adverse effects upon the designated habitats which are sensitive to any alterations in sediment supply. Adverse impacts may also occur upon the balance of saline and non-saline conditions within those habitats, impacting on the species protected in the SPA. The proposed development will therefore likely exacerbate coastal squeeze impacts upon parts of the SPA.</li> </ul>
Due to the proximity of the development to the SPA, significant effects upon the ecological integrity of this site is therefore likely. In particular, the alteration to the hydrological and sediment transport regimes arising from the development of infrastructure and coastal defences at the coastal fringe will

	Dungeness to Pett Level SPA
	likely result in the loss and/or degradation of designated habitats, thereby impacting upon those species which they support.
Possible Avoidance and Mitigation Measures – includes recommendations for policy/proposals	<ul> <li>Water Resource and Quality</li> <li>Avoiding adverse effects on surface, ground and estuarine waters is primarily the responsibility of the Water Companies (resource planning) and the Environment Agency (abstraction licensing and discharge regulation). However, the Nuclear NPS can direct requirements for efficiency of water use and require that issues relating to supply and discharge (including potential effects on European sites) are in place prior to the implementation of the nominated site proposals.</li> <li>Fish protection measures should be incorporated into cooling water intake/system design. Fish mortality could potentially impact on fish-eating birds, protected by the SPA such as Common Terns.</li> <li>Further studies necessary to determine impact of discharging heated waters.</li> <li>Primary data collection and subsequent laboratory analyses of samples for a full suite of parameters (including radioactive elements) is likely to be required to help define the existing hydrological regime, together with avoidance through safe operation and decommissioning/waste storage/transfer.</li> <li>There is a small risk of accidental discharges/incidents of radioactive materials into the environment. Avoidance through safe operation and decommissioning/waste storage/transfer.</li> <li>Potential impacts on hydrology/hydrogeology will need to be understood. Water quality studies are necessary to determine impact.</li> </ul>

Dungeness to Pett Level SPA
<ul> <li>Air Quality</li> <li>It is important that the Nuclear NPS takes account of potential air quality impacts through requirements, particularly at a local level for sustainable transport plans including for example: the use of non-road transport where possible, phasing of development and robust monitoring at sites to track changes. In particular, the monitoring should account for the potential for cumulative impacts where the phasing between existing power stations and the new build overlaps.</li> </ul>
Small risk of accidental discharges/incidents of radioactive materials into environment. Avoidance through safe operation and decommissioning/waste storage/transfer.
<ul> <li>Disturbance (noise, light, visual)</li> <li>Opportunities to reduce traffic impacts may include scheduling construction delivery times to off peak traffic hours and encouraging the workforce to adopt alternative measures and practices, such as rail, cycle. Volume of traffic could potentially be reduced if the railhead was expanded and used, lessening the amount of traffic on local roads. Minimise need for encroachment of construction into sensitive areas through Site design, to reduce disturbance of birds present.</li> </ul>
Utilise Environmental Management Plan to minimise disturbance to species, for instance through timing and screening.
Changes to existing lighting regimes will need to be considered, and where appropriate, shielding will be used to reduce the impact as much as possible.
<ul> <li>Habitat Loss and Fragmentation/Coastal Squeeze</li> <li>Where proposals for design and build remain under development, the Nuclear NPS should seek to prioritise the avoidance of direct habitat impacts, to protect the integrity of the designated site. Any direct impacts that cannot be avoided, including through alternatives, or mitigated should be addressed by compensation measures agreed with the Statutory Bodies and implemented prior to</li> </ul>

	Dungeness to Pett Level SPA
	the commencement of development proposals. The interest features on the designated sites will guide the identification of potential mitigation and compensation measures. Appropriate management systems should be put in place to protect local designated sites.
	Encouraging workforce to use alternative travel arrangements to reduce land take needed to provide parking.
	In order to reduce loss or damage to surrounding habitats, the position of the nominated site, within the network of habitats will need to be considered, and if necessary, the blueprint altered, as this could have effects on dispersing birds/animals/species between designations.
	Further understanding is required for species noted to be declining, before mitigation and an assessment of likely effects can be undertaken.
Conclude no adverse effect on integrity?	It is not possible at this stage of the development of the Nuclear NPS to say that proposals at the nominated site will not have significant adverse effects on the SPA as a result of impacts to water, changes to water quality, habitat loss/fragmentation, air quality and coastal squeeze.

## Dungeness to Pett Level Ramsar (proposed) Location: 50 55 50 N/00 44 59 E

Size (ha): Undetermined

**Designation: Ramsar (proposed)** 

	Dungeness to Pett Level Ramsar (proposed)
Qualifying Features	Ramsar criterion 2a  • Supports a number of rare species of plants:  o least lettuce (Lactuca saligna) o rootless duckweed (Wolffia arrhiza) o soft hornwort (Ceratophyllum submersum) o brackish water crowfoot (Ranunculus baudotii) o hair-like pondweed (Potamogeton trichoides) o divided sedge (Carex divisa) o marsh mallow (Althaae officinalis) o sea-heath (Frankenia laevis)  • The variety of habitats also support a diverse invertebrate assemblage. More than fifteen wetland Red Data Book (RDB) species have been recorded from the designated Site, including: o ground beetle Omophron limbatum o aquatic weevil Bagous cylindrus o two species of hoverfly o three species of aquatic beetles o medicinal leech (Hirudo medicinalis)
	<ul> <li>Ramsar criterion 3c</li> <li>Supports, in winter, an internationally important population of Bewick's Swan. In the five winter period 1992/93-1996/97 an average peak count of 179 birds was recorded, representing 1.1% of the North-</li> </ul>

	Dungeness to Pett Level Ramsar (proposed)
	West European wintering population.
	This designated Site is also notable for nationally important wintering populations of other waterfowl populations.
	This designated Site also supports a nationally important population of Whimbrel Numenius phaeopus during spring and autumn passage periods. An average peak count of 275 birds was recorded during the five year period 1987-1991, representing about 5.5% of the British passage population
Conservation Objectives	No conservation objectives currently available for this proposed Site. Refer to Dungeness SAC/SPA.
Key Environmental Conditions (factors that maintain site integrity)	No key environmental conditions currently available for this proposed designation. Refer to Dungeness SAC/SPA.
Vulnerabilities (includes existing pressures and trends) Details at Appendix 1	Vulnerabilities not assessed for this proposed designation. Refer to Dungeness SAC/SPA.
Predicted Impacts What are the issues arising from the plan and how might the site be affected?	Predicted Impacts not assessed for this proposed Site. Refer to Dungeness SAC/SPA.
Potential In- combination effects (screening)	Potential in-combination effects not assessed for this proposed Site. Refer to Dungeness SAC/SPA.

	Dungeness to Pett Level Ramsar (proposed)
What other plans and programmes could lead to in-combinations effects?	
Appropriate Assessment Likelihood of adverse effect on integrity:	Refer to Dungeness SAC/SPA.
Possible Avoidance and Mitigation Measures – includes recommendations for policy/proposals	Refer to Dungeness SAC/SPA.
Conclude no adverse effect on integrity?	<ul> <li>As the details of the proposed Ramsar are not available, it is not possible at this stage, to conclude whether the proposals at the nominated site will not have significant adverse effects on the proposed RAMSAR site. However, given that the proposed RAMSAR site is likely to fall within the same boundaries as part or all of the existing SAC and SPA sites, similar impacts are anticipated. Refer to Dungeness SAC/SPA.</li> </ul>

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