



RiverOak Strategic Partners

Manston Airport Development Consent Order

**Preliminary Environmental
Information Report
Volume 6: Appendix 1.4 to 9.2
June 2017
For consultation**

Scheme Name	Manston Airport DCO
Promoter's Name	RiverOak Strategic Partners
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2017 Consultation

Suite of Consultation Documents

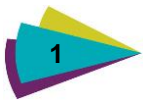
1.1 As part of the statutory consultation under section 47 of the Planning Act 2008 a suite of consultation documents relating to the proposal to reopen Manston Airport is available to the public. Together these documents give an overview of the development proposals including information on the potential benefits and impacts of the Project, environmental considerations and the business case. The documents also provide further information on the consultation process and enable the public to submit their feedback.

1.2 This consultation also forms part of RiverOak's initial engagement on the design of airspace and procedures associated with the airport. As such it is an opportunity for members of the community to highlight any factors which they believe RiverOak should take into account during that design phase. Having taken all such factors into account, the subsequent proposals for flightpaths and airspace will be subject to a separate round of consultation once the DCO application has been made.

1.3 The suite of consultation documents includes:

1. a Consultation Leaflet giving an overview of the proposals and details of where more information about the Project can be found;
2. a Feedback Form in order to collect responses to the consultation;
3. an Overview Report giving a summary of the proposals including the potential benefits and impacts of the Project, how we propose to mitigate against potential impacts, and a non-technical summary of the Preliminary Environmental Information Report (PEIR);
4. **a Preliminary Environmental Information Report (PEIR); containing preliminary information on the likely environmental effects of our proposals as we have ascertained them so far, including noise, transport and air quality, and how we propose to minimise these effects, as well as how we propose to maximise the benefits of the Project;**
5. a draft Masterplan for Manston Airport;
6. Manston Airport - a Regional and National Asset, Volumes I-IV; an analysis of air freight capacity limitations and constraints in the South East and Manston's ability to address these and provide for future growth;
7. an Outline Business Case;
8. a Statement of Community Consultation;
9. a Location Plan; and
10. an Interim Consultation Report, setting out the details of the first stage of consultation and how feedback received has been used to help develop the proposals.

1.4 This Preliminary Environmental Information Report has been prepared pursuant to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009, as amended.



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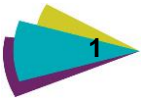
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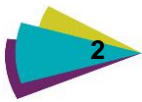
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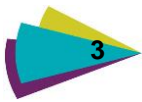
Appendix 3.1

Glossary of Abbreviations and Airport Terms

Abbreviation	Description
AA	Appropriate Assessment
AAI	Area of Archaeological Importance
AC	The Airports Commission
AHLV	Area of High Landscape Value
ALC	Agricultural Land Classification
AMIE	Archives Monuments Information England
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
AOS	Area of Search
APF	Aviation Policy Framework
AQMA	Air Quality Management Area
ATC	Air traffic control
ATM	Air traffic movement
ATS	Air traffic services
ATZ	Aerodrome Traffic Zone
BAA	British Airports Authority (now known as Heathrow Airport Holdings Limited)
BAP	Biodiversity Action Plan: A strategy for conserving and enhancing wild species and wildlife habitats in the UK
BAT	Best Available Techniques
BBS	Breeding Birds Survey
BFI	Baseflow Index
BGS	British Geological Survey
BMS	Biodiversity Mitigation Strategy



Abbreviation	Description
BMV	Best and Most Versatile
bn	Billion
BOA	Biodiversity Opportunity Area
BoCC	Birds of Conservation Concern
BoR	Book of Reference
BRES	Business Registration and Employment Survey
BS	British Standard
CAA	Civil Aviation Authority
CAP 168	Civil Aviation Publication 168 on licensing of aerodromes
CAP 670	Civil Aviation Publication 670 on air traffic services safety requirements
CAP 725	Civil Aviation Publication 725 on airspace change
CAP 772	Wildlife Hazard Management at Aerodromes
CBA	Cost Benefit Analysis
CCC	Canterbury City Council
CCS	Considerate Contractor's Scheme
CCTV	Closed Circuit Television
CDM Regulations	Construction (Design and Management) Regulations 2007
CEMP	Construction Environmental Management Plan
CFMP	Catchment Flood Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CO	Conservation Objective
CoCP	Code of Construction Practice
CPO	Compulsory Purchase Order
DAS	Design and Access Statement
dB	decibel

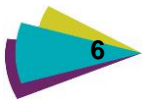


Abbreviation	Description
DCLG	Department for Communities and Local Government
DCO	Development Consent Order
DDC	Dover District Council
DEFRA	Department for the Environment, Food and Rural Affairs
DfT	Department for Transport
DMP	Drainage Management Plan
DMRB	Design Manual for Roads and Bridges
EA	Environment Agency
EASA	European Aviation Safety Agency, who certify airports
EC	European Commission
EcIA	Ecological Impact Assessment
EH	English Heritage
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2009
ELF	Extremely low frequency
EM	Explanatory Memorandum
ES	Environmental Statement
ESA	Environmentally Sensitive Area
EU	European Union
EUROCONTROL	European Organisation for the Safety of Air Navigation
FAA	Federal Aviation Administration
FRA	Flood Risk Assessment
GCR	Geological Conservation Review Site
GEP	Good Ecological Potential



Abbreviation	Description
GES	Good Ecological Status
GLVIA	Guidelines for Landscape and Visual Assessment
GPLC	Guideline Principals of Land Contamination
GPS	Global positioning system
GW	Gigawatt (1000 million Watts)
GWTDE	Ground water dependant terrestrial ecosystem
Ha	Hectare
HE	Historic England
HER	Historic Environment Record
HGV	Heavy Goods Vehicle
HIA	Health Impact Assessment
HghE	Highways England
HLC	Historic Landscape Characterisation
HMWB	Heavily Modified Waterbody
HRA	Habitat Regulations Assessment
Hz	Hertz
IAQM	Institute of Air Quality Management
ICAO	International Civil Aviation Organization
ICNIRP	International Commission on Non-Ionising Radiation Protection
ICT	Information and communications technology
IDB	Internal Drainage Board
IEA	Institute of Environmental Assessment
IEMA	Institute of Environmental Management and Assessment
ILS	Instrument Landing System
IMD	Index of Multiple Deprivation

Abbreviation	Description
IPC	Infrastructure Planning Commission - now replaced by PINS
IPCC	Intergovernmental Panel on Climate Change
JNCC	Joint Nature Conservation Committee
KCC	Kent County Council
km	Kilometre
kV	Kilovolt (1000 Volts)
KWT	Kent Wildlife Trust
LA	Local Authority
LAeq	Equivalent Continuous Level
LAQM	Local Air Quality Management
LBAP	Local Biodiversity Action Plan
LCA	Landscape Character Assessment
LCC	Low cost carrier
LDF	Local Development Framework
LGP	Long Grass Policy
Listed Building	A building of special architectural or historic interest which has been included on a list approved by the Secretary of State under the Planning (Listed Buildings and Conservation Areas) Act 1990 (known as the "Statutory List of Buildings of Special Architectural or Historic Interest")
LNR	Local Nature Reserve
LoD	Limits of Deviation
LPA	Local Planning Authority
LSOA	Lower Super Output Area
LVIA	Landscape and Visual Impact Assessment
LWS	Local Wildlife Site
m	Metre
MAGIC	Multi-Agency Geographic Information for the Countryside



Abbreviation	Description
MRO	Maintenance, repair and overhaul
MSA	Mineral Safeguarding Area
MW	Megawatt (1 Million Watts)
NAQS	National Air Quality Strategy
NCA	National Character Area
NE	Natural England
NGR	National Grid Reference
NLCA	National Landscape Character Area
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NPSE	Noise Policy Statement for England
NSIP	Nationally Significant Infrastructure Project
NT	National Trust
NVC	National Vegetation Classification
OLS	Obstacle Limitation Surface
OS	Ordnance Survey
PC	Parish Council
PCH	potential collision height
PEIR	Preliminary Environmental Information Report
PFRA	Preliminary Flood Risk Assessment
PILs	Persons with an interest in land
PINS	Planning Inspectorate
Planning Act	Planning Act 2008
PPA	Planning Performance Agreement



Abbreviation	Description
PPG	Pollution Prevention Guidance
PPS	Planning Policy Statement
Project	Manston Airport Project
PRoW	Public Right of Way
Ramsar	Sites designated under the Ramsar Convention. Designation covers all aspects of wetland conservation and wise use, recognising wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities
RBMP	River basin Management Plan
RF	Radio Frequency
RIGS	Regionally Important Geological Site
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SCI	Site of Community Importance
SFRA	Strategic Flood Risk Assessment
SLA	Special Landscape Area
SM	Scheduled Monument
SMP	Soil Management Plan
SoCC	Statement of Community Consultation
SoCG	Statement of Common Ground
SOR	Strategic Optioneering Report
SoS	Secretary of State
SPA	Special Protection Area
SPZ	Source Protection Zone
SRN	Strategic Road Network
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems



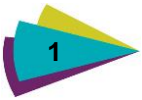
Abbreviation	Description
SWMP	Site Waste Management Plan
TA	Transport Assessment
TCF	Technical Construction File
TDC	Thanet District Council
TfL	Transport for London
TEP	The Environment Partnership
TMZ	Transponder Mandatory Zone, where aircraft must use transponders at lower heights than usual
TP	Travel Plan
TPO	Tree Preservation Order
UG	Underground
UK	United Kingdom
UKBAP	UK Biodiversity Action Plan
WFD	Water Framework Directive
WHO	World Health Organisation
WHS	World Heritage Site
WMP	Waste Management Plan
WTO	World Trade Organisation
ZOI	Zone of Influence
ZTV	Zone of Theoretical Visibility
ZVI	Zone of Visual Influence

Aviation Term	Description
Aeroplane Design Code	Alphabetic code for defining aircraft size based on wingspan from A (smallest) to F (largest).
Aircraft Classification Number (ACN)	Number expressing the relative effect of an aircraft on the runway pavement for a specified standard subgrade category;



Aviation Term	Description
Aircraft Hangar	A building for housing aircraft.
Aircraft Stand	A designated area on an apron intended to be used for parking an aircraft.
Air freight	The carriage of goods by aircraft
Airside	The part of the airport accessible to aircraft, access to airside from landside controlled by one or all of security, passport and customs checks
Air Traffic Control (ATC)	Service provided by ground-based controllers who direct aircraft on the ground and through controlled airspace, can be used to refer to the building from where the ATC operate;
Apron	Area of the airport where aircraft are parked, loaded, unloaded, refuelled and boarded, typically constructed of concrete;
Backload	The transportation of cargo on a return trip to the originating airport
Belly freight	Cargo stowed under the main deck of a passenger aircraft
Cargo, Freight	The terms cargo and freight are used interchangeably and refer to goods carried by road, sea or air
Consolidator	A person or company who combines small volumes of commodities from different originators so they can be shipped together and who usually owns the aircraft used for transport
Dedicated carrier	An aircraft which transports only freight (not passengers)
European Aviation Safety Agency (EASA)	All UK aerodromes open to public use and which serve commercial air transport, where operations using instrument approach or departure procedures are provided, and which have a paved runway of 800 metres or above, or exclusively serve helicopters, are required to comply with EASA regulations.
Freight forwarder	A person or company that organises the shipment of commodities from an originator (manufacturer, producer etc.) to a destination (customer etc.) but who generally does not own the aircraft used in the transport
Fuel Farm	Dedicated area within the airport for the storage of aviation fuel (Jet A or 100LL) prior to being discharged into aircraft fuel tanks;
Landside	The part of the airport directly accessed from 'outside' the perimeter;
Long haul	No generally agreed definition as 'long' or 'short' is subjective. In Europe as a flight taking more than four hours to complete and/or originating/destined outside Europe is considered long haul
Navigation Aids	Variety of equipment such as such as automatic direction finder (ADF) and VHF omnidirectional radio range (VOR) that will be installed at an airport to aid pilots in navigation.
Obstacle Limitation Surface (OLS)	A series of surfaces that define the limits to which objects, for example buildings, aircraft, vehicles and trees, may project into the airspace. The OLS will comprise a number of different surfaces around the runway

Aviation Term	Description
	which together will combine to form the OLS. Construction of any objects that will impact on the OLS requires approval from the Civil Aviation Authority (CAA).
Pavement Classification Number (PCN)	Used in combination with the aircraft classification number (ACN) to indicate the strength of a runway, taxiway or airport apron;
Perimeter	The secure area around the airport which forms the barrier between landside and airside operations, access across and through the perimeter is tightly controlled;
Runway	Defined rectangular area prepared for the landing and take-off of aircraft, typically constructed of asphalt, concrete or a mixture of both.
Safeguarding	This includes ensuring there are no buildings or structures which may cause danger to aircraft, that radar and navigation aids are not distorted by proposed developments, or that visual aids are not obscured, this is implemented by establishing a safeguarding zone
Short haul	No generally agreed definition as 'long' or 'short' is subjective. In Europe, short haul generally indicates a flight within Europe so taking four hours or less to complete
Taxiway	A path for connecting runways with aprons, hangars, terminals and other facilities, typically constructed of concrete, for reference named alpha, bravo, charlie, echo etc.



Appendix 4.1

Planning Policy Context

1.1 Introduction

- 1.1.1 This Appendix has been prepared by RPS and sets out the relevant national, regional and strategic local planning policies in order to establish the policy context against which the proposals for the reopening of Manston Airport need to be considered.

1.2 National Planning Policy

National Planning Practice Guidance (NPPG)

- 1.2.1 On 6th March 2014, the Department for Communities and Local Government (DCLG) launched the planning practice guidance web-based resource. This was accompanied by a Written Ministerial Statement which included a list of the previous planning practice guidance documents cancelled when the site was launched. The idea is that the planning practice guidance will be updated as needed. The web-based resource was developed following the recommendations of the External Review of Planning Practice Guidance which the Government previously consulted on. The purpose of publishing the web-based resource is to bring together planning practice guidance for England in an accessible and useable way as National Planning Practice Guidance (NPPG).
- 1.2.2 In terms of planning practice guidance as it relates to aviation and airport planning, the NPPG does not introduce any additional guidance beyond that which is already captured by the National Planning Policy Framework (NPPF) (see below).

National Planning Policy Framework (NPPF)

- 1.2.3 The NPPF was published in March 2012 and sets out the Government's planning policies for England and how these are expected to be applied (paragraph 1). It states that planning law requires that applications must be determined in accordance with the Development Plan, unless material considerations indicate otherwise, and that the NPPF must be taken into account in the preparation of local and neighbourhood plans, and is a material consideration in planning decisions (paragraph 2).
- 1.2.4 Paragraph 3 specifically states that the NPPF does not contain specific policies for nationally significant infrastructure projects for which particular considerations apply. These are determined in accordance with the decision-making framework set out in the Planning Act 2008 and relevant national policy statements (NPS) for major infrastructure, as well as any other matters that are considered both important and relevant (which may include the NPPF). It continues to state that NPS form part of the overall framework of national planning policy, and are a material consideration in decisions on planning applications (see following section on NPS on Aviation).

- 1.2.5 At the heart of the NPPF is a presumption in favour of sustainable development which in terms of decision-taking, means approving development proposals that accord with the Development Plan without delay or where the Development Plan is absent, silent or relevant policies are out-of-date, granting planning permission unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits when assessed against the policies in the NPPF taken as a whole or if specific policies in the NPPF indicate that development should be restricted (paragraph 14).
- 1.2.6 Paragraph 17 specifically addresses the role that the planning system should play and sets out a core list of land use planning principles which should underpin the plan-making and decision-taking process. These include:
- “...proactively drive and support sustainable economic development to deliver... infrastructure that the country needs, making every effort to objectively identify and then meet development needs of an area, and respond positively to wider opportunities for growth...
... support the transition to a low carbon future in a changing climate...
... actively manage patterns of growth to make the fullest use of public transport...”**
- 1.2.7 Paragraph 33 of the NPPF specifically relates to the planning of airports and airfields and states:
- “When planning for ports, airports and airfields that are not subject to a separate national policy statement, plans should take account of their growth and role in serving business, leisure, training and emergency service needs. Plans should take account of this Framework as well as the principles set out in the relevant national policy statements and the Government Framework for UK Aviation.”**
- 1.2.8 Part 11 of the NPPF relates to the need to conserve and enhance the natural environment and the need for the planning system to contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes, geological conservation interests and soils; minimising impacts on biodiversity and providing net gains in biodiversity where possible and preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.
- 1.2.9 Paragraph 118 states that when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying certain principles. These include refusing planning permission if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for; not normally permitting development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific

Interest (either individually or in combination with other developments) unless the benefits of the development can clearly outweigh the impacts and refusing planning permission for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss.

1.2.10 Part 12 of the NPPF deals with the need to conserve and enhance the historic environment. Paragraph 133 states that where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss. Paragraph 134 states that where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal.

1.2.11 Within the NPPF, there are various references to the need for local authorities to work with other authorities and providers to:

“identify and protect, where there is robust evidence, sites and routes which could be critical in developing infrastructure to widen transport choice; (Paragraph 41)

to assess the quality and capacity of infrastructure for transport, water supply, wastewater and its treatment, energy (including heat), telecommunications, utilities, waste, health, social care, education, flood risk and coastal change management, and its ability to meet forecast demands; (Paragraph 162) and

to take account of the need for strategic infrastructure including nationally significant infrastructure within their areas.” (Paragraph 162)

1.2.12 The NPPF Technical Guidance was archived on 7th March 2013 and replaced by the new planning practice guidance launched on 6th March 2014 (see preceding section).

1.3 National Aviation Policy

Aviation Strategy White Paper (expected 2018)

1.3.1 The Government has announced that the Department for Transport (DfT) is currently progressing work to develop a new strategy for UK aviation (Written Statement to Parliament on Airport Capacity and Airspace Policy – 2nd February 2017). The Government will be consulting on this later this year, leading to an expected publication of an Aviation Strategy White Paper in 2018.

Draft Airports National Policy Statement (NPS) – February 2017

- 1.3.2 The Draft Airports NPS: “*New runway capacity and infrastructure at airports in the South East of England*” was published for consultation on 2 February 2017, together with other supporting documents and analyses, including the draft Appraisal of Sustainability. This follows the outcome of the work by the Airports Commission which published its final report in July 2015 and the Government’s announcement on 25 October 2016 that a Northwest Runway at Heathrow Airport was its preferred scheme to deliver additional airport capacity in the South East of England.
- 1.3.3 The purpose of the NPS is to provide the primary basis of decision making on development consent applications for a Northwest Runway at Heathrow Airport¹. It states in the clearest terms that ‘*the Airports NPS does not have effect in relation to an application for development consent for an airport development not comprised in an application relating to ...*’ the preferred scheme at Heathrow². Thus, other than for the preferred scheme at Heathrow, the Airports NPS will not form the basis for determination of DCO applications as set out at Section 104(3) of the Act.
- 1.3.4 The Airports NPS is still important and relevant for other applications for airports infrastructure in London and the South East of England^{1,2}. Its policies will be important and relevant for the Examining Authority and Secretary of State³ in examining and determining DCO applications such as that proposed that for Manston Airport but it is not the primary basis of determination in the same way as it is for the Heathrow Northwest Runway⁴.
- 1.3.5 The Airports NPS also does not affect wider aviation issues ‘*for which the 2013 Aviation Policy Framework and any subsequent policy statements still apply*’⁵. Although service provided by Heathrow for freight is mentioned in the NPS, freight aviation would be considered a ‘*wider aviation issue*’.
- 1.3.6 The parts of the draft Airports NPS that are considered to be relevant to RiverOak’s DCO application for Manston Airport are set out below.
- 1.3.7 The draft NPS reaffirms that international connectivity is important to the success of the UK economy. It facilitates trade in goods and services and is particularly important for many of the fastest growing sectors of the economy⁶. Our airports are the primary gateway for vital time-sensitive freight services⁷. The aviation sector benefits the UK economy through its direct contribution to GDP and employment, and by facilitating trade and investment, manufacturing supply chains, skills development, and tourism⁸.
- 1.3.8 Paragraphs 2.7 and 3.22 refer to the importance of freight services specifically:

¹ Paragraph 1.10.

² Paragraph 1.36.

³ Paragraph 1.12.

⁴ The need to have regard to other matters which are both important and relevant to the determination of DCO applications is confirmed at Section 104(2)(d) of the Act.

⁵ Paragraph 1.34.

⁶ Paragraph 2.1.

⁷ Paragraph 2.2.

⁸ Paragraph 2.4.

2.7 – Air freight is also important to the UK economy. Although only a small proportion of UK trade by weight is carried by air, it is particularly important for supporting export-led growth in sectors where goods are of high value or time critical. Heathrow Airport is the UK’s biggest freight port by value. Over £155 billion of air freight was sent between UK and non-European Union countries in 2015, representing over 40% of the UK’s extra-European Union trade by value. This is especially important in the advanced manufacturing sector, where air freight is a key element of the time-critical supply chain. By 2030, advanced manufacturing industries such as pharmaceuticals or chemicals, whose components and products are predominately moved by air, are expected to be among the top five UK export markets by their share of value. In the future, UK manufacturing competitiveness and a successful and diverse UK economy will drive the need for quicker air freight.

3.22 - The aviation sector can also boost the wider economy by providing more opportunities for trade through air freight. The time-sensitive air freight industry, and those industries that use air freight, benefit from greater quantity and frequency of services, especially long haul. By providing more space for cargo, lowering costs, and by the greater frequency of services, this should in turn provide a boost to trade and GDP benefits.

- 1.3.9 The benefits for freight delivered by the Heathrow Northwest Runway was one of four strategic considerations to which the Government afforded particular weight in selecting it as its preferred scheme⁹. It is considered, therefore, that these benefits should also be a strategic consideration of national importance when considering the merits of other airports schemes such as RiverOak’s proposal at Manston which will also benefit freight services significantly.

Airports Commission Final Report (July 2015)

- 1.3.10 The independent Airports Commission was set up in late 2012 with a brief to find an effective and deliverable solution to increase aviation capacity in the South East as well as supporting the UK, and to make recommendations which will allow the UK to maintain its position as Europe’s most important aviation hub.
- 1.3.11 The Airports Commission short-listed three options for this new capacity: one new northwest runway at Heathrow Airport; a westerly extension of the northern runway at Heathrow Airport; and one new runway at Gatwick Airport. It conducted a robust, integrated and transparent process to assess these options, considering

⁹ Paragraph 3.70.

a range of economic, social and environmental factors and engaging extensively with interested parties through formal consultation, public evidence sessions and a programme of meetings and visits.

- 1.3.12 Each of the three schemes shortlisted was considered a credible option for expansion, capable of delivering valuable enhancements to the UK's aviation capacity and connectivity. Each would also have environmental impacts, which would need to be carefully managed.
- 1.3.13 The Commission concluded that the proposal for a new Northwest Runway at Heathrow Airport, in combination with a significant package of measures to address its environmental and community impacts presented the strongest case.
- 1.3.14 Relevant to Manston Airport, the report outlines that the strong growth in regional airport traffic became less uniform towards the end of the 2000s and since 2007. The UK's larger regional airports continued to grow their passenger numbers and route networks, whilst the small and medium sized regional airports have seen them plateau or decline.
- 1.3.15 Specifically relevant to Manston, the Commission throughout their considerations recognised that the air freight sector plays an important role in the UK economy and particularly to trade with emerging markets and other non-EU countries, and to many airlines. The Commission identified that the key sectors for air freight include perishables such as food and flowers and pharmaceutical products and medicines that need to be delivered in controlled environments within short shelf lives, as well as fast evolving high-tech products where several weeks of sea transit from the Far East might represent a significant proportion of the product's sales life.

Airports Commission Discussion Paper 06: Utilisation of the UK's Existing Airport Capacity (June 2014)

- 1.3.16 The Airports Commission during its investigation looked at the potential to redistribute demand away from London and South East airports. The study suggested that there is relatively little scope for redistribution, but did recognise that regional airports and those serving London and the South East, other than Gatwick and Heathrow, play a crucial national role, especially at a time when the major London airports are operating very close to capacity.

Airports Commission Interim Report (December 2013)

- 1.3.17 Further in relation to Manston Airport, the Airports Commission Interim Report (December 2013) in Appendix 2: *Assessment of Long-Term Options*, is supportive of Manston Airport recognising that it:
- “.....presents some potential as a reliever airport, but does not address the larger question of London & South East capacity. The concept of reliever airports is considered in short and medium term work. Please see Appendix 1 for further information.”**
- 1.3.18 Appendix 1: *Assessment of Short- and Medium-Term Options* of the Interim Report - Section 3 '*Proposals received and Commission conclusion*' – table entry

number 82 sets out the Commission's view of reliever airports. It defines the reliever airports concept as providing:

“support and/or financial incentives to encourage the growth of airports providing dedicated support for the business and general aviation markets with the potential additional benefit of reducing the use of congested airports for this traffic.”

1.3.19 It goes on to state that:

“The Commission is supportive of the reliever airports concept. The Commission recognises that this may be the best way to cater for the needs of business users without disrupting the wider airport system...”

Aviation Policy Framework (March 2013)

- 1.3.20 This Aviation Policy Framework (APF) has fully replaced the 2003 Air Transport White Paper (see below) as Government's policy on aviation, alongside any decision the Government makes following the recommendation of the independent Airports Commission, and is therefore silent on specific policies either in support of or against further airport expansion in the South East. The Airports Commission was established in September 2012 with the remit of recommending how the UK can maintain its status as a global aviation hub and maintain our excellent international connectivity for generations to come, as well as making best use of our existing capacity in the shorter term.
- 1.3.21 In the absence of any specific commentary on regional airport expansion in the South East or Manston Airport itself, the Aviation Policy Framework does state that the Government recognises the very important role airports across the UK play in providing domestic and international connections and the vital contribution they can make to the growth of regional economies. It is acknowledged that for more remote parts of the UK, aviation is not a luxury, but provides vital connectivity. It states that many airports act as focal points for business development and employment by providing rapid delivery of products by air and convenient access to international markets and cites the success of East Midlands Airport which acts as a hub for freight.
- 1.3.22 In terms of air freight, the APF recognises its importance for supporting export-led growth in sectors where the goods are of high value or time critical. It goes on to state that air freight is a key element of the supply chain in the advanced manufacturing sector in which the UK is looking to build competitive strength. Goods worth £116 billion are shipped by air between the UK and non-EU countries, representing 35% of the UK's extra-EU trade by value. The express air freight sector alone contributed £2.3 billion to UK GDP in 2010, and facilitates £11 billion of UK exports a year. Over 38,000 people are directly employed in the express industry, which supports more than 43,000 jobs in other sectors of the economy. The APF further states that a successful and diverse economy will drive a need for quicker air freight. Key components to keep factories working are often brought in from specialist companies in North America and the Far East. To keep

production lines rolling this often has to be done at short notice. Access to such services is crucial to keeping UK manufacturing competitive in the global marketplace.

- 1.3.23 The government is in the process of replacing the APF with a more comprehensive 'Aviation Strategy' which will cover a number of areas, but to date only a draft proposal to change airspace regulation has been issued.
- 1.3.24 In summary, there is no primary source of national policy for the proposed DCO for Manston Airport, but a combination of sources must be used from the National Planning Policy Framework, the draft Airports National Policy Statement, the Aviation Policy Framework and the emerging Aviation Strategy.

1.4 Regional Policy

- 1.4.1 This section looks to summarise the regional policy that is relevant in the consideration of any future development at Manston Airport.
- 1.4.2 It should be noted that the strategic planning functions of County Councils that were prominent historically are now much reduced following the Planning and Compulsory Purchase Act 2004. As the County Planning Authority, Kent County Council only has responsibility now for mineral and waste development. It is also the planning authority for the County Council's own development such as new roads and transportation schemes.

Draft Local Transport Plan for Kent 4: Delivering Growth without Gridlock 2016-2031

- 1.4.3 Kent County Council is in the process of consulting on their new Local Transport Plan. The revised plan was presented to the County Council's Environment and Transport Cabinet Committee in March 2017 and will now be presented to Cabinet for recommendation. Once adopted, it will replace the Local Transport Plan for Kent 2011-2016 (see below).
- 1.4.4 In terms of countywide priorities, the revised plan recognises that this includes 'Facing the Aviation Challenge.' The plan set out the County Council's position on aviation which is to maximise use of existing regional airport capacity, along with some expansion of existing airports and improved rail connections. In respect of Manston Airport, the plan recognises that it ceased to operate on 15th May 2014, and that the County Council's position as set out in the meeting of the County Council on 16th July 2015 is:
- “That we the elected members of KCC wish it to be known that we fully support the continued regeneration of Manston and East Kent and will keep an open mind on whether that should be a business park or an airport, depending upon the viability of such plans and their ability to deliver significant economic growth and job opportunity.”**
- 1.4.5 In light of the County Council's long-term aviation capacity issues, they are pressing Government for immediate action to keep UK airports competitive with European airports in terms of Air Passenger Duty (APD). This currently has a

negative impact on the UK's global connectivity and is therefore damaging UK business and tourism. The Council recognises that differential charging of APD at uncongested airports could also help to stimulate growth at regional airports and free up capacity at congested airports.

- 1.4.6 The County Council is also seeking to deliver a new railway station to significantly improve rail connectivity to the area (Thanet Parkway Rail Station). The station will provide access to greater employment opportunities for local residents, and increase the attractiveness for investment in Discovery Park Enterprise Zone and numerous surrounding business parks in Thanet. It will also support local housing and any reopened airport at Manston. The estimated journey time from Thanet Parkway to London St Pancras will be just over 20 minutes shorter than that from Deal to London St Pancras; therefore the new station enhances the accessibility of the wider area of East Kent.

Local Transport Plan for Kent 2011-2016 (April 2011)

- 1.4.7 The current Local Transport Plan for Kent, covering the five year period between 2011 and 2016 sets out the future strategy of the transport related matters for the County based on the current and expected transport demand. This is then used as both part of the evidence base when preparing local planning development plan documents and also in the determination of planning applications.
- 1.4.8 The Local Transport Plan for Kent states that Manston Airport (referred to as one of Kent's airports) have plans to expand and is an essential catalyst in regenerating the local areas.
- 1.4.9 It recognises the significant impact that Manston Airport has on the County's residents, both positive, such as the employment opportunities generated, and negative, including the potential traffic congestion, noise and environmental pollution associated with its activities. Kent County Council is keen to work with airport operators and Central Government to ensure that these negative externalities are minimised whilst supporting managed expansion where it aligns with the County Council's economic growth and regeneration objectives.
- 1.4.10 The Local Transport Plan for Kent states that Manston Airport has significant potential to develop into a regional airport and become one of the largest single generators of economic activity in the County.

The London Plan, 2015 (Consolidated with Alterations since 2011)

- 1.4.11 Under legislation establishing the Greater London Authority (GLA), the London Mayor has to produce a 'Spatial Development Strategy', which is known as 'The London Plan'. The London Plan was first adopted in July 2011, and has since been updated in 2013 and most recently in 2015. It covers the strategic planning policies (economic, social, environmental and transport) for all 32 London Boroughs.
- 1.4.12 The London Plan does not set out to 'micro-manage' aspects that are better addressed by local boroughs, but it does contain numerous cross-cutting policies in achieving sustainable development, social inclusion and regeneration.

- 1.4.13 The London Plan recognises that despite being located outside of Greater London, regional airports provide a key contribution to supporting both the economy and connectivity of London.
- 1.4.14 With regards to Manston Airport, there are no specific policies contained in the London Plan, primarily because Manston Airport is not in London. However, paragraph 2.16 states that the Mayor will help coordinate the development and implementation of policies for corridors that have been identified as being of importance to London and the wider city region. The Thames Gateway is identified as the nearest development corridor (extending to within 35km of Manston Airport), covering a large area of Kent, though it does not quite extend to Manston Airport itself.
- 1.4.15 Within Chapter 6 of the London Plan (London's Transport) Policy 6.4 relates to improving London's transport connectivity. At a strategic level, the Mayor will support seeking improved access by public transport to airports.
- 1.4.16 With regard to aviation, there is a specific policy in the London Plan (Policy 6.6). It states that adequate airport capacity serving a wide range of destinations is critical to the competitive position of London in a global economy. Airport capacity serving the capital and wider south-east of England must be sufficient to sustain London's competitive position.

1.5 Local Planning Policy

- 1.5.1 In this section, summaries of the relevant planning policies contained within the statutory Development Plans of the following Local Planning Authorities are provided:
- ▶ Thanet District Council;
 - ▶ Dover District Council; and
 - ▶ Canterbury City Council.
- 1.5.2 Reforms to the production of local planning policy were set out in the Planning and Compulsory Purchase Act (2004) with detailed guidance contained in Planning Policy Statement 12 (PPS12) – Local Spatial Planning. The Planning and Compulsory Purchase Act (2004) Schedule 8 sets out a period of three years for the transition of old policy to a new policy that replaces it (when it is published, adopted or approved). Where local authorities had not produced the required new policy, the Secretary of State for Communities and Local Government provided direction that the transition period as set out in the Planning and Compulsory Purchase Act (2004) would not apply, and in effect adopted planning policies would be in effect 'saved' until replacement planning policy was adopted.
- 1.5.3 For the purposes of decision-taking, saved Local Plan policies should not be considered out-of-date simply because they were adopted prior to the publication of the NPPF. However, from March 2013, due weight should be given to saved policies in existing plans according to their degree of consistency with the NPPF (the closer the policies in the plan to the policies in the NPPF, the greater the weight that may be given).

Thanet District Council

1.5.4 The Manston Airport site is located entirely within the administrative area of Thanet District Council.

1.5.5 The statutory Development Plan for Thanet District Council comprises:

- ▶ Thanet Local Plan (2006) (Saved Policies);
- ▶ Cliftonville Development Plan Document (February 2010);
- ▶ Local Plan Proposals Map; and
- ▶ Kent Waste and Minerals Local Plan (Saved Policies).

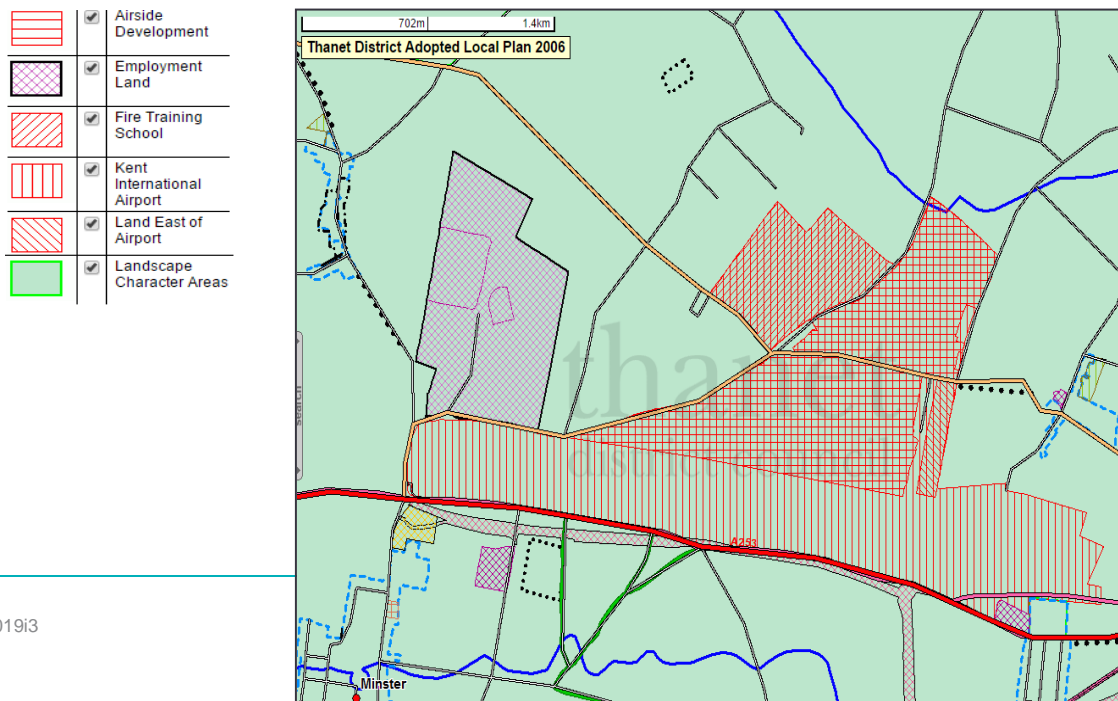
Thanet Local Plan Saved Policies and Proposals Map

1.5.6 An extract from the Local Plan Proposals Map showing the Manston Airport site is provided below in **Figure 4.1.1**.

1.5.7 The key planning policy designations that affect the Manston Airport site and the area adjoining it as shown on the Local Plan Proposals Map are as follows:

- ▶ The airport boundary is defined on the Proposals Map (Policy EC2 – Kent International Airport);
- ▶ Policy EC4 – Airside Development Area;
- ▶ Policy EP13 – Groundwater Protection Zone;
- ▶ Policy CC2 – Central Chalk Plateau;
- ▶ The land to the east is designated for terminal related purposes (Policy EC5 – Land at, and east of the Airport Terminal); and
- ▶ The land to the west is designated for economic development (Policy EC1 – Manston Park, Manston).

Figure 4.1.1 Extract from Thanet District Council Local Plan (2006) Proposal Maps showing Manston Airport and relevant extract from the key



Land Designations

1.5.8 Saved **Policy EC2 (Kent International Airport)** refers to the boundary for the airport site as shown on the Proposals Map. Policy EC2 states that:

“Proposals that would support the development, expansion and diversification of Kent international airport will only be permitted subject to the following requirements:

- 1. Demonstrable compliance with the terms of the current agreement under section 106 of the town and country planning act 1990 or subsequent equivalent legislation;**
- 2. New built development is to be designed to minimise visual impact on the open landscape of the central island. particular attention must be given to roofscape and to minimising the mass of the buildings at the skyline when viewed from the south;**
- 3. Appropriate landscaping schemes, to be designed and implemented as an integral part of the development;**
- 4. Any application for development for the purpose of increasing aircraft movements in the air or on the ground, auxiliary power or engine testing, must be supported by an assessment of the cumulative noise impact and the effectiveness of mitigation measures to be implemented in order to minimise pollution and disturbance. the acceptability of proposals will be judged in relation to any identified and cumulative noise impact, the effectiveness of mitigation and the social and economic benefits of the proposals;**
- 5. An air quality assessment in compliance with policy ep5, to demonstrate that the development will not lead to a harmful deterioration in air quality. permission will not be given for development that would result in national air quality objectives being exceeded;**
- 6. Development will not be permitted within the airport complex to the south of the airside development site identified in policy ec4, unless it has been demonstrated that the development is necessary for the purpose of air traffic management;**
- 7. Any new development which would generate significant surface traffic must meet requirements for surface travel demand in compliance with policy ec3.**

8. It must be demonstrated that new development cannot contaminate groundwater sources or that appropriate mitigation measures will be incorporated in the development to prevent contamination.”

1.5.9 Saved **Policy EC4 (Airside Development Area)** refers to land within the boundary of the airport site excluding the runway as shown on the Proposals Map. Policy EC4 states that:

“Land at the airport, as identified on the proposals map, is reserved for airside development. Development proposals will require specific justification to demonstrate that an airside location is essential to the development proposed. Development will be required to retain sufficient land to permit access by aircraft of up to 65m (217ft) wingspan to all parts of the site.”

1.5.10 The land north of the runway and including the land north of the B2050 is safeguarded for airside development purposes. This is defined as uses with an operational requirement for direct access to aircraft and therefore dependent on a location immediately adjacent to the runway or capable of direct access to it via taxiways. This includes uses based on:

- ▶ Operation of passenger handling services
- ▶ Air cargo operations related to the site
- ▶ Operation of aircraft maintenance and manufacturing
- ▶ Services ancillary to the maintenance and operation of the airport

1.5.11 Saved **Policy EP13 (Ground Water Protection Zones)** covers all land within and adjacent to the boundary of the airport site as shown on the Proposals Map. Policy EP13 states that:

“If a proposed development in the groundwater protection zones identified on the proposals map would have the potential to result in a risk of contamination of groundwater sources, it will not be permitted unless adequate mitigation measures can be incorporated to prevent such contamination taking place.”

1.5.12 Saved **Policy CC2 (Landscape Character Areas)** covers all land within and adjacent to the boundary of the airport site as shown on the Proposals Map. Policy CC2 states that:

“Within the landscape character areas identified on the proposals map, the following policy principles will be applied:

4 On the central chalk plateau, a number of

sites are identified for various development purposes. where development is permitted by other policies in this plan, particular care should be taken to avoid skyline intrusion and the loss or interruption of long views of the coast and the sea;

Development proposals that conflict with the above principles will only be permitted where it can be demonstrated that they are essential for the economic or social well-being of the area.

In the event of a real and specific threat to the landscape character of these areas from permitted development, the use of article 4 directions will be considered, and secretary of state approval for the direction sought.”

- 1.5.13 Saved **Policy EC5 (Land at, and East of, the Airport Terminal)** covers a relatively small parcel of land to the east of the terminal and north of the runway which is safeguarded for terminal operational requirements, as shown on the Proposals Map. Policy EC5 states that:

“Until such time as a new airport terminal is built, land at, and east of, the existing airport terminal is identified on the proposals map for airport terminal-related purposes. Uses will be restricted to those which directly support or complement the operational requirements of the existing airport terminal. Should a new terminal be built, other airport-related development will be permitted on this allocated site. Planning conditions or planning agreements will be applied to limit any development granted planning consent to uses conforming to this policy.”

- 1.5.14 The Local Plan (Saved Policies) recognises that some airport terminal-related activities need to be located adjacent to the existing terminal building. This could include, for example, car parking or the physical expansion of the terminal. In order to cater for such uses, this site is identified on the Proposals Map including the existing airport terminal facilities and land immediately to the east of the terminal. This site is also acknowledged to provide a reasonable gap between the terminal area and Manston Village.

- 1.5.15 Saved **Policy EC1 (Land Allocated for Economic Development)** covers the employment area west of the airport and north of the western extent of the runway, as shown on the Proposals Map. Policy EC1 states that:

“At the following sites, as shown on the proposals map, land is allocated for business purposes:

5 Manston Park, Manston

Use will be restricted to classes B1 (business), B2 (general industry) and B8 (storage and distribution). on all sites a landscaping scheme

appropriate to the scale, location and character of the site will be required to provide an attractive environment.

On these sites planning applications should be accompanied by traffic impact studies and green travel plans, unless the development is considered too small to have a significant travel impact.”

Economic Development and Regeneration

1.5.16 In terms of economic development and regeneration, Chapter 2 of the Local Plan (Saved Policies) states that:

“The development of Kent International Airport as an important regional hub and business location, and its proximity to the business parks ensures a key role for the airport in the economic regeneration of the area.”

1.5.17 The Local Plan (Saved Policies) recognises the political decisions that need to be made regarding the major London airports and the subsequent effects this will have on regional airports such as Kent International Airport.

1.5.18 It is outlined that where there is higher investment by the owners of Manston Airport in improving handling facilities, better passenger facilities and new or improved terminals, it is more likely the airport will attract substantial growth by attracting aircraft operators.

1.5.19 Chapter 2 of the Local Plan (Saved Policies) highlights the operational importance of Kent International Airport due to the length of runway, together with the substantial areas of surrounding land available for employment purposes. The Council are clear in their support for the future development of Kent International Airport.

Housing

1.5.20 The expansion of activity at Kent International Airport is quoted as one of four main sources of employment growth that will result in additional housing requirements in the district.

Transport

1.5.21 The Local Plan (Saved Policies) outlines that Thanet Council and adjoining District Councils wish to see Kent International Airport develop as a regional airport. It is acknowledged that the airport offers very significant economic and employment benefits for Thanet and East Kent. Its development will also have significant transport implications arising from passengers, freight and employees.

1.5.22 In addition to the airport itself, additional transport infrastructure works are also set out:

- ▶ Bus priority and cycle facilities on the A256 and from urban Thanet to Kent International Airport and the Central Island Business Parks; and

- ▶ Medium and long term proposals for rail access to Kent International Airport

Environmental Protection

1.5.23 Policy EP5 (Local Air Quality Monitoring) states that:

“Proposals for new development that would result in the national air-quality objectives being exceeded will not be permitted.

Development proposals that might lead to such an exceedance, or to a significant deterioration in local air quality resulting in unacceptable effects on human health, local amenity or the natural environment, will require the submission of an air quality assessment, which should address:

- 9. the existing background levels of air quality;**
- 10. the cumulative effect of further emissions;**
- 11. the feasibility of any measures of mitigation that would prevent the national air quality objectives being exceeded, or would reduce the extent of air quality deterioration.”**

1.5.24 Whilst the Council supports the development of Kent International Airport as a regional airport, Policy EP7 seeks to limit the effect of aircraft noise on sensitive development such as housing, schools and hospitals, by restricting locations where such development may be sited.

1.5.25 In 1995, the District Council commissioned production of aircraft noise contours by Arup showing predicted noise levels and based on a study of Kent International Airport Traffic Forecasts by Alan Stratford Associates. The forecasts considered a range of high, medium and low traffic scenarios, including the possibility of increased aviation associated with the prospective major economic regeneration role of Central Thanet, and possible runway extension.

1.5.26 At the time of preparing the Local Plan (Saved Policies) there was uncertainty regarding future aircraft noise levels at Kent International Airport. The Council was therefore adopting a precautionary approach in relation to aircraft noise, and for the purposes of Policy EP7, will continue to apply the 1996 (dBLAeq 16 hour) contour predictions, which formed the basis for the Policy in the adopted Local Plan, assuming the presence of military jets. The District Council advised they will review the need to consider adoption of alternative contour scenarios as circumstances develop, with quieter commercial aircraft entering service and civilian air activity increasing. Accordingly, because the contours may be subject to change within the Plan period, they are not featured on the Proposals Map.

1.5.27 Policy EP7 (Aircraft Noise) states that:

“Applications for noise sensitive development or redevelopment on sites likely to be affected by aircraft noise will be determined in relation to the latest accepted prediction of existing and foreseeable ground noise measurement of aircraft noise.

Applications for residential development will be determined in accordance with the following noise exposure categories:

NEC	PREDICTED AIRCRAFT NOISE LEVELS (Dbl Aeq.0700-23.00)	
A	<57	NOISE WILL NOT BE A DETERMINING FACTOR
B	57-63	NOISE WILL BE TAKEN INTO ACCOUNT IN DETERMINING APPLICATIONS, AND WHERE APPROPRIATE, CONDITIONS WILL BE IMPOSED TO ENSURE AN ADEQUATE LEVEL OF PROTECTION AGAINST NOISE (POLICY EP8 REFERS).
C	63-72	PLANNING PERMISSION WILL NOT BE GRANTED EXCEPT WHERE THE SITE LIES WITHIN THE CONFINES OF EXISTING SUBSTANTIALLY BUILT-UP AREA. WHERE RESIDENTIAL DEVELOPMENT IS EXCEPTIONALLY GRANTED, CONDITIONS WILL BE IMPOSED TO ENSURE AN ADEQUATE LEVEL OF PROTECTION AGAINST NOISE (POLICY EP8 REFERS).
D	>72	RESIDENTIAL DEVELOPMENT WILL NOT BE PERMITTED.

Applications for non-residential development including schools, hospitals and other uses considered sensitive to noise will not be permitted in areas expected to be subject to aircraft noise levels exceeding 60 db(a) unless the applicant is able to demonstrate that no alternative site is available. Proposals will be expected to demonstrate adequate levels of sound insulation where appropriate in relation to the particular use.”

Draft Thanet Local Plan to 2031 Preferred Options (January 2015)

1.5.28

Within the Draft Local Plan, Strategic Priority 1 looks to create additional employment and training opportunities, to strengthen and diversify the local economy and improve local earning power and employability. With regards to Manston Airport it states that:

“Support the sustainable development and regeneration of Manston Airport to enable it to function as a local regional airport, providing for significant new employment opportunities, other supporting development and improved surface access subject to environmental safeguards or as an opportunity site promoting mixed-use development that will deliver high quality employment and a quality environment.”

1.5.29 The Council recognises that various options are available with regards to the future use of the Manston Airport site, as an airport operation and for aviation activities, as well as for other developments. It is acknowledged that these need to be explored and assessed for the wider area of the airport and its environ through the development plan making process. The Council are therefore seeking to designate the area as an “opportunity area” for which the District Council will prepare Area Action Plan (AAP) Development Plan Document. The AAP for Manston Airport will set out the development framework for the development and regeneration of the area.

1.5.30 Policy SP05 (Manston Airport) states that:

“The site of Manston Airport and the adjoining area will be designated as an “Opportunity Area” for the purposes of preparing the Manston Airport Area Action Plan” Development Plan Document. The Manston Airport AAP will explore through the development plan process the future development options for the site of the airport and the adjoining area. A consideration of the AAP should be the retention, development and expansion of the airport and aviation operations where supported by a feasibility study and a viable Business Plan, while exploring alternative options for the future development of the area for mixed-use development.

While the Manston Airport Area Action Plan is being prepared and until adopted by the Council as a development plan for the Manston Airport area, the following policy for the Manston Airport will apply.

Proposals at the airport, that would support the development, expansion and diversification of Manston Airport, will be permitted subject to all of the following requirements.

1) That there be demonstrable compliance by the applicants with the terms of the current agreement under section 106 of the Town and Country Planning Act 1990 as amended or subsequent equivalent legislation.

2) That new built development is to be designed to minimise visual impact on the open landscape of the central island. Particular attention must be given to roofscape for the purposes of minimising the mass of the buildings at the skyline when viewed from the south.

3) The provision of an appropriate landscaping scheme, to be designed and implemented as an integral part of the development.

4) That any application for development for the purpose of increasing aircraft movements in the air or on the ground, auxiliary power or engine testing, be supported by an assessment of cumulative noise impact and the effectiveness of mitigation measures to be implemented in order to minimise pollution and disturbance. The acceptability of proposals will be judged in relation to any identified and cumulative noise impact, the effectiveness of mitigation and the social and economic benefits of the proposals.

5) The provision of an air quality assessment in compliance with the Air Quality Management Plan to demonstrate that the development will not lead to a harmful deterioration in air quality. Permission will not be given for development that would result in national air quality objectives being exceeded.

6) That any new development which would generate significant surface traffic must meet requirements for surface travel demand.

7) That it must be demonstrated both that new development cannot contaminate groundwater sources and that appropriate mitigation measures will be incorporated in the development to prevent contamination.

8) There will be no significant harm to Thanet's SSSI/SAC/SPA/Ramsar sites. A Habitats Regulations Assessment will be required."

1.5.31

Policy SE04 (Ground Water Protection Zones) covers all land within and adjacent to the boundary of the airport site. Policy SE04 states that:

"Proposals for development within the Groundwater Source Protection Zones identified on Map 19 will only be permitted if there is no risk of contamination to groundwater sources. If a risk is identified, development will only be permitted if adequate mitigation measures can be implemented. Proposals for Sustainable Drainage systems involving infiltration must be assessed and discussed with the Environment Agency to determine their suitability in

terms of the impact of any drainage into the groundwater aquifer.”

1.5.32 **Policy SE05 (Air Quality)** states that:

“All major development schemes should promote a shift to the use of sustainable low emission transport to minimise the impact of vehicle emissions on air quality, particularly within the designated Urban Air Quality Management Area. Development will be located where it is accessible to support the use of public transport, walking and cycling. Development proposals that might lead to a significant deterioration in air quality or an exceedance of air quality national objectives or to a worsening of air quality within the urban Air Quality Management Area will require the submission of an Air Quality Assessment, which should address:

- 1) The cumulative effect of further emissions;
- 2) The proposed measures of mitigation through good design and offsetting measures that would prevent the National Air Quality Objectives being exceeded or reduce the extent of the air quality deterioration. These will be of particular importance within the urban AQMA, associated areas and areas of lower air quality.

Proposals that fail to demonstrate these will not be permitted.”

1.5.33 **Policy SE08 (Aircraft Noise)** states that:

“Applications for noise sensitive development or redevelopment on sites likely to be affected by aircraft noise will be determined in relation to the latest accepted prediction of existing and foreseeable ground noise measurement of aircraft noise. Applications for residential development will be determined in accordance with the following noise exposure categories:

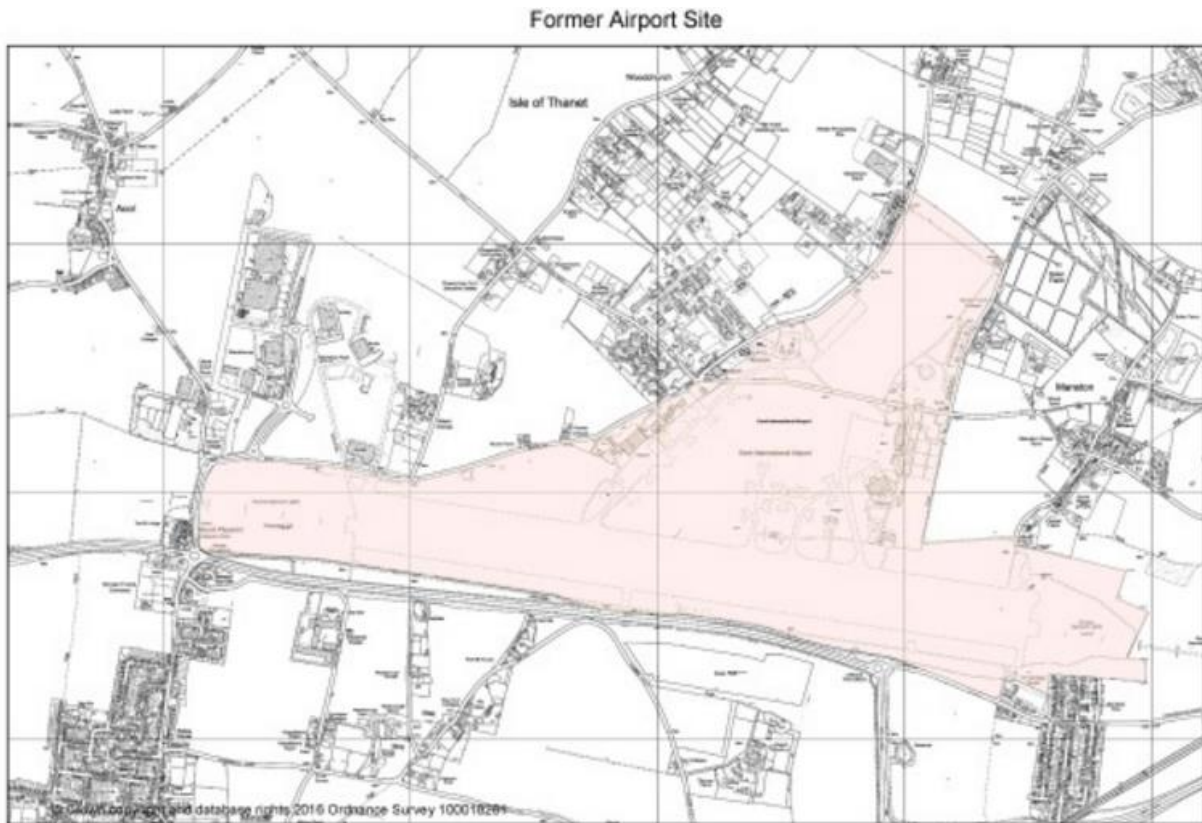
NEC	PREDICTED AIRCRAFT NOISE LEVELS (Dbl Aeq.0700-23.00)	
A	<57	NOISE WILL NOT BE A DETERMINING FACTOR
B	57-63	NOISE WILL BE TAKEN INTO ACCOUNT IN DETERMINING APPLICATIONS, AND WHERE APPROPRIATE, CONDITIONS WILL BE IMPOSED TO ENSURE

		AN ADEQUATE LEVEL OF PROTECTION AGAINST NOISE.
C	63-72	PLANNING PERMISSION WILL NOT BE GRANTED EXCEPT WHERE THE SITE LIES WITHIN THE CONFINES OF EXISTING SUBSTANTIALLY BUILT-UP AREA. EXCEPTIONALLY, WHERE RESIDENTIAL DEVELOPMENT IS GRANTED, CONDITIONS WILL BE IMPOSED TO ENSURE AN ADEQUATE LEVEL OF PROTECTION AGAINST NOISE.
D	>72	RESIDENTIAL DEVELOPMENT WILL NOT BE PERMITTED.

Proposed Revisions to Draft Local Plan (Preferred Options) (January 2017)

- 1.5.34 Following the publication of the draft Thanet Local Plan to 2031 Preferred Options (January 2015), the local planning authority has suggested some focused changes to key policies, some of which are relevant to Manston Airport. These changes have been set out in the Proposed Revisions to Draft Local Plan (Preferred Options) (January 2017) and were the subject of a public consultation exercise, running from the 19th January 2017 to the 17th March 2017.
- 1.5.35 The local planning authority has significantly amended site specific draft Policy SP05 (Manston Airport). The Council commissioned an airport viability study by Avia Solutions. This was to look at whether an airport was a viable option for the site within the plan period to 2031. This report took into account national and international air travel and transport and the way in which it is likely to develop over the next 15 to 20 years and looked at previous reports and developments in national aviation. The report (September 2016) concluded that airport operations at Manston are very unlikely to be financially viable in the longer term, and almost certainly not possible in the period to 2031.
- 1.5.36 Taking on board the conclusions of the airport viability report and given the level of objectively assessed housing need, the Council considers that the best use for the 320ha brownfield airport site is for a mixed use development primarily focused on residential. Revised Policy SP05 seeks to create an attractive sustainable free standing new settlement with a district centre and featuring all the amenities needed for a town. The development will also deliver important links across Thanet and improved access to and from the site and provide open space and community facilities that the whole of Thanet can access.
- 1.5.37 Policy SP05 relates to the site identified in the Map below:

Figure 4.1.2 Extract from Thanet District Council Proposed Revisions to Local Plan (2017) Proposal Maps showing Former Airport Site



1.5.38

Revised draft Policy SP05 (Former Airport Site) states that:

Land is allocated for a mixed use settlement at the site of the former Manston Airport as defined on the policies map. The site has the capacity to deliver at least 2,500 new dwellings, and up to 85,000sqm employment and leisure floorspace.

The overarching principle of development of this settlement is the creation of a single sustainable settlement that can be easily served by public transport and with good, easily walkable access to central community services and other facilities.

Contributions will be required to meet the following provisions and proposals will be judged and permitted only in accordance with a development brief and comprehensive masterplan for the whole site detailing:

- **How the requirements of the Transport Strategy will be met including the upgrade of Manston Court Road and improvements to Spitfire junction.**
- **The relationship to the Parkway Station and**

Ramsgate Port including a southern bypass of Manston village and a direct link from the site to the A299 roundabout linking with the southbound dual carriageway.

- **A travel plan to include a public transport strategy linking the site to existing services, demonstration of how the site links with and relates to neighbouring settlements;**
- **Key routes for traffic-calming measures**
- **Coherent phasing and evidence of deliverability**
- **A business plan to demonstrate how the employment will be delivered, and how it will relate and link to Manston Business Park**
- **The provision of a District Centre to meet the retail need of the development, fit within the retail hierarchy and serve the appropriate catchment, as well as provision of complementary uses such as community business space and leisure uses/recreational facilities.**
- **Provision of community facilities as outlined in the Infrastructure delivery plan (IDP) including a primary school facility at 4 forms of entry, and a Doctors Surgery**

A Landscape and Visual Impact Assessment to address:

- **the visual sensitivity of the site focussing on retention of open space and protecting wide open landscape and strategic views;**
- **how new built development will be designed to minimise visual impact on the open landscape of the central island. Particular attention must be given to roofscape for the purposes of minimising the mass of the buildings at the skyline when viewed from the south.**

Design and Heritage statements to include:

- **An appropriate landscaping scheme, to be**

designed and implemented as an integral part of the development.

- **Provision of 31.77 Ha open space in accordance with Table 7 as required by Policy GI04, and integrated green infrastructure to include walking, cycling and equestrian routes and facilities**
- **A buffer between the development and Manston Village. Settlement separation between the villages of Manston, Minster, Cliffsend and Acol and Thanet Urban Area**
- **Pre-design archaeological assessment**
- **Links to the sites heritage to support tourism in Thanet, including consideration of proposals that would permit a limited element of aviation use**
- **Detail as to how the runway will be incorporated into the development scheme and what functions it will serve.**
- **Provision of surface water management/sustainable drainage schemes that will not contaminate groundwater sources, and any proposed initiatives that will improve the condition of the groundwater**

Development proposals must:

- **Provide an appropriate mix of dwellings to meet the requirements of Policy SP18**
- **Provide affordable housing to meet the requirements of Policy SP19 (**NB SP19 is being amended to request affordable housing for more than 10 units)**
- **Provide one electric car charging point for every 10 parking spaces provided**
- **Consider accommodating any self-build requirements included in the self-build register**
- **Contribute towards the Strategic Access Management and Monitoring scheme to meet**

the requirements of SP25

- **Include an assessment of the sites functionality as a roosting or feeding resource for the interest features of the Thanet Coast and Sandwich Bay SPA Protection Area, including areas within 400m of the development sites boundary, and provide mitigation where necessary**
- **Retain existing boundary features where possible**
- **Provide a connection to the sewerage system at the nearest point of adequate capacity, in collaboration with the service provider**
- **Allow future access to the existing water supply infrastructure for maintenance and upsizing purposes**
- **Provide for the installation of digital infrastructure**
- **Provide a Statement of Social Impacts addressing any needs for community facilities identified in the Infrastructure Delivery Plan**

1.5.39 Based on the amendment to draft Policy SP05 to provide a mixed-use settlement with residential provision, draft Policy SP11 (Housing Provision) has been revised to propose 2,500 residential dwellings at the Former Airport Site. RiverOak has submitted representations strongly objecting to the proposals to allocate the former airport site as a new settlement.

1.5.40 TDC have advised that they are not expecting to adopt their new Local Plan before Spring 2019 at the earliest. In this context, and with reference to Paragraph 216 of the NPPF, very little weight can be given to the emerging plan policies. There are still unresolved objections including towards the approach taken on Manston Airport and whether the new Local Plan is based on adequate, up-to-date and relevant evidence about the economic, social and environmental characteristics and prospects of the area.

Dover District Council

1.5.41 The statutory Development Plan for Dover District Council comprises:

- ▶ Dover District Core Strategy (adopted September 2010);
- ▶ Dover District Land Allocations Local Plan (adopted January 2015);
- ▶ Dover District Proposals Map; and

- ▶ Dover District Local Plan (Saved Policies) (2002).

1.5.42 A review of Dover Districts planning policy has not identified any planning policy of relevance to the reopening of Manston Airport. The Core Strategy only contains a reference to the location of Manston Airport.

1.5.43 Dover District Council are about to commence a review of their Local Plan and have identified Manston Airport as a cross-boundary strategic priority for planning.

Canterbury City Council

1.5.44 The statutory Development Plan for Canterbury City Council comprises:

- ▶ Canterbury City Local Plan (Saved Policies) (2009);
- ▶ Herne Bay Area Action Plan (adopted April 2010); and
- ▶ Canterbury City Proposals Map.

1.5.45 A review of Canterbury City's planning policy has not identified any planning policy of relevance to the reopening of Manston Airport. The Local Plan (Saved Policies) (2009) places some expectation on increased air traffic from London Manston Airport.

1.5.46 Canterbury City Council are currently updating their Local Plan, which has undergone an Examination in Public. Following this process, changes to the Local Plan have been proposed which the Inspector considers are necessary to rectify matters of soundness and/or legal compliance. These changes, set out in the Main Modifications of the Canterbury District Local Plan are the subject of a public consultation exercise between the 10th February and the 24th March 2017.

1.6 Other relevant plans and policies

Kent and Medway Growth and Infrastructure Framework (September 2015)

1.6.1 Kent's leaders agreed it would be important to produce a pan-Kent and Medway Growth and Infrastructure Framework to bring together a clear picture over the Local Plan period to 2031 on:

- ▶ housing and economic growth planned to 2031 across Kent and Medway;
- ▶ the fundamental infrastructure needed to support this growth;
- ▶ the cost of this infrastructure;
- ▶ the potential funding sources across the public and private sector funding during this period: and
- ▶ the likely public sector funding gap and work towards solutions.

1.6.2 The Kent and Medway Economic Partnership (KMEP) has been, and will continue to shape and be appraised of the Framework work and its findings.

1.6.3 Within the Framework, and with specific reference to Manston Airport and its surroundings, the following are identified:

- ▶ Manston Airport is identified as a Key Employment Site (14,000m²);

- ▶ Manston Business Park is identified as a Key Employment Site (207,000m²); and
- ▶ Manston Green (to the east of the airport) is identified for a major housing development (700 units).

Kent and Medway Economic Partnership (KMEP)

- 1.6.4 The Kent and Medway Economic Partnership (KMEP) is the economic partnership for Kent and Medway which aims to drive forward economic growth and prosperity throughout the region. It was set up in 2013 and is one of the four federated partnerships which comprise the South East Local Enterprise Partnership.
- 1.6.5 The Kent and Medway Economic Partnership is responsible for the delivery of the objectives set out in Kent and Medway's Growth Plan '*Unlocking the Potential: Going for Growth.*' The Growth Deal sets out the actions that businesses and local authorities in Kent and Medway, together with the South East LEP and central Government will take to drive forward delivery. The Growth Plan, as part of the Strategic Economic Plan, was submitted to the Government at the end of March 2014.
- 1.6.6 The Discovery Park and Manston Growth Deal states that a coordinated approach to the development of Discovery Park and Manston needs to be taken forward and that the KMEP will:
- ▶ consider extending Enterprise Zone designation to Manston Business Park, Manston Airport and the Richborough Corridor. KMEP will ask Government to permit Thanet District Council to retain 100% of business rate receipts within the Zone with no impact on their baseline, in order that discounts can be fully funded by receipts above the discount level;
 - ▶ allocate £3.5 million in Local Growth Fund finance to support commercial development at Manston and Discovery Park; and
 - ▶ support SEFUND investment in commercial and residential development. Alongside this, KMEP will seek Local Growth Fund transport investment in Thanet Parkway station as a priority to reinforce the success of Discovery Park and support investment at Manston as well as in the Westwood Relief Strategy, eliminating a major bottleneck impacting on employment and commercial growth in Thanet Central Island.

Kent County Council - Manston Airport under private ownership: The story to date and the future prospects (March 2015)

- 1.6.7 This document sets out the story of Manston Airport over the last 16 years, from its sale by the Ministry of Defence to the present day. Kent County Council also considers the future for the airport which it is confident will be bright. The Council has always supported Manston and they have invested substantial sums of public money to the cause. They have also made substantial investments in both road and rail infrastructure to improve access to Manston and East Kent.
- 1.6.8 The County Council remain committed to seizing the best opportunity for Manston Airport by creating a significant number of new jobs and bringing prosperity into East Kent.



Department
for Transport

Draft Airports National Policy Statement: new runway capacity and infrastructure at airports in the South East of England

Presented to Parliament pursuant to Section 9(2) of the
Planning Act 2008

Moving Britain Ahead

February 2017

Draft Airports National Policy Statement: new runway capacity and infrastructure at airports in the South East of England

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1. Introduction

Background

- 1.1** The UK aviation sector plays an important role in the modern economy, contributing around £20 billion per year¹ and directly supporting approximately 230,000 jobs.² The positive impacts of the aviation sector extend beyond its direct contribution to the economy by also enabling activity in other important sectors like business services, financial services, and the creative industries. The UK has the third largest aviation network in the world, and London's airports serve more routes than the airports of any other European city.
- 1.2** However, London and the South East are now facing longer term capacity problems. Heathrow Airport is operating at capacity today, Gatwick Airport is operating at capacity at peak times, and the whole London airports system is forecast to be full by 2040.³ There is still spare capacity elsewhere in the South East for point to point and especially low cost flights. However, with very limited capability at London's major airports, London is beginning to find that new routes to important long haul destinations are being set up elsewhere in Europe. This is having an adverse impact on the UK economy, and affecting the country's global competitiveness.⁴
- 1.3** In September 2012, the Coalition Government established the independent Airports Commission to examine the scale and timing of any requirement for additional capacity to maintain the UK's position as Europe's most important aviation hub, and identify and evaluate how any need for additional capacity should be met in the short, medium and long term.⁵
- 1.4** In its Interim Report in December 2013, the independent Airports Commission concluded that there was a need for one additional runway to be in operation in the South East of England by 2030.⁶ It also confirmed three shortlisted capacity schemes for further analysis: a Second Runway at Gatwick Airport (proposed by Gatwick Airport Ltd.), a Northwest Runway at Heathrow Airport (proposed by Heathrow Airport Ltd.), and an Extended Northern Runway at Heathrow Airport (proposed by Heathrow Hub Ltd.). The Airports Commission then consulted further on the three shortlisted schemes, plus proposals for a new airport in the inner Thames Estuary. In September 2014, the Airports Commission concluded not to consider further an inner Thames Estuary scheme.⁷
- 1.5** In its Final Report in July 2015, the Airports Commission unanimously concluded that the proposal for a Northwest Runway at Heathrow Airport, combined with a significant package of measures to address its environmental and community impacts, presented the strongest case and offered the greatest strategic and economic benefits.

¹ ONS, Input-Output Supply and Use tables, 2014

² ONS, Business Register and Employment Survey, 2014

³ <https://www.gov.uk/government/publications/airports-commission-final-report> *Airports Commission: Final Report*, p3

⁴ *Airports Commission: Final Report*, p3

⁵ [https://www.gov.uk/Government/organisations/airports-Airports Commission](https://www.gov.uk/Government/organisations/airports-Airports%20Commission)

⁶ <https://www.gov.uk/government/publications/airports-commission-interim-report>

⁷ <https://www.gov.uk/government/publications/inner-thames-estuary-airport-summary-and-decision>

- 1.6** On 14 December 2015, the Government accepted the Airports Commission’s recommendation for increased capacity in the South East of England, and its shortlisted scheme options. The Government also confirmed that it would begin work on the building blocks of an Airports National Policy Statement (‘Airports NPS’), and this is what happened.⁸
- 1.7** The Government believes that an NPS is the most appropriate method to put in place the planning framework for a new runway in the South East of England.⁹ All three shortlisted airport schemes would have been classed as nationally significant infrastructure projects under the Planning Act 2008, and the Government’s view is that an Airports NPS, and a development consent application made under the Planning Act 2008, is the most appropriate route to deliver the Government’s preferred scheme.
- 1.8** In its announcement on 14 December 2015, the Government made clear that it would be important to undertake further work regarding the final location of the preferred scheme. This included additional work on air quality, noise, carbon, and mitigating impacts on affected local communities.
- 1.9** On 25 October 2016, the Government announced that a Northwest Runway at Heathrow Airport, combined with a significant package of supporting measures, was its preferred scheme to deliver additional airport capacity in the South East of England. It also confirmed that this would be included in a draft Airports NPS, to be the subject of consultation according to the procedures laid down in the Planning Act 2008.¹⁰

Purpose and scope of the Airports NPS

- 1.10** The Airports NPS provides the primary basis for decision making on development consent applications for a Northwest Runway at Heathrow Airport, and will be an important and relevant consideration in respect of applications for new runway capacity and other airport infrastructure in London and the South East of England. Other NPSs may also be relevant to decisions on airport capacity in this geographical area.
- 1.11** The Airports NPS sets out:
- The Government’s policy on the need for new airport capacity in the South East of England;
 - The Government’s preferred location and scheme to deliver new capacity; and
 - Particular considerations relevant to a development consent application to which the Airports NPS relates.
- 1.12** It sets out planning policy in relation to applications for any airport nationally significant infrastructure project in the South East of England, and its policies will be important and relevant for the examination by the Examining Authority, and decisions by the Secretary of State in relation to such applications.

⁸ <https://www.gov.uk/government/speeches/aviation-capacity>

⁹ Throughout this document, unless specified otherwise, the term “NPS” refers to the Airports NPS. Other NPSs, for example the National Networks NPS, are referred to in full as required

¹⁰ <https://www.gov.uk/government/speeches/airport-capacity>

- 1.13** In particular, the Secretary of State will use the Airports NPS as the primary basis for making decisions on any development consent application for a new Northwest Runway at Heathrow Airport, which is the Government's preferred scheme. The policies in the Airports NPS will have effect in relation to the Government's preferred scheme, having a runway length of at least 3,500m and enabling at least 260,000 additional air transport movements per annum.¹¹ It will also have effect in relation to terminal infrastructure associated with the Heathrow Northwest Runway scheme and the reconfiguration of the central terminal area at Heathrow Airport.
- 1.14** It is possible that an applicant for development consent in respect of the preferred scheme will promote more than one application for development consent, dealing with different components individually. To the extent that this is the case, the Secretary of State will apply the Airports NPS to such applications to the extent that he determines to be appropriate in the circumstances.
- 1.15** For a scheme to be compliant with the Airports NPS, the Secretary of State would expect to see these elements comprised in its design, and their implementation and delivery secured, particularly with regard to runway length and increased capacity of air transport movements. Other NPSs may also be relevant to decisions on nationally significant infrastructure projects at airports but, if there is conflict between the Airports NPS and other NPSs, the conflict should be resolved in favour of the NPS that has been most recently designated.
- 1.16** Under Section 104 of the Planning Act 2008, the Secretary of State must decide any application in accordance with any relevant NPS unless he or she is satisfied that to do so would:
- Lead to the UK being in breach of its international obligations;
 - Be unlawful;
 - Lead to the Secretary of State being in breach of any duty imposed by or under any legislation;
 - Result in adverse impacts of the development outweighing its benefits; or;
 - Be contrary to legislation about how the decisions are to be taken.¹²
- 1.17** The Airports NPS refers in some places to other relevant documents. These other documents may be updated or amended over the lifetime of the Airports NPS, and so successor documents should be referred to when this is the case.
- 1.18** Unlike the regime for the granting of planning permission under the Town and Country Planning Act 1990, there is no provision in the Planning Act 2008 for the making of an 'outline' application for development consent, followed by 'reserved matters' approval. This does not mean, however, that development cannot be phased, so that particular parts are brought forward at different times, or that the details of a proposal cannot be reserved for determination later. Guidance by the Department for Communities and Local Government recognises that development projects advanced through the development consent order process may be phased, but emphasises that every phase of the project contained in a development consent application must be considered in the application for the order and the order itself.¹³

¹¹ The Airports NPS stipulates the length of the new runway to ensure that the new infrastructure can accommodate the largest commercial aircraft, as they operate many of the long haul flights that support the UK's position as a major aviation hub

¹² Planning Act 2008, Section 104 – decisions in cases where an NPS has effect

¹³ <https://www.gov.uk/government/publications/guidance-on-the-pre-application-process-for-major-infrastructure-projects>

Duration

1.19 The Airports NPS covers development that is anticipated to be required by 2030 as well as other development required to support it. It will remain in place until it is withdrawn, amended or replaced. It will be reviewed, in accordance with the Planning Act 2008, when the Secretary of State considers it appropriate to do so. When considering whether to review the Airports NPS, the Secretary of State will look at whether there has been a significant change in any circumstances on which the policy was based and whether such change was anticipated when the Airports NPS was designated.

Territorial extent

1.20 The Airports NPS covers England only. Some aspects of aviation noise policy are devolved but others are reserved.¹⁴

1.21 Aviation policy is largely a reserved matter, though planning policy is not. Specifically:

- The National Assembly for Wales has devolved powers relating to airports in terms of land use planning and surface access policy;
- The Scottish Parliament has competence for planning in Scotland, and some powers in relation to aerodromes are also devolved to the Scottish Parliament; and
- The Northern Ireland Executive and Assembly have devolved powers relating to airports in terms of regional land use planning, surface access policy and funding, and environmental policy. The Northern Ireland Executive also has responsibility for airport economic regulation, has powers over land in relation to aviation safety, has the ability to grant aid for airports infrastructure, and may exercise certain controls relating to the management of airports.

European Union

1.22 On 23 June 2016, the people of the United Kingdom voted to leave the European Union. Until exit negotiations are concluded, the UK remains a full member of the European Union. and all the rights and obligations of European Union membership remain in force. During this period the Government will continue to negotiate, implement and apply European Union legislation. Therefore, for the time being, European Union legislation applies to the development of this policy and to decision making in relation to the preferred scheme.

Appraisal of Sustainability

1.23 An Appraisal of Sustainability is required by the Planning Act 2008 in relation to any NPS. An Appraisal of Sustainability, which describes the analysis of reasonable alternatives to the preferred scheme, has been carried out to inform the Airports NPS. The Appraisal of Sustainability informs the development of the Airports NPS by assessing the potential economic, social and environmental impacts of options to increase airport capacity.

¹⁴ For the avoidance of doubt, references to matters which are “reserved” in this section refer to those matters of legislative responsibility reserved to the Westminster Parliament under the UK’s devolution arrangements

- 1.24** The Appraisal of Sustainability also incorporates a strategic environmental assessment (pursuant to Directive 2001/42/EC as transposed by SI 2004/1633).¹⁵ The Appraisal of Sustainability was published alongside the Airports NPS.
- 1.25** The overall conclusions of the Appraisal of Sustainability show that (provided any scheme remains within the parameters and boundaries in this policy), whilst there will be inevitable harm caused by a new Northwest Runway at Heathrow Airport in relation to some topics, the need for such a scheme, the obligation to mitigate such harm as far as possible, and the benefits that such a scheme will deliver, outweigh such harm. However, this is subject to the assessment of the effects of the preferred scheme, identification of suitable mitigation, and measures to secure and deliver the relevant mitigation.
- 1.26** The preferred scheme has been subject to further refinement by Heathrow Airport since the conclusion of the work of the Airports Commission. These refinements were not captured within the Airports Commission's appraisals and are not expected to significantly alter the key appraisal findings. The Government expects any applicant to carry out a further and more detailed study, and to secure appropriate mitigation measures, ahead of seeking development consent.

Habitats Regulations Assessment

- 1.27** The Airports NPS has also been assessed under the Habitats and Wild Birds Directive and Regulations.¹⁶ A Habitats Regulations Assessment has been undertaken at a strategic level, and was published alongside the Airports NPS.
- 1.28** The Habitats Regulations Assessment concluded that it cannot rule out the potential for adverse effects on the integrity of European sites adjacent to or at a distance from the preferred scheme, given that more detailed project design information and detailed proposals for mitigation are not presently available. The Airports NPS has thus been considered in line with the requirements set out in Article 6(4) of the Habitats Directive. Consideration has been given to potential alternatives to the preferred scheme, and the conclusion was reached that there were no alternatives that would better respect the integrity of European Sites and deliver the objectives of the Airports NPS in relation to UK airport capacity and meeting the identified needs for additional capacity provision. Accordingly, the Government has presented its case why imperative reasons of overriding public interest exist which provide the rationale for why the Airports NPS should be designated, given the presently uncertain conclusions identified by the Habitats Regulations Assessment.
- 1.29** Any development brought forward through the Airports NPS that would be likely to have a significant effect on a European site, either alone or in combination with other plans or projects, will be subject to assessment under Part 6 of the Habitats Regulations at the detailed design stage. If it cannot be concluded that there would be no adverse effects on site integrity, the project will need to be refused or pass the tests of Article 6(4) including any necessary compensatory measures that will need to be secured.

¹⁵ Directive 2001/42/EC of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment

¹⁶ Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna; and Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds

Equality Impact Assessment

- 1.30** The Airports NPS has been informed by an Interim Equality Impact Assessment, which was published alongside the Airports NPS.
- 1.31** Under the Equality Act 2010, public bodies have a statutory duty to ensure race, disability and equality are considered in the exercise of their functions. The Interim Equality Impact Assessment considered the potential equalities implications of airport expansion, including the effect on persons or groups of persons who share certain characteristics protected by the Equality Act 2010. The Interim Equality Impact Assessment concludes that all of the shortlisted schemes will have effects on these groups, but that such effects can be managed and can ultimately be within appropriate limits. The Airports NPS requires that final impacts on affected groups should be the subject of a detailed review, carefully designed through engagement with the local community, and approved by the Secretary of State. It should be possible to fully or partially mitigate negative equalities impacts through good design, operations and mitigation plans.

Health Impact Assessment

- 1.32** The Airports NPS has been subject to a Health Impact Assessment, which was published alongside the Airports NPS.
- 1.33** The Health Impact Assessment identified impacts which would affect the population's health, including noise, air quality and socio-economic impacts. In order to be compliant with the Airports NPS, a further project level Health Impact Assessment is required. The application should include and propose health mitigation, which seeks to maximise the health benefits of the scheme and mitigate any negative health impacts.

Relationship between the Airports NPS and the Aviation Policy Framework

- 1.34** The Airports NPS sets out Government policy on expanding airport capacity in the South East of England, in particular by developing a Northwest Runway at Heathrow Airport. Any application for a new Northwest Runway development at Heathrow will be considered under the Airports NPS. Other Government policy on airport capacity has been set out in the Aviation Policy Framework, published in 2013.¹⁷ The Airports NPS does not affect Government policy on wider aviation issues, for which the 2013 Aviation Policy Framework and any subsequent policy statements still apply.¹⁸

Development covered by the Airports NPS

- 1.35** The Airports NPS has effect in relation to the delivery of additional airport capacity through the provision of a Northwest Runway at Heathrow Airport. It also applies to proposals for new terminal capacity located between the new Northwest Runway and the existing Northern Runway at Heathrow Airport, as well as the reconfiguration of Heathrow Airport's central terminal area. Each of these elements is also capable of constituting a nationally significantly infrastructure project.

¹⁷ <https://www.gov.uk/government/publications/aviation-policy-framework>

¹⁸ The Government is consulting on changes to UK airspace policy, which make up part of the Aviation Policy Framework, in parallel with its consultation on the draft Airports NPS

1.36 The Airports NPS does not have effect in relation to an application for development consent for an airport development not comprised in an application relating to: the Heathrow Northwest Runway, and proposals for new terminal capacity located between the Northwest Runway at Heathrow Airport and the existing Northern Runway and reconfiguration of Heathrow Airport's central terminal area. Nevertheless, the Secretary of State considers that the contents of the Airports NPS will be both important and relevant considerations in the determination of such an application, particularly where it relates to London or the South East of England. Among the considerations that will be important and relevant are the findings in the Airports NPS as to the need for new airport capacity and that the preferred scheme is the most appropriate means of meeting that need.

2. The need for additional airport capacity

The importance of aviation to the UK economy

- 2.1** International connectivity, underpinned by strong airports and airlines, is important to the success of the UK economy. It is essential to allow domestic and foreign companies to access existing and new markets, and to help deliver trade and investment, linking us to valuable international markets and ensuring that the UK is open for business. It facilitates trade in goods and services, enables the movement of workers and tourists, and drives business innovation and investment, being particularly important for many of the fastest growing sectors of the economy.
- 2.2** International connectivity attracts businesses to cluster round airports, and helps to improve the productivity of the wider UK economy. Large and small UK businesses rely on air travel, while our airports are the primary gateway for vital time-sensitive freight services. Air travel also allows us ever greater freedom to travel and visit family and friends across the globe, and brings millions of people to the UK to do business or enjoy the best the country has to offer.
- 2.3** The UK benefits from a strong and substantially privatised airport sector, with a regulatory system that supports growth while ensuring the interests of passengers are at its heart. The Government believes that this is the right approach for the airport sector, but that Government has an important role to play in strategic decisions like planning future airport capacity.
- 2.4** The UK has the third largest aviation network in the world after the USA and China,¹⁹ and London's airports serve more routes than any other European city.²⁰ The UK's airports handled over 250 million passengers in 2015, a 5.5% increase from the previous year.²¹ The sector benefits the UK economy through its direct contribution to GDP and employment, and by facilitating trade and investment, manufacturing supply chains, skills development, and tourism.
- 2.5** In 2014 the UK aviation sector generated around £20 billion²² of economic output, and directly employed around 230,000 workers,²³ supporting many more jobs indirectly. The UK has the second largest aircraft manufacturing industry in the world after the USA, and will benefit economically from growth in employment and exports from future aviation growth.²⁴ Air Passenger Duty remains an important contributor to Government revenue, raising over £3 billion in 2014/15.²⁵ Heathrow Airport directly supports around 75,000 jobs on site.²⁶
- 2.6** Businesses from across the UK utilise our aviation network to access markets worldwide. The UK's strong services sector, which provides significant export earnings for the country, is particularly reliant on aviation. The sector includes,

¹⁹ *The Global Competitiveness Report 2014-2015*, World Economic Forum, 2015, based on available airline seat kilometres

²⁰ *Airports Commission: Final Report*, p55

²¹ <https://www.caa.co.uk/Data-and-analysis/UK-aviation-market/Airports/Datasets/UK-Airport-data/Airport-data-2015/>

²² ONS, Input-Output Supply and Use tables, 2014

²³ ONS, Business Register and Employment Survey, 2014

²⁴ UK Aerospace Industry Survey, Aerospace, Defence, Security Trade Association, 2010

²⁵ <https://www.gov.uk/Government/statistics/hmrc-tax-and-nics-receipts-for-the-uk>

²⁶ <https://your.heathrow.com/takingbritainfurther/jobs-and-growth/>

among others, financial services, insurance, creative industries, education, and health – all of which rely on face-to-face engagement with customers for success.

- 2.7** Air freight is also important to the UK economy. Although only a small proportion of UK trade by weight is carried by air, it is particularly important for supporting export-led growth in sectors where goods are of high value or time critical. Heathrow Airport is the UK's biggest freight port by value.²⁷ Over £155 billion of air freight was sent between UK and non-European Union countries in 2015, representing over 40% of the UK's extra-European Union trade by value.²⁸ This is especially important in the advanced manufacturing sector, where air freight is a key element of the time-critical supply chain. By 2030, advanced manufacturing industries such as pharmaceuticals or chemicals, whose components and products are predominately moved by air, are expected to be among the top five UK export markets by their share of value.²⁹ In the future, UK manufacturing competitiveness and a successful and diverse UK economy will drive the need for quicker air freight.
- 2.8** Aviation also brings many wider benefits to society and individuals, including travel for leisure and visiting family and friends. This drives further economic activity. In 2013, for example, the direct gross value added of the tourism sector, one of the important beneficiaries of a strong UK aviation sector, was £59 billion.³⁰ Likewise, 2015 saw the value of inbound tourism rise to over £22 billion,³¹ with the wider UK tourism industry forecast to grow significantly over the coming decades.
- 2.9** The importance of aviation to the UK economy, and in particular the UK's hub status, has only increased following the country's decision to leave the European Union. As the UK develops its new trading relationships with the rest of the world, it will be essential that increased airport capacity is delivered to support routes to and from the UK around the world, particularly to emerging and developing economies.

The need for new airport capacity

- 2.10** However, challenges exist in the UK's aviation sector, stemming in particular from capacity constraints. These constraints are affecting our ability to travel conveniently and to a broader range of destinations than in the past. They create negative impacts on the UK through increased risk of flight delays and unreliability, restricted scope for competition and lower fares, declining domestic connectivity, erosion of the UK's hub status³² relative to foreign competitors, and constraining the scope of the aviation sector to deliver wider economic benefits.
- 2.11** The UK now faces a significant capacity challenge. Heathrow Airport is currently the busiest two-runway airport in the world, while Gatwick Airport is the busiest single runway airport in the world. London's airports are filling up fast, and will all be full by 2040 if we do not take action now.³³

²⁷ <https://your.heathrow.com/takingbritainfurther/trade-and-exports/facts-and-figures/>

²⁸ <https://www.uktradeinfo.com/Statistics/Pages/Statistics.aspx>

²⁹ <https://globalconnections.hsbc.com/global/en/tools-data/trade-forecast-tool/uk#>

³⁰ Estimates of the Economic Importance of Tourism 2008-2013, Office for National Statistics, December 2014

³¹ <https://www.visitbritain.org/2015-snapshot>. This figure represents tourism by all modes of transport. The equivalent figure for inbound tourists by air is £19 billion in 2015

³² Defined as the frequency of flights and the density of a route network

³³ *Airports Commission: Final Report*, p3

- 2.12** Aviation demand is likely to increase significantly between now and 2050.³⁴ All major airports in the South East of England³⁵ are expected to be full by 2040, and by 2050 demand in the South East of England is expected to outstrip capacity by 13-15%, even on the lowest demand forecasts.³⁶ There is relatively little scope to redistribute demand away from the region to less heavily utilised capacity elsewhere in the country.³⁷
- 2.13** The UK's hub status, stemming from the convenience and variety of its direct connections across the world, is already being challenged by restricted connectivity.³⁸ Hub airports at Paris, Frankfurt and Amsterdam have spare capacity and are able to attract new flights to growth markets in China and South America.³⁹ These competitors have benefited from the capacity constraints at Heathrow Airport, and have seen faster growth over the past few years. The UK's airports also face growing competition from hubs in the Middle East like Dubai, Abu Dhabi, Doha and Istanbul. Heathrow Airport was overtaken by Dubai in 2015 as the world's busiest international passenger airport.⁴⁰
- 2.14** The consequences of not increasing airport capacity in the South East of England – the 'do nothing' or 'do minimum scenarios' – are detrimental to the UK economy and the UK's hub status. International connectivity will be restricted as capacity restrictions mean airlines prioritise their routes, seeking to maximise their profits. Capacity constraints therefore lead to trade-offs in destinations, and while there is scope to respond to changing demand patterns, this necessarily comes at the expense of other connections. Domestic connectivity into the largest London airports will also decline as competition for slots encourages airlines to prioritise more profitable routes.
- 2.15** Operating existing capacity at its limits means there will be little resilience to unforeseen disruptions, leading to delays. Fares are likely to rise as demand outstrips supply, and the lack of available slots makes it more difficult for new competitors to enter the market.
- 2.16** The Government believes that not increasing capacity will impose costs on passengers and on the wider economy. The Airports Commission estimated that direct negative impacts to passengers, such as fare increases and delays, would range from £21 billion to £23 billion over 60 years.⁴¹ Without expansion, capacity constraints would impose increasing costs on the rest of the economy over time, lowering economic output by making aviation more expensive and less convenient to use, with knock-on effects in lost trade, tourism and foreign direct investment.
- 2.17** It is very challenging to put a precise figure on these impacts, but using alternative approaches the Airports Commission estimated these costs to be between £30 billion and £45 billion over 60 years.⁴² The Airports Commission urged caution interpreting these figures, which overlap with the direct passenger costs reported above and so are not wholly additional. But they do illustrate that not increasing

³⁴ *Airports Commission: Final Report*, p83

³⁵ Defined as Gatwick, Heathrow, London City, Luton and Stansted

³⁶ *Airports Commission: Interim Report*, p111

³⁷ *Airports Commission: Interim Report*, pp117-126

³⁸ For more analysis on the UK's hub status, see *Airports Commission: Interim Report*, pp90-92

³⁹ *Airports Commission: Final Report*, p249

⁴⁰ <http://www.aci.aero/News/Releases/Most-Recent/2016/09/09/Airports-Council-International-releases-2015-World-Airport-Traffic-Report-The-busiest-become-busier-the-year-of-the-international-hub-airport>

⁴¹ *Airports Commission: Final Report*, p81; present value over 60 years

⁴² *Airports Commission: Final Report*, p81

airport capacity carries real economic costs to the whole economy beyond aviation passengers. Having reviewed this further, the Government accepts this analysis.

- 2.18** The Government also acknowledges the local and national environmental impacts of airports and aviation, for example noise and emissions, and believes that capacity expansion should take place in a way that satisfactorily mitigates these impacts wherever possible. Expansion must be deliverable within national targets and legal limits for air quality and greenhouse gas emissions.

The Airports Commission

2.19 To address these issues, in September 2012, the Coalition Government established the independent Airports Commission, led by Sir Howard Davies. The Airports Commission had two objectives:

- To produce an Interim Report, setting out the nature, scale and timing of steps needed to maintain the UK's global hub status alongside recommendations for making better use of the UK's existing runway capacity over the next five years; and
- To produce a Final Report, setting out recommendations on how to meet any need for additional airport capacity in the longer term.⁴³

2.20 The Airports Commission was asked to take appropriate account of the national, regional and local implications of any expansion. As well as seven discussion papers and an appraisal framework, the Airports Commission delivered its recommendations to Government in its Interim Report in December 2013 and its Final Report in July 2015. It also published a summary and decision paper in September 2014 on whether to add an inner Thames Estuary airport proposal to a shortlist for further appraisal.⁴⁴

Alternatives to additional runway capacity

2.21 The Airports Commission explored potential alternatives to additional runway capacity, which included:

- Doing nothing;
- A 'do minimum' set of alternatives with very limited provision for additional capacity;
- Redistribution methods, for example changing the rate of Air Passenger Duty, changing slot allocation regimes, traffic distribution rules, and prohibiting certain types of flights;
- Investment in high speed rail and improved surface access options; and
- New technologies.⁴⁵

2.22 The Airports Commission found that none of these options delivered a sufficient increase in capacity, and that many required investment far in excess of the cost of runway expansion.

⁴³ <https://www.gov.uk/government/organisations/airports-commission/about/terms-of-reference>

⁴⁴ <https://www.gov.uk/government/publications/inner-thames-estuary-airport-summary-and-decision>

⁴⁵ *Airports Commission: Final Report*, p84

The Airports Commission's shortlisting process

2.23 The Airports Commission consulted widely on its appraisal framework, which contained its criteria for sifting proposed schemes,⁴⁶ and the Government is satisfied that the appraisal framework was appropriate. The Airports Commission received 52 proposals, with three options developed by the Airports Commission itself. The Airports Commission took advice from a number of relevant stakeholders, including NATS Holdings, the Civil Aviation Authority, Network Rail, and the Highways Agency (as it then was). The Government believes that the Airports Commission has analysed all the options put forward to the appropriate degree of detail, and discounted non-shortlisted schemes fairly and objectively according to the sift criteria. The Government does not consider that any of the non-shortlisted schemes represents a reasonable alternative to its preferred scheme.

2.24 The three shortlisted schemes were:

- Gatwick Second Runway scheme;
- Heathrow Northwest Runway scheme (which the Airports Commission recommended and is the Government's preferred scheme); and
- Heathrow Extended Northern Runway scheme.

2.25 The Government has made clear in its announcement of 14 December 2015 that it agrees with the Airports Commission's three shortlisted schemes for expansion, and has taken forward its further work on this basis. As set out at paragraph 1.35 of this document, the Airports NPS will only have effect in relation to a scheme located at Heathrow Airport for the provision of a Northwest Runway, and not the other shortlisted schemes.

The Airports Commission's conclusions

2.26 In its Interim Report in December 2013,⁴⁷ the Airports Commission concluded that there was a need for one additional runway to be in operation in the South East of England by 2030. It also set in train a period of further consultation on three shortlisted schemes (Gatwick Second Runway scheme, Heathrow Northwest Runway scheme, and Heathrow Extended Northern Runway scheme), as well as the option of a new airport in the inner Thames Estuary. In September 2014, the Airports Commission concluded that a new airport in the inner Thames Estuary did not perform sufficiently well to warrant consideration alongside the three schemes that it decided to shortlist.

2.27 In its Final Report in July 2015, the Airports Commission concluded that the proposed Northwest Runway at Heathrow Airport presented the strongest case for expansion and would offer the greatest strategic and economic benefits to the UK. A copy of the illustrative Heathrow Northwest Runway scheme masterplan is included at Annex B. The Airports Commission also made clear that expansion would have to involve a significant package of supporting measures to address the environmental and community impacts of the new runway.

⁴⁶ <https://www.gov.uk/government/publications/sift-criteria-for-long-term-capacity-options-at-uk-airports>

⁴⁷ *Airports Commission: Interim Report*, p11

The Government's work

- 2.28** The Government has reviewed the Airports Commission's work and the representations Government has received on the issue of airport capacity, and is confident that the Airports Commission's arguments and reasoning are clear and thorough.
- 2.29** The Airports Commission undertook an extensive appraisal over two and a half years, consulting widely and analysing all the evidence before making its final recommendations. Since then, the Government has reviewed the Airports Commission's work and concluded that its evidence base on the case for expansion and its use of this evidence are both sound.⁴⁸ This has given the Government the assurance required to use the evidence to inform its further work, which is set out in more detail later. The Government has therefore considered the Airports Commission data in great depth and also carried out its own further work, all of which informs the Airports NPS.
- 2.30** In coming to these decisions, the Government has fully considered the Airports Commission's Interim and Final Reports, as well as the inner Thames Estuary summary and decision paper. The Government also received a range of information from a variety of stakeholders in response to those reports, which was taken into account by the Government in reaching its preference.
- 2.31** Having reviewed the work of the Airports Commission and considered the evidence put forward on the issue of airport capacity, the Government believes that there is clear and strong evidence that there is a need to increase capacity in the South East of England by 2030 by constructing one new runway. The Government also agrees with the Airports Commission that this can be delivered within the UK's obligations under the Climate Change Act 2008.⁴⁹
- 2.32** The next chapter of the Airports NPS sets out how the Government has identified the most effective and appropriate way to address the overall need for increased airport capacity, while meeting the UK's air quality and carbon obligations.

⁴⁸ <https://www.gov.uk/government/publications/airport-expansion-further-review-and-sensitivities-report>

⁴⁹ <https://www.gov.uk/government/publications/airport-expansion-dft-review-of-the-airports-commissions-final-report> *Review of the Airports Commission Final Report*, p19

3. The Government's preferred scheme: Heathrow Northwest Runway

Overview

- 3.1** While the previous chapter of the Airports NPS sets out the Government's underlying policy and evidence on the need to expand airport capacity in the South East of England, this chapter sets out why the Government has stated its preference for the Heathrow Northwest Runway scheme.
- 3.2** As set out in the previous chapter, the Airports Commission undertook a detailed shortlisting process, which resulted in three shortlisted schemes being considered by the Government for additional airport capacity:
- Gatwick Second Runway scheme;
 - Heathrow Northwest Runway scheme (which the Airports Commission recommended and is the Government's preferred scheme);
 - Heathrow Extended Northern Runway scheme.
- 3.3** The Government accepted the Airports Commission's three shortlisted schemes on 14 December 2015, agreeing with the Airports Commission's conclusion that one new runway in the South East of England by 2030 would be required to meet capacity requirements.
- 3.4** Following the publication of the Airports Commission's Final Report, the Government undertook further work on:
- Air quality;
 - Noise;
 - Carbon emissions; and
 - Impacts on local communities.
- 3.5** The Government has carried out additional sensitivities, which show the worst case scenarios on noise, carbon and the economy, within the Appraisal of Sustainability.
- 3.6** The work on air quality, which demonstrated that expansion (with mitigation) is capable of taking place within legal limits, is outlined in the Government's air quality re-analysis⁵⁰ and the Appraisal of Sustainability. Both documents contain a worst case scenario.
- 3.7** The Government agrees with the Airports Commission's assessment that a new runway is deliverable within the UK's climate change obligations.⁵¹
- 3.8** Following engagement with all three shortlisted scheme promoters, the Government has recommended a package of community supporting measures.

⁵⁰ <https://www.gov.uk/government/publications/airport-expansion-further-analysis-of-air-quality-data>

⁵¹ <https://www.gov.uk/government/publications/airport-expansion-dft-review-of-the-airports-commissions-final-report> *Review of the Airports Commission Final Report*, p19

- 3.9** The Government also carried out additional work in relation to surface access, and further economic analysis. This work has allowed the Government to consider carefully the effectiveness of each of the three schemes to meet the need for additional capacity.
- 3.10** The detailed results of this work can be found in a number of reports published by the Government on 25 October 2016:
- A formal review by the Department for Transport of the Airports Commission’s Final Report;⁵²
 - An air quality re-analysis to test the Airports Commission’s work against the Government’s air quality plan;⁵³
 - A further review of the Airports Commission’s analytical approach, providing greater assurance in those areas where needed;⁵⁴
 - A comparison of the originally shortlisted schemes’ compensation packages against other expansion projects around the world;⁵⁵
 - An assurance report by Highways England on the schemes’ road surface access proposals;⁵⁶ and
 - A non-binding statement of principles between Heathrow Airport and the Secretary of State for Transport on the Heathrow Northwest Runway scheme.⁵⁷
- 3.11** On 25 October 2016, the Government announced that its preferred scheme to meet the need for new airport capacity in the South East of England was a Northwest Runway at Heathrow Airport.⁵⁸ It also confirmed that this would be included in a draft Airports NPS, which would be subject to consultation in accordance with the procedures laid down in the Planning Act 2008. The Government believes that the Heathrow Northwest Runway scheme, of all the three shortlisted schemes, is the most effective and most appropriate way of meeting the needs case set out in chapter 2. As such, the Government has also concluded that the other shortlisted schemes do not represent true alternatives to the preferred scheme.
- 3.12** The remainder of this chapter is broken down into two distinct sections. The first section focuses on why the Government prefers the Heathrow Northwest Runway Scheme to the Gatwick Second Runway scheme in terms of delivering additional airport capacity by 2030. The second section focuses on why the Government prefers the Heathrow Northwest Runway scheme to the Heathrow Extended Northern Runway scheme.
- 3.13** Increasing airport capacity in the South East of England can be expected to result in both positive and negative impacts, as would be the case for any major infrastructure project. Important positive impacts are expected to include securing the UK’s hub status, better international connectivity, and providing benefits to passengers and the UK economy as a whole (for example for the freight industry). The negative impacts are expected to include environmental impacts, for example on air quality and affected local communities.

⁵² <https://www.gov.uk/government/publications/airport-expansion-dft-review-of-the-airports-commissions-final-report>

⁵³ <https://www.gov.uk/government/publications/airport-expansion-further-analysis-of-air-quality-data>

⁵⁴ <https://www.gov.uk/government/publications/airport-expansion-further-review-and-sensitivities-report>

⁵⁵ <https://www.gov.uk/government/publications/airport-expansion-global-comparison-of-airport-mitigation-measures>

⁵⁶ <https://www.gov.uk/government/publications/airport-expansion-highways-england-assurance-report>

⁵⁷ <https://www.gov.uk/government/publications/heathrow-airport-limited-statement-of-principles>

⁵⁸ <https://www.gov.uk/government/speeches/airport-capacity>

3.14 In its considerations on a preferred scheme, the Government has fully taken into account the work of the Airports Commission, information provided by a variety of stakeholders, and the results of the Government's further work outlined in paragraphs 3.4-3.10 above. As set out below, the Government has considered the positive and negative effects from each of the three shortlisted schemes, and reached its conclusion by weighing these expected effects, along with considering how positive effects can be enhanced and negative effects mitigated.

Heathrow Northwest Runway and Gatwick Second Runway

3.15 In identifying the preferred scheme, a wide range of factors has been taken into account, including:

- International connectivity and strategic benefits;
- Passenger and wider economic benefits;
- Domestic connectivity and regional impacts;
- Surface access links;
- Views of airlines, regional airports and the business community;
- Financeability;
- Deliverability; and
- Local environmental impacts.

3.16 While the Government acknowledges the differences between the three shortlisted schemes, carbon impacts (unlike the factors above) have not been considered as a differentiating factor between schemes due to the Airports Commission's overarching assessment that that all three are deliverable within the UK's climate change obligations.

International connectivity and strategic benefits, including freight

3.17 Heathrow Airport is best placed to address this need by providing the biggest boost to the UK's international connectivity. Heathrow Airport is one of the world's major hub airports, serving around 180 destinations worldwide with at least a weekly service, including a diverse network of onward flights across the UK and Europe.⁵⁹ Building on this base, expansion at Heathrow Airport will mean it will continue to attract a growing number of transfer passengers, providing the added demand to make more routes viable. In particular, this is expected to lead to more long haul flights and connections to fast-growing economies, helping to secure the UK's status as a global aviation hub, and enabling it to play a crucial role in the global economy

3.18 By contrast, expansion at Gatwick Airport would not enhance, and would consequently threaten, the UK's global aviation hub status. Gatwick Airport would largely remain a point to point airport, attracting very few transfer passengers. Heathrow Airport would continue to be constrained, outcompeted by competitor hubs which lure away transfer passengers, further weakening the range and frequency of viable routes. At the UK level, there would be significantly fewer long haul flights in comparison to the preferred scheme, with long haul destinations served less frequently. Expansion at Heathrow Airport is the better option to ensure the number of services on existing routes increases and allows airlines to offer more frequent new routes to vital emerging markets.

⁵⁹ <https://your.heathrow.com/takingbritainfurther/vision/new-destinations/>

- 3.19** This is demonstrated by the forecasts produced by the Airports Commission.⁶⁰ Compared to no expansion, the Airports Commission estimated that a Northwest Runway at Heathrow Airport by 2040 would result in 125,000 additional flights a year across the UK as a whole (including 39,000 long haul), and 27 million additional passengers a year. By way of comparison, the Extended Northern Runway would add 104,000 more flights and 23 million additional passengers.⁶¹
- 3.20** Compared to no expansion, the Second Runway scheme at Gatwick would add 54,000 flights and 8.5 million passengers by 2040, across the UK as a whole, increasing to 60,000 and 16 million respectively in 2050. The Airports Commission projected that 8,000 of these additional flights would be long haul in 2040, rising to 15,000 in 2050.⁶² Gatwick Airport has recently been successful in securing a number of long haul routes to the USA and Canada from low cost carriers, a new market segment.
- 3.21** As set out above, the ease with which businesses can move staff around the globe is an important facilitator of trade and for businesses locating and remaining in the UK. The broader range and greater frequency of long haul flights at Heathrow Airport best meets this need. It would deliver benefits for UK passengers (both business and leisure) by allowing them to travel to more destinations flexibly. These benefits include the additional frequency of flights, for example connecting the UK to long haul destinations daily instead of weekly, or several times a day instead of daily. Businesses from across the UK currently take advantage of Heathrow Airport's international connections, and will continue to benefit from these following expansion. In particular, the additional capacity delivered at Heathrow Airport will support growth in important sectors of the UK economy, including tourism, financial services, and the creative industries.
- 3.22** The aviation sector can also boost the wider economy by providing more opportunities for trade through air freight. The time-sensitive air freight industry, and those industries that use air freight, benefit from greater quantity and frequency of services, especially long haul. By providing more space for cargo, lowering costs, and by the greater frequency of services, this should in turn provide a boost to trade and GDP benefits.⁶³
- 3.23** As set out above, expansion at Heathrow Airport delivers the biggest boost in long haul flights, and the greatest benefit therefore to air freight. This is further facilitated by the existing and proposed airport development of freight facilities as part of the Northwest Runway scheme. Heathrow Airport currently has a substantial freight handling operation, around 20 times larger by tonnage⁶⁴ than that at Gatwick Airport, and accounting for 31% of the UK's non-European Union trade by value – over 200 times more than Gatwick Airport.⁶⁵ Expansion at Heathrow Airport will

⁶⁰ An important uncertainty to the central estimates concerns the forecasts of future aviation demand and allocation across UK airports. The Airports Commission reflected this uncertainty using five demand scenarios, as well as two carbon policy regimes. The Department for Transport has run a demand sensitivity to look at the impact of recent growth in UK aviation demand. Further uncertainty arises from the choice of individual modelling assumptions. Further information, including on the Airports Commission's scenarios and sensitivity analysis, can be found in the *Further Review and Sensitivities Report* and *Appraisal of Sustainability*

⁶¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/439687/strategic-fit-updated-forecasts.pdf Airports Commission Aviation Forecasts. This number refers to terminal passengers which include those passengers changing planes, who are counted twice, reflecting the fact that they arrive on one flight and depart on another

⁶² Airports Commission Aviation Forecasts

⁶³ *Further Review and Sensitivities Report*, p33

⁶⁴ <https://www.caa.co.uk/Data-and-analysis/UK-aviation-market/Airports/Datasets/UK-airport-data/>

⁶⁵ <https://www.uktradeinfo.com/Statistics/BuildYourOwnTables/Pages/Home.aspx>

further strengthen the connections of firms from across the UK to international markets.

Passenger and wider economic benefits

- 3.24** Without expansion, passengers and other users of airports are likely to suffer from higher fares and more delays. High demand for air travel at airports with limited or no scope for increased capacity could weaken competition, allowing airlines to charge higher fares. As airports fill up and operate at full capacity, there is little resilience to deal with any disruption, leading to delays.
- 3.25** Expansion via the Heathrow Northwest Runway scheme is best placed to address this need. Heathrow Airport is currently the busiest two runway airport in the world, already operating at full capacity, with substantial pent up demand from passengers and airlines. Expansion at Heathrow Airport would increase the availability of services, and increase competition between airlines. This would lower fares that passengers can expect to face relative to no expansion, leading to significant benefits to business and leisure passengers and the wider economy (not including wider trade benefits) of up to £61 billion over 60 years.^{66 67} Crucially, the extent of the pent up demand at Heathrow Airport means that these benefits will be experienced more rapidly once the new capacity is operational, with both Heathrow schemes providing more passenger benefits by 2050 than the Gatwick Second Runway scheme. These benefits are expected to be realised by passengers across the UK as they make use of the additional services provided by the expanded airport.
- 3.26** The Government also recognises the role airports can play in supporting wider economic growth in the local community. Expansion at Heathrow Airport is expected to result in larger benefits to the wider economy than expansion at Gatwick Airport. These additional benefits come from more businesses clustering around the expanded airport as well as the productivity benefits from firms who now enjoy lower aviation transport costs. Heathrow Airport already has a more developed cluster of businesses in its surrounding area, which should enable an even larger economic boost from expansion in the local economy.⁶⁸
- 3.27** Expansion via the Heathrow Northwest Runway scheme should deliver additional jobs at the airport, through its supply chain and in the local community. The Heathrow Northwest Runway scheme is expected to generate up to 77,000 additional jobs in the local area by 2030,⁶⁹ with Heathrow Airport also pledging to provide 5,000 additional apprenticeships by this time. The number of local jobs created at an expanded Heathrow Airport is predicted to be much greater than at Gatwick Airport (up to 12,500 by 2030 and 44,200 by 2050),⁷⁰ and the jobs would also be created more quickly. The numbers are higher at Heathrow Airport because the additional capacity is forecast to be used more quickly following expansion and, importantly, because the types of services offered at an expanded Heathrow Airport

⁶⁶ For clarity of presentation, only the central estimate in the 'carbon traded' scenario is presented here. This does not imply any Government position on future carbon policy. Estimates under different carbon and demand scenarios are available in section 3.13 of the Appraisal of Sustainability, Appendix A-3: Economy. For background on the carbon and demand scenarios themselves, see sections 3 and 4 of the Airports Commission's *Strategic fit: updated forecasts* <https://www.gov.uk/government/publications/airports-commission-final-report-strategic-fit>

⁶⁷ This includes passenger benefits to UK residents, non-UK residents and international-to-international interliners

⁶⁸ *Further Review and Sensitivities Report*, p32

⁶⁹ *Airports Commission: Final Report*, p25

⁷⁰ *Further Review and Sensitivities Report*, p38

are likely to be more complex, particularly with the greater number of full service airlines operating there.

- 3.28** Expansion also brings a wider set of non-monetised benefits such as local job creation, trade, and freight benefits, which indicate a stronger case for a Heathrow scheme than for the Gatwick Second Runway scheme.⁷¹

Domestic connectivity

- 3.29** The Government recognises the importance that the nations and regions of the UK attach to domestic connectivity, particularly connections into Heathrow Airport. Airports across the UK provide a vital contribution to the economic wellbeing of the whole of the UK. Without expansion, there is a risk that, as airlines react to limited capacity, they could prioritise routes away from domestic connections. The Government therefore sees expansion at Heathrow Airport as an opportunity to not only protect and strengthen the frequency of existing domestic routes, but to secure new domestic routes to the benefit of passengers and businesses across the UK.

- 3.30** Passengers from across the UK are likely to benefit from the improved international connectivity provided by expansion. By 2040, 5.5 million additional passengers from outside of London and the South East are forecast to make one way international journeys from Heathrow Airport. Under a Gatwick Second Runway scheme, 3 million additional passengers from outside London and the South East would be forecast to make one way international journeys from Gatwick Airport in 2040. By way of comparison, under a Heathrow Extended Northern Runway scheme, 4.5 million additional passengers from outside London and the South East would be forecast to make one way international journeys from Heathrow Airport in 2040.⁷²

- 3.31** An expanded Heathrow Airport should therefore mean that more passengers from across the UK are likely to benefit from lower fares and access to important international markets from the airport.

⁷¹ *Further Review and Sensitivities Report*, p33

⁷² Department for Transport analysis of Airports Commission Aviation Forecasts

3.32 The Government expects to see expansion at Heathrow Airport driving an increase in the number of UK airports with connections specifically into the airport. Heathrow Airport and Gatwick Airport set out plans on domestic connectivity which they say they would deliver, if successful, by 2030:

- 14 domestic routes for Heathrow Airport, compared to the eight routes currently in operation; and
- 12 domestic routes for Gatwick Airport, compared to the six currently offered.

Heathrow Airport under expansion in 2030 ^{73 74}	Gatwick Airport under expansion in 2030 ⁷⁵
<p>8 domestic routes operating today (Aberdeen, Belfast City, Edinburgh, Glasgow, Inverness, Leeds Bradford, Manchester, Newcastle)</p> <p>plus Belfast International, Durham Tees Valley, Humberside, Liverpool, Newquay, Prestwick</p> <p>Total: 14</p>	<p>6 domestic routes operating today (Aberdeen, Belfast International, Edinburgh, Glasgow, Inverness, Newquay)</p> <p>plus Belfast City, Derry-Londonderry, Dundee, Leeds Bradford, Manchester, Newcastle</p> <p>Total: 12</p>

Government expectation on domestic connectivity

3.33 The Government recognises that air routes are in the first instance a commercial decision for airlines and are not in the gift of an airport operator. But the Government is determined that these new routes will be secured, and will hold Heathrow Airport to account on this. The Government requires Heathrow Airport to demonstrate it has worked constructively with its airline customers to protect and strengthen existing domestic routes, and to develop new domestic connections, including to regions currently unserved.

Surface access links

3.34 To realise the benefits of expansion, passengers and users must have good access to the airport. On this basis Heathrow Airport has the advantage, because of its more accessible location and more varied surface access links.

3.35 Heathrow Airport already has good surface transport links to the rest of the UK. It enjoys road links via the M25, M4, M40 and M3, and rail links via the London Underground Piccadilly Line, Heathrow Connect, and Heathrow Express. In the future, it will connect to Crossrail, and link to HS2 at Old Oak Common. Plans are being developed for improved rail access: the proposed Western Rail Access could link the airport to the Great Western Main Line, and Southern Rail Access could join routes to the South West Trains network and London Waterloo Station. This varied choice of road and rail connections makes Heathrow Airport accessible to both

⁷³ Taken from promoter plans for domestic connections at Heathrow Airport and Gatwick Airport, compared to existing domestic connections at both airports. The Government would expect Heathrow Airport’s plan to be broadly equivalent for the Extended Northern Runway proposal if it was taken forward

⁷⁴ Plus routes to UK Crown Dependencies (Isle of Man and Jersey)

⁷⁵ Plus routes to UK Crown Dependencies (Guernsey, Isle of Man and Jersey)

passengers and freight operators in much of the UK, and provides significant resilience to any disruption.

- 3.36** Access to Gatwick relies on the M23 and the Brighton Main Line, which means it serves London well but makes it less convenient for onward travel to the rest of the UK. It is also less resilient than Heathrow Airport. Heathrow Airport has advantages over Gatwick Airport with its greater integration into the national transport network, benefitting both passengers and freight operators. It also currently has significantly larger freight operations than Gatwick Airport, around 20 times larger in terms of total tonnage⁷⁶ and over 200 times larger in terms of value.⁷⁷
- 3.37** The airport scheme promoters have pledged to meet the cost of surface access schemes required to enable a runway to open. For Gatwick Airport, this covers the full cost of the works (including the M23 and A23) needed to support expansion. The two Heathrow schemes would pay for the full cost of M25, A4 and A3044 diversions and local road works. They would make a contribution towards the cost of the proposed Western Rail Access and Southern Rail Access schemes. Improvements which are already underway, such as Thameslink and Crossrail, will be completed, and the Government has not assumed any change to these schemes' existing funding.
- 3.38** The majority of the surface access costs where a split of beneficiaries is expected (for example, where multiple businesses and the public at large benefit from a new road junction or rail scheme) are likely to be borne by Government, as the schemes provide greater benefits for non-airport users. The airport contribution would be subject to a negotiation, and review by regulators.
- 3.39** Because of the early stages of development, there is some variability of surface access costs, which are subject to more detailed development and, for example, choices over precise routes. The additional public expenditure effects of the options would likely be as follows:
- For both Heathrow proposals, there is no Government road spend directly linked to expansion; the promoter would pay for changes to the M25, A4 and A3044 and any local roads. The Western and Southern Rail schemes are at different levels of development and, based on current estimates, could cost between £1.4 billion and £2.5 billion together. The Government would expect this cost to be partly offset by airport contributions, which would be negotiated when the schemes reach an appropriate level of development.
 - For the Gatwick proposal, there would be no additional public expenditure solely because of expansion, as all road enhancement costs for airport expansion would be met by the scheme promoter. The Government has assumed that any improvements to the Brighton Main Line that may be required would take place regardless of expansion and would be publicly funded.

⁷⁶ <https://www.caa.co.uk/Data-and-analysis/UK-aviation-market/Airports/Datasets/UK-airport-data/>

⁷⁷ <https://www.uktradeinfo.com/Statistics/BuildYourOwnTables/Pages/Home.aspx>

Views and support of airlines, regional airports and the business community

- 3.40** The benefits of expansion will be delivered only if airlines and the industry choose to use the new capacity, and pay for it via airport charges. There is much greater airline support for expansion via the Heathrow Northwest Runway scheme than the other two schemes, subject to various concerns being met, for example on costs.
- 3.41** The majority of regional airports who have stated a public preference support expanding Heathrow Airport, on the basis of its current status as the UK's hub (though Birmingham Airport has supported expansion at Gatwick Airport). This support is driven by airports' considerations on connectivity and other commercial issues.
- 3.42** Expansion is critical for business confidence in the UK. The Heathrow Northwest Runway scheme has strong support from the wider business community across the whole of the UK, including from the Confederation of British Industry,⁷⁸ the British Chambers of Commerce,⁷⁹ the Federation of Small Businesses,⁸⁰ the manufacturers' organisation EEF,⁸¹ and regional business groups across the UK. 61% of the directors asked by the Institute of Directors stated that their preference was for expansion at Heathrow Airport, compared to 39% who favoured expansion at Gatwick Airport.⁸²

Financeability

- 3.43** While the Gatwick Second Runway scheme would be significantly cheaper than the two schemes at Heathrow, with the Heathrow Northwest Runway the most expensive of the three shortlisted schemes, all three are private sector schemes which the Government believes could be financeable without Government support.⁸³
- 3.44** The level of debt and equity required for the Gatwick Second Runway scheme would be significantly lower than for the Heathrow schemes, but the Airports Commission noted that the Gatwick Second Runway scheme would have comparatively higher demand risk, which is harder for Government to mitigate compared to the Heathrow schemes.⁸⁴ Both Heathrow schemes build on a strong track record of proven demand that has proven resistant to economic downturns. Independent financial advisers have undertaken further work for the Government, and agree that all three schemes are financeable without Government support.

Deliverability

- 3.45** The three shortlisted schemes involve different levels of delivery risk. Gatwick Airport said its Second Runway scheme is capable of being delivered by 2025, while Heathrow Airport said its Northwest Runway scheme is capable of being delivered by 2026. The Gatwick Second Runway scheme would be much simpler to build. The process for delivering powers for the Heathrow schemes will be more complex because the schemes themselves are more complex. The delivery dates for both Heathrow schemes are therefore likely to be more risky than that for the scheme at Gatwick.

⁷⁸ <https://your.heathrow.com/takingbritainfurther/tuc-and-cbi-unite-to-call-for-heathrow-expansion/>

⁷⁹ <http://www.britishchambers.org.uk/press-office/press-releases/bcc-while-britain-dithers-on-aviation,-others-do.html>

⁸⁰ <http://fsb.org.uk/media-centre/press-releases/heathrow-expansion-sends-clear-signal-britain-is-open-for-business>

⁸¹ <https://www.eef.org.uk/about-eef/media-news-and-insights/media-releases/2016/oct/eef-comment-on-heathrow-expansion>

⁸² <https://www.iod.com/news-campaigns/news/articles/Business-leaders-welcome-Airports-Commission-recommendations>

⁸³ The Airports Commission estimated capital costs at £9 billion for the Gatwick Second Runway scheme, £14.4 billion for the Heathrow Extended Northern Runway Scheme, and £17.6 billion for the Heathrow Northwest Runway scheme, not including surface access costs

⁸⁴ *Airports Commission: Final Report*, p270

3.46 The Airports Commission worked with the Civil Aviation Authority and NATS Holdings to review the operational and airspace implications of all three shortlisted schemes, including conducting fast-time simulation modelling of the proposed airspace routes. This work concluded that, while managing the expecting increase in air traffic safely for any scheme will be challenging, it should nevertheless be achievable given modernisation of airspace in the South East of England and taking advantage of new technologies – changes which will be necessary with or without expansion. The Airports Commission also asked the Health and Safety Laboratory to review the scale of increase in crash risk associated with each of the schemes. This review concluded that “the changes to the background crash rate are minimal, regardless of whether or not expansion takes place at the airports.”⁸⁵

Local environmental impacts

3.47 Decisions on airport capacity must rightly balance local, environmental and social considerations against the national and local benefits stemming from expansion. As set out above, in terms of economic and strategic benefits, expansion via the Heathrow Northwest Runway scheme best meets the need for additional capacity in the South East of England. However, set against these positive impacts, airport expansion can also have negative impacts. For example, all three schemes will have significant impacts on the environment and local communities.

3.48 The Appraisal of Sustainability presents an assessment of the local environmental impact of all three schemes. It shows that, while all three schemes are expected to have a negative effect on impacts such as air quality, noise and biodiversity, the Gatwick Second Runway scheme has a less adverse impact than either scheme at Heathrow. This is primarily because Gatwick Airport is in a more rural location, with fewer people impacted by the airport. Even so, as set out in the *Further Review and Sensitivities Report* in monetary terms, the environmental impacts of all three schemes are small when compared to the size of the benefits, or considered over the 60 year appraisal period. In addition, the Appraisal of Sustainability also sets out potential measures to mitigate these local impacts to ensure that legal limits will be met. As set out below, the Government believes this demonstrates how the commitment to ensure that local impacts of expansion will be mitigated satisfactorily can be met.

3.49 Heathrow Airport has committed to ensuring its landside airport-related traffic is no greater than today. In addition, the airport will be expected to achieve a public transport mode share of at least 50% by 2030, and at least 55% by 2040, for passengers.

3.50 The Government agrees with the evidence set out by the Airports Commission that expansion at Heathrow Airport is consistent with the UK’s climate change obligations.⁸⁶

3.51 The Heathrow Northwest Runway scheme will be accompanied by a package of measures to mitigate the impact of airport expansion on the environment and affected communities.⁸⁷ The Government agrees with the Airports Commission’s

⁸⁵ *Airports Commission: Final Report*, p243

⁸⁶ <https://www.gov.uk/government/publications/airport-expansion-dft-review-of-the-airports-commissions-final-report> *Review of the Airports Commission Final Report*, p19

⁸⁷ By way of comparison, the Government engaged Ernst & Young to prepare a report on the approaches taken by other international airports in addressing the local impacts of the airport - <https://www.gov.uk/government/publications/airport-expansion-global-comparison-of-airport-mitigation-measures>

conclusion that “to make expansion possible...a comprehensive package of accompanying measures [should be recommended to] make the airport’s expansion more acceptable to its local community, and to Londoners generally”.⁸⁸ This will include a highly valued night flight ban of six and a half hours between 11pm and 7am (with the exact start and finish times to be determined following consultation), and the offer of a predictable, though reduced, period of respite for local communities.

3.52 To mitigate environmental impacts, Heathrow Airport and Gatwick Airport both announced compensation packages (covering residential property acquisition, noise insulation, and other community measures like funding for schools), which stand at more than £1 billion at Heathrow Airport and more than £200 million at Gatwick Airport (over 15-20 years from 2020). Heathrow Airport’s package reflects the much greater number of people affected in the local area.

Heathrow Northwest Runway and Heathrow Extended Northern Runway

3.53 The Heathrow Extended Northern runway scheme has two advantages over the Heathrow Northwest Runway scheme: lower capital costs (£14.4 billion for the Extended Northern Runway scheme compared to £17.6 billion for the Northwest Runway scheme), and significantly fewer houses being demolished (242 rather than 783), as well as avoiding impacts on a number of commercial properties.

3.54 However, the Government made a preference for the Heathrow Northwest Runway based on a number of factors:

- Resilience;
- Respite from noise for local communities; and
- Deliverability.

3.55 The Heathrow Northwest Runway scheme would provide respite by altering the pattern of arrivals and departures across the runways over the course of the day to give communities breaks from noise. However, respite would decrease from one half to one third of the day. The Heathrow Extended Northern Runway scheme has much less potential for respite. It would use both runways for arrivals and departures for most of the day, although it may be able to ‘switch off’ one runway for a short time during non-peak periods with a corresponding reduction in capacity.⁸⁹

3.56 The Heathrow Northwest Runway scheme should provide greater resilience than the Heathrow Extended Northern Runway scheme because of the way the three separate runways could operate more flexibly when needed to reduce delays, and the less congested airfield. It delivers greater capacity (estimated on a like for like basis by the Airports Commission at 740,000 flights departing and arriving per annum compared to the Extended Northern Runway scheme at 700,000),⁹⁰ accordingly higher economic benefits, and a broader route network. It also provides greater space for commercial development, which could be used to enhance onsite freight capacity.

⁸⁸ *Airports Commission: Final Report*, p4

⁸⁹ *Airports Commission: Final Report*, pp180-184

⁹⁰ *Airports Commission: Final Report*, p29

3.57 The Airports Commission and the Civil Aviation Authority both assessed the Extended Northern Runway scheme to be deliverable.⁹¹ However, the Extended Northern Runway scheme has no direct global precedent. As such, there is greater uncertainty as to what measures may be required to ensure that the airport can operate safely, and what the impact of those measures may be, including the restriction on runway capacity.

Carbon emissions

3.58 Although not a differentiating factor between the three shortlisted schemes, the Government has considered the issue of carbon emissions, given the Government's commitment to tackle climate change, and its legal obligations under the Climate Change Act 2008.

3.59 The Airports Commission identified carbon impacts from expansion in four areas: a net increase in air travel; airside ground movements and airport operations; changes in travel patterns as a result of the scheme's surface access arrangements; and construction of new infrastructure. Emissions from air travel, specifically international flights, are by far the largest of these impacts.⁹²

3.60 To address uncertainties over the future policy treatment of international aviation emissions,⁹³ the Airports Commission used two carbon policy scenarios in its analysis.

3.61 The first was a 'carbon capped' scenario, in which emissions from the UK aviation sector are limited to the Committee on Climate Change's planning assumption for the sector of 37.5 million tonnes of carbon dioxide equivalent in 2050. The second was a 'carbon traded' scenario, in which emissions are traded as part of a global carbon market, allowing reductions to be made where they are most efficient across the global economy.

3.62 The Airports Commission then assessed whether the needs case could be met under each of these scenarios, that is whether expansion would still deliver the necessary improvements and provide benefits to passengers and the wider economy.

3.63 The Airports Commission concluded that any one of the three shortlisted schemes could be delivered within the UK's climate change obligations,⁹⁴ as well as showing that a mix of policy measures and technologies could be employed to meet the Committee of Climate Change's planning assumption.⁹⁵

3.64 Of the three shortlisted schemes, the Heathrow Northwest Runway scheme produces the highest carbon emissions in absolute terms. However, this is in part due to the greater additional connectivity provided by the scheme, and, in relation to the increase in emissions caused by expansion under any of the schemes, the differences between the schemes are small. Both of the Airports Commission's carbon policy scenarios incorporated measures to ensure that the increased

⁹¹ *Airports Commission: Final Report*, p236

⁹² Intra-UK flights account for approximately 6% of the total emissions from all flights departing UK airports. These emissions are included in the UK's carbon budgets

⁹³ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/186683/aviation-and-climate-change-paper.pdf *Airports Commission: discussion paper 03: aviation and climate change*, pp12-16

⁹⁴ *Airports Commission: Final Report*, pp203-205

⁹⁵ <https://www.gov.uk/government/publications/airports-commission-final-report-economy-impacts> *Airports Commission: Economy: Carbon Policy Sensitivity Test*. This does not imply any Government position on future carbon policy

emissions from any of the shortlisted schemes were not additional overall either at the global level (in the carbon traded case) or at the UK level (in the carbon capped case).

- 3.65** The Airports Commission also showed that, in both carbon policy scenarios, the Heathrow Northwest Runway scheme would deliver significant benefits to passengers and the wider economy (such as lower fares, improved frequency and higher productivity), and would do so more quickly than the Gatwick Second Runway scheme. Both Heathrow schemes provide more passenger benefits by 2050 than the Gatwick Second Runway scheme.
- 3.66** The Government has considered the Airports Commission's conclusions, and agrees both that expansion via a Northwest Runway at Heathrow Airport (as its preferred scheme) can be delivered within the UK's carbon obligations, and that the scheme is the right choice on economic and strategic grounds regardless of the future regime to deal with emissions from international aviation.⁹⁶

Strategic environmental assessment

- 3.67** Strategic environmental assessments are required by the law. A strategic environmental assessment is set out in full in the Appraisal of Sustainability.⁹⁷ It demonstrates that airport expansion will attract additional air traffic, which impacts upon quality of life and wellbeing, in particular through noise, air quality, housing, community facilities, and access to nature and cultural heritage. Negative impacts upon quality of life were of a greater scale within the two Heathrow schemes and of lower magnitude for the Gatwick Second Runway scheme. However, when assessing against the objective of maximising economic benefits and improving competitiveness and employment, the Heathrow Northwest Runway scheme generates the most benefits, as well as producing the highest direct benefits to passengers.

Conclusion

- 3.68** This section summarises the factors the Government considered when evaluating each of the three schemes shortlisted by the Airports Commission against the needs case presented in chapter 2. As part of this, the Government identified where schemes could have negative impacts, for example on the local environment. It considered the predicted beneficial effects of the three schemes, particularly in relation to the needs case and economic considerations. It also assessed how the schemes could conform to wider Government strategic objectives and meet legal obligations, for example on air quality. Bringing these considerations together, the Government's decision on a preferred scheme balances this range of factors, enabling it to determine which scheme, overall, is the most effective and appropriate means of meeting the needs case.
- 3.69** The Appraisal of Sustainability provides an assessment of the schemes against a number of the factors considered in this chapter. It concludes that the Heathrow Northwest Runway scheme is best placed to maximise the economic benefits that the provision of additional airport capacity could deliver, although this scheme is likely to do so with the greatest negative impact on local communities. However, the Appraisal of Sustainability also identifies measures which can help to mitigate these

⁹⁶ *Further Review and Sensitivities Report*, p47

⁹⁷ <https://www.gov.uk/government/collections/heathrow-airport-expansion>

impacts, for example by reducing noise, ensure air quality legal limits are met, show how future carbon targets could be met, and assess future demand scenarios.

3.70 Building on this assessment, the Government has identified a number of attributes in the manner of strategic considerations, which it believes the preferred scheme is particularly likely to deliver. The Government has afforded particular weight to these:

- **Expansion via the Heathrow Northwest Runway scheme would provide the biggest boost to connectivity, particularly in terms of long haul flights.** This is important to a range of high value sectors across the economy in the UK which depend on air travel, as well as for air freight.
- **Expansion via the Heathrow Northwest Runway scheme would provide benefits to passengers and to the wider economy sooner than the other schemes.** This is regardless of the technical challenges to its delivery. It would also provide the greatest boost to local jobs.
- **Heathrow Airport is better connected to the rest of the UK by road and rail.** Heathrow Airport already has good road links via the M25, M4, M40 and M3, and rail links via the London Underground Piccadilly Line, Heathrow Connect and Heathrow Express. In the future, it will be connected to Crossrail, and linked to HS2 at Old Oak Common. The number of such links provides resilience.
- **The Heathrow Northwest Runway scheme delivers the greatest support for freight.** The plans for the scheme include a doubling of freight capacity at the airport. Heathrow Airport already handles more freight by value than all other UK airports combined, and twice as much as the UK's two largest container ports.

3.71 Taken together, benefits to passengers and the wider economy are substantial, even having regard to the proportionally greater environmental disbenefits estimated for the Heathrow Northwest Runway. Even though the preferred scheme's environmental disbenefits are larger than those of the Gatwick Second Runway scheme, when all benefits and disbenefits are considered together,⁹⁸ overall the Heathrow Northwest Runway scheme is considered to deliver the greatest net benefits to the UK.

3.72 A number of mitigation measures will need to be applied to reduce the impacts of the Heathrow Northwest Runway scheme felt by the local community and the environment. Airport expansion is also expected to be accompanied by an extensive and appropriate compensation package for affected parties. With these safeguards in place, the Government considers that the Heathrow Northwest Runway scheme delivers the greatest strategic and economic benefits, and is therefore the most effective and appropriate way of meeting the needs case.

⁹⁸ *Further Review and Sensitivities Report*, p39

4. Assessment principles

General principles of assessment

- 4.1** The statutory framework for deciding applications for development consent under the Planning Act 2008 is set out in the Airports NPS. This chapter of the Airports NPS sets out general policies in accordance with which applications relating to a Northwest Runway at Heathrow Airport are to be decided.
- 4.2** The Airports NPS covering the Heathrow Northwest Runway scheme establishes the needs case for that proposed development, provided it adheres to the detailed policies and protections set out in the Airports NPS, and the legal constraints contained within the Planning Act 2008. The statutory framework for deciding nationally significant infrastructure project applications where there is a relevant designated NPS is set out in Section 104 of the Planning Act 2008.⁹⁹
- 4.3** The Airports NPS applies to schemes at Heathrow Airport (in the area shown within the illustrative scheme boundary map at Annex A) that include a runway of at least 3,500m in length and that are capable of delivering additional passenger capacity of at least 260,000 air transport movements per annum, and associated infrastructure and surface access facilities. In particular, it also applies to the reconfiguration of terminal areas of Heathrow Airport shown on the illustrative masterplan at Annex B. The Secretary of State's policy in relation to other airport infrastructure in the South East of England is set out at paragraph 1.36 above.
- 4.4** In considering any proposed development, and in particular when weighing its adverse impacts against its benefits, the Examining Authority and the Secretary of State will take into account:
- Its potential benefits, including the facilitation of economic development (including job creation) and environmental improvement, and any long term or wider benefits; and
 - Its potential adverse impacts (including any longer term and cumulative adverse impacts) as well as any measures to avoid, reduce or compensate for any adverse impacts.
- 4.5** In this context, environmental, safety, social and economic benefits and adverse impacts should be considered at national, regional and local levels. These may be identified in the Airports NPS, or elsewhere. The Secretary of State will also have regard to the manner in which such benefits are secured, and the level of confidence in their delivery.
- 4.6** The National Networks NPS sets out the Government's policies to deliver development of nationally significant infrastructure projects on the national road and rail networks and strategic rail freight interchanges. It provides planning guidance for promoters of nationally significant infrastructure projects on the road and rail networks, and the basis for the examination by the Examining Authority and decisions by the Secretary of State.

⁹⁹ Planning Act 2008, Section 104 – decisions in cases where an NPS has effect

- 4.7** Where the applicant's proposals in relation to surface access meet the thresholds to qualify as nationally significant infrastructure projects under the Planning Act 2008, or is associated development under section 115 of the Planning Act 2008, the Secretary of State will consider those aspects by reference to both the National Networks NPS and the Airports NPS, as appropriate. To the extent that discrete aspects of the surface access proposals do not qualify as nationally significant and cannot be included in a development consent application as associated development (for example), the applicant will be expected to pursue or secure necessary consent(s) through the most appropriate alternative consenting regime. This might include, for example, the Town and Country Planning Act 1990, the Highways Act 1980, or the Transport and Works Act 1992, or a separate development consent application, promoted by a third party if need be.
- 4.8** The Secretary of State will consider any relevant nationally significant road and rail elements of the applicant's proposals in accordance with the National Networks NPS and with the Airports NPS. If there is conflict between the Airports NPS and other NPSs, the conflict should be resolved in favour of the NPS that has been most recently designated. The Airports NPS and the National Networks NPS may also be a material consideration in decision making on applications for road and rail schemes associated with or related to the preferred scheme that fall under the Town and Country Planning Act 1990, the Transport and Works Act 1992, or other legislation relating to planning. Whether, and to what extent, the Airports NPS and the National Networks NPS are a material consideration will be judged on a case by case basis by the relevant decision makers.
- 4.9** The Examining Authority should only recommend, and the Secretary of State will only impose, requirements in relation to a development consent, that are necessary, relevant to planning, relevant to the development to be consented, enforceable, precise, and reasonable in all other respects.¹⁰⁰ Guidance on the use of planning conditions or any successor to it should be taken into account where requirements are proposed.
- 4.10** Obligations under Section 106 of the Town and Country Planning Act 1990 should only be sought where they are necessary to make the development acceptable in planning terms, (including where necessary to ensure compliance with the Airports NPS), directly related to the proposed development, and fairly and reasonably related in scale and kind to the development.¹⁰¹

Scheme variation

- 4.11** While the Government has decided that a Northwest Runway at Heathrow Airport is its preferred scheme to deliver additional airport capacity (an illustrative masterplan is at Annex B of the Airports NPS), this does not limit variations resulting in the final scheme for which development consent is sought. To benefit from the full support of policy within the Airports NPS, any application(s) will have to fall within the boundaries and parameters set out in the Airports NPS. However, the form of a development for which an application is made is a matter for the applicant. The Airports NPS does not prejudice the viability or merits of any particular application, detailed scheme or applicant. It governs the location, limits and nature of such schemes. It will be for an Examining Authority, and ultimately the Secretary of State,

¹⁰⁰ National Planning Policy Framework, paragraph 206

¹⁰¹ Town and Country Planning Act 1990, Section 106; Regulation 122(2) Community Infrastructure Levy Regulations 2010; National Planning Policy Framework, paragraph 204

to determine whether any future application is compliant with the Airports NPS, meets the need for additional capacity, and is of benefit to the UK, whilst minimising any harm caused.

Environmental Impact Assessment

- 4.12** All proposals for projects that are subject to the European Union's Environmental Impact Assessment Directive,¹⁰² and are likely to have significant effects on the environment, must be accompanied by an environmental statement, describing the aspects of the environment likely to be significantly affected by the project.¹⁰³ The Directive specifically requires an Environmental Impact Assessment to identify, describe and assess effects on human beings, fauna and flora, soil, water, air, climate, the landscape, material assets and cultural heritage, and the interaction between them. Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 sets out the information that should be included in the environmental statement. This includes a description of the likely significant effects of the proposed project on the environment, covering the direct effects and any indirect, secondary, cumulative, short-, medium- and long-term, permanent and temporary, positive and negative effects of the project, and also the measures envisaged for avoiding or mitigating significant adverse effects.
- 4.13** When examining a proposal to which the Airports NPS applies, the Examining Authority should ensure that likely significant effects at all stages of the project have been adequately assessed. Any requests for environmental information not included in the original environmental statement should be proportionate and focus only on likely significant effects. In the Airports NPS, the terms 'effects', 'impacts' or 'benefits' should accordingly be understood to mean likely significant effects, impacts or benefits.
- 4.14** When considering significant cumulative effects, any environmental statement should provide information on how the effects of an applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been granted, as well as those already in existence if they are not part of the baseline).¹⁰⁴
- 4.15** The Examining Authority should consider how significant cumulative effects, and the interrelationship between effects, might as a whole affect the environment, even though they may be acceptable when considered on an individual basis or with mitigation measures in place.
- 4.16** In some instances it may not be possible at the time of the application for development consent for all aspects of the proposal to have been settled in precise detail. Where this is the case, the applicant should explain in its application which elements of the proposal have yet to be finalised, and the reasons why this is the case.

¹⁰² Directive 2014/52/EU of the European Parliament and of the Council amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. The amendments to Directive 2011/92/EU made by Directive 2014/52/EU have not yet been transposed into domestic legislation. They are required to be transposed by 16 May 2017. It is currently proposed to transpose the amendments by amending the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009. Once transposition has been effected, the requirements of the transposing legislation will need to be satisfied

¹⁰³ <http://www.legislation.gov.uk/uksi/2009/2263/contents/made>

¹⁰⁴ The applicant should refer to the Planning Inspectorate's advice on assessing cumulative effects <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf>

- 4.17** Effort should be made to refine the detail of the proposed development. However, where details are still to be finalised, the applicant is advised to set out in the environmental statement the relevant design parameters used for the assessment. The environmental statement should explain, with reference to the parameters, what the maximum extent of the proposed development may be (for example in terms of site area), and assess the potential adverse effects which the project could have, to ensure that the impacts of the project as it may be constructed have been properly assessed.
- 4.18** Should the Secretary of State decide to grant development consent for an application where details are still to be finalised, this will need to be reflected in appropriate development consent requirements in the development consent order. It may be the case that development consent is granted for a proposal and, at a later stage, the applicant wishes (for technical or commercial reasons) to construct it in such a way that it is outside the terms of what has been consented, for example because its extent will be greater than has been provided for in terms of the consent. In this situation, it will be necessary for the applicant to apply for a change to be made to the development consent provided under the Planning Act 2008.

Habitats Regulations Assessment

- 4.19** Prior to granting development consent, the Secretary of State as competent authority must have regard to the duties under the Conservation of Habitats and Species Regulations 2010.¹⁰⁵ Under these regulations, if the competent authority considers that the proposed development is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and is not connected with or necessary to the management of that site, it must make an Appropriate Assessment of the implications for the site in view of the site's conservation objectives.¹⁰⁶ ¹⁰⁷ The applicant should also refer to the Airports NPS sections on biodiversity, land use, and air quality. The applicant should seek the advice of Natural England to ensure that impacts on European sites are adequately considered.
- 4.20** The applicant is required to provide sufficient information with their applications for development consent to enable the Secretary of State to carry out an Appropriate Assessment if required. This information should include details of any measures that are proposed to minimise or avoid any likely significant effects on a European site. The information provided may also assist the Secretary of State in concluding that an Appropriate Assessment is not required because significant effects on European sites are sufficiently unlikely that they can be excluded. If it is concluded there is likely to be a significant effect, or such effects cannot be ruled out (alone or in combination), an Appropriate Assessment is required.
- 4.21** If an Appropriate Assessment for a proposed airport development concludes that it is not possible to rule out an adverse effect on the integrity of a European site, it is possible to apply for derogation from the requirements of the Habitats Directive, subject to the proposal meeting three tests. These tests are that no feasible, less

¹⁰⁵ <http://www.legislation.gov.uk/ukxi/2010/490/regulation/41/made>

¹⁰⁶ This includes candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas, and is defined in Regulation 8 of the Conservation of Habitats and Species Regulations 2010

¹⁰⁷ Directive 2011/92/EU was amended in 2014 by Directive 2014/52/EU. As amended, Article 2(3) of the Directive provides that, where an obligation to assess environmental effects arises simultaneously from the EIA Directive and the Habitats Directive (Directive 92/43/EU) and/or the Wild Birds Directive (Directive 2009/147/EC), Member States "shall, where appropriate, ensure that coordinated and/or joint procedures" are provided for

damaging alternatives should exist, that there are imperative reasons of overriding public interest for the proposal going ahead, and that adequate and timely compensation measures will be put in place to ensure the overall coherence of the network of protected sites is maintained.

- 4.22** Where a development may negatively affect any priority natural habitat or species¹⁰⁸ on a site for which they are a protected feature, any imperative reasons of overriding public interest case would need to be established solely on one or more of the grounds relating to human health, public safety or beneficial consequences of primary importance to the environment.

Equalities

- 4.23** The Airports Commission's stated objective on equalities was "to reduce or avoid disproportionate impacts on any social group".¹⁰⁹ At consultation stage, the Airports Commission carried out a high level equality impact assessment.
- 4.24** The Appraisal of Sustainability to the Airports NPS sets out an assessment of equalities impacts, informed by the work of the Airports Commission. The Airports Commission was clear that its assessment was based upon current scheme design, and that a more detailed equalities impact assessment would likely be necessary as design, supporting measures and operational plans were developed.
- 4.25** The Airports Commission's assessment identified different types of equalities impacts for each of its shortlisted schemes, but no substantial difference in the overall extent of equalities impacts. The Airports Commission's assessment, and the assessment carried out for the Appraisal of Sustainability that informs the Airports NPS, both concluded that negative equalities impacts could be well mitigated through good design and operation, and supporting measures and plans.
- 4.26** The Department for Transport has reviewed the Airports Commission's work, informed by the equality impact assessment carried out as part of the Appraisal of Sustainability. The Government is satisfied that the scope of the Airports Commission's work was appropriate at this stage of scheme development, that the Airports Commission's approach was consistent with the Equality Act 2010, and that its conclusion is consistent with the evidence produced.
- 4.27** For any application to be considered compliant with the Airports NPS, it must be accompanied by a project level equalities impact assessment examining the potential impact of that project on groups of people with protected characteristics. In order to benefit from the support of the Airports NPS, the results of that project level equalities impact assessment must be within the legal limits and parameters of acceptability outlined in the Appraisal of Sustainability that informs the Airports NPS.

¹⁰⁸ As listed in Annex I and II of the Habitats Directive

¹⁰⁹ *Airports Commission: Appraisal Framework*, p98

Alternative requirements

4.28 The applicant should comply with all legal requirements and any policy requirements set out in the Airports NPS on the assessment of alternatives. In particular:

- The Environmental Impact Assessment Directive requires projects with significant environmental effects to include a description of the reasonable alternatives studied by the applicant which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the significant effects of the project on the environmental effects;
- There may also be other specific legal requirements for the consideration of alternatives, for example, under the Habitats and Water Framework Directives; and
- There may also be policy requirements in the Airports NPS, for example the flood risk sequential test.

Criteria for 'good design' for airports infrastructure

4.29 The applicant should include design as an integral consideration from the outset of a proposal.

4.30 Visual appearance should be an important factor in considering the scheme design, as well as functionality, fitness for purpose, sustainability and cost. Applying 'good design' to airports projects should therefore produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction, and matched by an appearance that demonstrates good aesthetics as far as possible.

4.31 A good design should meet the principal objectives of the scheme by eliminating or substantially mitigating the identified problems by improving operational conditions and simultaneously minimising adverse impacts. It should also mitigate any existing adverse impacts wherever possible, for example in relation to safety or the environment. A good design will also be one that sustains the improvements to operational efficiency for as many years as is practicable, taking into account capital cost, economics and environmental impacts.

4.32 Scheme design will be an important and relevant consideration in decision making. The Secretary of State will need to be satisfied that projects are sustainable and as aesthetically sensitive, durable, adaptable and resilient as they can reasonably be, having regard to regulatory and other constraints and including accounting for natural hazards such as flooding.

4.33 The scheme should take into account, as far as possible, both functionality, including fitness for purpose and sustainability, and aesthetics, including the scheme's contribution to the quality of the area in which it would be located. The applicant will want to consider the role of technology in delivering new airports projects. Professional, independent advice on the design aspects of a proposal should be undertaken to ensure good design principles are embedded into infrastructure proposals.

- 4.34** There may be opportunities for the applicant to demonstrate good design in terms of siting and design measures relative to existing landscape and historical character and function, landscape permeability, landform, and vegetation.
- 4.35** The applicant should be able to demonstrate in its application how the design process was conducted and how the proposed design evolved. Where a number of different designs were considered, the applicant should set out the reasons why the favoured choice has been selected. The Examining Authority and Secretary of State will take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security requirements which the design has to satisfy.

Costs

- 4.36** The applicant should demonstrate in its application that its scheme is cost-efficient and sustainable, and seeks to minimise costs to airlines, passengers and freight owners over its lifetime.

Climate change adaptation

- 4.37** The Planning Act 2008 requires the Secretary of State to have regard to the desirability of mitigating, and adapting to, climate change in designating an NPS.¹¹⁰
- 4.38** This section sets out how the Airports NPS puts Government policy on climate change adaptation into practice, and in particular how the applicant and the Secretary of State will take into account the effects of climate change when developing and considering airports infrastructure applications. Climate change mitigation is essential to minimise the most dangerous impacts of climate change, as previous global greenhouse gas emissions will already mean some degree of continued climate change for at least the next 30 years. Climate change is likely to mean that the UK will experience on average hotter, drier summers and warmer, wetter winters. There is potentially an increased risk of flooding, drought, heatwaves, intense rainfall events and other extreme events such as storms and wildfires, as well as rising sea levels.
- 4.39** Adaptation is therefore necessary to deal with the potential impacts of these changes that are already happening. New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the provision of green infrastructure.
- 4.40** The Government has published a set of UK Climate Projections, and every five years prepares a statutory UK Climate Change Risk Assessment and National Adaptation Programme.¹¹¹ In addition, the Climate Change Act 2008 adaptation reporting power has been used by Government to invite reporting authorities (a defined list of public bodies and statutory undertakers, including airports) to consider the impact on them of current and predicted climate change, and to report on progress implementing adaptation actions.¹¹² Successive strategies for adaptation reporting will be laid alongside five yearly updates to the National Adaptation Programme.

¹¹⁰ Planning Act 2008, Section 10(3)(a)

¹¹¹ Climate Change Act, Section 58

¹¹² Climate Change Act, Section 62

- 4.41** New airports infrastructure will typically be a long-term investment which will need to remain operational over many decades, in the face of a changing climate. Consequently, the applicant must consider the impacts of climate change when planning design, build and operation. Any accompanying environmental statement should set out how the proposal will take account of the projected impacts of climate change.
- 4.42** Detailed consideration must be given to the range of potential impacts of climate change using the latest UK Climate Projections available at the time, and to ensuring any environmental statement that is prepared identifies appropriate mitigation or adaptation measures. This should cover the estimated lifetime of the new infrastructure. Should a new set of UK Climate Projections become available after the preparation of any environmental statement, the Examining Authority should consider whether it needs to request additional information from the applicant.
- 4.43** Where transport infrastructure has safety-critical elements, and the design life of the asset is 60 years or greater, the applicant should apply the UK Climate Projections 2009 high emissions scenario (high impact, low likelihood) against the 2080 projections at the 50% probability level.
- 4.44** The applicant should demonstrate that there are no critical features of infrastructure design which may be seriously affected by more radical changes to the climate beyond those projected in the latest set of UK Climate Projections. Any potential critical features should be assessed, taking account of the latest credible scientific evidence on, for example, sea level rise, and on the basis that necessary action can be taken to ensure the operation of the infrastructure over its estimated lifetime through potential further mitigation or adaptation.
- 4.45** Any adaptation measures should be based on the latest set of UK Climate Projections,¹¹³ the most recent UK Climate Change Risk Assessment,¹¹⁴ consultation with statutory consultation bodies, and any other appropriate climate projection data. Any adaptation measures must themselves also be assessed as part of any Environmental Impact Assessment and included in the environmental statement, which should set out how and where such measures are proposed to be secured.
- 4.46** If any proposed adaptation measures themselves give rise to consequential impacts, the Secretary of State will consider the impact in relation to the application as a whole and the assessment principles set out in the Airports NPS.
- 4.47** Adaptation measures can be required to be implemented at the time of construction where necessary and appropriate to do so.
- 4.48** Where adaptation measures are necessary to deal with the impact of climate change, and that measure would have an adverse effect on other aspects of the project or the surrounding environment, the Secretary of State may consider requiring the applicant to ensure that the adaptation measure could be implemented should the need arise, rather than at the outset of the development.

¹¹³ <http://ukclimateprojections.metoffice.gov.uk/>

¹¹⁴ <https://www.gov.uk/government/publications/uk-climate-change-risk-assessment-government-report>

Pollution control and other environmental protection regimes

- 4.49** Issues relating to discharges or emissions from a proposed project which affect air quality, water quality, land quality or the marine environment, or which include noise, may be subject to separate regulation under the pollution control framework or other consenting and licensing regimes. Relevant permissions will need to be obtained for any activities within the development that are regulated under those regimes before the activities can be operated.
- 4.50** In deciding an application, the Secretary of State should focus on whether the development is an acceptable use of the land, and on the impacts of that use, rather than the control of processes, emissions or discharges themselves. The Secretary of State should assess the potential impacts of processes, emissions or discharges to inform decision making, but should work on the assumption that, in terms of the control and enforcement, the relevant pollution control regime will be properly applied and enforced. Decisions under the Planning Act 2008 should complement but not duplicate those taken under the relevant pollution control regime.
- 4.51** These considerations apply in an analogous way to other environmental regulatory regimes, including those on land drainage, flood defence, and biodiversity.
- 4.52** When an applicant applies for an environmental permit, the relevant regulator (in this case the Environment Agency) requires that the application demonstrates that processes are in place to meet all relevant environmental permit requirements. In examining the impacts of the project, the Examining Authority may wish to seek the views of the regulator on the scope of the permit or consent and any management plans (such as any produced for noise) that would be included in an environmental permit application.
- 4.53** The applicant should begin pre-application discussions with the Environment Agency as early as possible. It is expected, however, that an applicant will have first considered the requirements as a starting point for discussion. Some consents require a significant amount of preparation: as an example, the Environment Agency strongly recommends the applicant should start work towards submitting the permit application at least six months prior to the submission of a development consent order application, where it wishes to parallel track the applications. This will help ensure that applications take account of all relevant environmental considerations and that the relevant regulators are able to provide timely advice and assurance to the Examining Authority and the Secretary of State.
- 4.54** The Secretary of State will be satisfied that development consent can be granted taking full account of environmental impacts. This will require close cooperation with the Environment Agency, the local planning authority and pollution control authority, and other relevant bodies, such as Natural England, Drainage Boards, and water and sewerage undertakers, to ensure that, in the case of potentially polluting developments:
- The relevant pollution control authority is satisfied that potential releases can be adequately regulated under the pollution control framework; and
 - The effects of existing sources of pollution in and around the project are not such that the cumulative effects of pollution when the proposed development is added would make that development unacceptable, particularly in relation to statutory environmental quality limits.

- 4.55** The Secretary of State should not refuse consent on the basis of regulated impacts unless there is good reason to believe that any relevant necessary operational pollution control permits or licences or other consents will not subsequently be granted.

Common law nuisance and statutory nuisance

- 4.56** Section 158 of the Planning Act 2008 provides a defence of statutory authority in civil or criminal proceedings for nuisance. Such a defence is also available in respect of anything else authorised by an order granting development consent. The defence does not extinguish the local authority's duties under Part III of the Environmental Protection Act 1990 to inspect its area and take reasonable steps to investigate complaints of statutory nuisance and to serve an abatement notice where satisfied of its existence, likely occurrence or recurrence.
- 4.57** During the examination of an application for development consent for infrastructure covered under the Airports NPS, possible sources of nuisance under Section 79(1) of the Environmental Protection Act 1990 and under sections 76 and 77 of the Civil Aviation Act 1982 should be considered by the Examining Authority. The Examining Authority should also consider how those sources of nuisance might be mitigated or limited so they can recommend appropriate requirements that the Secretary of State might include in any subsequent order granting development consent.
- 4.58** The defence of statutory authority is subject to any contrary provision made by the Secretary of State in any particular case by an order granting development consent.¹¹⁵

Security considerations

- 4.59** National security considerations apply across all national infrastructure sectors. The Department for Transport acts as the sector sponsor department for the aviation sector, and in this capacity has lead responsibility for security matters and for directing the security approach to be taken, working with the Civil Aviation Authority. The Department for Transport works closely with Government agencies, including the Centre for the Protection of National Infrastructure, to reduce the vulnerability of the aviation sector to terrorism and other national security threats.
- 4.60** Government policy is to ensure that, where possible, proportionate protective security measures are designed into new infrastructure projects at an early stage in the project development. The nature of the aviation sector as a target for terrorism means that security considerations will likely apply in the case of the infrastructure project for which development consent may be sought under the Airports NPS.
- 4.61** Where national security implications have been identified, the applicant should consult with relevant security experts from the Centre for the Protection of National Infrastructure and the Department for Transport to ensure that physical, procedural and personnel security measures have been adequately considered in the design process, and that adequate consideration has been given to the management of security risks. If the Centre for the Protection of National Infrastructure is satisfied that security issues have been adequately addressed in the project when the application is submitted, it will provide confirmation of this to the Secretary of State,

¹¹⁵ Planning Act 2008, Section 158(3)

and the Examining Authority should not need to give any further consideration to the details of the security measures during the examination.

- 4.62** The applicant should only include such security-related information in the application as is necessary to enable the Examining Authority to examine the development consent issues and make a properly informed recommendation on the application.
- 4.63** In exceptional cases where examination of an application would involve public disclosure of information about defence or national security which would not be in the national interest, the Secretary of State can intervene and may appoint an examiner to consider evidence in closed session.
- 4.64** Air transport is one of the safest forms of travel, and the UK is a world leader in aviation safety. Maintaining and improving that record, while ensuring that regulation is proportionate and cost-effective, remains of primary importance to the UK. Since 2003, rules and standards for aviation safety in Europe have increasingly been set by the European Aviation Safety Agency. The UK will continue to work closely with European Aviation Safety Agency to ensure that a high and uniform level of civil aviation safety is maintained across Europe. The preferred scheme at Heathrow must comply with the UK's civil aviation safety regime, regulated by the Civil Aviation Authority.
- 4.65** There remains a considerable threat to aviation security from terrorism. The UK meets this threat with a multi-layered aviation security regime built on intelligence, effective risk management and robust, proportionate measures, brought together under the National Aviation Security Programme. The regulations governing aviation security in the UK have their basis in UK and European law, and are enforced by the Civil Aviation Authority on behalf of the Secretary of State. The design and operation of the Heathrow Northwest Runway scheme, to which the Airports NPS relates, must comply with aviation security regulations and guidance in the same way as existing airports. There may also be other security considerations linked to any application for development consent under the Airports NPS.

Health

- 4.66** The construction and use of airports infrastructure has the potential to affect people's health, wellbeing and quality of life. Infrastructure can have direct impacts on health because of traffic, noise, vibration, air quality and emissions, light pollution, community severance, dust, odour, polluting water, hazardous waste and pests.
- 4.67** New or enhanced airports infrastructure may also have indirect health impacts, for example if they affect access to key public services, local transport, opportunities for cycling and walking, or the use of open space for recreation and physical activity. It should also be noted, however, that the increased employment stemming from airport expansion may have indirect positive health impacts.
- 4.68** As described elsewhere in the Airports NPS, where the proposed project has likely significant environmental impacts that would have an effect on human beings, any environmental statement should identify and set out the assessment of any likely significant health impacts.

4.69 The applicant should identify measures to avoid, reduce or compensate for adverse health impacts as appropriate. These impacts may affect people simultaneously, so the applicant, the Examining Authority and the Secretary of State (in determining an application for development consent) should consider the cumulative impact on health.

Accessibility

4.70 The Government is committed to creating a more accessible and inclusive transport network that provides a range of opportunities and choices for all people to connect with jobs, services and leisure opportunities. This commitment extends to all the users of new airports infrastructure, and to the associated surface access facilities.

4.71 In 2008, the Department for Transport published *Access to Air Travel for Disabled Persons and Persons with Reduced Mobility – Code of Practice*,¹¹⁶ which sets out the legal framework and gives advice and information. Since then, the Equality Act 2010 has updated and extended the legal framework for accessibility.¹¹⁷

4.72 In accordance with legal and best practice requirements on accessibility:

- The Government requires the applicant to include clear details of how plans will improve access on and around the airport by designing and delivering schemes (both new construction and upgrade or refurbishment) that address the accessibility needs of all those who use, or are affected by, surface access infrastructure, including those with physical and/or mental impairments as well as older users. Every opportunity to deliver improvements in accessibility on and to the existing national road network should also be taken;
- The Government will continue to work to ensure that all bus and train fleets comply with legal access standards by 2020, and to improve rail station access for those with impairments in accordance with legislation and best practice; and
- The car will continue to play an important role, providing disabled people with independence where other forms of transport are not accessible or available. Easy access and car parking provision at the airports is essential to this goal and must meet standards set down in guidance (such as the Department for Transport's *Inclusive Mobility*).¹¹⁸

¹¹⁶ <http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/transportforyou/access/aviationshipping/accesstoairtravelfordisabled.pdf>

¹¹⁷ <http://www.legislation.gov.uk/ukpga/2010/15/contents>

¹¹⁸ <https://www.gov.uk/government/publications/inclusive-mobility>

5. Specific impacts and requirements

Introduction

- 5.1** This chapter focuses on the potential impacts of the Heathrow Northwest Runway scheme, the assessments that the applicant will need to carry out, and the specific planning requirements that the applicant will need to meet, in order to gain development consent.
- 5.2** In its Final Report, the Airports Commission recommended that “to make expansion possible...a comprehensive package of accompanying measures [should be recommended to] make the airport’s expansion more acceptable to its local community, and to Londoners generally”.¹¹⁹
- 5.3** When the Government stated in December 2015 that it agreed with the Airports Commission that one additional runway was required in the South East of England by 2030, it also emphasised the importance of securing the best possible deal for communities affected by the preferred scheme to increase airport capacity. The Government undertook further work, including through engagement with all three shortlisted scheme promoters, during 2016 to develop a package of location-specific measures to mitigate the impacts of increased capacity, and to enhance beneficial effects.
- 5.4** The Government announced on 25 October 2016 that its preferred scheme to deliver additional airport capacity in the South East of England was a Northwest Runway at Heathrow Airport. Alongside this, it set out a number of supporting measures that any application for development consent will be required to demonstrate and secure in order to mitigate the impacts of expansion on the environment and affected communities.

Surface access

Introduction

- 5.5** The Government’s objective for surface access is to ensure that access to the airport by road, rail and public transport is high quality, efficient and reliable for both passengers and airport workers who use transport on a daily basis. The Government also wishes to see the number of journeys made to airports by sustainable modes of transport maximised as much as possible. This should be delivered in a way that minimises congestion and environmental impacts, for example on air quality.
- 5.6** A Northwest Runway at Heathrow Airport will have a range of impacts on local and national transport networks serving the airport, during both the construction and operational phases. Passengers and airport workers share the routes to and from the airport with other road and rail users, including commuters, leisure travellers and business users. Without effective mitigation, expansion is likely to increase congestion on existing routes and have environmental impacts such as increased noise and emissions.

¹¹⁹ *Airports Commission: Final Report*, p4

- 5.7** It is important that improvements are made to Heathrow Airport's transport links to be able to support the increased numbers of people who will need to access the expanded airport, should development consent be granted.

Applicant's assessment

- 5.8** The applicant must prepare an airport surface access strategy in conjunction with its Airport Transport Forum, in accordance with the guidance contained in the Aviation Policy Framework.¹²⁰ The airport surface access strategy must reflect the needs of the scheme contained in the application for development consent, over its development, implementation and operational phases. The strategy should reference the role of surface transport in relation to air quality and carbon. The airport surface access strategy must contain specific targets for maximising the proportion of journeys made to the airport by public transport, cycling or walking. The strategy should also contain actions, policies and defined performance indicators for delivering against targets, and should include a mechanism whereby the Airport Transport Forum can oversee implementation of the strategy and monitor progress against targets alongside the implementation and operation of the preferred scheme.
- 5.9** The applicant should assess the implications of airport expansion on surface access network capacity using the WebTAG methodology stipulated in the Department for Transport guidance,¹²¹ or any successor to such methodology. The applicant should consult Highways England, Network Rail and highway and transport authorities, as appropriate, on the assessment and proposed mitigation measures. The assessment should distinguish between the construction and operational project stages for the development comprised in the application.
- 5.10** The applicant should also consult with Highways England, Network Rail and relevant highway and transport authorities, and transport operators, to understand the target completion dates of any third party or external schemes included in existing rail, road or other transport investment plans. It will need to assess the effects of the preferred scheme as influenced by such schemes and plans. Such consultation and assessment, both of third party schemes on which the preferred scheme depends, and others which interact with it, all of which may be subject to their own planning, funding and approval processes, must be understood in terms of implications of the timings for the applicant's own surface access proposals.
- 5.11** The applicant will need to demonstrate that Highways England, Network Rail and relevant highway and transport authorities and transport providers have been consulted, and are content with the deliverability of any new transport schemes or other changes required to existing links to allow expansion within the timescales required for the preferred scheme as a whole. This includes changes to the M25 to allow a new runway to cross the motorway, local road diversions, and improvements including the diversion of the A4 and A3044, and on-airport station works and safeguarding.
- 5.12** For schemes and related surface access proposals or other works impacting on the strategic road network, the applicant should have regard to DfT Circular 02/2013, *The Strategic Road Network and the delivery of sustainable development*¹²² (or

¹²⁰ <https://www.gov.uk/government/publications/aviation-policy-framework>, paragraphs 4.20-4.21

¹²¹ <https://www.gov.uk/guidance/transport-analysis-guidance-webtag>

¹²² <https://www.gov.uk/government/publications/strategic-road-network-and-the-delivery-of-sustainable-development>

prevailing policy), and the National Networks NPS. This sets out the way in which the highway authority for the strategic road network will engage with communities and the development industry to deliver sustainable development and economic growth, whilst safeguarding the primary function and purpose of the network.

- 5.13** The surface access systems and proposed airport infrastructure may have the potential to result in severance in some locations. Where appropriate, the applicant should seek to deliver improvements that reduce community severance and improve accessibility.

Mitigation

- 5.14** In its application, the applicant should set out the mitigation measures that it considers are required to minimise and mitigate the effect of expansion on existing surface access arrangements.
- 5.15** The applicant should demonstrate in its assessment that the proposed surface access strategy will support the additional transport requirements generated by airport expansion. This should be appropriately secured.
- 5.16** Any application for development consent and accompanying airport surface access strategy must include details of how the applicant will maximise the proportion of journeys made to the airport by public transport, cycling and walking to achieve a public transport mode share of at least 50% by 2030, and at least 55% by 2040 for passengers. The applicant should also include details of how it will achieve a 25% reduction from the current baseline of all staff car trips by 2030, and a reduction of 50% by 2040 from 2017 levels.¹²³
- 5.17** The applicant should commit to annual public reporting on performance against these specific targets. The airport surface access strategy should consider measures and incentives which could help to manage demand by car users travelling to and from the airport, as well as physical infrastructure interventions, having at all times due regard to the effect of its strategy on the surrounding area and transport networks. These measures could be used to help achieve mode share targets and should be considered in conjunction with measures to mitigate air quality impacts as described in the Airports NPS.
- 5.18** The Government expects the applicant to secure the upgrading or enhancing of road, rail or other transport networks or services which are physically needed to be completed to enable the Northwest Runway to operate. This includes works to the M25, local road diversions and improvements including the diversion of the A4 and A3044, and on-airport station works and safeguarding. Where a surface transport scheme is not solely required to deliver airport capacity and has a wider range of beneficiaries, the Government, along with relevant stakeholders, will consider the need for a public funding contribution alongside an appropriate contribution from the airport on a case by case basis.
- 5.19** The Government recognises that there may be some works which may not be required at the time the additional runway opens, but will be needed as the additional capacity becomes fully utilised. The same principle applies that, where a transport scheme is not solely required to deliver airport capacity, the Government,

¹²³ These mode share targets are derived from *Heathrow Airport Ltd. Statement of Principles*, part 5, paragraph 1.6 <https://www.gov.uk/government/publications/heathrow-airport-limited-statement-of-principles>

along with relevant stakeholders, will consider the need for a public funding contribution alongside an appropriate contribution from the airport on a case by case basis.

Decision making

- 5.20** The applicant's surface access proposals will give rise to impacts on the existing and surrounding transport infrastructure. The Secretary of State will consider whether the applicant has taken all reasonable steps to mitigate these impacts. Where the proposed mitigation measures are insufficient to effectively offset or reduce the impact of expansion on the transport network, the Secretary of State will impose requirements on the applicant to accept requirements and / or obligations to fund infrastructure or implement other measures to mitigate the adverse impacts.
- 5.21** Provided the applicant is willing to commit to transport planning obligations to satisfactorily mitigate transport impacts identified in the transport assessment (including environment and social impacts), with costs being considered in accordance with the Department for Transport's policy on the funding of surface access schemes, development consent should not be withheld on surface access grounds.

Air quality

Introduction

- 5.22** Increases in emissions of pollutants during the construction or operational phases of airport projects consented under the Airports NPS could result in the worsening of local air quality. Increased emissions can contribute to adverse impacts on human health and on the natural environment.
- 5.23** The European Union has established common, health-based and ecosystem based ambient concentration limit values for the main pollutants in the Ambient Air Quality Directive (2008/50/EU) ('the Air Quality Directive'),¹²⁴ which member states are required to meet by specified dates.
- 5.24** Where compliance by those dates has not been achieved, the member state is required to put in place an action plan showing how the period of exceedance in each non-compliant area will be kept as short as possible. In December 2015, the UK submitted its national air quality plan for nitrogen dioxide, including a zonal plan for Greater London and the South East, for the approval of the European Commission.¹²⁵
- 5.25** In November 2016 the High Court ordered the Government to produce a modified air quality plan that delivers compliance in the shortest possible time. The Government will publish and notify to the European Commission a final, modified air quality plan by 31 July 2017. The 2015 national air quality plan will remain in force until the modified plan is adopted.
- 5.26** Other relevant legislation includes the fourth daughter Air Quality Directive (2004/107/EC),¹²⁶ which sets targets for levels in outdoor air of certain toxic heavy metals and polycyclic aromatic hydrocarbons, and the National Emission Ceilings

¹²⁴ The Ambient Air Quality Directive (2008/50/EU) was brought into law in England through the Air Quality Standards Regulations 2010

¹²⁵ <https://www.gov.uk/government/publications/air-quality-in-the-uk-plan-to-reduce-nitrogen-dioxide-emissions>

¹²⁶ Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air. This was brought into law in England through the Air Quality Standards Regulations 2010

Directive (2001/81/EC),¹²⁷ which sets national emission limits for a range of atmospheric pollutants.

- 5.27** Air quality impacts are generated by all types of infrastructure development to varying degrees, and the geographical extent and distribution can cover a large area. At Heathrow Airport in 2013, aircraft movements were modelled to have contributed 14.3% on average to local levels of NO_x on nearby areas. Road transport, by comparison, accounted for 50.8% of NO_x emissions in the same areas. Off-road transport and mobile machinery (a category which would include airside vehicles) contributed 5.2%.
- 5.28** The Airports Commission identified (and in some cases quantified the impact of) a number of measures that would help mitigate any negative impacts on air quality.¹²⁸ In addition, for the Heathrow Northwest Runway scheme, the Airports Commission recommended the following supporting measures:
- That Heathrow Airport should be held to performance targets to increase the percentage of employees and passengers accessing the airport by public transport; and
 - That the introduction of a congestion or access charge for road vehicles should be considered.
- 5.29** The Airports Commission undertook extensive analysis on air quality and concluded that expansion could take place within legal requirements (including in a high demand growth scenario). The Department for Transport conducted a study of the implications of the Government's 2015 national air quality plan on the conclusions of the Airports Commission's air quality assessment.¹²⁹
- 5.30** Since this work was completed in June 2016, updated international evidence on vehicle emission forecasts was published at the end of September 2016. The Department for Transport has conducted further analysis to assess the impact that this updated evidence base would have on compliance with EU limit values of expansion options at Heathrow Airport and Gatwick Airport. The work has helped inform the Government's view that, with a suitable package of policy and mitigation measures, including the Government's modified air quality plan, the Heathrow Northwest Runway scheme would be capable of being delivered without impacting the UK's compliance with air quality limit values.

Applicant's assessment

- 5.31** The applicant should undertake an assessment of the project, to be included as part of the environmental statement, demonstrating to the Secretary of State that the construction and operation of the Northwest Runway will not affect the UK's ability to comply with legal requirements. Failure to demonstrate this will result in refusal of development consent.

¹²⁷ The National Emission Ceilings Directive (2001/81/EC) was transposed into UK law through the National Emission Ceilings Regulations 2002

¹²⁸ <https://www.gov.uk/government/consultations/airports-commission-air-quality-assessment>

¹²⁹ <https://www.gov.uk/government/publications/airport-expansion-further-analysis-of-air-quality-data>

5.32 The environmental statement should assess:

- Existing air quality levels for all relevant pollutants referred to in the Air Quality Standards Regulations 2010 and the National Emission Ceilings Regulations 2002;
- Forecasts of air quality at the time of opening, (a) assuming that the scheme is not built (the ‘future baseline’), and (b) taking account of the impact of the scheme, including when at full capacity; and
- Any significant air quality effects, their mitigation and any residual effects, distinguishing between those applicable to runway construction and operation stages and taking account of the impact that the project is likely to cause on air quality arising from road and other surface access traffic.

5.33 Defra publishes future national projections of air quality based on evidence of future emissions. Projections may be updated as the evidence base changes. The applicant’s assessment should, in so far as practicable, be based on the latest available projections.

Mitigation

5.34 The Secretary of State will need to be satisfied that the mitigation measures put forward by the applicant are acceptable, including at the construction stage. A management / project plan may help record and secure mitigation at this stage.

5.35 Mitigation measures may affect the project design, layout, construction and operation, and / or may comprise measures to improve air quality in pollution hotspots beyond the immediate locality of the scheme.

5.36 While the precise package of mitigations should be subject to consultation with local communities to ensure the most effective measures are taken forward, an extensive range of mitigation measures is likely to be required.

5.37 In addition, Heathrow Airport should continue to strive to meet its public pledge to have landside airport-related traffic no greater than today. To achieve this, it should set out and regularly review its plans to meet the mode share targets set at paragraph 5.16 above. Heathrow Airport should also develop and keep under review plans to improve the impact of road freight serving the airport.

5.38 Other mitigation measures could include, but are not limited to:

- Landing charges structured to reward airlines for operating cleaner flights (for example NO_x emissions charging);
- Zero- or low-emission hybrid or electric vehicle use (ultra-low emission vehicles), charging and fuel facilities;
- Reduced or single engine taxiing (improved taxiing efficiency);
- Reducing emissions from aircraft at the gate (for example installation of fixed electrical ground power and preconditioned air to aircraft stands to reduce the use of auxiliary power unit);
- Modernised heating supplies in airport buildings;
- Changes to the layout of surface access arrangements;
- Traffic restrictions and / or traffic relocation around sensitive areas; and
- Physical means, including barriers to trap or better disperse emissions and speed control on roads.

5.39 Mitigation measures at the construction stage should also be provided and draw on best practice from other major construction schemes, including during the procurement of contractors. Specific measures could include but are not limited to:

- Development of a construction traffic management plan (which may include the possible use of rail and consolidation sites or waterways);
- The use of low emission construction plant / fleet, fitting of diesel particulate filters, and use of cleaner engines;
- The use of freight consolidation sites;
- Active workforce management / a worker transport scheme;
- Construction site connection to grid electricity to avoid use of mobile generation; and
- Selection of construction material to minimise distance of transport and increase recycling percentages of the material where appropriate.

5.40 The implementation of mitigation measures may require working with partners to support their delivery.

Decision making

5.41 The Secretary of State will consider air quality impacts over the wider area likely to be affected, as well as in the vicinity of the scheme. In order to grant development consent, the Secretary of State will need to be satisfied that, with mitigation, the scheme would be compliant with legal requirements.

5.42 Air quality considerations are likely to be particularly relevant where the scheme is proposed:

- Within or adjacent to Air Quality Management Areas,¹³⁰ roads identified as being above limit values, or nature conservation sites (including Natura 2000 sites and Sites of Special Scientific Interest);
- Where changes are sufficient to bring about the need for new Air Quality Management Areas or change the size of an existing Air Quality Management Area, or bring about changes to exceedances of the limit values, or where they may have the potential to impact on nature conservation sites; and
- Where, after taking into account mitigation, a project would lead to a significant air quality impact in relation to Environmental Impact Assessment and / or where they lead to a deterioration in air quality in a zone or agglomeration.

Noise

Introduction

5.43 The impact of noise from airport expansion is a key concern for communities affected, and the Government takes this issue very seriously. High exposure to noise is an annoyance, can disturb sleep, and can also affect people's health. Aircraft operations are by far the largest source of noise emissions from an airport, although noise will also be generated from ground operations and surface transport, and during the construction phase of a scheme.

5.44 Aircraft noise is not only determined by the number of aircraft overhead, but also by engine technologies and airframe design, the paths the aircraft take when

¹³⁰ <https://uk-air.defra.gov.uk/aqma/>

approaching and departing from the airport, and the way in which the aircraft are flown.

- 5.45** Over recent decades, there have been reductions in aviation noise due to technological and operational improvements, and this trend is expected to continue.¹³¹ New technology is already making aircraft quieter. Newer generation aircraft coming into service have a noise footprint typically 50% smaller on departure than the ones they are replacing, and at least 30% smaller on arrival. In addition, further opportunities for noise reductions are expected in the next decade as part of the UK airspace modernisation programme. One of the key aims of this programme is to “reduce the overall level of noise disturbance by ensuring that fewer aircraft overfly centres of population and airborne holding is at higher altitudes”.¹³² However, evidence has shown that people’s sensitivity to noise has increased in recent years,¹³³ and there has been growing evidence that exposure to high levels of aircraft noise can adversely affect people’s health. Expansion will lead to a rise in the number of flights in the local area compared to a no expansion scenario.
- 5.46** The Government wants to strike a fair balance between the negative impacts of noise (on health, amenity, quality of life and productivity) and the positive economic impacts of flights. There is no European or national legislation which sets legally binding limits on aviation noise emissions. Major airports are, however, under a legal obligation¹³⁴ to develop strategic noise maps and produce Noise Action Plans based on those maps, on a five yearly basis. They are also required to review and, if necessary, revise action plans when a major development occurs affecting the existing noise situation. In addition, the Government already expects the noise-designated airports (Heathrow, Gatwick and Stansted) to produce noise exposure maps on an annual basis.
- 5.47** The International Civil Aviation Organisation introduced the concept of a ‘Balanced Approach’ to noise management (resolution A33/7). This is given legal effect in the UK through EU Regulation 598/2014.¹³⁵
- 5.48** The Airports Commission undertook a thorough assessment of the noise impacts of the proposed development. The Airports Commission used a “noise scorecard” to assess the noise impacts of the scheme in 2030, 2040 and 2050.¹³⁶ The noise scorecard included both conventional metrics, which assess noise levels over a period of time (daytime, night time and 24-hour), and more innovative metrics that assess the number of times a location is overflowed by aircraft whose noise impacts exceed a specified level.
- 5.49** The Airports Commission’s assessment was based on ‘indicative’ flight path designs, which the Government considers to be a reasonable approach at this stage in the process. Precise flight path designs can only be defined at a later stage

¹³¹ *The Sustainable Aviation Noise Roadmap, A Blueprint for Managing Noise from Aviation Sources to 2050*: <http://www.sustainableaviation.co.uk/road-maps/>

¹³² <https://www.caa.co.uk/Commercial-industry/Airspace/Future-airspace-strategy/Future-airspace-strategy/>

¹³³ CAP 1164, *Aircraft noise, sleep disturbance and health effects*: <http://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=6275>

¹³⁴ The EU Environmental Noise Directive 2002/49 which is implemented in England by the Environmental Noise (England) Regulations 2006 (S.I. 2006/2238 as amended)

¹³⁵ Regulation (EU) No 598/2014 of the European Parliament and of the Council on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive 2002/30/EC

¹³⁶ <https://www.gov.uk/government/publications/aviation-noise-discussion-paper>

after detailed airspace design work has taken place. This work will need to consider the various options available to ensure a safe and efficient airspace which also mitigates the level of noise disturbance. Once the design work has been completed, the airspace proposal will be subject to extensive consultation as part of the separate airspace decision making process established by the Civil Aviation Authority.

5.50 The Airports Commission concluded that “expansion at Heathrow must be taken forward with a firm guarantee that the airport and its airlines will be held to the very highest standards of noise performance”. In addition, the Airports Commission stated that “the airport should not be allowed to expand without appropriate conditions being put in place in respect of its noise impacts”.¹³⁷

Applicant’s assessment

5.51 Pursuant to the terms of the Environmental Impact Regulations,¹³⁸ the applicant should undertake a noise assessment for the time of opening, the time the airport is forecast to reach full capacity, and (if applicable, being different to either of the other assessment periods) at a point when the airport’s noise impact is forecast to be highest. This should form part of the environmental statement. The noise assessment should include the following:

- A description of the noise sources;
- An assessment of the effect of predicted changes in the noise environment on any noise sensitive premises (including schools and hospitals) and noise sensitive areas (including National Parks and Areas of Outstanding Natural Beauty);
- The characteristics of the existing noise environment, including noise from aircraft, using noise exposure maps, and from surface transport and ground operations associated with the project, the latter during both the construction and operation phases of the project;
- A prediction on how the noise environment will change with the proposed project; and
- Measures to be employed in mitigating the effects of noise.

These should take into account construction and operational noise (including from surface access arrangements) and aircraft noise.

5.52 Operational noise, with respect to human receptors, should be assessed using the principles of the relevant British Standards and other guidance. For the prediction, assessment and management of construction noise, reference should be made to any British Standards and other guidance which give examples of mitigation strategies.

¹³⁷ *Airports Commission: Final Report*, p276

¹³⁸ <http://www.legislation.gov.uk/ukxi/2009/2263/contents/made> (as amended - see <http://www.legislation.gov.uk/ukxi/2011/2741/contents/made> and <http://www.legislation.gov.uk/ukxi/2012/787/contents/made>)

Mitigation

- 5.53** Noise management at airports where a noise problem has been identified is subject to the concept of a 'Balanced Approach', referred to above. EU Regulation 598/2014, which adopts the Balanced Approach,¹³⁹ also lays down a procedure for the adoption of noise-related operating restrictions, in particular a requirement for prior consultation.
- 5.54** The Government recognises that aircraft noise is a significant concern to communities affected and that, as a result of additional runway capacity, noise-related action will need to be taken. Such action should strike a fair balance between the negative impacts of noise and positive economic impacts of flights.
- 5.55** The Government also recognises that predictable periods of relief from aircraft noise (known as respite) are important for communities affected, and that noise at night is widely regarded as the least acceptable aspect of aviation noise for those communities, with the costs on communities of aircraft noise during the night (particularly the health costs associated with sleep disturbance) being higher.
- 5.56** While the package and detail of noise mitigation measures should be subject to consultation with local communities and other stakeholders to ensure the most appropriate and effective measures are taken forward, the Government expects the applicant to make particular efforts to avoid significant adverse noise impacts and mitigate other adverse noise impacts as a result of the Northwest Runway scheme and Heathrow Airport as a whole.
- 5.57** The Secretary of State will consider whether the mitigation measures put forward by the applicant following consultation are acceptable. The noise mitigation measures should ensure that the number of people significantly affected by aircraft noise is limited and, where possible, reduced.
- 5.58** The applicant should specifically seek to deliver the mitigation measures set out in paragraphs 5.59-5.61 below.
- 5.59** The applicant should put forward plans for a noise envelope. Such an envelope should be tailored to local priorities and include clear noise performance targets. As such, the design of the envelope should be defined in consultation with local communities and relevant stakeholders, and on the basis of the expert advice of an independent third party. This third party could be the Independent Commission on Civil Aviation Noise proposed by the Government in its separate consultation on UK airspace policy. The benefits of future technological improvements should be shared between the applicant and its local communities, hence helping to achieve a balance between growth and noise reduction. Suitable review periods should be set in consultation with the parties mentioned above to ensure the noise envelope's framework remains relevant.
- 5.60** The applicant should put forward plans for a runway alternation scheme that provides communities affected with predictable periods of respite (though the Government acknowledges that the duration of periods of respite that currently apply will be reduced). Predictability should be afforded to the extent that this is

¹³⁹ For the purposes EU Regulation 598/2015, an airport means an airport which has more than 50 000 civil aircraft movements per calendar year (a movement being a take-off or landing), on the basis of the average number of movements in the last three calendar years before the noise assessment

within the applicant's control. The details of any such scheme, including timings, duration and scheduling, should be defined in consultation with local communities and relevant stakeholders, and on the basis of the expert advice of an independent third party. This third party could be the Independent Commission on Civil Aviation Noise.

- 5.61** The Government also expects a ban on scheduled night flights for a period of six and a half hours, between the hours of 11pm and 7am, to be implemented.¹⁴⁰ The rules around its operation, including the exact timings of such a ban, should be defined in consultation with local communities and relevant stakeholders, in line with the requirements of EU Regulation 598/2014.
- 5.62** It is recognised that Heathrow Airport already supports a number of initiatives to mitigate aircraft noise, such as developing quieter operating procedures (like steeper descent approaches) and keeping landing gear up as long as possible. The applicant is expected to continue to do so, and to explore all opportunities to mitigate operational noise in line with best practice. The implementation of such measures may require working with partners to support their delivery.
- 5.63** Noise mitigation measures at the construction stage should also be provided. These should draw on best practice from other major construction schemes, with due regard given to any relevant British Standards and other guidance, and should be taken into account during the procurement of contractors.
- 5.64** Other measures to mitigate noise during the construction and operation of the development may include one or more of the following:
- Reducing noise at point of generation and containment of noise generated;
 - Ensuring adequate distance between source and noise-sensitive receptors, and incorporating good design to minimise noise transmission through screening by natural barriers or other buildings; and
 - Restricting activities allowed on the site.
- 5.65** The Secretary of State will expect the applicant to put forward proposals as to how these measures may be secured and enforced, including the bodies who may enforce the measures. These bodies might include the Secretary of State, local authorities (including those over a wider area), and / or the Civil Aviation Authority.

Decision making

- 5.66** The proposed development must be undertaken in accordance with statutory requirements for noise.¹⁴¹ Due regard must have been given to national policy on aviation noise, and the relevant sections of the Noise Policy Statement for England,¹⁴² the National Planning Policy Framework,¹⁴³ and the Government's associated planning guidance on noise.¹⁴⁴ However, the Airports NPS must be used as the primary policy on noise when considering the Heathrow Northwest Runway scheme, and has primacy over other wider noise policy sources.

¹⁴⁰ 11pm to 7am is the standard night period used in noise measurement, and is used in World Health Organisation guidelines and the Environmental Noise Directive

¹⁴¹ EU Regulation 598/2015; The Environmental Noise (England) Regulations 2006

¹⁴² <https://www.gov.uk/government/publications/noise-policy-statement-for-england>

¹⁴³ National Planning Policy Framework, paragraph 123

¹⁴⁴ <http://planningguidance.communities.gov.uk/blog/guidance/noise/noise-guidance/>

5.67 Development consent should not be granted unless the Secretary of State is satisfied that the proposals will meet the following aims for the effective management and control of noise, within the context of Government policy on sustainable development:

- Avoid significant adverse impacts on health and quality of life from noise;
- Mitigate and minimise adverse impacts on health and quality of life from noise; and
- Where possible, contribute to improvements to health and quality of life.

Carbon emissions

Introduction

5.68 The Government has a number of international and domestic obligations to limit the carbon emitted by both the construction and operation phases of the project.

5.69 The Government's key objective on aviation emissions, as outlined in the Aviation Policy Framework, is to ensure that the aviation sector makes a significant and cost-effective contribution towards reducing global emissions.¹⁴⁵ This must be achieved while minimising the risk of putting UK businesses at a competitive international disadvantage. The development of the Heathrow Northwest Runway scheme being considered under the Airports NPS does not override this objective.

5.70 The UK's obligations on greenhouse gas emissions are set under the 2008 Climate Change Act. Under this framework, the UK has a 2050 target to reduce its greenhouse gas emissions by at least 80% on 1990 levels, and has a series of five year carbon budgets on the way to 2050.

Coverage of aviation emissions under the UK's Climate Change Act

5.71 Whilst UK domestic aviation emissions are included in the 2050 target, international aviation emissions are not currently formally included within the UK's 'net carbon account' for greenhouse gas emissions and are therefore not included in the 2050 target as defined by the Climate Change Act, nor within the first five carbon budgets. The Climate Change Act says that the Government must "take into account" the "estimated amount of reportable emissions from international aviation for the budgetary period or periods in question" when setting carbon budgets. The Committee on Climate Change has interpreted the requirement to take these emissions into account as requiring the UK to aim to meet a 2050 target which includes these emissions, and has made its recommendations for the levels of the existing carbon budgets on this basis.

5.72 The Government has accepted the Committee on Climate Change's recommendations on the first five carbon budgets. The fifth carbon budget, for the period 2028-2032, was set in July 2016 in line with the Committee on Climate Change's advice. In effect, this means that carbon budgets for other sectors of the UK economy have been set at a level which the Committee on Climate Change considers is consistent with meeting the overall 2050 target when international aviation emissions are included.

¹⁴⁵ *Aviation Policy Framework*, paragraph 12

Impacts

- 5.73** The carbon impact of the proposed development falls into four areas: increased emissions from air transport movements (both international and domestic) as a result of increased demand, emissions from airport buildings and ground operations, emissions from surface transport accessing the expanded airport, and emissions caused by construction. The first is by far the largest of these impacts.
- 5.74** The Airports Commission used two sets of carbon scenarios: one in which a cap is imposed on UK aviation emissions in line with the Committee on Climate Change's planning assumption of 37.5 million tonnes of CO₂ in 2050; and another in which an international trading mechanism allows carbon emissions from aviation to be offset by paying for emissions reductions in other sectors of the global economy. The analysis also assumed certain carbon-limiting developments largely outside the applicant's control. These include growth in numbers of more fuel-efficient aircraft, increasing use of biofuels, and other airline operational measures.

Applicant's assessment

- 5.75** Pursuant to the terms of the Environmental Impact Assessment Regulations,¹⁴⁶ the applicant should undertake an assessment of the project as part of the environmental statement, to include an assessment of any likely significant climate factors. The applicant should provide evidence of the carbon impact of the project (including embodied carbon), both from construction and operation, such that it can be assessed against the Government's carbon obligations, including but not limited to carbon budgets. The applicant should quantify the greenhouse gas impacts before and after mitigation to show the impacts of the proposed mitigation. This will require emissions to be split into traded sector and non-traded sector emissions, and for a distinction to be made between international and domestic aviation emissions.
- 5.76** As far as possible, the applicant's assessment should also seek to quantify the impacts of:
- Emissions from surface access due to airport and construction staff; and
 - Emissions from surface access due to freight and retail operations and construction site traffic.

This should be undertaken in both a 'do minimum' and also in the 'do something' scenario for the opening, peak operation, and worst case scenarios.

¹⁴⁶ Town and Country Planning (Environmental Impact Assessment) Regulations 2011 and 2015, <http://www.legislation.gov.uk/uksi/2011/1824/regulation/4/made> and <http://www.legislation.gov.uk/uksi/2015/660/introduction/made>

Mitigation

5.77 The Secretary of State will need to be satisfied that the mitigation measures put forward by the applicant are acceptable, including at the construction stage. A management / project plan may help clarify and secure mitigation at this stage. The applicant is expected to take measures to limit the carbon impact of the project, which may include, but are not limited to:

- Zero or low-emission hybrid or electric vehicle use (ultra-low emission vehicles), charging and fuel facilities;
- Reduced engine taxiing (improved taxiing efficiency);
- Reducing emissions from aircraft at the gate;
- Reduced emissions from airport buildings (for example from lower carbon heating);
- Changes to the layout of surface access arrangements; and
- Encouraging increased use of public transport by staff and passengers.

5.78 Aircraft are expected to become cleaner as technology and standards improve and fleets evolve. It is recognised that the applicant already supports a number of initiatives to reduce the carbon emissions from flights, such as reduced-engine taxiing and ground-towing, and airspace and navigational reform.

5.79 Mitigation measures at the construction stage should also be provided and draw on best practice from other major construction schemes, including during the procurement of contractors. Specific measures could include but are not limited to:

- Development of a construction traffic management plan (which may include the possible use of rail and consolidation sites);
- Transport of materials to site by alternative modes to road (for example by rail or water);
- Increased efficiency in use of construction plant;
- Use of energy efficient site accommodation;
- Reduction of waste, and the transport of waste;
- Construction site connection to grid electricity to avoid use of mobile generation;
- Selection of construction material to utilise low carbon options; and
- Selection of construction material to minimise distance of transport.

5.80 The implementation of mitigation measures may require working with partners to support their delivery.

Decision making

5.81 Any increase in carbon emissions alone is not a reason to refuse development consent, unless the increase in carbon emissions resulting from the project is so significant that it would have a material impact on the ability of Government to meet its carbon reduction targets, including carbon budgets.

5.82 Evidence of appropriate mitigation measures (incorporating engineering plans on configuration and layout, and use of materials) in both design and construction should be presented as part of any application for development consent. The Secretary of State will consider the effectiveness of such mitigation measures in order to ensure that, in relation to design and construction, the carbon footprint is

not unnecessarily high. The Secretary of State's view of the adequacy of the mitigation measures relating to design, construction and operational phases will be a material factor in the decision making process.

Biodiversity and ecological conservation

Introduction

- 5.83** Biodiversity is the variety of plant and animal life in the world or in a particular habitat, and encompasses all species of plants and animals and the complex ecosystems of which they are a part. Government policy for the natural environment, including on biodiversity, is set out in the *Natural Environment White Paper*.¹⁴⁷ The biodiversity section in the *Natural Environment White Paper* sets out a vision of moving progressively from net biodiversity loss to net gain, by supporting healthy, well-functioning ecosystems and establishing more coherent ecological networks that are more resilient to current and future pressures. It is also a requirement of the Water Framework Directive to protect and enhance biodiversity associated with the water environment. Geological conservation relates to the sites that are designated for their geology and / or geomorphological importance.¹⁴⁸
- 5.84** The Government's biodiversity strategy is set out in *Biodiversity 2020: A Strategy for England's wildlife and ecosystem services*.¹⁴⁹ Its aim is to halt overall biodiversity loss, support healthy, well-functioning ecosystems, and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people. The contribution that the planning system should make to enhancing the local and natural environment, including establishing coherent ecological networks, is set out in the National Planning Policy Framework, to which the applicant should also refer.¹⁵⁰
- 5.85** The National Planning Policy Framework states that pursuing sustainable development involves seeking positive improvements in the quality of the built, natural and historic environment, as well as in people's quality of life. This includes moving from a net loss of biodiversity to achieving net gains for nature.¹⁵¹
- 5.86** The wide range of legislative provisions at the international and national level that can impact on planning decisions affecting biodiversity and ecological conservation is set out in the Planning Practice Guidance on biodiversity and ecosystems.¹⁵² This includes a description of the potential impacts on internationally, nationally and locally protected sites which may arise through development, and should therefore be considered through further assessment.
- 5.87** Airport development may require the netting of open watercourses to manage the risk of bird strike, which may have a detrimental impact on water environment and biodiversity.

Applicant's assessment

- 5.88** The applicant should ensure that the environmental statement submitted with its application for development consent clearly sets out any likely significant effects on internationally, nationally and locally designated sites of ecological or geological

¹⁴⁷ <https://www.gov.uk/government/publications/the-natural-choice-securing-the-value-of-nature>

¹⁴⁸ A list of designated sites is included in the Geological Conservation Review held by the Joint Nature Conservation Committee

¹⁴⁹ <https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services>

¹⁵⁰ National Planning Policy Framework, paragraph 109

¹⁵¹ National Planning Policy Framework, paragraph 9

¹⁵² <http://planningguidance.communities.gov.uk/blog/guidance/natural-environment/biodiversity-ecosystems-and-green-infrastructure/>

importance, protected species, and habitats and other species identified as being of principal importance for the conservation of biodiversity.

- 5.89** The environmental impact assessment should reflect the principles of *Biodiversity 2020* and identify how the effects on the natural environment will be influenced by climate change, and how ecological networks and their physical and biological process will be maintained.
- 5.90** The applicant should show how the project has taken advantage of and maximised opportunities to conserve biodiversity and geological conservation interests.

Mitigation

- 5.91** The Secretary of State will consider what requirements should be attached to any consent and / or in any planning obligations entered into in order to ensure that mitigation measures are delivered and monitored for their effectiveness.
- 5.92** The Secretary of State will take account of any mitigation measures agreed between the applicant and Natural England, and whether Natural England has granted or refused, or intends to grant or refuse, any relevant licences, including protected species mitigation licences.
- 5.93** The applicant's proposal should address the mitigation hierarchy (which supports efforts to conserve and enhance biodiversity), which is set out in the National Planning Policy Framework.¹⁵³
- 5.94** Compensation ratios relating to the effects of the preferred scheme should be considered in more detail during the design. The application of 2:1 compensation ratio is considered to represent the minimum requirement. However, there are other mechanisms for establishing compensation ratios, such as Defra's biodiversity offsetting metric. Equally, it is important to note that habitat ratios form only one part of potential compensation which should be considered, and the location and quality of any compensation land is of key importance. In this regard, habitat creation, where required, should be focused on areas where the most ecological and ecosystems services benefits can be realised.

Decision making

- 5.95** As a general principle, and subject to the specific policies set out below and the Infrastructure Planning (Decisions) Regulations 2010,¹⁵⁴ development should avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives. The applicant may also wish to make use of biodiversity offsetting in devising compensation proposals to counteract any impacts on biodiversity which cannot be avoided or mitigated.¹⁵⁵ Where significant harm cannot be avoided or mitigated, as a last resort appropriate compensation measures should be sought. The development consent order, or any associated planning obligations, will need to make provision for the long term management of such measures.

¹⁵³ National Planning Policy Framework, paragraph 118

¹⁵⁴ <http://www.legislation.gov.uk/ukxi/2010/305/regulation/7/made>

¹⁵⁵ <https://www.gov.uk/government/collections/biodiversity-offsetting> Biodiversity offsets are measurable conservation outcomes resulting from actions designed to compensate for residual adverse biodiversity impacts arising from a development after mitigating measures have been taken. The goal of biodiversity offsets is to achieve no net loss and, preferably, a net gain of biodiversity

5.96 In taking decisions, the Secretary of State will ensure that appropriate weight is attached to designated sites of international, national and local importance, protected species, habitats and other species of principal importance for the conservation of biodiversity, and to biodiversity and geological interests within the wider environment.

International sites

5.97 The most important sites for biodiversity are those identified through international conventions and European Directives. The Habitats Regulations provide statutory protection for European sites and require an assessment of impacts upon such sites.¹⁵⁶ The Government considers that the following wildlife sites should have the same protection as European sites:

- Potential Special Protection Areas and possible Special Areas of Conservation;
- Listed or proposed Ramsar sites;¹⁵⁷ and
- Sites identified or required as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

5.98 At this stage, it is not possible for Heathrow Airport as the applicant to rule out adverse effects of its scheme, given that more detailed project design information, and detailed proposals for mitigation, is not presently available. However, Heathrow Airport will need to demonstrate that articles 6(3) and 6(4) of the Habitats Directive are satisfied in order to gain development consent.

Sites of Special Scientific Interest

5.99 Many Sites of Special Scientific Interest are also designated as sites of international importance and will be protected accordingly. Those that are not, or those features of Sites of Special Scientific Interest that are not covered by an international designation, will be given a high degree of protection. All National Nature Reserves are notified as Sites of Special Scientific Interest.

5.100 Where a proposed development on land within or outside a Site of Special Scientific Interest is likely to have an adverse effect on the site (either individually or in combination with other developments), development consent should not normally be granted. Where an adverse effect on the site's notified special interest features is likely, an exception should be made only where the benefits of the development at this site clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest. The Secretary of State will ensure that the applicant's proposals to mitigate the harmful aspects of the development and, where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest, are acceptable. Where necessary, requirements and / or planning obligations should be used to ensure these proposals are delivered.

¹⁵⁶ This includes candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas, and is defined in Regulation 8 of the Conservation of Habitats and Species Regulations 2010

¹⁵⁷ Potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area, candidate Special Area of Conservation or Ramsar site

Regional and local sites

5.101 Sites of regional and local biodiversity interest (which include Local Nature Reserves, Local Wildlife Sites and Nature Improvement Areas) have a fundamental role to play in meeting overall national biodiversity targets, contributing to the quality of life and the wellbeing of the community, and supporting research and education. The Secretary of State will give due consideration to such regional or local designations. However, given the need for new infrastructure, these designations should not be used in themselves to refuse development consent, although adequate compensation should always be considered, and ecological corridors and their physical processes should be maintained as a priority to mitigate widespread impacts.

Irreplaceable habitats including ancient woodland and veteran trees

5.102 Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost, it cannot be recreated. The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of irreplaceable habitats including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the national need for and benefits of the development, in that location, clearly outweigh the loss. Aged or veteran trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided.¹⁵⁸ Where such trees would be affected by development proposals, the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons for this.

Biodiversity within and around developments

5.103 The proposed development comprised in the preferred scheme should provide many opportunities for building in beneficial biodiversity as part of good design. When considering proposals, the Secretary of State will consider whether the applicant has maximised such opportunities in and around developments, and particularly to establishing and enhancing green infrastructure. The Secretary of State may use requirements or planning obligations where appropriate in order to ensure that such beneficial features are delivered.

Protection of other habitats and species

5.104 In addition to the habitats and species that are subject to statutory protection or international, regional or local designation, other habitats and species have been identified as being of principal importance for the conservation of biodiversity in England and Wales and therefore requiring conservation action. The Secretary of State will ensure that the applicant has taken measures to ensure that these other habitats and species are protected from the adverse effects of development. Where appropriate, requirements or planning obligations may be used in order to deliver this protection. The Secretary of State will refuse consent where harm to these other habitats, or species and their habitats, would result, unless the benefits of the development (including need) clearly outweigh that harm. In such cases, compensation will generally be expected to be included in the design proposals.

¹⁵⁸ This does not prevent the loss of such trees where the decision maker is satisfied that their loss is unavoidable

Land use including open space, green infrastructure and Green Belt

Introduction

5.105 Access to high quality open spaces and the countryside¹⁵⁹ and opportunities for sport and recreation can be a means of providing necessary mitigation and / or compensation requirements. Green infrastructure can enable developments to provide positive environmental and economic benefits.

5.106 Green Belts, defined in a development plan, are situated around certain cities and built up areas, including London. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open. The essential characteristics of Green Belts are their openness and their permanence. Further information on the purposes and protection of Green Belt is set out in the National Planning Policy Framework.¹⁶⁰

5.107 Best and most versatile agricultural land is land which is most flexible, productive and efficient in response to inputs and which can best deliver future crops for food and non-food uses such as biomass, fibres and pharmaceuticals. The National Planning Policy Framework sets out how local planning authorities should take into account the economic and other benefits of best and most versatile agricultural land.¹⁶¹ Planning practice guidance for the natural environment provides additional guidance on best and most versatile agricultural land and soil issues.

5.108 Development of land will affect soil resources, including physical loss of and damage to soil resources, through land contamination and structural damage. Indirect impacts may also arise from changes in the local water regime, organic matter content, soil biodiversity and soil process.

5.109 Construction and operation of airport facilities is a potential source of contaminative substances (for example, through de-icing or leaks and spills of fuel). Where pre-existing land contamination is being considered through development, the objective is to ensure that the site is suitable for its intended use. Risks would require consideration in accordance with the contaminated land statutory guidance as a minimum.¹⁶²

Applicant's assessment

5.110 The applicant should identify existing and proposed land uses¹⁶³ near the project, including any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing. The applicant should also assess any effects of precluding a new development or use proposed in the development plan. The assessment should be proportionate to the scale of the preferred scheme and its likely impacts on such receptors.

5.111 Existing open space, sports and recreational buildings and land should not be developed unless the land is surplus to requirements or the loss would be replaced by equivalent or better provision in terms of quantity and quality in a suitable

¹⁵⁹ All open space of public value, including not just land but also areas of water (such as rivers, canals, lakes and reservoirs) which offer important opportunities for sport and recreation and can act as a visual amenity

¹⁶⁰ National Planning Policy Framework, paragraphs 79-92

¹⁶¹ National Planning Policy Framework, paragraph 112

¹⁶² <https://www.gov.uk/government/publications/contaminated-land-statutory-guidance>

¹⁶³ For example, where a planning application has been submitted

location. If the applicant is considering proposals which would involve developing such land, it should have regard to any local authority's assessment of need for such types of land and buildings.

- 5.112** During any pre-application discussions with the applicant, the local planning authority should identify any concerns it has about the impacts of the application on land use, having regard to the development plan and relevant applications and including, where relevant, whether it agrees with any independent assessment that the land is surplus to requirements. These are also matters that local authorities may wish to include in their Local Impact Report which can be submitted after an application for development consent has been accepted.
- 5.113** The general policies controlling development in the countryside apply with equal force in Green Belts but there is, in addition, a general presumption against inappropriate development within them. Such development should not be approved except in very special circumstances which are already the subject of Government guidance.¹⁶⁴ The applicant should therefore determine whether the proposal, or any part of it, is within an established Green Belt and, if so, whether its proposal may be considered inappropriate development within the meaning of Green Belt policy. Metropolitan Open Land and land designated a Local Green Space in a local or neighbourhood plan are subject to the same policies of protection as Green Belt, and inappropriate development should not be approved except in very special circumstances.
- 5.114** The applicant should take into account the economic and other benefits of best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, the applicant should seek to use areas of poorer quality land in preference to that of a higher quality. The applicant should also identify any effects, and seek to minimise impacts, on soil quality, taking into account any mitigation measures proposed. For developments on previously developed land, the applicant should ensure that they have considered the risk posed by land contamination and how it is proposed to address this.
- 5.115** The applicant should safeguard any mineral resources on the proposed site for the preferred scheme as far as possible.

Mitigation

- 5.116** The applicant can minimise the direct effects of a project on the existing use of the proposed site, or proposed uses near the site, by the application of good design principles, including the layout of the project and the protection of soils during construction.¹⁶⁵
- 5.117** Where green infrastructure is affected, the applicant should aim to ensure the functionality and connectivity of the green infrastructure network is maintained and any necessary works are undertaken, where possible, to mitigate any adverse impact and, where appropriate, to improve that network and other areas of open space, including appropriate access to National Trails and other public rights of way.

¹⁶⁴ https://www.gov.uk/guidance/housing-and-economic-land-availability-assessment#paragraph_044

¹⁶⁵ <https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites>

- 5.118** The Secretary of State must also consider whether mitigation of any adverse effects on green infrastructure or open space is adequately provided for by means of requirements, planning obligations, or any other means, for example to provide exchange land and provide for appropriate management and maintenance agreements. Any exchange land should be at least as good in terms of size, usefulness, attractiveness, quality and accessibility. Alternatively, where sections 131 and 132 of the Planning Act 2008 apply,¹⁶⁶ any replacement land provided under those sections will need to conform to the requirements of those sections.
- 5.119** Where the preferred scheme has an impact on a mineral safeguarding area, the Secretary of State must ensure that the applicant has put forward appropriate mitigation measures to safeguard mineral resources.
- 5.120** Where a project has a sterilising effect on land use, there may be scope for this to be mitigated through, for example, using the land for nature conservation or wildlife corridors.
- 5.121** Public rights of way, National Trails and other rights of access to land are important recreational facilities for walkers, cyclists and equestrians. The applicant is expected to take appropriate mitigation measures to address adverse effects on National Trails, other public rights of way and open access land and, where appropriate, to consider what opportunities there may be to improve access. In considering revisions to an existing right of way, consideration needs to be given to the use, character, attractiveness and convenience of the right of way. The Secretary of State should consider whether the mitigation measures put forward by an applicant are acceptable and whether requirements or other provisions in respect of these measures might be attached to any grant of development consent.

Decision making

- 5.122** The Secretary of State will not grant consent for development on existing open space, sports and recreational buildings and land, including playing fields, unless an assessment has been undertaken either by the local authority or independently, which has shown the open space or the buildings and land to be surplus to requirements, or the Secretary of State determines that the benefits of the project (including need) outweigh the potential loss of such facilities, taking into account any positive proposals made by the applicant to provide new, improved or compensatory land or facilities.
- 5.123** Where networks of green infrastructure have been identified in development plans, they should normally be protected from development and, where, possible, strengthened by or integrated within it.
- 5.124** The Secretary of State will take into account the economic and other benefits of the best and most versatile agricultural land, and ensure the applicant has put forward appropriate mitigation measures to minimise impacts on soils or soil resources.
- 5.125** When located in the Green Belt, projects may comprise inappropriate development. Inappropriate development is by definition harmful to the Green Belt and there is a presumption against it except in very special circumstances. The Secretary of State will need to assess whether there are very special circumstances to justify inappropriate development. Very special circumstances will not exist unless the

¹⁶⁶ <http://www.legislation.gov.uk/ukpga/2008/29/section/131> and <http://www.legislation.gov.uk/ukpga/2008/29/section/132>

potential harm to the Green Belt by reason of inappropriateness, and any other harm, is clearly outweighed by other considerations. In view of the presumption against inappropriate development, the Secretary of State will attach substantial weight to the harm to the Green Belt, when considering any application for such development. The Secretary of State may require the provision of replacement Green Belt land, which should be secured by the applicant.

Resource and waste management

Introduction

5.126 Government policy on hazardous and non-hazardous waste is intended to protect human health and the environment by producing less waste and by using it as a resource wherever possible. Where this is not possible, waste management regulation ensures that waste is disposed of in a way that is least damaging to the environment and to human health.

5.127 Sustainable waste management is implemented through the waste hierarchy:

- Waste prevention;
- Preparing for reuse;
- Recycling;
- Other recovery, including energy recovery; and
- Disposal.

5.128 The targets for preparation for re-use and recycling of municipal waste (50%), and for construction and demolition waste (70%) set out by the Waste Framework Directive (2008/98/EC)¹⁶⁷ should be considered 'minimum acceptable practice' for the construction and operation of any new airport infrastructure. Exceeding these targets if possible by aiming for exemplar performance in resource efficiency and waste management is recommended, to align with the principles of the EU Action Plan for the Circular Economy.¹⁶⁸

5.129 Large airport infrastructure projects may generate hazardous and non-hazardous waste during construction and operation. The Environment Agency's environmental permitting regime incorporates operational waste management requirements for certain activities. When the applicant applies to the Environment Agency for an environmental permit, the Environment Agency will require the application to demonstrate that processes are in place to meet all relevant permit requirements.

5.130 In addition, the Heathrow Northwest Runway scheme would involve the removal of the Lakeside energy from waste plant.

¹⁶⁷ <http://ec.europa.eu/environment/waste/framework/>

¹⁶⁸ http://ec.europa.eu/environment/circular-economy/index_en.htm

5.131 Waste generated and sent to landfill during construction and operation will be an ongoing management issue, and will continue to have adverse effects on the environment into and beyond the operational phase. The principal adverse effects of sending waste to landfill include:

- Permanent loss of materials from potential use higher up the waste management hierarchy;
- Reduction of local and regional landfill capacity;
- Visual, noise, health and other nuisance impacts on local communities;
- Environmental degradation and pollution;
- Greenhouse gas emissions; and
- Environmental implications of transporting waste to landfill sites.

Applicant's assessment

5.132 The applicant should set out the arrangements that are proposed for managing any waste produced in the application for development consent. The arrangements described should include information on the proposed waste recovery and disposal system for all waste generated by the development. The applicant should seek to minimise the volume of waste sent for disposal unless it can be demonstrated that the alternative is the best overall environmental, social and economic outcome when considered over the whole lifetime of the project.

5.133 The effects of removing the Lakeside energy from waste plant upon capacity for treatment of waste will require assessment.

Mitigation

5.134 The applicant should set out a comprehensive suite of mitigations to eliminate or significantly reduce the risk of adverse impacts associated with resource and waste management.

Decision making

5.135 The Secretary of State will consider the extent to which the applicant has proposed an effective process that will be followed to ensure effective management of hazardous and non-hazardous waste arising from the all stages of the lifetime of the development. The Secretary of State should be satisfied that the process set out provides assurance that:

- Waste produced will be properly managed, both onsite and offsite;
- The waste from the proposed development can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available. Such waste arising should not have an adverse effect on the capacity of existing waste management facilities to deal with other waste arising in the area; and
- Adequate steps have been taken to minimise the volume of waste arising, and of the volume of waste arising sent to disposal, except where an alternative is the most sustainable outcome overall

5.136 Where necessary, the Secretary of State will require the applicant to develop a resource management plan to ensure that appropriate measures for sustainable resource and waste management are secured.

Flood risk

Introduction

5.137 Climate change over future decades is likely to result in milder, wetter winters and hotter, drier summers in the UK, while sea levels will continue to rise. Within the lifetime of the proposed development, these factors will lead to increased flood risk in areas susceptible to flooding, and to an increased risk of flooding in some areas not currently thought of as being at risk. In addition to increasing flood risk, longer term climate change will result in changes to weather-related disruption, most often caused by wind, rain, snow and ice. The applicant, the Examining Authority and the Secretary of State in taking decisions should take account of the policy on climate change adaptation as set out in the National Planning Policy Framework¹⁶⁹ and other supporting guidance.¹⁷⁰

5.138 The National Planning Policy Framework sets out that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk.¹⁷¹ But where development is necessary, it should be made safe without increasing flood risk elsewhere. Supporting guidance¹⁷² explains that essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk is permissible in areas of high flood risk, subject to the requirements of the Exception Test. In addition, as set out in the National Planning Policy Framework, new development should be planned to avoid increased vulnerability to the range of impacts arising from climate change.¹⁷³

5.139 Loss of flood plain storage may increase the overall flood risk for the catchment. The extent of any impact will depend on the ability of the development to manage storage of water on site.

5.140 There is the potential for airport expansion to result in increased risk from climate change effects, particularly to increased surface water runoff rate and pressure on potable water supply. There may also be effects on groundwater.

5.141 Where the Airports NPS mentions the UK Climate Change Risk Assessment, the reader should refer to the most recent version of the document.

Applicant's assessment

5.142 The applicant should provide a flood risk assessment.¹⁷⁴ This should identify and assess the risks of all forms of flooding to and from the preferred scheme, and demonstrate how these flood risks will be managed, taking climate change into account.

¹⁶⁹ National Planning Policy Framework, paragraph 99

¹⁷⁰ <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances> and <https://www.gov.uk/government/publications/adapting-to-climate-change-for-risk-management-authorities>

¹⁷¹ National Planning Policy Framework, paragraphs 100-104

¹⁷² <http://planningguidance.communities.gov.uk/blog/guidance/flood-risk-and-coastal-change/>

¹⁷³ National Planning Policy Framework, paragraph 99

¹⁷⁴ <https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>

5.143 In preparing a flood risk assessment the applicant should:

- Consider the risk of all forms of flooding arising from the development comprised in the preferred scheme, in addition to the risk of flooding to the project, and demonstrate how these risks will be managed and, where relevant, mitigated, so that the development remains safe throughout its lifetime;¹⁷⁵
- Take into account the impacts of climate change, clearly stating the development lifetime over which the assessment has been made;
- Consider the need for safe access and exit arrangements;
- Include the assessment of residual risk after risk reduction measures have been taken into account, and demonstrate that this is acceptable for the development;
- Consider if there is a need to remain operational during a worst case flood event over the preferred scheme's lifetime; and
- Provide evidence for the Secretary of State to apply the Sequential Test and Exception Test,¹⁷⁶ as appropriate.

5.144 Where the preferred scheme may be affected by, or may add to, flood risk, the applicant is advised to seek early pre-application discussions with the Environment Agency, and, where relevant, other flood risk management bodies such as lead local flood authorities, Internal Drainage Boards, sewerage undertakers, highways authorities and reservoir owners and operators. These discussions can be used to identify the likelihood and possible extent and nature of the flood risk, help scope the flood risk assessment, and identify the information that may be required by the Secretary of State to reach a decision on the application. If the Environment Agency has concerns about proposals on flood risk grounds, the applicant is encouraged to discuss these concerns at a sufficiently early stage with the Environment Agency and explore ways in which the proposal might be amended, or additional information provided, which would satisfy the Environment Agency's concerns, before the application for development consent is submitted.

5.145 For local flood risk (surface water, groundwater and ordinary watercourse flooding), local flood risk management strategies and surface water management plans provide useful sources of information for consideration in a flood risk assessment. Surface water flood issues need to be understood to allow them to be taken into account, for example by clearly identifying and managing flow routes.

5.146 When assessing the potential impacts of climate change on airports which can be wider than flooding impacts, such as implications from heat and water availability and the potential adaptation strategies for them, the applicant should take into account the latest UK Climate Change Risk Assessment, the latest set of UK Climate Projections, and other relevant sources of climate change evidence.

Mitigation

5.147 The applicant should ensure that the preferred scheme design takes into account flood risk, and should put forward measures to mitigate the impact of flooding.

5.148 Mitigation measures will need to be developed as part of the applicant's application for development consent to ensure that it is safe from flooding, and will not increase

¹⁷⁵ Updated flood maps are available on the Environment Agency's website

¹⁷⁶ National Planning Policy Framework, paragraphs 100-104

flood risk elsewhere for the proposed development's lifetime, taking into account climate change.

- 5.149** To satisfactorily manage flood risk and the impact of the natural water cycle on people, property and ecosystems, good design and infrastructure may need to be secured using requirements or planning obligations. This may include the use of sustainable drainage systems but could also include vegetation to help to slow runoff, hold back peak flows, and make landscapes more able to absorb the impact of severe weather events.
- 5.150** In the Airports NPS, the term sustainable drainage systems is used and taken to cover the whole range of sustainable approaches to surface water drainage management including:
- Source control measures including rainwater recycling and drainage;
 - Infiltration devices to allow water to soak into the ground, that can include individual soakaways and communal facilities;
 - Filter strips and swales, which are vegetated features that hold and drain water downhill mimicking natural drainage patterns;
 - Filter drains and porous pavements to allow rainwater and runoff to infiltrate into permeable material below ground and provide storage if needed;
 - Basins and ponds to hold excess water after rain and allow controlled discharge that avoids flooding; and
 - Flood routes to carry and direct excess water through developments to minimise the impact of severe rainfall flooding.
- 5.151** Site layout and surface water drainage systems should be able to cope with events that exceed the design capacity of the system, so that excess water can be safely stored on or conveyed from the site without adverse impacts.
- 5.152** The surface water drainage arrangements for any project should be such that the volumes and peak flow rates of surface water leaving the site are no greater than the rates prior to the proposed project, taking into account climate change, unless specific off-site arrangements are made and result in the same net effect.
- 5.153** It may be necessary to provide surface water storage and infiltration to limit and reduce both the peak rate of discharge from the site and the total volume discharged from the main application site. There may be circumstances where it is appropriate for infiltration attenuation storage to be provided outside the project site, if necessary through the use of a planning obligation or a development consent order requirement.
- 5.154** The sequential approach should be applied to the layout and design of the project. Vulnerable uses should be located on parts of the site at lower probability and residual risk of flooding. The applicant should seek opportunities where appropriate to use open space for multiple purposes such as amenity, wildlife habitat, and flood storage uses. Opportunities can be taken to lower flood risk by improving flow routes, flood storage capacity and using sustainable drainage systems.

Decision making

5.155 Where flood risk is a factor in determining an application for development consent, the Secretary of State will need to be satisfied that, where relevant:

- The application is supported by an appropriate flood risk assessment; and
- The Sequential Test¹⁷⁷ has been applied as part of site selection and, if required, the Exception Test.¹⁷⁸

5.156 When determining an application, the Secretary of State will need to be satisfied that flood risk will not be increased elsewhere, and will only consider development appropriate in areas at risk of flooding where, informed by a flood risk assessment, following the Sequential Test and, if required, the Exception Test, it can be demonstrated that:

- Within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location; and
- Over its lifetime, development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed, including by emergency planning, and that priority is given to the use of sustainable drainage systems.

5.157 The applicant should take into account the potential impacts of climate change using the latest UK Climate Change Risk Assessment, the latest set of UK Climate Projections, and other relevant sources of climate change evidence. The applicant should also ensure any environment statement that is prepared identifies appropriate mitigation or adaptation measures. This should cover the estimated lifetime of the new infrastructure. Should a new set of UK Climate Projections become available after the preparation of an environmental statement, the Examining Authority or the Secretary of State will consider whether they need to request additional information from the applicant as part of the development consent application.

5.158 When determining an application, the Secretary of State will need to be satisfied that the potential effects of climate change on the development have been considered as part of the design.

5.159 For construction work which has drainage implications, approval for the preferred scheme's overall approach to drainage systems will form part of any development consent issued by the Secretary of State.¹⁷⁹ The Secretary of State will therefore need to be satisfied that the proposed drainage system complies with any technical standards issued by the Government¹⁸⁰ or to any National Standards¹⁸¹ issued under Schedule 3 to the Flood and Water Management Act 2010.¹⁸² In addition, the development consent order, or any associated planning obligations, will need to make provision for the adoption and maintenance of any Sustainable Drainage Systems, including any necessary access rights to property. The Secretary of State will need to be satisfied that the most appropriate body would be given the

¹⁷⁷ National Planning Policy Framework, paragraph 101

¹⁷⁸ National Planning Policy Framework, paragraph 102

¹⁷⁹ Drainage implications as defined in Paragraph 7(2) of Schedule 3 to the Flood and Water Management Act 2010

¹⁸⁰ <http://www.legislation.gov.uk/ukpga/2010/29/schedule/3/crossheading/requirement-for-approval>

¹⁸¹ <https://www.gov.uk/government/publications/sustainable-drainage-systems-non-statutory-technical-standards>

¹⁸² The National Standards set out requirements for the design, construction, operation and maintenance of sustainable drainage systems, and may include guidance to which the Secretary of State will have regard

¹⁸² <http://www.legislation.gov.uk/ukpga/2010/29/contents>

responsibility for maintaining any sustainable drainage systems, taking into account the nature and security of the infrastructure on the proposed site. The responsible body could include, for example, the applicant, the landowner, the relevant local authority, or another body such as the Internal Drainage Board.

5.160 If the Environment Agency continues to have concerns, and therefore objects to the grant of development consent on the grounds of flood risk, the Secretary of State can grant consent, but would need to be satisfied that all reasonable steps have been taken by the applicant and the Environment Agency to attempt to resolve the concerns. Similarly, if the lead local flood authority objects to the development consent on the grounds of surface or other local sources of flooding, the Secretary of State can grant consent, but would need to be satisfied that all reasonable steps have been taken by the applicant and the lead local flood authority to attempt to resolve the concerns.

Water quality and resources

Introduction

5.161 Airport infrastructure projects can have adverse effects on the water environment, including groundwater, inland surface water and transitional waters.¹⁸³ During construction and operation, it can lead to increased demand for water, involve discharges to water, and cause adverse ecological effects resulting from physical modifications to the water environment. There may also be an increased risk of spills and leaks of pollutants to the water environment. These effects could lead to adverse impacts on health or on protected and other species and habitats, and could, in particular, result in surface waters, groundwaters or protected areas¹⁸⁴ failing to meet environmental objectives established under the Water Framework Directive.¹⁸⁵

5.162 The Government's planning policies make clear that the planning system should contribute to and enhance the natural and local environment by, among other things, preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, water pollution. The Government has issued guidance on water supply, wastewater and water quality considerations in the planning system.¹⁸⁶ Where applicable, an application for development consent has to contain a plan with accompanying information identifying water bodies in a river basin management plan.¹⁸⁷

5.163 Development may result in an increased potential for impacts on the water environment, especially the quality of the surface and groundwater through the discharge of waters contaminated with de-icer along with hydrocarbons and other pollutants.

¹⁸³ As defined in the Water Framework Directive (2000/60/EC), transitional waters are bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters by which are substantially influenced by freshwater flows

¹⁸⁴ Protected areas are areas which have been designated as requiring special protection under specific community legislation for the protection of their surface water and groundwater or for the conservation of habitats and species directly depending on water

¹⁸⁵ Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy

¹⁸⁶ <http://planningguidance.communities.gov.uk/blog/guidance/water-supply-wastewater-and-water-quality/>

¹⁸⁷ <http://www.legislation.gov.uk/uksi/2009/2264/made>

Applicant's assessment

5.164 The applicant should make sufficiently early contact with the relevant regulators, including the Environment Agency, for abstraction licensing and environmental permitting, and with the water supply company likely to supply the water. Where the proposed development is subject to an environmental impact assessment and the development is likely to have significant adverse effects on the water environment, the applicant should ascertain the existing status of, and carry out an assessment of, the impacts of the proposed project on water quality, water resources and physical characteristics as part of the environmental statement.

5.165 Any environmental statement should describe:

- The existing quality of water affected by the proposed project;
- Existing water resources affected by the proposed project and the impacts of the proposed project on water resources;
- Existing physical characteristics of the water environment (including quantity and dynamics of flow) affected by the proposed project, and any impact of physical modifications to these characteristics;
- Any impacts of the proposed project on water bodies or protected areas under the Water Framework Directive and source protection zones around potable groundwater abstractions; and
- Any cumulative effects.

5.166 The applicant should assess the effects on the surrounding water and wastewater treatment network in cooperation with the relevant water and sewerage undertaker(s). It should also address any future water infrastructure requirements of the preferred scheme, including for supplies and sewerage treatment, and the effects on the surrounding water and wastewater treatment network. This assessment would be based on the additional wastewater flows which would need to be treated at sewage treatment works and should be developed through liaison with the relevant water and sewerage undertaker(s).

Mitigation

5.167 The impact on local water resources can be minimised through planning and design for the efficient use of water, including water recycling.

5.168 The Secretary of State will need to consider whether the mitigation measures put forward by the applicant which are needed for operation and construction (and which may be over and above any which may form part of the development consent application) are acceptable.

5.169 The project should adhere to any national standards for sustainable drainage systems, which introduce a hierarchical approach to drainage design that promotes the most sustainable approach but recognises the feasibility and use of conventional drainage systems as part of a sustainable solution for any given site given its constraints.

5.170 The risk of impacts on the water environment can be reduced through careful design to adhere to good pollution practice.

Decision making

- 5.171** Activities that discharge to the water environment are subject to pollution control, and the considerations set out at paragraphs 4.49-4.55 above covering the interface between planning and environmental permitting therefore apply. These considerations will also apply in an analogous way to the abstraction licensing regime regulating activities that take water from the environment, and to the control regimes relating to works to, and structures in, on, or under, a controlled water.
- 5.172** The Secretary of State will generally need to give more weight to impacts on the water environment where a project would have adverse effects on the achievement of the environmental objectives established under the Water Framework Directive.
- 5.173** The Secretary of State will need to be satisfied that a proposal has had regard to the Thames river basin management plan and the requirements of the Water Framework Directive and its daughter Directives, including those on priority substances and groundwater. In terms of Water Framework Directive compliance, the overall aim of development should be no deterioration of ecological status in watercourses, ensuring that Article 4.7 of the Water Framework Directive Regulations does not need to be applied. If Article 4.7 does need to be applied, and the conditions set out apply to airport development, the applicant must set out and report any modifications to the physical characteristics of surface water bodies or alterations to levels of groundwater bodies in the Thames river basin management plan.
- 5.174** The Secretary of State will need to consider the interactions of the preferred scheme with other plans, such as statutory water resources management plans.
- 5.175** The Secretary of State will need to consider proposals put forward by the applicant to mitigate adverse effects on the water environment, taking into account the likely impact of climate change on water availability, and whether appropriate requirements should be attached to any development consent and / or planning obligations. If the Environment Agency continues to have concerns, and objects to the grant of development consent on the grounds of impacts on water quality / resources, the Secretary of State can grant consent, but will need to be satisfied that all reasonable steps have been taken by the applicant and the Environment Agency to try to resolve the concerns.

Historic environment

Introduction

- 5.176** The construction and operation of airports and associated infrastructure has the potential to result in adverse impacts on the historic environment above and below ground. This could be as a result of the scale, form and function of the development, and the wider impacts it can create in terms of associated infrastructure to connect the airport to existing transport networks, changes in aircraft movement on the ground and in the surrounding airspace, additional noise and light levels, and the need for security and space to ensure the airport's operation.
- 5.177** The historic environment includes all aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora.

5.178 Those elements of the historic environment that hold value to this and future generations because of their historic, archaeological, architectural or artistic interest are called ‘heritage assets’. Heritage assets may be buildings, monuments, sites, places, areas or landscapes, or any combination of these. The sum of the heritage interests that a heritage asset holds is referred to as its significance. Significance derives not only from a heritage asset’s physical presence, but also from its setting.¹⁸⁸

5.179 Some heritage assets have a level of significance that justifies official designation. Categories of designated heritage assets are:

- World Heritage Sites;
- Scheduled Monuments;
- Listed Buildings;
- Protected Wreck Sites;
- Protected Military Remains;
- Registered Parks and Gardens;
- Registered Battlefields; and
- Conservation Areas.¹⁸⁹

5.180 Non-designated heritage assets of archaeological interest that are demonstrably equivalent to Scheduled Monuments should be considered subject to the policies for designated heritage assets.¹⁹⁰ The absence of designation for such heritage assets does not indicate lower significance.

5.181 The Secretary of State will also consider the impacts on other non-designated heritage assets on the basis of clear evidence that the assets have a significance that merits consideration in that decision, even though those assets are of lesser value than designated heritage assets. The non-designated heritage assets would be identified either through the development plan process by local authorities, including through ‘local listing’, or through the nationally significant infrastructure project examination and decision making process.

Applicant’s assessment

5.182 As part of the environmental statement, the applicant should provide a description of the significance of the heritage assets affected by the proposed development, and the contribution of their setting to that significance. The level of detail should be proportionate to the asset’s importance, and no more than is sufficient to understand the potential impact of the proposal on the significance of the asset. Consideration will also need to be given to the possible impacts, including cumulative, on the wider historic environment. At a minimum, the relevant Historic Environment Record¹⁹¹ should be consulted and the heritage assets assessed

¹⁸⁸ Setting of a heritage asset is the surroundings in which it is experienced. Its extent is not fixed, and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance, or may be neutral

¹⁸⁹ The issuing of licences to undertake works on protected wreck sites in English waters is the responsibility of the Secretary of State for Culture, Media and Sport and does not form part of development consent orders. The issuing of licences for protected military remains is the responsibility of the Secretary of State for Defence

¹⁹⁰ There will be archaeological interest in a heritage asset if it holds, or may potentially hold, evidence of past human activity worthy of expert investigation at some point. Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and the people and cultures that made them

¹⁹¹ Historic Environment Records are information services maintained and updated by (or on behalf of) local authorities and National Park Authorities with a view to providing access to comprehensive and dynamic resources relating to the historic environment of an area for public benefit and use. Details of Historic Environment Records in England are available from the Heritage Gateway website. Historic England should also be consulted where relevant

using appropriate expertise. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, the applicant should include an appropriate desk-based assessment and, where necessary, a field evaluation. The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage asset affected can be adequately understood from the application and supporting documents.

5.183 Detailed studies will be required on those heritage assets affected by noise, light and indirect impacts based on the guidance provided in *The Setting of Heritage Assets*¹⁹² and the *Aviation Noise Metric*.¹⁹³ Where proposed development will affect the setting of a heritage asset, accurate representative visualisations may be necessary to assess the impact.

5.184 The applicant is encouraged, where opportunities exist, to prepare proposals which can make a positive contribution to the historic environment, and to consider how their scheme takes account of the significance of heritage assets affected. This can include, where possible:

- Enhancing, through design, the significance of heritage assets or setting affected;
- Considering measures that address those heritage assets which are on the Heritage at Risk Register, or which may become at risk, as a result of the scheme; and
- Considering how visual or noise impacts can affect heritage assets, and whether there may be opportunities to enhance access to or interpretation, understanding and appreciation of the heritage assets affected by the scheme.

Careful consideration in preparing the scheme will be required on whether the impacts on the historic environment will be direct or indirect, temporary or permanent.

Decision making

5.185 In determining applications, the Secretary of State will seek to identify and assess the particular significance of any heritage asset that may be affected by the proposed development (including by development affecting the setting of a heritage asset), taking account of the available evidence and any necessary expertise from:

- Relevant information provided with the application and, where applicable, relevant information submitted during examination of the application;
- Any designation records included on the National Heritage List for England;
- Historic landscape character records;
- The relevant Historic Environment Record(s) and similar sources of information;
- Representations made by interested parties during the examination; and
- Expert advice, where appropriate and when the need to understand the significance of the heritage asset demands it.

¹⁹² <https://www.historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/>

¹⁹³ <https://www.historicengland.org.uk/images-books/publications/aviation-noise-metric/>

- 5.186** The Secretary of State must also comply with the requirements on Listed Buildings, Conservation Areas and Scheduled Monuments set out in The Infrastructure Planning (Decisions) Regulations 2010.¹⁹⁴
- 5.187** In considering the impact of a proposed development on any heritage assets, the Secretary of State will take into account the particular nature of the significance of the heritage asset and the value that they hold for this and future generations. This understanding should be used to avoid or minimise conflict between their conservation and any aspect of the proposal.
- 5.188** The Secretary of State will take into account: the desirability of sustaining and, where appropriate, enhancing the significance of heritage assets; the contribution of their settings; and the positive contribution their conservation can make to supporting sustainable communities – including to their quality of life, their economic vitality, and to the public’s enjoyment of these assets. The Secretary of State will also take into account the desirability of new development making a positive contribution to the character and local distinctiveness of the historic environment. The consideration of design should include scale, height, massing, alignment, materials, use, landscaping (for example screen planting) and the significance of heritage assets.
- 5.189** When considering the impact of a proposed development on the significance of a designated heritage asset, the Secretary of State will give great weight to the asset’s conservation. The more important the asset, the greater the weight should be. The Secretary of State will take into account the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation, the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality, and the desirability of new development making a positive contribution to local character and distinctiveness.
- 5.190** Once lost, heritage assets cannot be replaced, and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Given that heritage assets are irreplaceable, any harm or loss should require clear and convincing justification.
- 5.191** Substantial harm to or loss of a Grade II Listed Building or a Grade II Registered Park or Garden should be exceptional. Substantial harm to or loss of designated sites of the highest significance, including World Heritage Sites, Scheduled Monuments, Grade I and II* Listed Buildings, Protected Wreck Sites, Registered Battlefields, and Grade I and II* Registered Parks and Gardens should be wholly exceptional.
- 5.192** Any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of development, recognising that the greater the harm to the significance of the heritage asset, the greater the justification that will be needed for any loss.

¹⁹⁴ <http://www.legislation.gov.uk/uksi/2010/305/regulation/3/made>

5.193 Where the proposed development will lead to substantial harm to or the total loss of significance of a designated heritage asset, the Secretary of State will refuse consent unless it can be demonstrated that the substantial harm or loss of significance is necessary in order to deliver substantial public benefits that outweigh that loss or harm, or alternatively that all of the following apply:

- The nature of the heritage asset prevents all reasonable uses of the site;
- No viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation;
- Conservation by grant funding or some form of charitable or public ownership is demonstrably not possible; and
- The harm or loss is outweighed by the benefit of bringing the site back into use.

5.194 Where the proposed development will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use.

5.195 Not all elements of a World Heritage Site or conservation area will necessarily contribute to its significance. The Secretary of State will treat the loss of a building (or other element) that makes a positive contribution to the significance of a World Heritage Site or conservation area's significance either as substantial harm or less than substantial harm, as appropriate, taking into account the relative significance of the elements affected and their contribution to the significance of the World Heritage Site or conservation area as a whole.

5.196 Where the loss of significance of any heritage asset is justified on the merits of the new development, the Secretary of State will consider imposing a requirement on the consent, or require the applicant to enter into an obligation, that will prevent the loss occurring until it is reasonably certain that the relevant part of the development is to proceed.

5.197 The applicant should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance and better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset should be treated favourably.¹⁹⁵

Recording

5.198 A documentary record of our past is not as valuable as retaining the heritage asset, and therefore the ability to record evidence of the asset should not be a factor in deciding whether consent should be given.

5.199 Where the loss of the whole or part of a heritage asset's significance is justified, the Secretary of State will require the applicant to record and advance understanding of the significance of the heritage asset before it is lost (wholly or in part). The extent of the requirement should be proportionate to the nature and level of the asset's significance. The applicant should be required to publish this evidence and to deposit copies of the reports with the relevant Historic Environmental Record. They

¹⁹⁵ Further good practice advice on decision making in the historic environment can be found at: <https://www.historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/>

should also be required to deposit the archive generated in a local museum or other public repository willing to receive it.

- 5.200** Where appropriate, the Secretary of State will impose requirements to the development consent order to ensure that the work is undertaken in a timely manner, in accordance with a written scheme of investigation that meets the requirements of the Airports NPS and has been agreed in writing with the relevant local authority, and that the completion of the exercise is properly secured.
- 5.201** Where there is a high probability that a development site may include as yet undiscovered heritage assets with archaeological interest, the Secretary of State will consider requirements to ensure appropriate procedures are in place for the identification and treatment of such assets discovered during construction.

Landscape and visual impacts

Introduction

- 5.202** For airport development, landscape and visual effects also include tranquillity effects, which would affect people's enjoyment of the natural environment and recreational facilities. In this context, references to landscape should be taken as covering local landscape, waterscape and townscape character and quality, where appropriate.

Applicant's assessment

- 5.203** Where the development is subject to an Environmental Impact Assessment, the applicant should undertake an assessment of any likely significant landscape and visual impacts and describe them in the environmental statement. The landscape and visual assessment should reference any landscape character assessment and associated studies as a means of assessing landscape impacts relevant to the preferred scheme. In addition, the applicant's assessment should take account of any relevant policies based on these assessments in local development documents.
- 5.204** The applicant's assessment should include any significant effects during construction of the preferred scheme and / or the significant effects of the completed development and its operation on landscape components and landscape character, including historic characterisation. This should include assessment of any landscape and visual impacts as a result of the development, for example surface access proposals or aviation activity.
- 5.205** The assessment should include the visibility and conspicuousness of the preferred scheme during construction and the presence and operation of the preferred scheme and potential impacts on views and visual amenity. This should include any noise and light pollution effects, including on local amenity, tranquillity and nature conservation.

Mitigation

- 5.206** Adverse landscape and visual effects may be minimised through appropriate design (including choice of materials), and landscaping schemes. Materials and designs for the airport should be given careful consideration.

Decision making

Landscape impact

5.207 Landscape effects depend on the nature of the existing landscape likely to be changed and nature of the effect likely to occur. Both these factors need to be considered in judging the impact of a project on the landscape. Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints, the development should aim to avoid or minimise harm to the landscape, providing reasonable mitigation where possible and appropriate.

Development proposed within nationally designated areas

5.208 Great weight should be given to conserving landscape and scenic beauty in nationally designated areas. National Parks, the Broads and Areas of Outstanding Natural Beauty have the highest status of protection in relation to landscape and scenic beauty. Each of these designated areas has specific statutory purposes which help ensure their continued protection and which the Secretary of State has a statutory duty to have regard to in decisions.

5.209 The Secretary of State should refuse development consent in these areas except in exceptional circumstances and where it can be demonstrated that it is in the public interest. Consideration of such applications should include an assessment of:

- The need for the development, including in terms of any national considerations, and the impact of consenting, or not consenting it, upon the local economy;
- The cost of, and scope for, developing elsewhere, outside the designated area, or meeting the need for it in some other way; and
- Any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

5.210 Where consent is given in these areas, the Secretary of State should be satisfied that the applicant has ensured that the preferred scheme will be carried out to high environmental standards and, where possible, includes measures to enhance other aspects of the environment. Where necessary, the Secretary of State should consider the imposition of appropriate requirements to ensure these standards are delivered.

Developments outside nationally designated areas which might affect them

5.211 The duty to have regard to the purposes of nationally designated areas also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. The development should aim to avoid compromising the purposes of designation, and such projects should be designed sensitively given the various siting, operational, and other relevant constraints.

Developments in other areas

5.212 Outside nationally designated areas, there are local landscapes and townscapes that are highly valued locally and may be protected by local designation. Where a local development document in England has policies based on landscape character assessment, these should be given particular consideration. However, local landscape designations should not be used in themselves as reasons to refuse consent, as this may unduly restrict acceptable development.

5.213 In taking decisions, the Secretary of State will consider whether the preferred scheme has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to avoid adverse effects on landscape or to minimise harm to the landscape, including by reasonable mitigation.

Visual impact

5.214 The Secretary of State will judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the development.

Land instability

Introduction

5.215 The effects of land instability may result in landslides, subsidence or ground heave. Failing to deal with this issue could cause harm to human health, local property and associated infrastructure, and the wider environment. They occur in different circumstances for different reasons and vary in their predictability and in their effect on development.

Applicant's assessment

5.216 Where necessary, land stability should be considered in respect of new development, as set out in the National Planning Policy Framework and supporting planning guidance.¹⁹⁶ Specifically, proposals should be appropriate for the location, including preventing unacceptable risks from land instability. If land stability could be an issue, the applicant should seek appropriate technical and environmental expert advice to assess the likely consequences of proposed developments on sites where subsidence, landslides and ground compression is known or suspected. Applicants should liaise with the Coal Authority if necessary.

5.217 A preliminary assessment of ground instability should be carried out at the earliest possible stage before a detailed application for development consent is prepared. The applicant should ensure that any necessary investigations are undertaken to confirm that their sites are and will remain stable, or can be made so as part of the development. The site needs to be assessed in the context of surrounding areas where subsidence, landslides and land compression could threaten the development during its anticipated life or damage neighbouring land or property. This could be in the form of a land stability or slope stability risk assessment report.

Mitigation

5.218 The applicant has a range of mechanisms available to mitigate and minimise risks of land instability. These include:

- Establishing the principle and layout of new development, for example avoiding mine entries and other hazards;
- Ensuring proper design of structures to cope with any movement expected and other hazards such as mine and / or ground gases; or
- Requiring ground improvement techniques, usually involving the removal of poor material and its replacement with suitable inert and stable material. For development on land previously affected by mining activity, this may mean prior extraction of any remaining mineral resource.

¹⁹⁶ <https://www.gov.uk/guidance/land-stability>

Dust, odour, artificial light, smoke and steam

5.219 The construction and operation of airports infrastructure has the potential to create a range of emissions such as dust, odour, artificial light, smoke and steam. All have the potential to have a detrimental impact on amenity or cause a common law nuisance or statutory nuisance under Part III, Environmental Protection Act 1990.¹⁹⁷ These may also be covered by pollution control or other environmental consenting regimes.

5.220 Because of the potential effects of these emissions and in view of the availability of the defence of statutory authority against nuisance claims described previously, it is important that the potential for these impacts is considered by the applicant in its application, by the Examining Authority in examining applications, and by the Secretary of State in taking decisions on development consent.

5.221 For nationally significant infrastructure projects of the type covered by the Airports NPS, some impact on amenity for local communities is likely to be unavoidable. Impacts should be kept to a minimum and should be at a level that is acceptable.

Applicant's assessment

5.222 Where the development is subject to an Environmental Impact Assessment, the applicant should assess any likely significant effects on amenity from emissions of dust, odour, artificial light, smoke and steam, and describe these in the environmental statement.

5.223 In particular, the assessment provided by the applicant should describe:

- The type and quantity of emissions;
- Aspects of the development which may give rise to emissions during construction, operation and decommissioning;
- Premises or locations that may be affected by the emissions;
- Effects of the emission on identified premises or locations; and
- Measures to be employed in preventing or mitigating the emissions.

5.224 The applicant is advised to consult the relevant local planning authority and, where appropriate, the Environment Agency, about the scope and methodology of the assessment.

Mitigation

5.225 The Secretary of State should ensure the applicant has provided sufficient information to show that any necessary mitigation will be put into place. In particular, the Secretary of State should consider whether to require the applicant to abide by a scheme of management and mitigation concerning emissions of dust, odour, artificial light, smoke and steam from the development to reduce any loss to amenity which might arise during the construction and operation of the development. A construction management plan may help clarify and secure mitigation.

¹⁹⁷ <http://www.legislation.gov.uk/ukpga/1990/43/part/III>

Decision making

5.226 The Secretary of State should be satisfied that all reasonable steps have been taken, and will be taken, to minimise any detrimental impact on amenity from emissions of dust, odour, artificial light, smoke and steam. This includes the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

5.227 If development consent is granted for a project, the Secretary of State should consider whether there is a justification for all of the authorised project (including any associated development) being covered by a defence of statutory authority against nuisance claims. If the Secretary of State cannot conclude that this is justified, then the defence should be disapplied, in whole or in part, through a provision in the development consent order.

Community compensation

Introduction

5.228 The Secretary of State recognises that, in addition to providing economic growth and employment opportunities, airport expansion will also have negative impacts upon local communities. This will include impacts through land take requiring the compulsory acquisition of houses that fall within the new boundary of the airport, exposure to air quality impacts, and aircraft noise, that is both an annoyance and can have an adverse impact on health and cognitive development.

5.229 The Secretary of State expects the applicant to provide an appropriate community compensation package, relevant to planning. This will include financial compensation to residents who will see their homes compulsorily acquired, as well as ongoing financial compensation to the local community. In addition to controlling and reducing aircraft noise impacts, the applicant will be required to commit appropriate resources to mitigate the impacts of aircraft through noise insulation programmes for both private homes and public buildings such as schools.

5.230 A number of statutory protections are provided in these areas, and the applicant must fulfil its statutory duties in a timely and efficient manner.

5.231 Under planning law, residential and agricultural owners directly affected by the applicant's plans will have access to statutory blight provisions upon the designation of the Airports NPS.

5.232 In addition, compensation can be sought in respect of loss of value of a property arising from the development during construction (under the Compulsory Purchase Act 1965)¹⁹⁸ and for loss of value arising from the operation of an expanded airport (under Part 1 of the Land Compensation Act 1973)¹⁹⁹ after one year of operation.

5.233 People are entitled to know what steps will be taken to help protect them against aircraft noise and, where appropriate, to help them to move house.

¹⁹⁸ <http://www.legislation.gov.uk/ukpga/1965/56/contents>

¹⁹⁹ <http://www.legislation.gov.uk/ukpga/1973/26/contents>

5.234 In addition to statutory requirements, Heathrow Airport has publicly committed to a community compensation package comprising a number of more generous offers:

- To pay 125% of market value, plus taxes and reasonable moving costs, for all owner occupied homes within the compulsory acquisition zone;
- To pay 125% of market value, plus taxes and reasonable moving costs, for all owner occupied homes within an additional voluntary purchase / acquisition zone incorporating the area known as the Heathrow Villages;
- Following a third party assessment, to provide full acoustic insulation for residential property within the full 60dB LAeq²⁰⁰ noise contour of an expanded airport;
- Following a third party assessment, to provide a contribution of up to £3,000 for acoustic insulation for residential properties within the full single mode easterly and westerly 57dB LAeq (16hr) or the full 55dB Lden²⁰¹ noise contours of an expanded airport, whichever is the bigger; and
- To deliver a programme of noise insulation and ventilation for schools and community buildings within the 60dB LAeq (16 hour) contour.²⁰²

5.235 In addition to the statutory requirements and the public commitments made by Heathrow Airport, the Government also supports the Airports Commission's recommendation for an additional component of ongoing community compensation proportionate to environmental impacts.

5.236 The Airports Commission suggested this should take the form of a national noise levy paid for by passengers. The Government does not consider a national levy appropriate, but supports the development of a community compensation fund at an expanded Heathrow Airport. The Government expects that the size of the community compensation fund will be proportionate to the environmental harm caused by expansion of the airport. The Government notes that, in its consideration of a noise levy, the Airports Commission considered that a sum of £50 million per annum could be an appropriate amount at an expanded Heathrow Airport, and that, over a 15 year period, a community compensation fund could therefore distribute £750 million to local communities.

5.237 Expansion at Heathrow Airport is likely to increase the amount of locally collected business rates in the area. The Government is currently undertaking reforms which should mean that local government as a whole will retain 100% of locally collected business rates by the end of this Parliament. These reforms will consider how authorities benefit from growth in their areas, including opportunities for authorities to work together to share the benefits. Heathrow Airport is currently the highest single site business rates payer in the UK.²⁰³

²⁰⁰ Leq is the measure used to describe the average sound level experienced over a period of time (usually sixteen hours for day and eight hours for night) resulting in a single decibel value. Leq is expressed as LAeq when it refers to the A-weighted scale

²⁰¹ Lden is the 24 hour LAeq calculated for an annual period, but with a five decibel weighting for evening and a ten decibel weighting for night to reflect people's greater sensitivity to noise within these periods

²⁰² <http://your.heathrow.com/newpropertycompensation/>

²⁰³ <http://www.cvsuk.com/news-resources/news/draft-list-release>

Applicant's assessment

- 5.238** The Government expects to see arrangements being made by Heathrow Airport for the community compensation schemes which it has publicly stated would be provided, and for a community compensation fund.
- 5.239** The applicant should seek to minimise impacts on local people, to consult on the details of its works, and to put them in place quickly. The Government also looks to the applicant to consult on the detail of a community compensation fund.

Decision making

- 5.240** The Secretary of State will consider whether and to what extent the applicant has sought to minimise impacts on local people, has consulted on the details of its works, and has put mitigations in place, at least to the level committed to in its public commitments. This includes whether the applicant has set out appropriate eligibility criteria and timescales for delivery, and how delivery will be ensured.
- 5.241** The Secretary of State will also consider whether the applicant has consulted on the details of a community compensation fund, including source of revenue, size and duration of fund, eligibility, and how delivery will be ensured.
- 5.242** The Secretary of State will expect the applicant to demonstrate how these provisions are secured, and how they will be operated. The applicant will also need to show how these measures will be administered to ensure that they are relevant to planning when in operation. The mechanisms for enforcing these provisions should also be demonstrated, along with the appropriateness of any identified enforcing body, which may include the Secretary of State.

Community engagement

Introduction

- 5.243** The Government recognises that the planning, construction, and subsequent operation of a Northwest Runway will bring both significant impacts and opportunities to communities living around Heathrow Airport. Communities will wish to participate fully in the development and delivery of expansion, and the Government expects them to be able to do so.
- 5.244** There will be many opportunities for communities to engage as expansion is taken forward. The Government is required to consult on and publicise the Airports NPS, and the applicant is subject to pre-application consultation requirements. Additional consultations on issues such as airspace change will take place outside of the planning process. Ongoing engagement will also be required as the applicant takes forward its compensation package.
- 5.245** The Government wishes to maximise local stakeholder engagement with the expansion process, and it wishes to encourage the applicant and local stakeholders to strengthen the way in which they work together to make engagement effective. Local stakeholders, including those representing communities around Heathrow Airport, have the experience and expertise to identify solutions tailored to their specific circumstances. A number of engagement forums already exist at Heathrow Airport. These have developed over time in response to emerging needs and are consistent with the Government's view that, in principle, it encourages collaborative local solutions.

5.246 A community engagement board will be developed at Heathrow Airport to help to ensure that local communities are able to contribute effectively to the delivery of expansion, including to consultations and evidence gathering during the planning process.

Applicant's assessment

5.247 The applicant must engage constructively with the community engagement board throughout the planning process, with its membership (including an independent chair), and with any programme(s) of work the community engagement board agrees to take forward.

Decision making

5.248 The Secretary of State will consider whether the applicant has engaged constructively with this community engagement board throughout the planning process.

Skills

Introduction

5.249 The Government is committed to helping people into jobs and improving the skills of the UK workforce, with a target of three million new apprenticeships being created in the current Parliament.²⁰⁴ Continuing to create jobs and new training opportunities will help to consolidate the national economic recovery, put the UK on the path to full employment and raise the nation's productivity. Apprenticeships have an essential role to play within this work, helping individuals to develop key skills which will benefit both them and employers.

5.250 To help deliver the Government's wider skills agenda, the Department for Transport published *Transport Skills Strategy: building sustainable skills* in January 2016, setting out its skills strategy for transport, including aviation, and an additional 30,000 apprenticeships by 2020 across the road and rail sectors.²⁰⁵ The Strategic Transport Apprenticeship Taskforce has been created to deliver this work.²⁰⁶

5.251 The Government notes that Heathrow Airport already makes a significant contribution to local employment and already has a number of skills and employment initiatives designed to support the business requirements of the airport. The Heathrow Academy, established in 2004, supports recruitment and retention of local residents across the retail, construction, aviation and logistics sectors, and includes apprenticeships as a part of the package.²⁰⁷

5.252 The Government notes that Heathrow Airport has publicly committed to creating 10,000 apprenticeships before 2030, thereby doubling the number offered at the airport.²⁰⁸

5.253 The Heathrow Northwest Runway scheme represents an opportunity to grow the number of jobs and apprenticeships supported by the applicant and its supply chain, particularly in neighbouring communities.

²⁰⁴ <https://www.gov.uk/government/news/government-kick-starts-plans-to-reach-3-million-apprenticeships>

²⁰⁵ <https://www.gov.uk/government/publications/transport-infrastructure-skills-strategy-building-sustainable-skills>

²⁰⁶ <https://www.gov.uk/government/news/strategic-transport-apprenticeship-taskforce-to-boost-apprenticeships>

²⁰⁷ <http://www.heathrow.com/company/heathrow-jobs/heathrow-academy>

²⁰⁸ <http://your.heathrow.com/takingbritainfurther/10000-apprenticeships-with-heathrow-expansion/>

Applicant's assessment

- 5.254** Heathrow Airport should put in place arrangements for the delivery of the 5,000 new apprenticeships which it has publicly stated would be provided. Heathrow Airport should set out its timetable for delivering the apprenticeships, provide information on the areas and skills to be covered by these apprenticeships, the breakdown between opportunities to be created within the core airport and those being offered by companies within its supply chain, and the qualification level and standards which they will need to achieve. Heathrow Airport should also set out how it will publicly report progress against the target.
- 5.255** The Government expects the applicant to maximise the employment and skills opportunities for local residents, including apprenticeships.
- 5.256** Heathrow Airport will also need to show how these measures will be administered to ensure that they are relevant to planning when in operation. The mechanisms for enforcing these provisions should also be demonstrated, along with the appropriateness of any identified enforcing body, which may include the Secretary of State.

Decision making

- 5.257** The Secretary of State will consider whether Heathrow Airport has set out a credible plan to implement its commitment to deliver 10,000 apprenticeships at an expanded airport.
- 5.258** The Secretary of State will consider how these provisions are secured, and how they will be operated.

Ruling out a fourth runway

Introduction

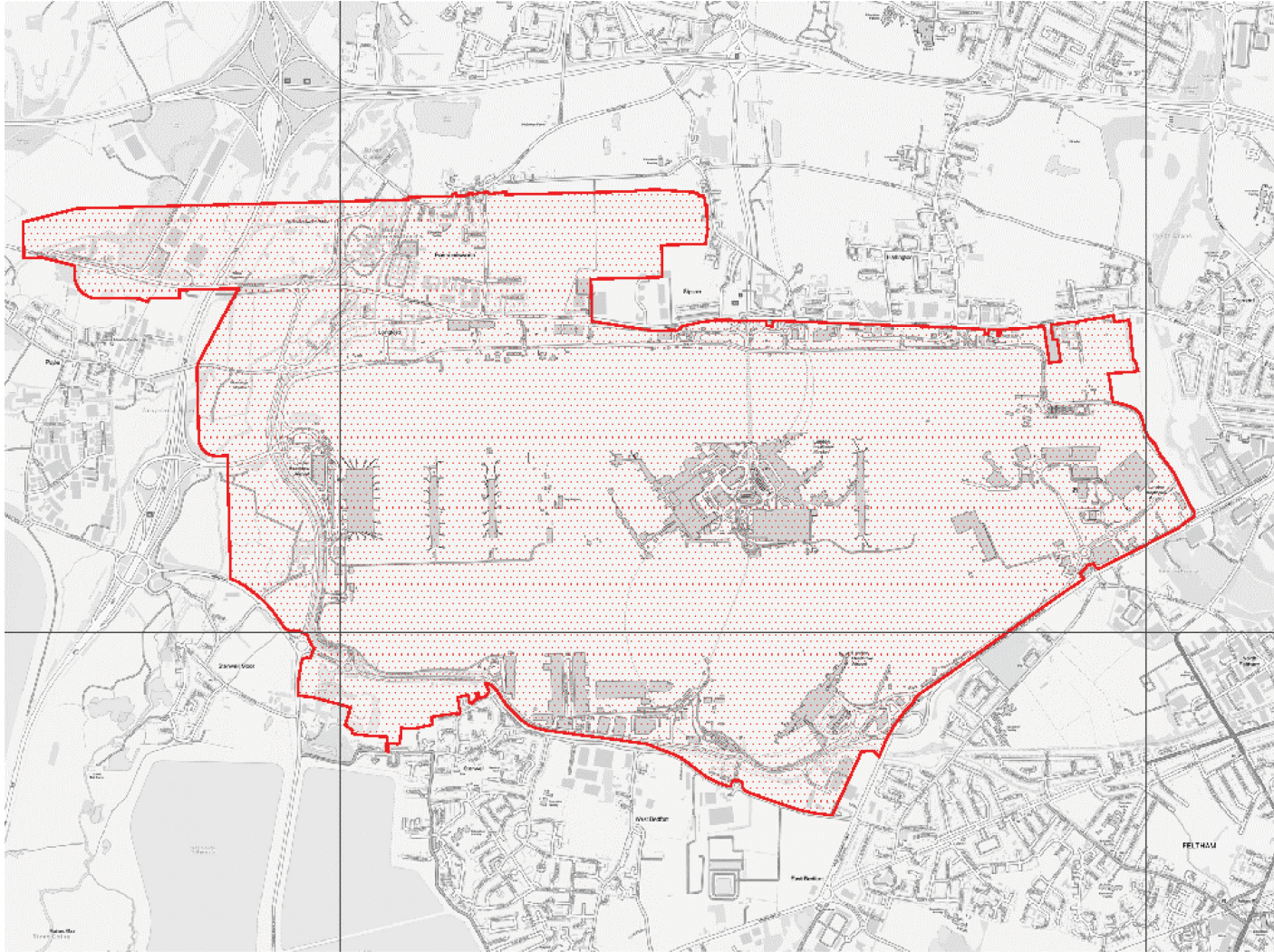
- 5.259** As part of its work, the Airports Commission considered the possibility that, in addition to the increased capacity provided by a Northwest Runway at Heathrow Airport, the airport might wish in the future to develop a fourth runway. The Airports Commission found no sound case for such a development.
- 5.260** First, the Airports Commission concluded that the airspace around the airport would be increasingly difficult to manage if a fourth runway was built. It noted that the airport could safely support 800,000 air transport movements per year at a four runway site, only 60,000 more than under the (three runway) Heathrow Northwest Runway scheme, but that the airspace impacts would lead to reduced numbers of air transport movements at the other airports in the London area.
- 5.261** Second, the Airports Commission concluded that it would be increasingly challenging to physically accommodate a fourth runway at the Heathrow Airport site. Taken together, these conclusions mean that building a fourth runway at Heathrow Airport would result in significant costs while providing less overall additional benefit.
- 5.262** Finally, the Airports Commission noted that there would be no guarantee that the potential demand for a further runway would be backed by a strong economic or environmental case. Any project to deliver a fourth runway at Heathrow Airport would be costly and extremely difficult to deliver given all of these considerations.

5.263 The Airports Commission also noted the importance of a clear signal from Government on limiting expansion to reassure local communities that Heathrow Airport will not expand any further.

Decision making

5.264 The Government agrees with the Airports Commission's recommendation and the analysis that underpins it, and therefore does not see a need for a fourth runway at Heathrow Airport. An application in the vicinity of Heathrow Airport for a fourth runway would not be supported in policy terms, and should be seen as being in conflict with the Airports NPS.

Annex A: Illustrative Heathrow Northwest Runway scheme boundary map



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Other development' details						Stage 1	Stage 2				
ID	Application Reference	Brief description of 'Other Development'	Distance from project	Status	Tier	Within ZOI?	Progress to Stage 2?	Overlap in temporal scope?	Scale and nature of development likely to give rise to significant cumulative effects with proposed development?	Other factors	Progress to Stage 3/4?
1	F/TH/16/0914	Manyweathers Properties Ltd. Erection of 12.no general industrial units. Land south of Invicta Way, Ramsgate	3.54	Granted Permission 06/01/2017		1 Falls within AQ, noise, transport, visual, socio-economic, historic env, GW/SW, LQ ZOI	Yes	Likely to be operational by 2019, bearing in mind how quickly the other phases of the 'Invicta Way' dev have been constructed.	Total development GIA is 1152m ²	n/a	No
2	F/TH/16/0696	Urban Playgrounds (Kent) Ltd. Change of use from industrial building to indoor trampoline park (Class D2) with ancillary cafeteria (Class A3) along with the creation of new access ramp and railings. CIL Unit P Continental Approach Margate Kent CT9 4JG	4.7	Granted Permission 06/09/2016		1 Falls within noise, AQ, transport, socio-economic ZOI	Yes	Change of use - likely to be up and running before construction on the AP commences.	No net additional GIA, floorspace is not being created (doesn't classify as a 'major' dev.) The impact of the development on the highway network, including at the Enterprise Road/A254 Ramsgate Road junction is not significant, also peak traffic gen is outside of the network peak hrs when surrounding businesses are likely to be closed. Likely degree of sound breakout is low (not significant) effect. 60 new jobs, equivalent of 40 FT staff - not likely sig. cumul. effect Foul sewage to be discharged to mains sewer. No likely sig. cumul effect on the hist env as changes are only being made to the inside of an existing building	n/a	No
3	OL/TH/16/0967	Outline application for the erection of 12 detached dwellings with access via southall close including access, layout and scale. Land adjacent 15 Southall Close Minister Ramsgate Kent	0.3	Granted at appeal 09/02/2017 Planning Portal states awaiting decision (13/03)		1 Falls within the noise, AQ, transport, GW/SW, hist env and visual ZOI	Yes	Currently at the outline stage. Construction phases could potentially overlap	Minster Parish Council raised traffic concerns. Cumulative construction phase noise and AQ impacts with the prop. dev. are likely.	n/a	Yes
4	F/TH/16/0867	Erection of a primary school to provide up to 420 school places for children aged 4 to 11 years	3.5	Grant Permission 18/11/2016		1 Falls within AQ, noise, transport, visual, socio-economic, ecology, historic env, ground and surface water ZOI.	Yes	School to be up and running in Sept 2017 (source: school website).	2 storey primary school buildings. 1.12ha. Gross internal floor area of proposed buildings: 2078sqm	n/a	No
5	OL/TH/16/0417	Outline application for mixed use residential and business development comprising 19 dwellings, 4 live-work units, and a detached building incorporating a shop and café, together with associated access roads, paths and vehicle parking, including access and layout.	1.9	Awaiting decision		1 Falls within AQ, noise, transport, visual, ecology, historic env, GW ZOI.	Yes	Currently at outline stage. Construction phases could potentially overlap.	Potential to give rise to cumulative ecological (N.E. cons. resp.), transport, drainage (GW and SW), and archaeological and cultural heritage impacts (noise and AQ - should const. phases overlap)	n/a	Yes
6	F/TH/15/1297	Erection of 10No. two storey, 2-bed dwellings with associated parking following demolition of existing office building	4.3	Granted Permission 14/10/2016		1 Falls within the AQ, ecology, hist env, noise, visual? ZOI	Yes	Construction likely to be completed before AP construction would begin	Due to its scale, nature of the development (resi, parking and storage and distrib. use), and distance from the AP - potentially sig. cumulative impacts are deemed unlikely	n/a	No
7	F/TH/16/0202	Variation of condition No 19 of planning permission F/TH/15/0501 for the erection of 2No. two storey buildings comprising a public house/restaurant and hotel with ancillary managers accommodation and associated works to allow for the extension and reconfiguration of car parking area	3.7	Granted on 25.04.2016		Yes	Yes	Likely to be constructed prior to 2019 - ?	Due to the nature and the scale of the dev. - unlikely	n/a	No
8	F/TH/15/1256	Variation of conditions 6 and 20 of OL/TH/13/0624 for residential development including access, to allow an increase to 40 dwellings and alterations to site plan	2.8	permission granted 22.04.2016		Yes. Not within SPZ	Yes	Likely to be constructed prior to 2019 - ?	60 houses in total. Potential to give rise to cumulative hist env, transport and noise effects	n/a	Yes
9	F/TH/16/0168	Erection of 10No general industrial units with access, parking and 1.8m boundary fence	3.4	Granted permission 7.06.2016		1 Falls within AQ, noise, transport, visual, socio-economic, ecology, historic env, GW ZOI	Yes	Already constructed	n/a already constructed	n/a	No



10	F/TH/16/0390	Variation of condition 20 of planning permission F/TH/12/0836 redevelopment of Newington Centre comprising erection of 54 two and three storey houses, 240sq m retail floorspace with 6no. flats, on 1st and 2nd floors and a single storey community 'gateway' information centre, to allow for a reduction in units to 49, and alterations to layout.	3.1	permission granted 16.05.2016	1	Yes	Yes	Google maps - currently under construction.	Mixed use dev. Already constructed	n/a	No
11	F/TH/14/0742	Change of use of 4.2 ha of agricultural land to provide an extension to St John's Cemetery	4.4	Awaiting Decision	1	Yes	Yes	n/a Change of use	Potential to give rise to cumulative GW, archaeological, I&v, traffic, ecol. effects	n/a	Yes
12	F/TH/16/0127	Erection of 19no. general industrial units together with access, parking and 1.8m boundary fence		permission granted 4.05.2016	1	Yes	Yes	Already constructed	n/a already constructed	n/a	No
13	OL/TH/15/0187	Outline application for the redevelopment of the existing site for up to 120 dwellings including access, following demolition of existing buildings	2.8	Awaiting Decision	1	Yes	Yes	Validated in 02/03/2015. At outline stage. Const. phases may overlap.	potential to give rise to cumulative GW, ecology, noise, traffic effects	n/a	Yes
14	R/TH/15/0250	Application for approval of access, appearance, landscaping, layout and scale pursuant to condition 1 of planning permission reference F/TH/12/0964 for the development of phase 5 of a mixed use urban extension comprising residential, community and commercial use, open space, infrastructure and new access.	2.9	Awaiting Decision	1	Yes	Yes	Const phases could overlap	(469 houses, 1642sqm nonresi) Potential for cumulative traffic, noise, dust from const, GW, arch, landscape, ecology impacts	n/a	Yes
15	OL/TH/15/0537	Outline application for the erection of 31 dwellings and retail unit, including access	4.2	grant permission 21/01/16	1	Falls within AQ, noise, transport, visual, ecology, historic env, ground water ZOI	Yes	At outline stage currently - discharge of conds. Construction phases could potentially overlap	Potential to give rise to cumulative ecological (bird distribution), landscape and visual, transport, AQ (in AQMA), drainage, archaeological impacts	n/a	Yes
16	OL/TH/15/0020	Outline application for the erection of a block of 56no. extra care units, 56no. dwellings and community use building with retail unit, following demolition of existing buildings and structures, including access	3.8	granted permission 17/09/2015	1	Falls within AQ, noise, transport, visual, ecology, historic env, flood risk, GW and SW, visual? ZOI	Yes	At outline stage. Construction phases could potentially overlap.	Potential to give rise to cumulative archaeological, noise (site in Noise Exposure Cat C), drainage, transport, flood risk, surface water quality, SPA & SSSI (N.E. resp.) impacts	n/a	Yes
17	F/TH/15/0353	Application for variation of condition 2 attached to planning permission F/TH/11/0893 for the change of use of nurse's home to 29no. flats with erection of 5 storey extension to allow alterations to internal layout to existing building	4.6	grant permission 30/07/15	1	Yes. Not within SPZ.	Yes	Const to begin by 28 Jan 2018 at the latest. Construction phases could overlap	Potential to give rise to cumulative ecological effects	n/a	Yes
18	F/TH/15/0538	Erection of 10No. General industrial units together with parking and 1.8M boundary fence	3.4	grant permission 28/07/15	1	Falls within AQ, noise (nearest resi properties 95m away), transport (East Kent Access Road, Mt. Pleasant & Lord of the Manor jcts), visual, socio-economic, ecology, historic env, ground (Prin.Aqu. & SPZ3) ZOI	Yes	Already constructed	Cumulative dev with others in this list (51 units all together). Likely cumulative noise, traffic, AQ and drainage impacts	n/a	No
19	F/TH/15/0181	Erection of 19 no. single storey light industrial units (Use Class B1) together with formation of vehicular access, associated parking and external alterations to existing building	4.8	grant permission 18/06/15	1	yes. Not within SPZ	Yes	likely to have been constructed before 2019 - ?	Site accessed via Enterprise Road (meets the A254). Potential for cumulative traffic/transport and noise impacts.	n/a	Yes
20	F/TH/15/0220	Installation of mezzanine floor of 1,017sqm for retail use	3.3	grant permission 10/06/15	1	Yes	Yes	likely to have been constructed before 2019 - ?	Unlikely due to the nature of the dev.	n/a	No
21	F/TH/15/0125	Erection of 10 No. Part two storey part single storey light and general industrial units (totalling 970sqm) together with associated car parking, access and landscaping	3.4	grant permission 01/05/15	1	Yes	Yes	Already built	Part of the Invicta Way dev... in isolation less than 1000sqm: not 'major'.	n/a	No
22	F/TH/14/0562	Erection of 21No. part single, part two and part three storey business and general industrial units (totalling 1680sq m), together with associated car parking, access, and landscaping	3.4	grant permission 22/08/14		Yes	Yes	Already built	Part of the Invicta Way dev.... Already constructed	n/a	No



23	F/TH/14/0340	Revised Layout for unit C including subdivision to create two retail units and installation of mezzanine floor to provide two units of 735 sqm and 1208 sqm respectively, without compliance with condition 9 of planning permission F/TH/06/0237 to reduce the restriction on class A1 sales within Unit 5 (former Paul Simons unit)	3.6	grant permission 18/07/14	1	Yes	Yes	Assume already constructed		n/a	No
24	OL/TH/16/1416	Outline application for erection of 14No. detached dwellings including access, layout and scale	2.7	Awaiting Decision	1	Yes	Yes	Const phases could overlap	Potential for cumulative transport and ecological, noise, dust effects	n/a	Yes
25	F/TH/16/1126	Change of use of land to livery yard, together with erection of 4No. stables, kitchen, tack room and store, and construction of sand school and exercise yard	4.1	Granted Permission on 20/10/2016	1	Within 5km. Outside of a SPZ.	Yes	Likely to be operational by 2019.	Unlikely due to the scale and nature of the dev.	n/a	No
26	OL/TH/16/0934	Erection of three and four storey flat roof building containing 10 apartments with access and parking provision	3.7	03-Mar-17	1	Yes	Yes	?	If const phases overlap.... (noise and traffic)	n/a	Yes
27	F/TH/16/1160	Erection of 10no. dwellings together with formation of vehicular access to Tivoli Raod	4.7	Awaiting Decision	1	Yes. Not within SPZ or visual ZOI.	Yes	construction could potentially overlap	Potential to give rise to cumulative ecological, GW/SW, drainage, hist env, noise and traffic effects	n/a	Yes
28	F/TH/16/1093	Change of use of railway cutting land to residential garden use for properties fronting Nash Lane	5	Granted Permission on 14/10/2016	1	Within 5km of the site. Not within SPZ.	Yes	N/A Change of use, no physical dev proposed except the erection of 1.8m high fencing	The only physical development proposed is the erection of 1.8m high fencing between the individual gardens	n/a	No
29	OL/TH/16/1715	Outline application for 48 dwellings including access with all other matters reserved	1.8	awaiting decision	1	Yes	Yes	Construction phases could potentially overlap	Potential for cumulative ecological, GW/SW, transport, AQ, archaeological, drainage impacts	n/a	Yes
30	OL/TH/16/1752	Outline application for the development of 14 houses and retention of existing dwelling with access from Sprating Lane including details of access with all other matters reserved	1.5	awaiting decision	1	Yes	Yes	Construction phases could potentially overlap	Potential for cumulative traffic, drainage, GW & SW, and ecological impacts. Construction phases could overlap - noise, transport, dust.	n/a	Yes
31	OL/TH/17/0151	Outline application for the erection of up to 41no. dwellings including access with all other matters reserved	5	Awaiting Decision	1	Yes. Not within SPZ.	Yes	Construction phases could potentially overlap	Potential for cumulative transport/traffic, drainage, GW/SW, flood risk, heritage, ecological, noise, dust effects	n/a	Yes
32	OL/TH/17/0150	Outline application for the erection of up to 23no. dwellings including access with all other matters reserved. Land Adjacent To Oakland Court Cottington Road	5	Awaiting Decision	1	Yes. Not within SPZ.	Yes	Construction phases could potentially overlap	Potential to give rise to cumulative transport, drainage, flood risk, water, hist env, visual, ecological impacts	n/a	Yes
33	OL/TH/17/0152	Outline Application for the erection of up to 62no. dwellings including access with all other matters reserved. Land East Of 40 Canterbury Road West	3.4	Awaiting Decision	1	Yes	Yes	Construction phases could potentially overlap	Potential for cumulative drainage, transport, landscape and visual, hist env, water, flood risk, ecological impacts	n/a	Yes
34	OL/TH/16/1765	Outline application for residential development of up to 250 dwellings and alterations to the surrounding highway network, including details of Access with all other matters reserved (Appearance, Landscaping, Layout, Scale)	4.7	awaiting decision	1	Yes. Not within SPZ.	Yes	Construction phases could potentially overlap	Potential for cumulative hist env, landscape, transport, AQ, flood risk, ecological impacts	n/a	Yes
35	KCC/DO/0171/2015	Development of a waste management facility for the sorting of skip waste	9.6	Granted (conditions) 7 Sept 2015	1	Yes. Not within SPZ.	Yes	Construction phases could potentially overlap	Potential to give rise to cumulative ecol, noise & L&V effects	n/a	Yes
36	KCC/DO/0354/2014	Change of use of the land to extend the waste storage facilities	10.4	Granted (conditions) in Feb 2015	1	Yes. Not within SPZ.	Yes	Possibly	No built dev or engineering proposed other than internal changes and the provision of contained outside storage areas which will be concreted with sealed drainage	n/a	No
37	KCC/SCR/DO/0399/2015	Request for a screening opinion as to whether the proposed replacement wastewater rising requires an Environmental Impact Assessment	10.7	EIA not required (21 Jan 2016)	1	Yes	Yes	Construction phases could potentially overlap	Const 6 months. Likely to overlap? Traffic, noise and GW during const.	n/a	Yes
38	F/TH/16/0423	Change of use from Public House to 4No. 1-bedflats, 3No. 2-bed flats and 4No. 3-bed flats with associated parking, together with micro pub on ground floor and the erection of a first floor extension	7	Granted Permission 20/10/2016	1	No	No			n/a	No
39	16/00848	Change of use of land for touring caravan site	13.2	Granted Permission 12/01/2017	1	No	No			n/a	No
40	16/00761	Erection of a detached dwelling	13.67	Withdrawn	1	No	No			n/a	No



41	16/00666	Erection fo a detached dwelling and detached 3 bay garage	19.63	Granted Permission 17/11/2016	1	No	No		n/a	No
42	F/TH/16/0952	Erection fo a 4 storey building comprising 14 No. flats and 4no. 2 bed dwellings following demolition of existing garage/storage unit	6.7	Granted Permission 23.09.16	1	No	No		n/a	No
43	F/TH/16/0924	Erection of 34 dwellings together with associated access and landscaping	9	Awaiting Decision	1	No	No		n/a	No
44	F/TH/16/0728	Erection of 3no. General industrial units with access and associated parking	6.9	Grant Permission 21/10/2016	1	No	No		n/a	No
45	R/TH/16/0960	Application for approval of reserved matters of outline application F/TH/12/0781 for the erection of retail superstore (Use Class A1) (Approx 14,400 sqm GEA), Petrol filling station and public open space with associated landscaping, servicing, car parking, access and link road, together with outline application for 1 and 2 storey buildings for non-food retail, restaurants and or take away uses (Use Classes A1, A3-A5) with associated parking and open space, following demolition of existing buildings	6.6	Grant Permission 28/11/2016	1	No	No		n/a	No
46	R/TH/16/0993	application for approval of reserved matters of outline application OL/TH/13/1047 the erection of five detached dwellings with garages	7.4	Grant Permission 07/11/2016	1	No	No		n/a	No
47	16/00800	Outline application for the erection of 112 residential dwellings with associated commercial (B1) and nursery (D1) units, hard and soft landscaping, and associated infrastructure (all matters reserved except access).	14.32	Refused on 01/02/2017	1	No	No		n/a	No
48	16/00442	Erection eight dwellings, change of use and conversion of the existing public house into a single residential dwelling, erection of a building to be used as a shop, creation of vehicular access and associated works	19	unknown	1	No	No		n/a	No
49	16/00135	Outline application for the erection of dwellings with some matters reserved (existing caravan and outbuilding to be demolished)	19.63	Permission granted	1	No	No		n/a	No
50	F/TH/16/0546	Change of use from agricultural land to sports fields along with the creation of 2no. Rugby pitched, 1no. Football pitch and 4no. Tennis courts	5.31	Granted Permission 17/11/2016	1	No	No		n/a	No
51	L/TH/16/0522	Application for Listed Building Consent for internal alterations to create 36 en suites bathrooms to existing bedrooms with associated drainage	5.6	Granted Permission 04/01/2017	1	No	No		n/a	No
52	L/TH/16/0413	Application for Listed Building Consent for change of use of Grade II listed building from residential institution (Class C2) to residential (Class C3) consisting of 4No 2 bedroom, 6No 3 bedroom and 2No 4 bedroom flats, 1No 2 bedroom detached cottage, parking areas, garden wc/store, new entrance signs and gates along with the part demolition of existing classroom block and small roof extension.	7.56	Granted permission 4.08.2016	1	No	No		n/a	No
53	F/TH/16/0424	Erection of 2 No. part three storey and part four-storey buildings containing 12 No 3 bedroom flats, 1 No 4 bedroom flat and 1 No 2 bedroom flat together with parking	8	granted Permission on 24/11/2016	1	No	No		n/a	No
54	OL/TH/16/0394	Outline application with some matters reserved (appearance, landscaping & scale) for mixed development of 140 houses, 70 bedroom residential care home, scout hut and recreational facilities.	6.12	Awaiting Decision	1	No	No		n/a	No



55	F/TH/16/0280	Change of use and extension of 45 Sea Road to 9 No. two bed flats and 2 No. one bed flats; Change of use and extension of 51 Sea Road to 7 No. two bed flats; Erection of 2 No. three and four storey buildings containing 14 No. two bed flats and 1 No. one bed flat; Erection of 7 No. three storey houses fronting St. Clements Road (together with basement parking), following demolition of 47 and 49 Sea Road, without compliance with the plans condition attached to F/TH/10/0525 to allow for alterations to design and layout	7.5	Permission Granted 29.07.2016	1	No	No		n/a	No
56	F/TH/15/1204	Erection of 39No. dwellings with formation of vehicular access to Manor Road and associated parking and landscaping	9.2	Awaiting Decision	1	No	No		n/a	No
57	16/00044	Erection of a guyed steel lattice mast (324m in height) with 9 anchor points, installation of telecommunications and associated equipment, site compound, secure fencing, single storey equipment structure, and associated works.	7.7	Refused on 06/02/2017	1	No	No		n/a	No
58	16/00045	Erection of a 4230sqm research, development and manufacturing building, ancillary office floorspace (Class B2), car park and servicing area	10.6	permission granted 22.04.2016	1	No	No		n/a	No
59	15/01100	Erection of 15 care units (Use Class C2), comprising of 8 semi-detached, 1 detached and 6 apartments; conversion and extension of Goose Barn to provide communal facilities to include manager's office, guest suite and activities room; provision of vehicular and cycle parking together with internal access arrangement works and junction improvements; and associated landscape and tree works	17.2	Refused Planning Permission on 28/09/2016	1	No	No		n/a	No
60	R/TH/16/0128	Application for the approval of appearance, layout and scale pursuant to condition 1 of planning permission reference F/TH/13/0760 for the installation of 3.1km underground high voltage DC cable from Pegwell Bay to Former Richborough Power Station, together with erection of converter station building, substation building, spare parts building, storage unit, outdoor electrical equipment for substation and for converter station, associated temporary construction compounds, and fence to boundary of substation and converter station	7.3	Permission granted 24.05.2016	1	No	No		n/a	No
61	13/00701	Erection of a biomass combined heat and power plant with fuel storage and associated works	10.6	Granted Permission 15/06/16	1	No	No		n/a	No
62	15/01206	Variation of Conditions 2, 5, 7, 8, 9, 10, 11 and 17 of planning permission DOV/14/00091 for the use of land for additional log storage processing area and wood chip store in association with biomass combined (application under Section 73)	10.6	Permission granted 15.06.2016	1	No	No		n/a	No
63	15/01205	Variation of Conditions 2, 6, 7, 9, 10, 11, 12, 13 and 20 of planning permission DOV/13/00701 to allow amendments to documents and plans for the erection of a biomass combined heat and power plant with fuel storage and associated works (application under Section 73)	10.6	granted 15.06.2016	1	No	No		n/a	No
64	L/TH/16/0029	Application for listed building consent for internal alterations to facilitate change of use to 12No. flats	7.8	WITHDRAWN	1	No	No		n/a	No
65	15/01225	Erection of ten dwellings and associated garages, parking and vehicular access	13.9	Grant Permission 21/09/16	1	No	No		n/a	No



66	F/TH/15/1261	Erection of part 3, part 4 storey building containing 12No. 2-bed flats, together with access and parking following demolition of existing bungalow	6.1	Grant Permission 30/09/16	1	No	No		n/a	No
67	F/TH/16/0028	Change of use of part existing residential institution to 12No. flats together with erection of 2No. two storey dwellings	7.8	WITHDRAWN	1	No	No		n/a	No
68	F/TH/16/0245	Erection of four storey science block with delivery access	9.9	Granted Permission 27/05/16	1	No	No		n/a	No
69	OL/TH/15/1303	Outline application for the erection of 157 dwellings with associated open space and parking provision, with consideration of access and scale	6.2	Granted Permission 20/01/17	1	No	No		n/a	No
70	F/TH/14/1170	Change of use from casino to public house (1,803sqm) with terrace, and unit/s for use as retail, financial and professional services, restaurants and cafés, drinking establishments or hot food takeaway (1,176sqm)	6.9	permission granted on13.04.2016	1	No	No		n/a	No
71	F/TH/16/0244	Variation of condition to attach to planning permission F/TH/15/0141 for the change of use of agricultural land to sports field and formation of astro pitch, with flood lighting in association with the school, together with change to land level, to allow the formation of a practice hockey pitch with associated flood lighting.	5.3	Granted permission 9.06.2016	1	No	No		n/a	No
72	OL/TH/15/0956	Outline application for the erection of 28No. 3 to 5 bed dwellings with associated access from Cliffside Drive	6.8	Granted at appeal 09/02/2017	1	No	No		n/a	No
73	F/TH/16/0003	Erection of 4 storey building to accommodate 19.No.2 bed flats and 3No. 3 bed flats with associated landscaping	5.9	Awaiting Decision	1	No	No		n/a	No
74	F/TH/16/0028	Change of use of part existing residential institution to 12No. flats together with erection of 2No. two storey dwellings Open for Comment	7.8	WITHDRAWN	1	No	No		n/a	No
75	OL/TH/16/0376	Outline application for the erection of 48No. dwellings comprising of 9No. 2-bed dwellings, 8No. 2-bed flats, 28No. 3-bed and 3No. 4-bed dwellings including access layout and scale	5.4	Awaiting Decision	1	No	No		n/a	No
76	F/TH/15/0770	Erection of 17No. dwellings with associated parking and access from Manor Road	8.6	Permission granted 19.05.2016	1	No	No		n/a	No
77	F/TH/16/0293	Erection of 2No. three storey buildings to accommodate 10No. self contained flats, with associated access and parking	5.7	WITHDRAWN	1	No	No		n/a	No
78	F/TH/15/0983	Change of use from retail to 3No. 3-bed flats, 8No. 2-bed flats and 2No. 1-bed flat, together with erection of second floor and roof extension, insertion of 6No. dormer windows to front elevation and 3No. dormer windows to rear elevation, installation of balconies to rear elevation and external alterations to ground floor front elevation without compliance of conditions 2,4,6, 11 and 13 of planning permission F/TH/14/0660 to alter internal layout, external alterations to window and fascia, materials to rear elevation to render and boundary walls design	5.3	Granted Permission 03/03/16	1	No	No		n/a	No
79	15/00749	Outline application of the erection of up to 32 dwellings with public open space, paddocks and car park for village hall (with some matters reserved)	15.6	Granted Permission 26/02/16	1	No	No		n/a	No
80	F/TH/15/1245	Erection of a 67m high wind turbine following removal of existing	8.2	Granted Permission 19.02.16	1	No	No		n/a	No
81	16/00201	Scoping Opinion under the Environmental Impact Assessment Regulations 2011 (as amended) for the erection of a 305m high communications mast	14.3	decided scoping opinion notification	1	No	No		n/a	No



82	16/00109	Reserved matters application pursuant to outline application DOV/13/00759 for the details of the layout, scale and appearance of the converter station (23.2m high) and substation (12.06 m high), as part of the NEMO Link UK ? Belgium electrical interconnector. (This is a duplicate of the application submitted to Thanet District Council for which some of the development falls within the administrative boundary of Dover District Council).	7.4	permission granted 10.05.2016	1	No	No			n/a	No
83	F/TH/15/0087	Erection of four storey detached building containing 12No. flats following demolition of existing building	6	grant permission 15/01/16	1	No	No			n/a	No
84	F/TH/15/0299	Erection of 12no. Houses with associated parking following demolition of existing buildings	6.5	grant permission 24/12/15	1	No	No			n/a	No
85	15/00599	Reserved matters application for A) Full application for change of use and conversion of two engine sheds to six live/work units and B) Outline application for the erection of nineteen dwellings, 2352m ² of B1(c) accommodation, construction of vehicular access, associated car parking and landscaping (existing buildings/structures to be demolished) for the layout, scale and appearance of the B1 (C) accommodation buildings (pursuant to Condition 33 of approved outline permission DOV/12/00460)	17.1	grant permission 11/12/15	1	No	No			n/a	No
86	15/00430	Erection of a B2 Industrial Unit with ancillary offices, secure vehicular service yard, car parking and creation of access road	10.5	grant permission 30/10/15	1	No	No			n/a	No
87	12/01017/A	Non material amendments to conditions 3, 4, 6, 16, 21 & 23 of planning ref: DOV/12/01017	7.1	granted permission 27/11/15	1	No	No			n/a	No
88	F/TH/15/0368	Erection of three storey building to accommodate 32no. flats with associated car parking, following demolition of existing building	5.3	permitted	1	No	No			n/a	No
89	F/TH/15/0291	Erection of 8no. Two and three storey dwellings and 2no. Roof terraces following demolition of existing buildings	5.2	grant permission 21/08/15	1	No	No			n/a	No
90	15/00788	Variation of condition 2 of planning permission DOV/13/00701 for amendments to the approved documents (Supporting Statement - relating to the Waste Incineration Directive in respect of the total annual boiler feed) (section 73 application)		decided - withdrawn	1	No	No			n/a	No
91	F/TH/15/0278	Erection of four storey building accomodating 13no. flats with associated parking and landscaping following demolition of existing building	5.4	granted permission 04/08/15	1	No	No			n/a	No
92	15/00588	Development of a waste management facility for the sorting of a skip waste		Raise no objection	1	DUPLICATION OF APPLICATION KCC/DO/0171/2015 ABOVE				n/a	No
93	F/TH/15/0142	Erection of three storey building containing 10no. self-contained flats following demolition of existing building, with formation of parking area to rear	8.3	grant permission 18/06/15	1	No	No			n/a	No
94	15/00115	Photovoltaic solar farm, grid connection, grid connection cable, access and associated works	13.2	grant permission 29/05/15	1	No	No			n/a	No
95	F/TH/15/0160	Erection of 11No. 2 Bed dwellings with formation of vehicular access from Westbrook Road without compliance with condition 2 of planning permission F/TH/13/0966 to amend roof materials	5.5	grant permission 12/05/15	1	No	No			n/a	No
96	14/00916	Construction of a reservoir	17.3	grant permission 11/05/15	1	No	No			n/a	No



97	15/00430	Erection of a B2 Industrial Unit with ancillary offices, secure vehicular service yard, car parking and creation of access road	10	grant permission 30/10/15	1	No	No		n/a	No
98	R/TH/14/1085	Application for reserved matters of outline application OL/TH/13/0370 for the erection of part single, three and four storey buildings for a mixed use development of live-work space, comprising 25 artists apartments	5.9	grant permission 27/04/15	1	No	No		n/a	No
99	15/00136	National Grid's Proposed Richborough Connection Project		decided - raise no objection	1	DUPLICATION OF APPLICATION EN020017 BELOW			n/a	No
100	F/TH/14/0422	Demolition of existing side extension, to facilitate the redevelopment of 13 No. self-contained apartments together with associated car parking without compliance with conditions 4 and 6 of planning permission F/TH/05/0905 to relocate bay on front elevation, alter windows, doors and dormer windows and add gables to rear elevation	5.2	grant permission 23/03/15	1	No	No		n/a	No
101	14/00842	Outline application for the erection of 73 residential dwellings and related infrastructure, together with the creation of meadow-land (existing buildings to be demolished) (all matters reserved)	13.6	grant permission 06/03/15	1	No	No		n/a	No
102	F/TH/14/0656	Erection of 2no. two bed semi detached dwellings and a three storey building comprising of 6no. three bed terrace dwellings with associated parking and access leading to Albion Road, following demolition of existing buildings without compliance with conditions 3 and 7 of planning permission F/TH/08/0969 to allow for revised joinery and window details	6.2	grant permission 19/02/15	1	No	No		n/a	No
103	13/00759/B	Non-material amendments to planning permission DOV/13/00759 to enable schemes relating to conditions 22 (Site Waste Management Plan), 23 (Incident Management Plan) and 24 (Landscaping) to be phased	7.4	grant permission 15/04/15	1	No	No		n/a	No
104	13/00759/A	Non-material amendment to planning permission DOV/13/00759 - revision of ground levels	7.4	grant permission 15/04/15	1	No	No		n/a	No
105	14/00972	Erection of a two storey science building (existing building to be demolished)	15.5	grant permission 07/01/15	1	No	No		n/a	No
106	OL/TH/14/0536	Outline application for erection of hotel with spa, gym, swimming pool, restaurant and bar, terrace and outdoor seating area with steps from promenade to Fort Hill and sea defence plinth, including layout, scale and access	6.2	grant permission 28/10/14	1	No	No		n/a	No
107	14/00727	Installation of 16 ground mounted solar panels	17	grant permission 17/10/14	1	No	No		n/a	No
108	F/TH/14/0616	Change of use of first, second and third floors and part of ground and basement floors from amusement arcade and bingo hall to 3No. 3-bed maisonettes and 4No. 4-bed maisonettes, installation of railings to front and rear at first floor level to create balconies, erection of dormer windows to rear roof slope and installation of windows and doors to front and rear elevations	5.6	grant permission 22/08/14	1	No	No		n/a	No
109	F/TH/14/0455	Erection of two-storey building to accommodate 22No. hotel bedrooms without compliance with condition 2 of planning permission F/TH/13/0500 to allow the installation of air conditioning units and 2.1m high fenced enclosure	7.2	grant permission 21/07/14	1	No	No		n/a	No
110	14/00437	Storage of Hazardous Substances	11.1	grant permission 15/07/14	1	No	No		n/a	No



111	14/00475	Installation of 410 solar panels to western facing roofslope and 390 to eastern facing roofslope	8.3	grant permission 26/06/14	1	No	No			n/a	No
112	14/00359	Installation of overhead network cables	12.7	grant permission 11/06/14	1	No	No			n/a	No
113	14/00091	The use of land for additional log storage processing area and wood chip store in association with biomass combined	10.6	grant permission 20/05/14	1	No	No			n/a	No
114	13/00794	Creation of a 5MW solar Farm with associated solar panels, invertors, sub-stations, security fencing, access, infrastructure and associated works	7.4	grant permission 24/01/14	1	No	No			n/a	No
115	14/00058	Outline application for the redevelopment of site to include: demolition of some existing buildings (and associated infrastructure); change of use of some existing buildings (from B1 to use classes: B2, B8, Sui Generis (Energy) and D1 uses); the provision of new commercial (use classes: A3/4, B1, B2, B8, C1, D1 and Sui Generis) and residential (use class: C3) development; associated site preparation/enabling, infrastructure, and landscaping works; and provision of car parking (with some matters reserved)	10.5	grant permission 02/09/15	1	No	No			n/a	No
116	13/00759	Installation of 720m of underground high voltage direct current (HVDC) cable, temporary construction compound, erection of security fencing, construction of access road and hard landscaping (This is part of a duplicate of an application submitted to Thanet District Council for - Installation of 3.1km underground high voltage direct current (HVDC) cable from Pegwell Bay to former Richborough Power Station, being part of a 130km HVDC electrical interconnector with an approximate capacity of 1000 megawatts (MW) extending from Zebbrugge (Belgium) to the former Richborough Power Station site, together with outline application for the erection of converter station building (max height 30.8m), substation building (max height 15m) outdoor electrical equipment for substation (max height 12.7m) and for converter station (max height 11.8m), underground cables from substation and converter station and construction of internal roads, including access and landscaping, together with associated temporary construction compounds).	7.4	grant permission 19/12/13	1	No	No			n/a	No
117	13/00783	Outline application for the redevelopment of the site to provide a foodstore with associated car parking, petrol filling station (to include associated kiosk and car washing facilities), access and servicing arrangements and landscaping (to include removal of existing surface infrastructure)	9.8	grant permission 29/04/15	1	No	No			n/a	No
118	13/00701	Erection of a biomass combined heat and power plant with fuel storage and associated works	10.6	grant permission 18/10/13	1	No	No			n/a	No
119	12/01017	Redevelopment of a 1.22 ha (3.02 acre) part of the Richborough Power Station site to create a 42.4 MW capacity sui generis Peaking Plant Facility with associated areas for parking, access, landscaping and associated works, including 4 x 35 metres high exhaust stacks	7.4	granted permission	1	No	No			n/a	No

120	16/01049	Outline application for the erection of 90 dwellings, new vehicular and pedestrian access from Chequer Lane, public open space and landscape buffer and associated infrastructure with all matters reserved	14	unknown	1	No	No			n/a	No
121	F/TH/16/1265	Erection of 3 and 4 storey building comprising of 23no. self contained flats	6	Withdrawn on 21/12/2016	1	No	No			n/a	No
122	F/TH/16/1289	Erection of 4-storey building containing 11No self contained flats together with retail unit at ground floor level following demolition of existing buildings	9.5	Awaiting Decision	1	No	No			n/a	No
123	F/TH/16/1051	Change of use from residential care home to 2no 5 bedroom houses and 8no. 2 bedroom flats together with single storey rear extension and alterations to fenestration	6.2	Granted Permission on 24/01/2017	1	No	No			n/a	No
124	F/TH/11/0977	Change of use and conversion of hotel to 3no. dwellings together with the erection of 6no. dwellings to the rear	6.2	grant permission	1	No	No			n/a	No
125	OL/TH/16/1500	Outline application for the erection of 64no. bedroom care home (Class C2 use) and associated external works including access, appearance, layout and scale Land West Of Hundreds Farm House Canterbury Road Westgate On Sea Kent	7.3	Awaiting Decision	1	No	No			n/a	No
126	OL/TH/16/1473	Application for outline planning permission for the erection of up to 24no. dwellings including details of access	8.3	Awaiting Decision	1	No	No			n/a	No
127	F/TH/16/1417	Erection of 2 new Industrial Units for B8 use for Storage and Distribution, together with creation of new access route and ground profiling to provide landscape shielding of access way and development	7.4	Awaiting Decision	1	No	No			n/a	No
128	OL/TH/16/1527	Outline application for the erection of 6No 4 bedroom semi-detached properties following demolition of no's 11 & 15 Lawn Road, including appearance, layout and scale	12	withdrawn on 30/01/2017	1	No	No			n/a	No
129	16/01247	Outline application for the erection of 30no. dwellings, creation vehicular access and parking (existing barns to be demolished)	15.2	unknown	1	No	No			n/a	No
130	F/TH/16/1114	Erection of a 32no. bed annexe to care home together with service road and parking	5.3	Grant Permission on 20/01/2017	1	No	No			n/a	No
131	16/01473	Erection of 6 detached dwellings with associated access roads and landscaping and provision of a managed nature area	19.7	Registered	1	No	No			n/a	No
132	16/01475	Prior approval for the erection of an agricultural building	13.8	Decided 18/01/2017	1	No	No			n/a	No
133	EN010084	Thanet Extension Offshore Wind Farm. A offshore wind generating station of capacity up to 340 MW	-4	Pre-application. Scoping submitted. Application expected to be submitted to PINS in Q1 2018	2	Yes	Yes	Construction phases could potentially overlap	Potential to give rise to cumulative ecological, historic env., landscape and visual effects	n/a	Yes
134	EN020017	Richborough Connection. Proposed 400kV electricity transmission connection between Richborough and Canterbury in Kent to connect the proposed new UK to Belgium interconnector (Known as a Nemo Link)	-3	08/03/2017 - deadline for Planning Inspectorate to submit recommendation	2	Yes. Not within the SPZ.	Yes	Construction phases could potentially overlap	Potential to give rise to cumulative ecological, historic env., visual, noise, AQ and transport effects	n/a	Yes
135	TR010006	M20 Junction 10a. New Junction and Associated Improvement - South of Ashford	38.6	Relevant representations published on the website	2	No. Although poss. within the transport ZOI	Yes	?	Potential to give rise to cumulative traffic and transport effects	n/a	Yes



136	EN010036	Kentish Flats Extension. The proposed development comprises the erection of 10 to 17 wind turbines with a maximum tip height of 145 metres, monopile foundations, and underwater cabling to connect the turbines together and to export the electricity generated. The export cables will come ashore close to Hampton Pier where they will connect to the onshore underground electricity cables in a transition pit. A full list of the works that are comprised in the proposed development is contained within the Project Design Statement	-15	Decided 20/02/13	2	No.	No	(already constructed)		n/a	No
137	N/A	M20 to A2070 Link Road. A new highway from a new junction with the A2070 trunk road to the east to a new junction 10a of the M20 to the west. The project is the first phase of the Highway Agency's M20 J10a project, which is currently in abeyance due to lack of funding. This project is being developed by the promoters who are providing the shortfall in funding to allow it to proceed. As well as relieving congestion on the A2070 and M20 the highway will serve a development at Sevington that is also being developed by the promoters		Withdrawn	2	No.	No (app withdrawn)			n/a	No
138	N/A	Thanet Parkway Railway Station	0.8	Consultation ended 19/03/2017	3	Yes	Yes	Construction phases likely to overlap	Potential to give rise to cumulative transport/traffic, noise, landscape and visual, ecological, hist env, GW/SW, socio-econ effects	n/a	Yes

RiverOak Investments Corp

Manston Airport DCO EIA

Ecological Desk Study



May 2017

Amec Foster Wheeler Environment
& Infrastructure UK Limited



Report for

RiverOak Investment Corp

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Document revisions

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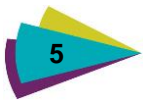


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Appendix A	Scientific names of species referred to in this report
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1. Introduction

1.1 Background

RiverOak Strategic Partners (RiverOak) is planning to reopen Manston Airport (hereon within this report referred to as the Site) as a new air freight and cargo hub for the South East. This Site, covering approximately 325 hectares (ha), is located within the district of Thanet in Kent, close to the coastal town of Ramsgate. The approximate central point of the Site is at National Grid Reference (NGR) TR 330 657.

There was an operational airport at the Site between 1916 and 2014. Until 1998 it was operated by the Royal Air Force as RAF Manston, and, for a period in the 1950s, was also a base for the United States Air Force (USAF). From 1998 it was operated as a private commercial airport with a range of services including scheduled passenger flights, charter flights, air freight and cargo, a flight training school, flight crew training and aircraft testing. In the most recent years it was operating as a specialist air freight and cargo hub servicing a range of operators. Although the airport was closed in May 2014, much of the airport infrastructure, including the runway, taxiways, aprons, cargo facilities and passenger terminal remain intact.

The proposed Manston Airport development involves the development of an air freight and cargo facility with the capacity to handle more than 10,000 air transport movements (ATMs) of cargo aircraft per year as part of the provision of air cargo transport services.

1.2 Purpose of report

This report details the methods adopted and results of an ecological desktop study for the Site. These results will be used, along with the results from other ecological studies, to inform an Environmental Impact Assessment (EIA) to support a Development Consent Order (DCO) application for the Site.



2. Defining Protected and Notable Species and Habitats

A number of sites, habitats and species are protected or controlled through either statute, or national or local policy. Boxes 1 and 2 define and provide details of those that are considered within this report. The scientific names of all species cited in this report are provided in Appendix A. Further details of legislation and policy related to biodiversity are provided in Appendix B.

Box 1 Designated Wildlife Sites, and Priority Habitats and Species

Statutory nature conservation sites

Internationally important Sites: Special Areas of Conservation (SACs) and candidate SACs, Special Protection Areas (SPAs) and proposed SPAs, Sites of Community Importance, Ramsar Sites and European offshore marine Sites.

Nationally important Sites: Sites of Special Scientific Interest (SSSIs) that are not subject to international designations and National Nature Reserves (NNRs)

Local Nature Reserves (LNRs) are statutory Sites that are of importance for recreation and education as well as nature conservation. Their level of importance is defined by their other statutory or any non-statutory designation (e.g. if an LNR is also an SSSI but is not an internationally important Site, it will be of national importance). If an LNR has no other statutory or non-statutory designation it should be treated as being of district-level importance for biodiversity (although it may be of greater socio-economic value).

Non-statutory nature conservation sites

Local Wildlife Sites (LWS): In Kent LWS are designated on a county level, by a specialist panel that includes representatives from that includes amongst others Kent County Council, Natural England and the Kent Wildlife Trust. Kent LWS were previously known as Sites of Nature Conservation Importance (SNCIs).

Priority habitats and species

In this report, the geographic level at which a species/habitat has been identified as a priority for biodiversity conservation is referred to as its level of 'species/habitat importance'. For example, habitats and species of principal importance for the conservation of biological diversity in England (see the third bullet point below) are identified as of national species/habitat importance reflecting the fact that these species/habitats have been defined at a national level. The level of importance therefore pertains to the species/habitat as a whole rather than to individual areas of habitat or species populations, which cannot be objectively valued, other than for waterfowl, for which thresholds have been defined for national/international 'population importance'.

- ▶ International importance: populations of species or areas of habitat for which European Sites are designated;
- ▶ International importance: populations of birds meeting the threshold for European importance (1% of the relevant international population);
- ▶ National importance: habitats and species of principal importance for the conservation of biological diversity in England, and listed under Section 41 (s41) of the Natural Environment and Rural Communities (NERC) Act 2006. These habitats and species are listed on: <http://jncc.defra.gov.uk/page-5705> They include those former UK Biodiversity Action Plan (UK BAP) priority habitats and species that occur in England;
- ▶ National importance: Species listed as being of conservation concern in the relevant UK Red Data Book (RDB) or Birds of Conservation Concern (BoCC) Red List¹ (Eaton *et al.*, 2015);
- ▶ National importance: Nationally Scarce species, which are species recorded from 16-100 10x10km squares of the national grid;
- ▶ National importance: Populations of birds comprising at least 1% of the relevant British breeding/wintering population (where data are available);
- ▶ National importance: Ancient woodland (i.e. areas that have been under continuous woodland cover since at least 1600); and
- ▶ County importance: Species and habitats listed in the Kent local Biodiversity Action Plan (LBAP)².



Box 2 Legally Protected and Controlled Species

Legal protection

Many species of animal and plant receive some degree of legal protection. For the purposes of this study, legal protection refers to:

- ▶ Species included on Schedules 1, 5 and 8 of the *Wildlife and Countryside Act 1981* (as amended), excluding:
 - ▶ species that are only protected in relation to their sale (see Section 9[5] and 13[2]), reflecting the fact that the proposed development does not include any proposals relating to the sale of species; and
 - ▶ species that are listed on Schedule 1 but that are not likely to breed on or near the Site, given that this schedule is only applicable whilst birds are breeding;
- ▶ Species included on Schedules 2 and 5 of The *Conservation of Habitats and Species Regulations 2010* (as amended); and
- ▶ Badgers, which are protected under the *Protection of Badgers Act 1992*.

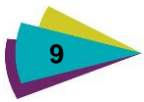
A summary of the legislation pertaining to faunal species that may occur on the Site is provided in Appendix B.

Legal control

Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) lists species of animal that it an offence to release or allow to escape into the wild and species of plant that it is an offence to plant or otherwise cause to grow in the wild.

¹ Red-listed criteria include: historical decline in the breeding population; and/or severe breeding population decline over 25 years/longer term; severe non-breeding population decline over 25 years/longer term; severe breeding range decline over 25 years/longer term; severe non-breeding range decline over 25 years.

² Kent BAP (2016) [Online] Available from: <http://www.kentbap.org.uk/>



3. Methods

3.1 Desk study

A data-gathering exercise was undertaken to obtain information relating to statutory and non-statutory nature conservation sites, priority habitats and species, and legally protected and controlled species (see Boxes 1 and 2). Data were requested from Kent and Medway Biological Records Centre (KMBRC) and obtained through a review of the Multi-agency Geographic Information for the Countryside (Magic)³ website, open access aerial mapping resources⁴ and aerial photographs of the Site and surrounding area and from Ordnance Survey maps⁵. Data were gathered for:

- ▶ Statutory designated sites (national and international) on or within a 10 kilometre (km) radius of the Site;
- ▶ Non-statutory designated sites of nature conservation interest located on, or within 2 km of the Site;
- ▶ Ancient woodland and other national/local priority habitats on, or within 5 km of the Site (where not already covered by statutory and non-statutory sites);
- ▶ Records of legally protected and otherwise notable species made on, or within 5 km of the Site, including records of bats and bat roosts from the Kent Bat Group;
- ▶ Water bodies (potential great crested newt breeding habitat) within 500 metres (m)⁶ of the Site, not separated from the Site by barriers (e.g. major roads, rivers, etc.) to great crested newt movement.

Analysis of species data focuses only on records from post 2000, as older records may not give an accurate picture of the current ecological interest on the Site. This contextual information is important as it may point to notable species that could occur on the Site itself.

Further data and contextual information was obtained from the following sources:

- ▶ Natural England (NE): studies commissioned by NE into the numbers and distribution of golden plover in the Sandwich Bay and Thanet area, the results of which are reported in Griffiths (2004) and Henderson & Sutherland (2017);
- ▶ Sandwich Bay Bird Observatory (SBBO): provided a map showing the main locations for wintering golden plover in the Sandwich Bay area, derived from ongoing studies into the species by the SBBO;
- ▶ Kent Ornithological Society (KOS): bird records were extracted from their online database, for all species within 5 km of the Site (<http://birdgroups.co.uk/kos/default.asp>, accessed in August 2016);
- ▶ Kent Bird Report 2014: an annual report published by the Kent Ornithological Society, containing notable bird records in Kent for 2014 (Privett [ed] 2016);
- ▶ Kent Breeding Bird Atlas 2008-13 (Clements *et al.*, 2015). Results from a county-wide survey, mapping the distribution of all breeding bird species at a tetrad (2x2 km) resolution; and
- ▶ British Trust for Ornithology (BTO): Wetland Bird Survey (WeBS) core count data for 1995/96-2014/15 inclusive, and low tide data for 2002/03 and 2008/09 (the most recent winters for

³ <http://magic.defra.gov.uk/MagicMap.aspx>

⁴ <http://maps.google.co.uk>

⁵ <https://www.ordnancesurvey.co.uk/osmaps>

⁶ English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough. This states that 500 m is generally accepted to be the dispersal distance of great crested newts over land, between breeding ponds. Note: English Nature is now Natural England.



which data was available) was purchased from the BTO, for their Pegwell Bay count sector. In addition, further core count and low tide data for Pegwell Bay was from obtained from the BTO website (www.bto.org).

4. Results

4.1 Statutory nature conservation sites

There are 17 statutory designated nature conservation sites within 10 km of the Site. Summary descriptions of these, with the approximate distances from the Site (in ascending order) are provided in Table 4.1, and their locations in relation to the Site are shown on Figure 4.1.

Table 4.1 Statutory designated nature conservation sites within 10 km of the Site

Site name and designation	Site interest features	Distance (metres) and direction from Site
International		
Thanet Coast and Sandwich Bay – Ramsar	The Ramsar site (covering 2,169 ha) is designated for supporting internationally important numbers of non-breeding turnstone (under Ramsar Criterion 6), and 15 Red Data Book invertebrate species associated with wetlands (under Criterion 2). In addition, the Ramsar site supports nationally important numbers of ringed plover and greenshank during spring/autumn passage, and golden plover, sanderling, red-throated diver and great crested grebe in winter.	925 m South-east
Thanet Coast and Sandwich Bay – SPA	The SPA (covering 1,838 ha) is designated for populations of European importance of turnstone (non-breeding); golden plover (non-breeding) and little tern (breeding)	925 m South-east
Sandwich Bay – SAC	The SAC (covering 1,137 ha) has primarily been designated due to the presence of four Annex I habitats: embryonic shifting dunes; shifting dunes along the shoreline with European marram grass - 'white dunes'; fixed coastal dunes with herbaceous vegetation; and dunes with <i>Salix repens</i> ssp. <i>Argentea</i> .	925 m South-east
Thanet Coast – Marine SAC	The Marine SAC (covering 2,816 ha) contains the longest continuous stretch of coastal chalk in the UK, and is primarily designated for two Annex I Habitats: Reefs, and submerged or partially submerged sea caves.	925 m South-east
Outer Thames Estuary – Marine SPA	This marine Sea inlet (covering 379,824 ha) regularly supports internationally important numbers of the Annex I Species (red-throated diver) in winter.	3,500 m North
Margate and Long Sands – Site of Community Importance SCI (Inshore Marine)	Margate and Long Sands starts to the north of the Thanet coast of Kent and proceeds in a north-easterly direction to the outer reaches of the Thames Estuary. It contains a number of sand banks (an Annex I habitat) slightly covered by seawater at all times, the largest of which is Long Sands itself.	4,840 m North
Stodmarsh – SAC	The SAC (covering 563 ha) is designated for a sizeable population of the rare Desmoulin's whorl snail that lives beside ditches within pastures on the floodplain of the River Stour where reed sweet-grass, large sedges and common reed dominate the vegetation.	7,700 m South-west
Stodmarsh – Ramsar	The Ramsar site (covering 481 ha) is designated under Ramsar Criterion 2 for supporting: six British Red Data Book wetland invertebrates; 2 nationally rare and 5 nationally scarce plant species; and its diverse assemblage of rare wetland birds which includes gadwall during passage and the breeding season, and bittern, shoveler and hen harrier in winter. Otter is also recorded here.	8,450 m South-west
Stodmarsh - SPA	The SPA (covering 481 ha) is designated for its populations of European importance of bittern, gadwall, shoveler and hen harrier (during winter), and gadwall during the breeding season.	8,450 m South-west
National		

Site name and designation	Site interest features	Distance (metres) and direction from Site
Sandwich and Pegwell Bay – NNR	The NNR (covering 629 ha) contains a complex mosaic of habitats including inter-tidal mudflats, saltmarsh, shingle beach, sand dunes, ancient dune pastures, chalk cliffs, wave cut platform and coastal scrubland. It supports the only ancient dune pasture in Kent. The reserve is of international importance for its wader and wildfowl populations. 615 Hectares (ha) of the NNR is managed as a Kent Wildlife Trust Reserve.	925 m South-west
Sandwich Bay to Hacklinge Marshes – SSSI	The SSSI (covering 1,790 ha) contains the most important sand dune system and sandy coastal grassland in South East England. There are also a wide range of other habitats such as mudflats, saltmarsh, chalk cliffs, freshwater grazing marsh, scrub and woodland are found here. This SSSI comprises grazing marsh habitats within Minster Marshes and often supports large wintering populations of waders, some of which regularly reach levels of National Importance. Associated with the SSSI are outstanding assemblages of both terrestrial and marine plants and invertebrates. Notified features include: non-breeding populations of golden plover, grey plover, ringed plover and sanderling, and the assemblage of breeding birds within areas of lowland open waters and their margins.	925 m South-east
Thanet Coast - SSSI	The SSSI (covering 817 ha) is notified for its coastal habitats and the plant and invertebrate communities they support; geological features and breeding and non-breeding bird populations. Non-breeding populations of golden plover, grey plover, ringed plover and sanderling; breeding little tern; and the variety of passage bird species all form notified features of the SSSI.	4,500 m East
Stodmarsh – NNR	The NNR (covering 249 ha) supports internationally important habitats including reedbeds, fens, ditches, wet grassland and open water which provide an ideal habitat for breeding and wintering birds, invertebrates and rare plants. Water voles are found on the reserve.	7,700 m South-west
Stodmarsh – SSSI	The SSSI (covering 623 ha) is notified for its wetland habitats and the plant and invertebrate communities they support. The SSSI is also notified for its breeding bird assemblage associated with open waters and their margins, and specifically for nationally important breeding populations of bearded tit, Cetti's warbler, gadwall, pochard and shoveler.	7,700 m South-west
Preston Marshes - SSSI	The SSSI (covering 43 ha) is the last remaining area of fen vegetation within the Little Stour Valley, and is notified for its reedswamp habitat and the presence of the plant, sharp-leaved pondweed.	8,900 m South-west
Local		
Prince's Beachlands LNR	A narrow coastal site located between two sections of Sandwich and Pegwell Bay NNR and within the Sandwich Bay to Hacklinge Marshes SSSI. A complex mosaic of habitats of international importance for its bird populations.	~3,680m South-east
Bishopstone Cliffs LNR	A clifftop grassland important for insects, with some rare varieties, and birds, such as sand martin (nesting in the cliffs), skylark, meadow pipit and corn bunting. The LNR is part of Reculver Country Park.	~9,220m North-west

4.2 Non-statutory nature conservation sites

There is one non-statutory site located within 2 km of the Site boundary: Woods and Grassland, Minster Marshes Local Wildlife Site (LWS ref. TH12). The LWS is located approximately 1.6 km to the south of the Site.

4.3 Priority habitats

No National and/ or Local Priority habitats occur within the Site. The following National and/ or Local Priority habitats are known to occur within 2 km of the Site:

- ▶ Embryonic shifting dunes, white dunes (containing herbaceous vegetation) and Dunes with *Salix* spp. are found within Sandwich Bay SAC, qualifying as an Annex I habitats.
- ▶ Reefs and submerged or partially submerged sea caves are found along Thanet coast.
- ▶ Intertidal mudflats, saltmarsh, shingle beach, ancient grazing dunes, chalk cliffs, wave-cut platforms and coastal scrub are all found within the Sandwich Bay to Hacklinge Marshes SSSI.
- ▶ Hedgerows and fresh standing water may also occur, though none were noted on the returned data search.

4.4 Water bodies

Six water bodies were identified within 500 m of the Site (see Figure 4.2), of which one was located within the Site itself; and another lies adjacent to the Site, at its northern tip. The water bodies outside the Site are all separated from the Site by main roads/ dual carriageways, with two south of the A299, one north-west of the B2190 and one north-east of the B2050 (the Manston Road).

4.5 Protected or otherwise notable species

The following legally protected and otherwise notable species have been recorded within 5 km of the Site since 2000. Where possible, a measurement of the distance from the Site is provided. Species with the potential to utilise the Site (for example, for foraging, roosting or breeding) are discussed further, as follows:

Birds

KMBRC provided a summary table of the bird records they hold within 5 km of the Site. Table C1 in Appendix C shows a summary of the records of protected or otherwise notable bird species provided (as defined in Box 1). Further details of the numbers and occurrence of bird species that form the qualifying or notified interest of statutory designated sites of nature conservation value (shown in Table 4.1) is discussed, as follows:

Golden Plover

The Thanet Coast & Sandwich Bay SPA was originally designated in part for the internationally important non-breeding population of golden plover that it supports. Nationally important numbers of non-breeding golden plover are also notified features of the Sandwich Bay to Hacklinge Marshes SSSI and Thanet Coast SSSI. However, as part of the third JNCC SPA review (Stroud *et al.*, 2016), golden plover was removed as a designated species from the SPA (likely due to declining numbers), although this change is, as yet unratified. The UK population was estimated to be 420,000 birds in winter (Musgrove *et al.*, 2013).

There is the potential for golden plover to use the farmland adjacent to the Site for foraging and roosting. These birds would be considered part of the SPA population. Henderson & Sutherland (2017) and Griffiths (2004) and data provided by the SBBO and KOS show that golden plover winter on both intertidal and inland areas around Pegwell Bay, with their main feeding habitats being the arable fields and grazing marshes located inland of the dunes at Sandwich Bay (south of the Site). Very few records of golden plover were located within 2 km to the south, west and north of the Site. Results from the surveys in 2002/03 (Griffiths, 2004) and 2016/17 (Henderson & Sutherland, 2017) indicate that numbers of golden plover have declined in the Sandwich Bay / Thanet area during the intervening years, from a high tide peak count of 4,962 birds (in January 2003) to only 1,536 (in late January 2017).

KMBRC provided a summary of the 1,073 records of golden plover (within approximately 5 km of the Site) they hold, the most recent of which being in 2012 and the closest to the Site, being on the intertidal mudflats of Pegwell Bay. Wetland Bird Survey (WeBS) core count data for Pegwell Bay was purchased from the British Trust for Ornithology (BTO), a summary of which is provided in Table 4.2.

Table 4.2 Peak monthly counts of golden plover in Pegwell Bay, from winters 2000/01-2014/15

Winter	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Peak count	Month
2000/01	196	414	41	950	3160	4000	1070	1404	4000	Feb
2001/02	0	840	2680	6000	7000	2000	3750	3711	7000	Jan
2002/03	0	1350	2450	190	5800	4710	150	2441	5800	Jan
2003/04	62	1410	6240	5500	8000	1125	14	3193	8000	Jan
2004/05	95	0	3830	5200	5330	4500	920	3312	5330	Jan
2005/06	79	2070	550	7000	1900	2500	595	2099	7000	Dec
2006/07	11	663	3730	945	2900	4170	80	1785	4170	Feb
2007/08	25	1500	4500	5500	5000	4200	0	3454	5500	Dec
2008/09	0	0	2000	3500	3230	3150	5	2377	3500	Dec
2009/10	0	700	1200	60	753	1100	410	703	1200	Nov
2010/11	132	160	3400	51	2000	0	0	1148	3400	Nov
2011/12	1	1100	1350	3000	3500	0	0	2237	3500	Jan
2012/13	1	180	2000	2820	4330	2820	285	2072	4330	Jan
2013/14	16	530	820	1050	1093	0	0	701	1093	Jan
2014/15	1	0	1147	2456	0	760	0	1454	2456	Dec

Turnstone

The Thanet Coast & Sandwich Bay SPA and Ramsar site are designated for their internationally important non-breeding numbers of turnstone. The SPA qualifying population of turnstone (of 940 individuals, 5-year peak mean counts from 1991/2-1995/6) represent 1.4% of the Western Palearctic population. Turnstone almost exclusively occur in coastal habitats, foraging and resting on rocky shorelines and beaches, but will also forage along the tidelines on sandy beaches and on mudflats. The Site and surrounding farmland provide no opportunities for foraging or resting turnstone, and therefore the species is unlikely to occur in this area.

The Thanet Coast Turnstone monitoring report (Hodgson, 2016) concluded from six surveys undertaken between 2001 -2010 that the population of turnstone within the SPA varied from 1,087 to 1,335 birds, with a mean of 1,227. A coordinated count in 2013 showed a marked decline, with 620 turnstone counted. Further coordinated counts in winter 2013/14 (two counts) and latterly in 2016 (single count) confirmed this decline, with 583, 664 and 537 birds recorded respectively. It was suggested in Hodgson (2016) that prior to high tide, the turnstones from the Thanet Coast & Sandwich Bay SPA flew to join a roost, 2.5 km west of Whitstable Harbour on the north Kent coast, within the Swale SPA and some 18 km north-west of the Site. This suggestion was based on results from coastal survey plots. It would therefore appear that the birds, as would be expected for this species, are following the coastline around Thanet and not undertaking any overland movements. Tabulated survey results from the report indicate that turnstone concentrations within the Thanet Coast & Sandwich Bay SPA occur mainly across the northern extremities of the SPA, heading west toward Whitstable, with Pegwell Bay supporting only a small proportion of the numbers mentioned here (see Table 4.3).

Little Tern

A breeding population of six pairs of Little tern is a qualification feature of the Thanet Coast & Sandwich Bay SPA, and a notified feature of the Thanet Coast SSSI. However, as part of the third JNCC SPA review (Stroud *et al.*, 2016), little tern was removed as a designated species of the SPA, due to recent extirpation from the SPA, although this change is as yet, unratified. The little tern almost exclusively occurs in coastal habitats, nesting and foraging along shorelines and beaches. The Site and surrounding farmland provides no opportunities for foraging, resting or nesting little tern, and therefore the species is unlikely to occur in this area.

Other SPA/Ramsar qualifying and SSSI notified species

The Sandwich Bay and Hacklinge Marshes SSSI and Thanet Coast SSSI (both constituent SSSIs of the Thanet Coast & Sandwich Bay SPA) are notified (as well as for golden plover) for their nationally important non-breeding numbers of grey plover, ringed plover and sanderling. Table 4.3 Peak winter counts of SSSI species at Pegwell Bay Table 4.3 shows the peak winter counts in Pegwell Bay for the notified feature species of these SSSIs, together with those for turnstone (an SPA designated species). As with turnstone and little tern, grey plover, ringed plover and sanderling primarily inhabit coastal habitats and the Site and surrounding farmland provide no foraging or resting opportunities for these species, and therefore they are unlikely to occur in this area.

Table 4.3 Peak winter counts of SSSI species at Pegwell Bay⁷

Species	2010/11	2011/12	2012/13	2013/14	2014/15
Sanderling	93	120	101	120	106
Ringed plover	27	17	52	17	79
Grey plover	387	370	175	481	230
Turnstone	11	13	65	7	16
Golden ploveris	3,400	3,500	4,330	1,093	2,456

⁷ The figures provided are obtained from WeBS core counts for Pegwell Bay. The winter period is defined as September-March inclusive, covering the months when the species concerned are most likely to be present.

The SSSI is also notified for its breeding bird assemblage associated with lowland open waters and their margins; though none of the species that potentially form this assemblage are likely to utilise the Site or adjacent farmland due to the lack of suitable wetland habitat. Further afield, the Stodmarsh SPA/Ramsar/SSSI is designated for a variety of wetland bird species (see Table 4.1), both during and outside the breeding season. Of these, only hen harrier has the potential to occur within/adjacent to the Site.

Lapwing

Lapwing is not a qualifying or notified feature of the Thanet Coast and Sandwich Bay SPA and its constituent SSSIs, although it is a species of principal importance (as listed under Section 41 of NERC), and is also a BoCC red-listed species in Eaton *et al.* (2015). Lapwing and golden plover occupy very similar habitats in winter (including farmland), with surveys undertaken primarily for golden plover also capturing utilisation by lapwing. KMBRC provided a summary of the 1,271 records of lapwing they hold, within 5 km of the Site, the closest of which is located within the same 10 km grid reference as the Site. A five-year peak mean count of 11,890 lapwing was recorded in Pegwell Bay for the period 2008/09-2012/13 (as obtained from WeBS core count data). Results from the 2016/17 surveys also indicated a decline in lapwing numbers in the area, with a peak count of 6,171 birds recorded in November 2016, and a distribution that was broadly similar to that of golden plover (Henderson & Sutherland 2017). Data obtained from the KOS website (www.kentos.org.uk/) shows that lapwing occur year-round within Pegwell Bay (1.8 km south-east of the Site), with a peak count of 22,000 birds recorded there on the 5 January 2013.

Badger

The location of Badger records is **Error! Reference source not found.** and this information should not be made available in the public domain; such records are therefore located within confidential **Error! Reference source not found.**

Bats

No records of bats were provided from within the Site. Within 5 km of the Site, there were 125 records of bats (since 2000), of at least six species: Common pipistrelle; Nathusius' pipistrelle; soprano pipistrelle; brown long-eared bat; Natterer's bat and serotine. Table 4.4 shows the summarised data received from Kent Bat Group. Further information on the bat records is provided in Table C2 in Appendix A.

Table 4.4 Summary of bat records from within 5 km of the Site.

Species	No. of Records	Date of most recent record	Distance and direction from Site of the nearest record
Brown long-eared bat	20	2015	2.5 km south-west
Common pipistrelle	44	2015	1.0 km north-west
Nathusius' pipistrelle	2	2015	2.9 km north-east
Soprano pipistrelle	14	2015	2.4 km south-west
<i>Pipistrellus Spp.</i>	15	2015	1.5 km south-west
Natterer's bat	23	2015	3.4 km north-west
Serotine	1	2001	2.2 km south-east
<i>Chiroptera Spp.</i>	6	2015	2.0 km north-east

The closest record was of three grounded common pipistrelles, 1.0 km north-west of the Site, in 2012. The closest roost is located, 2.4 km to the south-west of the Site, with a peak count of 668 individual soprano

pipistrelles utilising the roost; this count was undertaken in July and included juveniles on the wing. Typically, this roost supports between 250 and 350 fully grown (adult) bats.

Dormouse

The desktop study revealed no records of dormouse since 2000 within the 5 km radius of the Site.

Water vole and otter

The study revealed that since 2000 there have been 130 records of water vole within 5 km of the Site. The closest of these were at Minster Marshes, 2.8 km south of the Site. One dated record of otter exists from 1952, which was 4.9 km south of the Site.

Amphibians

KMBRC data provided one record of great crested newt, in 2011 at Monkton Chalk Pit Nature Reserve, 2.9 km to the west of the Site. Records of three further native amphibian species were provided (see Table 4.5).

Table 4.5 Summary of amphibian records within 5 km of the Site

Species	Number of records since 2000	Distance and direction of the closest record to the Site
Common frog	46	2.2 km east
Common toad	1	2.0 km east
Smooth newt	8	1.7 km south

Reptiles

KMBRC provided records of three species of reptile within 5 km of the Site, a summary of which is shown in Table 4.6.

Table 4.6 Summary of reptile records within 5 km of the Site

Species	Designation	Number of records since 2000	Distance and direction of the closest record to the Site
Grass snake	S41	11	2.9 km west
Slow-worm	S41	59	2.3 km north
Viviparous Lizard	S41	21	1.85 km south-east

Key: S41 = species listed on Section 41 of the NERC Act 2006 as species of principal importance for conservation in England.

Other mammals

Records for a further three mammal species were provided by KMBRC for within 5 km of the Site. These included 106 records of brown hare since 2000, the closest of which being 1.85 km south-east of the Site. A total of 88 records of hedgehog were received, with the closest being 0.2 km east of the Site. Four records of harvest mouse were provided, the closest being 4.3 km south-west of the Site. All three are species of principal importance.

Invertebrates

KMBRC provided records of 137 species of invertebrates within 5 km of the Site, since 2000. Of these, are 10 priority species (listed on Section 41 of NERC) including three butterflies (wall brown, small heath and small blue), a robber-fly, wasp and bee, and four moths. In addition, 16 species are classified as Notable⁸, 13 species as Notable A⁹, 55 species as Notable B¹⁰ and 53 are classified as IUCN Red-listed¹¹. The IUCN Red-listed species recorded here, are mainly those associated with saltmarsh and sand dune habitats, and are therefore likely to be confined to areas outside the Site. However, there is the potential for some species to occur on-site, including the wall brown and small heath butterflies. A summary of the invertebrate records provided is shown in Table C3 in Appendix C.

Vascular plants

Table 4.7 provides a summary of the KMBRC records of protected or otherwise notable vascular plant species found within 5 km of the Site.

Table 4.7 Vascular plants recorded within 5 km of the Site since 2000

Species	Legal status	No. of records since 2000	Distance and direction of nearest record to the Site
Basil Thyme	S41	5	2.6 km west
Bedstraw Broomrape	WCA8	1	4.5 km south
Cornflower	S41	4	1.85 km south-east
Deptford Pink	S41	3	4.5 km south
Divided Sedge	S41	20	1.5 km south-west
Man Orchid	S41	2	2.7 km west
Martin's Ramping-fumitory	WCA8	3	0.1 km west
Prickly Saltwort	S41	9	1.8 km south-east
Sea Barley	S41	1	3.3 km east
Tubular water-dropwort	S41	12	1.5 km south-west

Key: S41, Species of Principal Importance (Section 41 of NERC); WCA8, The Wildlife and Countryside Act (1981) (as amended) Schedule 8.

⁸ Notable - Species which are estimated to occur within the range of 16 to 100 10km squares. (Subdivision into Notable A and Notable B is not always possible because there may be insufficient information available). Superseded by Nationally Scarce, and therefore no longer in use.

⁹ Notable A - Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and thought to occur in 30 or fewer 10 km squares of the National Grid or, for less well-recorded groups, within seven or fewer vice-counties. Superseded by Nationally Scarce, and therefore no longer in use.

¹⁰ Notable B - Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and thought to occur in between 31 and 100 10 km squares of the National Grid or, for less-well recorded groups between eight and twenty vice-counties. Superseded by Nationally Scarce, and therefore no longer in use.

¹¹ IUCN Red-listing - The IUCN Red List Index (RLI) measures overall trends in extinction risk for groups of species based on genuine changes in their Red List status over time. Habitat availability, population and subpopulation size, number of mature individuals and extent of occurrence are all quantified during the designation of red-list species.

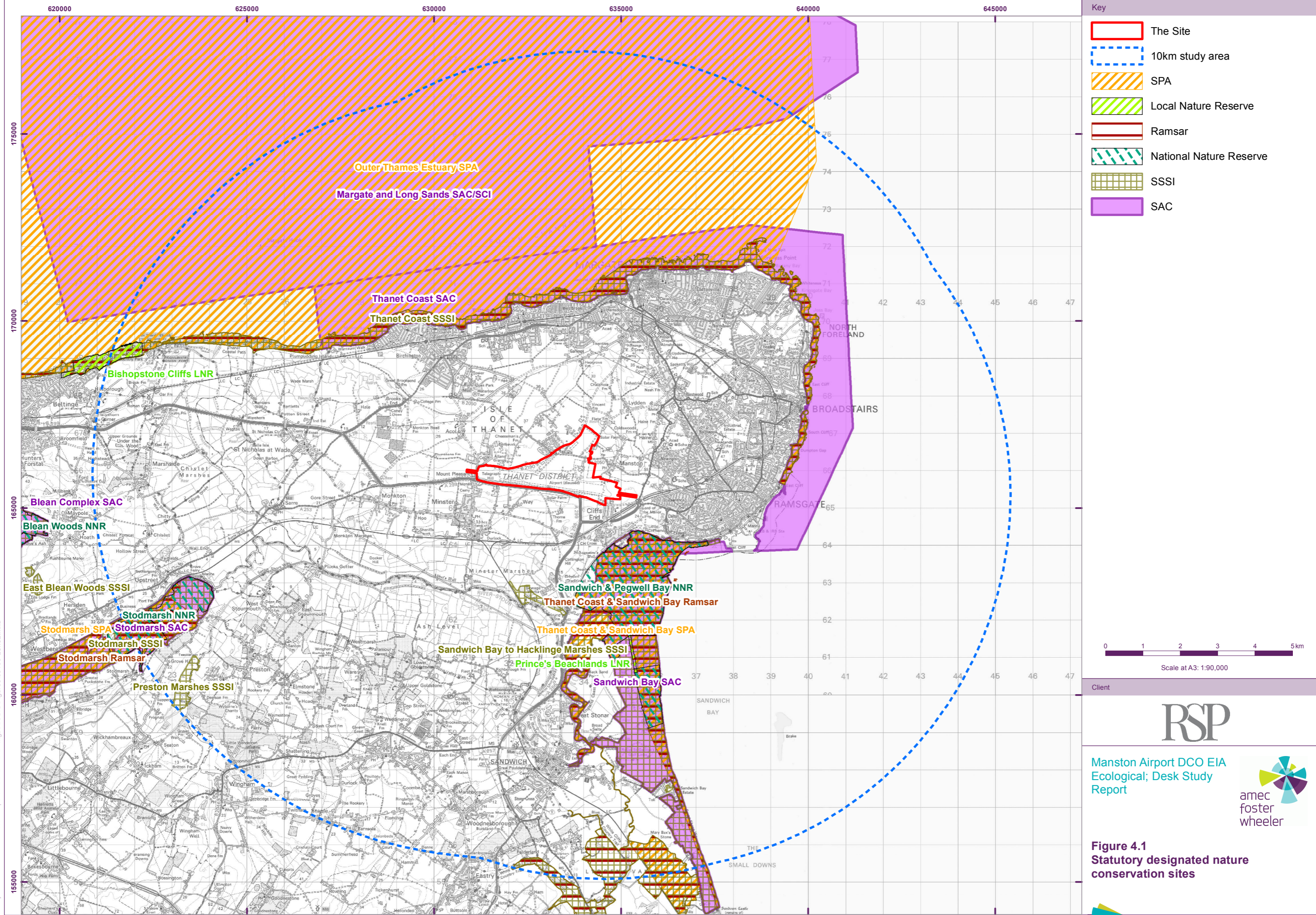
Controlled species

KMBRC provided records of 14 legally controlled species (included under Schedule 9 of the Wildlife and Countryside Act 1981, as amended) recorded within 5 km of the Site since 2000; all of which were outside the Site boundary (see Table 4.8).

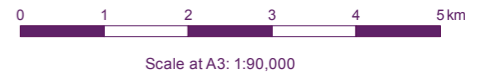
Table 4.8 Legally controlled species found within 5 km of the Site

Species	Most recent record	NGR	Record location
Nuttall's Waterweed	2014	TR2863	Various
Japanese Knotweed	2015	TR3665	Pegwell
Yellow Archangel	2002	TR3764	Ramsgate
Wall Cotoneaster	2015	TR3470	Various
Himalayan Cotoneaster	2015	TR3665	Pegwell North
Japanese Rose	2015	TR3463	Various
New Zealand Pigmyweed	2014	TR3160	Various
Water Fern	2004	TR3763	Various
Three-cornered Garlic	2013	TR3870	Cliftonville
Wireweed	2013	TR3966	Various
Wakame	2013	TR3567	Various
Chinese Mitten Crab	2006	TR3564	Pegwell bay
American Slipper Limpet	2014	TR3965	Various
American Mink	2014	TR3663	Various

National Grid Reference (NGR) of the Site: TR3365



- Key**
- The Site
 - 10km study area
 - SPA
 - Local Nature Reserve
 - Ramsar
 - National Nature Reserve
 - SSSI
 - SAC



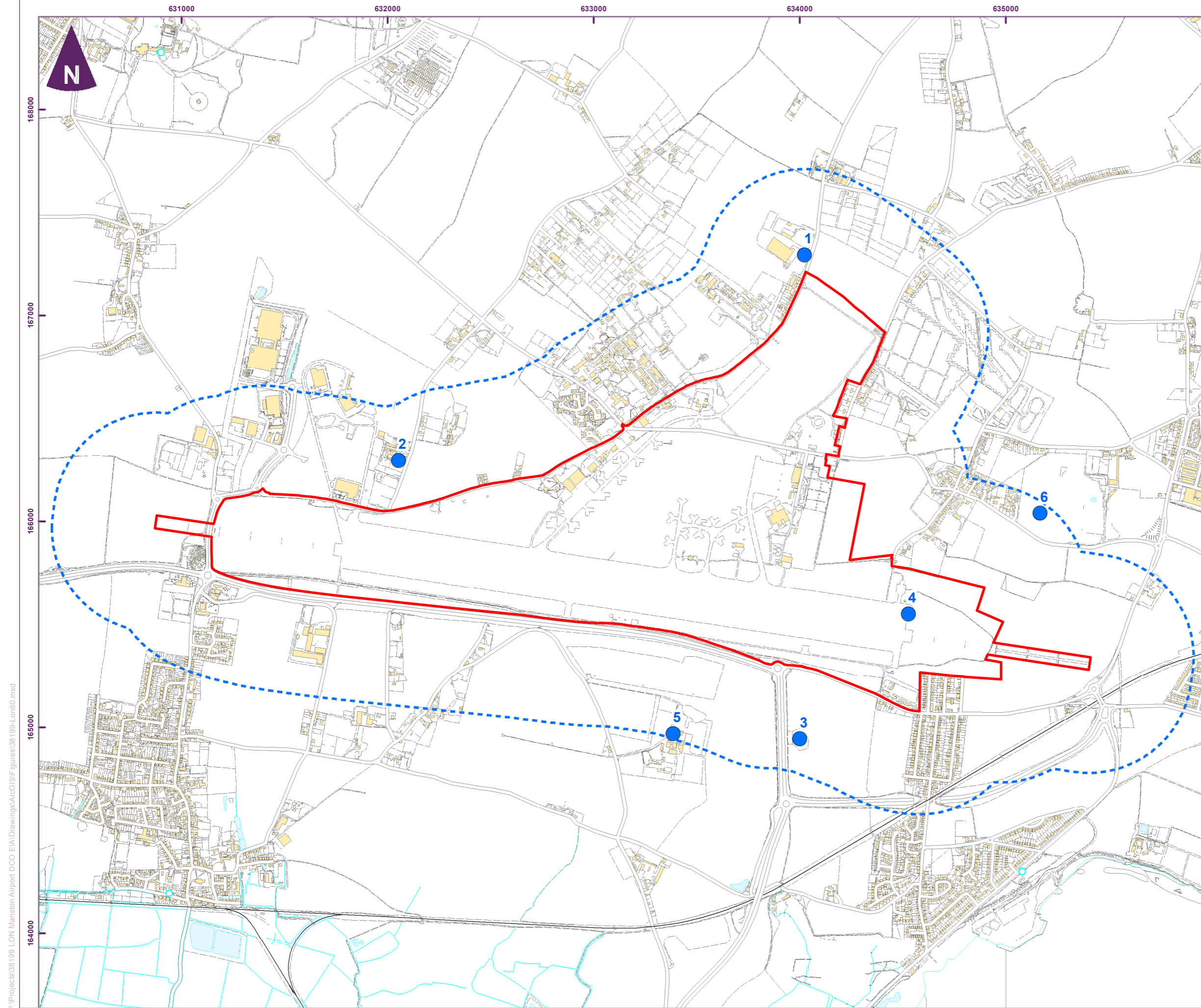
Client



Manston Airport DCO EIA
Ecological; Desk Study
Report



Figure 4.1
Statutory designated nature
conservation sites



Key

- The Site
- 500m search area
- Waterbody

0 200 400 600 800 1,000 m
Scale at A3: 1:18,000

Client

RSP

Manston Airport DCO
EIA
Ecological; Desk Study
Report

**amec
foster
wheeler**

**Figure 4.2
Waterbodies within 500 m of the Site**

May 2017 38199-Lon60.mxd parkj

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5. Summary

5.1 Designated sites

No sites with statutory designation for biodiversity conservation lie within the Site boundary. Seventeen statutory designated sites are located within 10 km of the Site. Of these, nine are of international importance, including the Thanet Coast and Sandwich Bay SPA/Ramsar site, Sandwich Bay SAC and Thanet Coast Marine SAC, all of which are at their closest, 925 m east of the Site. The constituent SSSIs of the SPA include the Thanet Coast SSSI and Sandwich Bay to Hacklinge Marshes SSSI, the latter also being located 925 east of the Site. These sites are designated for a variety of biodiversity including for their habitats, flora and invertebrate interests, but also for non-breeding populations of birds, in particular, golden plover which could potentially occur within, or adjacent to the Site.

5.2 Priority habitats

Three Priority Habitats have been identified within 2 km of the Site, none of which occur within the Site. These habitats consist of coastal embryonic shifting dune systems, intertidal mudflats, saltmarsh, grazing dunes, shingle beaches, wave-cut platforms and cliffs, located within the Sandwich Bay area; with submerged/partially submerged reefs and sea-caves along the Thanet coastline.

5.3 Protected and notable species

The desk study identified a number of legally protected and otherwise notable species within 5 km of the Site (though none within the Site). Many of the species identified are highly specialist, occupying unique and rare niches found only in habitats that do not occur within the Site. However, the desk study revealed records for other species which might utilise the Site and adjacent area, as follows:

- ▶ Birds: records of protected and otherwise notable species that could potentially utilise the Site / adjacent area for foraging, roosting or breeding, including: golden plover (an SPA species), WCA Schedule 1 species (hobby, quail, barn owl and kingfisher) and a wide range of priority species associated with farmland (such as skylark, corn bunting and yellowhammer) as well as woodland and scrub habitats.
- ▶ Bats: records of at least six species, which might utilise the Site for foraging or roosting.
- ▶ Amphibians: one record of great crested newt (GCN) within 5 km of the Site. In addition, the desk study revealed six water bodies within 500 m of the Site (which could potentially support breeding GCN), one of which was within the Site.
- ▶ Reptiles: the desk study revealed records of viviparous lizard, grass snake and slow worm within 5 km of the Site, all of which could potentially occur within the Site.
- ▶ Other mammals: records of three other priority mammal species: hedgehog, brown hare and harvest mouse, all of which could potentially occur on-site.
- ▶ Invertebrates: records for a large number of species, including ten priority species, though many are likely to be associated with coastal habitats that do not occur on-site.
- ▶ Plants: records of protected and priority species, some of which could also potentially occur within the Site.
- ▶ Invasive species: records of 14 legally controlled species were received for within 5 km of the Site, all of which were out with the Site, though could potentially occur on-site.

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Appendix A

Scientific names of species referred to in this report



Common/ English name	Scientific name
Mammals	
Badger	<i>Meles meles</i>
Bat/ <i>Chiroptera</i> Sp.	<i>Chiroptera</i> Sp.
Brown hare	<i>Lepus europaeus</i>
Brown long-eared bat	<i>Plecotus auritus</i>
Common pipistrelle	<i>Pipistrellus pipistrellus</i>
Dormouse	<i>Muscardinus avellanarius</i>
European otter	<i>Lutra lutra</i>
Harvest mouse	<i>Micromys minutus</i>
Hedgehog	<i>Erinaceus europaeus</i>
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>
<i>Natterer's bat</i>	<i>Myotis nattereri</i>
<i>Pipistrelle/Pipistrellus</i> species	<i>Pipistrellus</i> species
<i>Serotine</i>	<i>Eptesicus serotinus</i>
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>
Water vole	<i>Arvicola amphibius</i>
Birds	
Red-throated diver	<i>Gavia stellata</i>
Black-throated diver	<i>Gavia arctica</i>
Great northern diver	<i>Gavia immer</i>
Great crested grebe	<i>Podiceps cristatus</i>
Slavonian grebe	<i>Podiceps auritus</i>
Black-necked grebe	<i>Podiceps nigricollis</i>
Balearic shearwater	<i>Puffinus mauretanicus</i>
Storm petrel	<i>Hydrobates spp</i>
Leach's petrel	<i>Oceanodroma leucorhoa</i>
Bittern	<i>Botaurus stellaris</i>
Little egret	<i>Egretta garzetta</i>
Purple heron	<i>Ardea purpurea</i>
Black stork	<i>Ciconia nigra</i>
White stork	<i>Ciconia ciconia</i>



Common/ English name	Scientific name
Glossy ibis	<i>Plegadis falcinellus</i>
Spoonbill	<i>Platalea leucorodia</i>
Bewick's swan	<i>Cygnus columbianus</i>
Whooper swan	<i>Cygnus cygnus</i>
White-fronted goose	<i>Anser albifrons</i>
Barnacle goose	<i>Branta leucopsis</i>
Brent goose	<i>Branta bernicla</i>
Shelduck	<i>Tadorna tadorna</i>
Wigeon	<i>Anas penelope</i>
Gadwall	<i>Anas strepera</i>
Teal	<i>Anas crecca</i>
Mallard	<i>Anas platyrhynchos</i>
Pintail	<i>Anas acuta</i>
Garganey	<i>Anas querquedula</i>
Shoveler	<i>Anas clypeata</i>
Pochard	<i>Aythya ferina</i>
Tufted duck	<i>Aythya fuligula</i>
Scaup	<i>Aythya marila</i>
Long-tailed duck	<i>Clangula hyemalis</i>
Common scoter	<i>Melanitta nigra</i>
Velvet scoter	<i>Melanitta fusca</i>
Goldeneye	<i>Bucephala clangula</i>
Smew	<i>Mergus albellus</i>
Honey buzzard	<i>Pernis apivorus</i>
Black kite	<i>Milvus migrans</i>
Red kite	<i>Milvus milvus</i>
Marsh harrier	<i>Circus aeruginosus</i>
Hen harrier	<i>Circus cyaneus</i>
Montagu's harrier	<i>Circus pygargus</i>
Goshawk	<i>Accipiter gentilis</i>
Osprey	<i>Pandion haliaetus</i>
Merlin	<i>Falco columbarius</i>



Common/ English name	Scientific name
Hobby	<i>Falco subbuteo</i>
Peregrine	<i>Falco peregrinus</i>
Grey partridge	<i>Perdix perdix</i>
Quail	<i>Coturnix coturnix</i>
Corncrake	<i>Crex crex</i>
Crane	<i>Grus grus</i>
Avocet	<i>Recurvirostra avosetta</i>
Little ringed plover	<i>Charadrius dubius</i>
Ringed plover	<i>Charadrius hiaticula</i>
Kentish plover	<i>Charadrius alexandrinus</i>
Dotterel	<i>Charadrius morinellus</i>
Golden plover	<i>Pluvialis apricaria</i>
Grey plover	<i>Pluvialis squatarola</i>
Lapwing	<i>Vanellus vanellus</i>
Sanderling	<i>Calidris alba</i>
Temminck's stint	<i>Calidris temminckii</i>
Purple sandpiper	<i>Calidris maritima</i>
Ruff	<i>Philomachus pugnax</i>
Snipe	<i>Gallinago gallinago</i>
Woodcock	<i>Scolopax rusticola</i>
Black-tailed godwit	<i>Limosa limosa</i>
Bar-tailed godwit	<i>Limosa lapponica</i>
Whimbrel	<i>Numenius phaeopus</i>
Curlew	<i>Numenius arquata</i>
Greenshank	<i>Tringa nebularia</i>
Green sandpiper	<i>Tringa ochropus</i>
Wood sandpiper	<i>Tringa glareola</i>
Turnstone	<i>Arenaria interpres</i>
Arctic skua	<i>Stercorarius parasiticus</i>
Mediterranean gull	<i>Larus melanocephalus</i>
Little gull	<i>Larus minutus</i>
Herring gull	<i>Larus argentatus</i>



Common/ English name	Scientific name
Kittiwake	<i>Rissa tridactyla</i>
Sandwich tern	<i>Sterna sandvicensis</i>
Roseate tern	<i>Sterna dougallii</i>
Common tern	<i>Sterna hirundo</i>
Arctic tern	<i>Sterna paradisaea</i>
Little tern	<i>Sterna albifrons</i>
Black tern	<i>Chlidonias niger</i>
Puffin	<i>Fratercula arctica</i>
Turtle dove	<i>Streptopelia turtur</i>
Cuckoo	<i>Cuculus canorus</i>
Barn owl	<i>Tyto alba</i>
Short-eared owl	<i>Asio flammeus</i>
Nightjar	<i>Caprimulgus europaeus</i>
Kingfisher	<i>Alcedo atthis</i>
Bee-eater	<i>Merops apiaster</i>
Hoopoe	<i>Upapa epops</i>
Wryneck	<i>Jynx torquilla</i>
Lesser spotted woodpecker	<i>Dendrocopus minor</i>
Short-toed lark	<i>Calandrella brachydactyla</i>
Woodlark	<i>Lullula arborea</i>
Skylark	<i>Alauda arvensis</i>
Sand martin	<i>Riparia riparia</i>
Tawny pipit	<i>Anthus campestris</i>
Tree pipit	<i>Anthus trivialis</i>
Meadow pipit	<i>Anthus pratensis</i>
Yellow wagtail	<i>Motacilla flava</i>
Grey wagtail	<i>Motacilla cinerea</i>
Dunnock	<i>Prunella modularis</i>
Nightingale	<i>Luscinia megarhynchos</i>
Bluethroat	<i>Luscinia svecica</i>
Whinchat	<i>Saxicola rubetra</i>
Ring ouzel	<i>Turdus torquatus</i>

Common/ English name	Scientific name
Fieldfare	<i>Turdus pilaris</i>
Song thrush	<i>Turdus philomelos</i>
Redwing	<i>Turdus iliacus</i>
Mistle thrush	<i>Turdus viscivorus</i>
Cetti's warbler	<i>Cettia cetti</i>
Grasshopper warbler	<i>Locustella naevia</i>
Aquatic warbler	<i>Acrocephalus paludicola</i>
Dartford warbler	<i>Sylvia undata</i>
Barred warbler	<i>Sylvia nisoria</i>
Wood warbler	<i>Phylloscopus sibilatrix</i>
Firecrest	<i>Regulus ignicapillus</i>
Spotted flycatcher	<i>Muscicapa striata</i>
Red-breasted flycatcher	<i>Ficedula parva</i>
Pied flycatcher	<i>Ficedula hypoleuca</i>
Bearded tit	<i>Panurus biarmicus</i>
Willow tit	<i>Parus montanus</i>
Golden oriole	<i>Oriolus oriolus</i>
Red-backed shrike	<i>Lanius collurio</i>
Starling	<i>Sturnus vulgaris</i>
House sparrow	<i>Passer domesticus</i>
Tree sparrow	<i>Passer montanus</i>
Brambling	<i>Fringilla montifringilla</i>
Serin	<i>Serinus serinus</i>
Linnet	<i>Carduelis cannabina</i>
Twite	<i>Carduelis flavirostris</i>
Common crossbill	<i>Loxia curvirostra</i>
Parrot crossbill	<i>Loxia pytyopsittacus</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Hawfinch	<i>Coccothraustes coccothraustes</i>
Lapland bunting	<i>Calcarius lapponicus</i>
Snow bunting	<i>Plectrophenax nivalis</i>
Yellowhammer	<i>Emberiza citrinella</i>



Common/ English name	Scientific name
Ortolan bunting	<i>Emberiza hortulana</i>
Reed bunting	<i>Emberiza schoeniclus</i>
Corn bunting	<i>Miliaria calandra</i>
Herpetofauna	
Common frog	<i>Rana temporaria</i>
Common toad	<i>Bufo bufo</i>
Smooth newt	<i>Lissotriton vulgaris</i>
Grass snake	<i>Natrix natrix</i>
Slow-worm	<i>Anguis fragilis</i>
Viviparous lizard	<i>Zootoca vivipara</i>
Flora	
Basil Thyme	<i>Clinopodium acinos</i>
Bedstraw Broomrape	<i>Orobanche caryophyllacea</i>
Cornflower	<i>Centaurea cyanus</i>
Deptford Pink	<i>Dianthus armeria</i>
Divided Sedge	<i>Carex divisa</i>
Man Orchid	<i>Orchis anthropophora</i>
Martin's Ramping-fumitory	<i>Fumaria reuteri</i>
Prickly Saltwort	<i>Kali turgidum</i>
Sea Barley	<i>Hordeum marinum</i>
Sharp-leaved pondweed	<i>Potamogeton acutifolius</i>
Invasive species	
Nuttall's Waterweed	<i>Elodea nuttallii</i>
Japanese Knotweed	<i>Fallopia japonica</i>
Yellow Archangel	<i>Lamoastrum galeobdolon argentatum</i>
Wall Cotoneaster	<i>Cotoneaster horizontalis</i>
Himalayan Cotoneaster	<i>Cotoneaster simonsii</i>



Common/ English name	Scientific name
Japanese Rose	<i>Rosa rugosa</i>
New Zealand Pigmyweed	<i>Crassula helmsii</i>
Water Fern	<i>Azolla filiculoides</i>
Three-cornered Garlic	<i>Allium triquetrum</i>
Wireweed	<i>Sargassum muticum</i>
Wakame	<i>Undaria pinnatifida</i>
Chinese Mitten Crab	<i>Eriocheir sinensis</i>
American Slipper Limpet	<i>Crepidula fornicata</i>
American Mink	<i>Neovison vison</i>
Other Invertebrates	
White-clawed Crawfish	<i>Austropotamobius pallipes</i>



Appendix B Legislation



All wild mammals (including rabbits and foxes)

Under the *Wild Mammals (Protection) Act 1996* it is an offence intentionally to cause unnecessary suffering to any wild mammal.

Badger

The Protection of Badgers Act 1992 makes it an offence to:

- ▶ wilfully kill, injure or take a badger;
- ▶ attempt to kill, injure or take a badger; or
- ▶ cruelly ill-treat a badger.

It is also an offence to interfere with a badger set by:

- ▶ damaging a badger sett or any part of it
- ▶ destroying a badger sett;
- ▶ obstructing access to, or any entrance of, a badger sett;
- ▶ disturbing a badger when it is occupying a badger sett, or

intending to do any of those things or being reckless as to whether his actions would have any of those consequences.

Bats (*Rhinolophidae* and *Vespertilionidae*)

All British bat species are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2010* (as amended). They are afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, *inter alia*, to:

- ▶ deliberately capture, injure or kill a bat;
- ▶ deliberately disturb a bat (this applies anywhere, not just at its roost), in particular in such a way as to be likely to:
 - ▶ impair their ability to survive, breed or reproduce, or rear or nurture their young;
 - ▶ impair their ability to hibernate or migrate.
- ▶ affect significantly the local distribution or abundance of that bat species;
- ▶ damage or destroy a breeding site or resting place of any bat;
- ▶ intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection; or
- ▶ intentionally or recklessly obstruct access to any place that a bat uses for shelter or protection (this is taken to mean all bat roosts whether bats are present or not).

In addition, five British bat species are listed on Annex II of the Habitats Directive. These are:

- ▶ Greater horseshoe bat (*Rhinolophus ferrumequinum*)
- ▶ Lesser horseshoe bat (*Rhinolophus hipposideros*)
- ▶ Bechstein's bat (*Myotis bechsteini*)
- ▶ Barbastelle (*Barbastella barbastellus*)
- ▶ Greater mouse-eared bat (*Myotis myotis*)



In certain circumstances where these species are found the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favourable conservation status. Outside SACs, the level of legal protection that these species receive is the same as for other bat species.

Birds

With certain exceptions¹², all wild birds, their nests and eggs are protected by section 1 of the *Wildlife and Countryside Act 1981* (as amended). Therefore, it is an offence, *inter alia*, to:

- ▶ intentionally kill, injure or take any wild bird;
- ▶ intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- ▶ intentionally take or destroy the egg of any wild bird.

These offences do not apply to hunting of birds listed in Schedule 2 of the Act subject to various controls.

Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- ▶ intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- ▶ intentionally or recklessly disturb the dependent young of any such bird.

For golden eagle, white-tailed eagle and osprey, it is also an offence to:

- ▶ take, damage or destroy the nest of these species (this applies at any time, not only when the nest is in use or being built).

Dormouse

Dormouse is listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2010* (as amended). This species is afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, *inter alia*, to:

- ▶ deliberately capture, injure or kill any such animal;
- ▶ deliberately disturb any such animal, in particular in such a way as to be likely to:
 - ▶ impair their ability to survive, breed or reproduce, or rear or nurture their young;
 - ▶ impair their ability to hibernate or migrate.
 - ▶ affect significantly the local distribution or abundance of that species;
- ▶ damage or destroy a breeding site or resting place of any such animal;
- ▶ intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- ▶ intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

Great crested newt

The great crested newt is listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2010* (as amended). It is afforded

¹² Some species, such as game birds, are exempt in certain circumstances.

protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, *inter alia*, to:

- ▶ deliberately capture, injure or kill any such newt;
- ▶ deliberately disturb any such newt, in particular in such a way as to be likely to:
 - ▶ impair their ability to survive, breed or reproduce, or rear or nurture their young;
 - ▶ impair their ability to hibernate or migrate.
 - ▶ affect significantly the local distribution or abundance of that species;
- ▶ deliberately take or destroy the eggs of such a newt;
- ▶ damage or destroy a breeding site or resting place of any such newt;
- ▶ intentionally or recklessly disturb any such newt while it is occupying a structure or place that it uses for shelter or protection; or
- ▶ intentionally or recklessly obstruct access to any place that any such newt uses for shelter or protection.

This relates to both the aquatic and terrestrial habitat they occupy. The legislation applies to all life stages of this species.

Reptiles

The four widespread¹³ species of reptile that are native to Britain, namely common or viviparous lizard, slow worm, adder and grass snake, are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and are afforded limited protection under Section 9 of this Act. This makes it an offence, *inter alia*, to:

- ▶ intentionally kill or injure any of these species.

Otter

The otter is listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2010* (as amended). This species is afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, *inter alia*, to:

- ▶ deliberately capture, injure or kill any such animal;
- ▶ deliberately disturb any such animal, in particular in such a way as to be likely to:
 - ▶ impair their ability to survive, breed or reproduce, or rear or nurture their young;
 - ▶ impair their ability to hibernate or migrate.
 - ▶ affect significantly the local distribution or abundance of that species;
- ▶ damage or destroy a breeding site or resting place of any such animal;
- ▶ intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- ▶ intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

¹³ The other native species of British reptile (sand lizard and smooth snake) receive a higher level of protection in England and Wales under the *Conservation of Habitats and Species Regulations 2010* and the *Wildlife and Countryside Act 1981* (as amended). However, the distribution of these species is restricted to only a very few sites. All marine turtles (*Cheloniidae* and *Dermochelyidae*) are also protected.

Water vole

The water vole is listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and is afforded limited protection under Section 9 of this Act. This makes it an offence, *inter alia*, to:

- ▶ intentionally kill, injure, or take (handle) a water vole;
- ▶ intentionally or recklessly disturb water voles while they are using such a structure or place; or
- ▶ intentionally or recklessly damage or destroy or obstruct access to any structure or place which water voles use for shelter or protection.

White-clawed crayfish

The white-clawed crayfish is listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and is afforded limited protection under Section 9 of this Act. This makes it an offence, *inter alia*, to:

- ▶ intentionally take individuals of this species.

Insects

The insects listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and afforded full protection under Section 9 of this Act are:

- ▶ the rainbow leaf beetle (*Chrysolina cerealis*), lesser silver water beetle (*Hydrochara craboides*) and violet click beetle (*Limoniscus violaceus*);
- ▶ the mire pill beetle (*Curimopsis nigrita*)*;
- ▶ the beetles *Graphoderus zonatus*, *Hypebaeus flavipes* and *Parcymus aeneus*;
- ▶ the large copper (*Lycaena dispar*), heath fritillary (*Mellicta athalia*), marsh fritillary (*Eurodryas aurinia*) and swallowtail (*Papilio machaon*) butterflies;
- ▶ the field (*Gryllus campestris*) and mole (*Gryllotalpa gryllotalpa*) crickets;
- ▶ the New Forest cicada (*Cicadetta montana*);
- ▶ the southern damselfly (*Coenagrion mercuriale*) and Norfolk aeshna dragonfly (*Aeshna isosceles*);
- ▶ the wart-biter grasshopper (*Decticus verrucivorus*);
- ▶ the Barberry carpet (*Pareulype berberata*), black veined (*Siona lineata*), Essex emerald (*Thetida smaragdaria*), fiery clearwing (*Bembecia chrysidiformis*), Fisher's estuarine (*Gortyna borelii*), New Forest Burnet (*Zygaena viciae*), reddish buff (*Acosmetia caliginosa*) and Sussex emerald (*Thalera fimbrialis*) moths.



This makes it an offence, *inter alia*, to:

- ▶ intentionally kill, injure, or take (handle) any of these species (* except the mire pill beetle);
- ▶ intentionally or recklessly damage, destroy or obstruct access to any place that any of these species uses for shelter or protection; or
- ▶ intentionally or recklessly disturb any of these species while it is occupying a structure or place that it uses for shelter or protection.

Other terrestrial and freshwater invertebrates

In addition to crayfish, insects and spiders, the following terrestrial and freshwater invertebrates are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and afforded full protection under Section 9 of this Act:

- ▶ the medicinal leech (*Hirudo medicinalis*);
- ▶ a fairy shrimp (*Chirocephalus diaphanus*);
- ▶ the tadpole shrimp or apus (*Triops cancriformis*);
- ▶ the freshwater pearl mussel (*Margaritifera margaritifera*);
- ▶ the glutinous (*Myxas glutinosa*), sandbowl (*Catinella arenaria*) and Roman (*Helix pomatia*) snails.

This makes it an offence, *inter alia*, to:

- ▶ intentionally kill, injure, or take (handle) any of these species;
- ▶ intentionally or recklessly damage, destroy or obstruct access to any structure or place that any of these species uses for shelter or protection; or
- ▶ intentionally or recklessly disturb any of these species while it is occupying a structure or place that it uses for shelter or protection.



Directive 2009/147/EC (The Wild Birds Directive), 2009

Certain species receive protection at a European level due to appearing on Annex I of the Directive 2009/147/EC of The European Parliament and of The Council of 30 November 2009 on the conservation of wild birds (codified version).

Certain endangered, rare, or vulnerable bird species, which warrant special protection, are included on Annex I of the Directive 2009/147/EC of The European Parliament and of The Council of 30 November 2009 on the conservation of wild birds (codified version); also referred to as the *Wild Birds Directive*.

The *Wild Birds Directive* recognises that habitat loss and degradation are the most serious threats to the conservation of wild birds. It therefore places great emphasis on the protection of habitats for endangered as well as migratory species (listed in Annex I), especially through the establishment of a coherent network of Special Protection Areas (SPAs) comprising all the most suitable territories for these species. Together with Special Areas of Conservation (SACs) designated under *Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ('Habitats Directive')*, SPAs form a network of pan-European protected areas known as Natura 2000.

Ramsar Sites

Ramsar sites are wetlands of international importance designated under the Ramsar Convention. Sites proposed for selection are advised by the UK statutory nature conservation agencies, or the relevant administration in the case of Overseas Territories and Crown Dependencies, co-ordinated through JNCC. In selecting sites, the relevant authorities are guided by the Criteria set out in the Convention. The Criteria pertaining specifically to birds are as follows:

- ▶ Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds; and
- ▶ Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

In the UK, the first Ramsar sites were designated in 1976 since which, many more have been designated. The initial emphasis was on selecting sites of importance to waterbirds within the UK, and consequently many Ramsar sites are also Special Protection Areas (SPAs) classified under the Birds Directive. However, greater attention is now being directed towards non-bird features which are increasingly being taken into account, both in the selection of new sites and when reviewing existing sites.

Natural Environment and Rural Communities Act 2006

Section 40 of the *Natural Environment and Rural Communities (NERC) Act 2006* places duties on public bodies to have regard to the conservation of biodiversity in the exercise of their normal functions. In particular, Section 41 of the NERC Act requires the Secretary of State to publish a list of species which are of Principal Importance for conservation in the UK. This list is largely derived from the 'Priority Species' listed under the former UK Biodiversity Action Plan (BAP), which continue to be regarded as Priority Species under the subsequent country-level biodiversity strategies. The Section 41 list replaces the list published by Defra in 2002 under Section 74 of the *Countryside and Rights of Way (CRoW) Act 2000*.

Birds of Conservation Concern: Red List birds

Red and Amber list birds are those listed as being of high or medium conservation concern (respectively) in Birds of Conservation Concern (BoCC) 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man (Eaton *et al.*, 2015). Red list species are those that are Globally Threatened according to IUCN criteria; and/or those whose population or range has declined rapidly in recent years; and/or those that have declined historically and not shown a substantial recent recovery.



Appendix C

Desk Study Data

Table C1 Protected and other notable bird species within 5 km of the Site (KMBRC summary table)

Species	Legal status	No. of records since 2000	Year of most recent record	Distance from site (km)
Red-throated diver	Annex 1; WCA1	319	2012	1.85
Black-throated diver	Annex 1; WCA1	171	2012	1.85
Great northern diver	Annex 1; WCA1	93	2012	4.13
Slavonian grebe	Annex 1; WCA1; BoCC (Red)	36	2011	1.85
Black-necked grebe	WCA1	10	2012	1.85
Balearic shearwater	S41; BoCC (Red)	13	2009	1.85
Storm petrel	Annex 1	11	2012	3.20
Leach's petrel	Annex 1; WCA1	32	2012	1.85
Bittern	Annex 1; WCA1; S41	14	2011	1.85
Little egret	Annex 1	1244	2012	1.85
Purple heron	Annex 1; WCA1	36	2013	0.50
Black stork	Annex 1	5	2006	1.85
White stork	Annex 1	30	2010	1.85
Glossy ibis	Annex 1	6	2010	1.85
Spoonbill	Annex 1; WCA1	87	2012	1.85
Bewick's swan	Annex 1; S41; WCA1	33	2012	1.85
Whooper swan	Annex 1; WCA1	40	2012	0.50
White-fronted goose	S41; BoCC (Red)	131	2012	1.86
Barnacle goose	Annex 1	25	2012	1.85
Brent goose	S41	817	2012	1.85
Shelduck	Annex 1	1021	2012	1.75
Pintail	WCA1	278	2012	1.85
Garganey	WCA1	125	2012	1.80
Pochard	BoCC (Red)	78	2012	2.80
Scaup	WCA1; S41; BoCC (Red)	28	2009	1.85
Long-tailed duck	WCA1; BoCC (Red)	32	2008	1.75
Common scoter	WCA1; S41; BoCC (Red)	371	2012	1.85
Velvet scoter	WCA1; BoCC (Red)	29	2012	1.85
Goldeneye	WCA1	49	2012	1.75
Smew	Annex 1	8	2012	3.80
Honey buzzard	Annex 1; WCA1	93	2012	1.75



Species	Legal status	No. of records since 2000	Year of most recent record	Distance from site (km)
Black kite	Annex 1	24	2012	1.85
Red kite	Annex 1; WCA1	99	2012	1.65
Marsh harrier	Annex 1; WCA1	596	2012	1.85
Hen harrier	Annex 1; WCA1; S41; BoCC (Red)	404	2012	1.75
Montagu's harrier	Annex 1; WCA1	120	2013	0.50
Goshawk	WCA1	6	2005	1.85
Osprey	Annex 1; WCA1	94	2012	1.75
Merlin	Annex 1; WCA1; BoCC (Red)	580	2012	1.85
Hobby	WCA1	457	2013	0.50
Peregrine	Annex 1; WCA1	807	2012	1.85
Grey partridge	S41; BoCC (Red)	369	2012	0.50
Quail	WCA1	88	2012	1.85
Corncrake	Annex 1; WCA1; S41; BoCC (Red)	20	2011	1.75
Crane	Annex 1	35	2012	1.75
Avocet	Annex 1; WCA1	290	2012	1.85
Little ringed plover	WCA1	173	2012	1.75
Ringed plover	Cited; BoCC (Red)	984	2012	1.85
Kentish plover	WCA1	100	2012	1.85
Dotterel	WCA1; BoCC (Red)	42	2009	1.85
Golden plover	Annex 1; Cited	1073	2012	1.85
Grey plover	Cited	985	2012	1.85
Lapwing	S41; BoCC (Red)	1271	2012	0.50
Sanderling	Cited	911	2012	1.85
Temminck's stint	WCA1	53	2012	1.85
Purple sandpiper	WCA1	198	2012	1.85
Ruff	Annex 1; WCA1; BoCC (Red)	163	2012	1.85
Woodcock	BoCC (Red)	340	2012	0.50
Black-tailed godwit	WCA1; S41; BoCC (Red)	505	2012	1.85
Bar-tailed godwit	Annex 1	1071	2012	1.85
Whimbrel	WCA1; BoCC (Red)	729	2013	1.85
Curlew	S41; BoCC (Red)	1066	2012	1.86
Greenshank	WCA1	747	2012	1.75



Species	Legal status	No. of records since 2000	Year of most recent record	Distance from site (km)
Green sandpiper	WCA1	435	2012	1.80
Wood sandpiper	Annex 1; WCA1	106	2012	1.75
Turnstone	Cited	850	2012	1.85
Arctic skua	BoCC (Red)	126	2012	1.85
Mediterranean gull	Annex 1; WCA1	369	2012	1.85
Little gull	WCA1	148	2012	1.85
Herring gull	S41; BoCC (Red)	842	2012	0.50
Kittiwake	BoCC (Red)	218	2012	1.85
Sandwich tern	Annex 1	1095	2012	1.85
Roseate tern	Annex 1; WCA1; S41; BoCC (Red)	86	2012	1.85
Common tern	Annex 1	531	2012	1.85
Arctic tern	Annex 1	111	2012	1.85
Little tern	Annex 1; Cited; WCA1	297	2012	1.85
Black tern	Annex 1; WCA1	114	2012	1.85
Puffin	BoCC (Red)	29	2006	1.85
Turtle dove	S41; BoCC (Red)	386	2012	0.50
Cuckoo	S41; BoCC (Red)	497	2012	0.50
Barn owl	WCA1	176	2012	0.50
Short-eared owl	Annex 1	543	2012	2.80
Nightjar	Annex 1; S41; BoCC (Red)	1	2004	1.85
Kingfisher	Annex 1; WCA1	343	2012	1.75
Bee-eater	WCA1	20	2012	1.85
Hoopoe	WCA1	47	2012	1.85
Wryneck	WCA1; BoCC (Red)	66	2012	1.85
Lesser spotted woodpecker	S41; BoCC (Red)	86	2005	1.75
Short-toed lark	Annex 1	7	2011	1.85
Woodlark	Annex 1; WCA1; S41	74	2012	4.83
Skylark	S41; BoCC (Red)	621	2012	0.50
Shorelark	WCA1	64	2012	1.85
Tawny pipit	Annex 1	34	2012	1.85
Tree pipit	S41; BoCC (Red)	140	2012	1.85



Species	Legal status	No. of records since 2000	Year of most recent record	Distance from site (km)
Yellow wagtail	S41; BoCC (Red)	534	2012	0.50
Grey wagtail	BoCC (Red)	367	2012	1.85
Duncock	S41	584	2012	0.50
Nightingale	BoCC (Red)	96	2012	1.75
Bluethroat	Annex 1; WCA1	35	2007	1.85
Whinchat	BoCC (Red)	435	2012	1.85
Ring ouzel	S41; BoCC (Red)	295	2012	4.83
Fieldfare	WCA1; BoCC (Red)	456	2012	1.86
Song thrush	S41; BoCC (Red)	645	2012	0.50
Redwing	WCA1; BoCC (Red)	679	2013	1.85
Mistle thrush	BoCC (Red)	452	2012	0.50
Cetti's warbler	WCA1	223	2012	2.80
Grasshopper warbler	S41; BoCC (Red)	58	2012	1.80
Aquatic warbler	Annex 1; S41; BoCC (Red)	9	2005	1.75
Dartford warbler	Annex 1; WCA1	41	2012	1.85
Barred warbler	Annex 1	28	2010	1.85
Wood warbler	S41; BoCC (Red)	33	2012	1.75
Firecrest	WCA1	564	2012	1.85
Spotted flycatcher	S41; BoCC (Red)	164	2012	0.50
Red-breasted flycatcher	Annex 1	52	2013	1.85
Pied flycatcher	BoCC (Red)	182	2012	0.50
Bearded tit	WCA1	34	2012	1.85
Willow tit	S41; BoCC (Red)	10	2009	1.85
Golden oriole	WCA1; BoCC (Red)	100	2012	1.75
Red-backed shrike	Annex 1; WCA1; BoCC (Red)	67	2011	1.85
Starling	S41; BoCC (Red)	637	2013	0.50
House sparrow	S41; BoCC (Red)	386	2012	0.50
Tree sparrow	S41; BoCC (Red)	239	2012	0.50
Brambling	WCA1	386	2012	1.86
Serin	WCA1	49	2012	1.85
Linnet	S41; BoCC (Red)	718	2012	0.50
Twite	S41; BoCC (Red)	171	2012	1.85

Species	Legal status	No. of records since 2000	Year of most recent record	Distance from site (km)
Lesser redpoll	S41; BoCC (Red)	298	2012	1.86
Common crossbill	WCA1	189	2012	1.85
Parrot crossbill	WCA1	2	2004	2.16
Bullfinch	S41	157	2012	0.50
Hawfinch	S41; BoCC (Red)	26	2010	1.85
Lapland bunting	WCA1	130	2012	1.85
Snow bunting	WCA1	427	2012	1.85
Yellowhammer	S41; BoCC (Red)	200	2012	0.50
Ortolan bunting	Annex 1	9	2003	2.16
Reed bunting	S41	484	2012	1.86
Corn bunting	S41; BoCC (Red)	558	2012	0.50

Table C2 A summary of bat records received from Kent Bat Group within 5 km search radius of the Site

Species	Foraging	Roosting	Hibernation	Grounded	Droppings
Brown long-eared	1		18		1
Common pipistrelle	34	2	3	5	
Nathusius' pipistrelle	2				
Soprano pipistrelle	7	7			
<i>Pipistrellus Sp.</i>	13	2			
Natterer's			23		
Serotine	1				
<i>Chiroptera Sp.</i>		2	4		



Table C3 Summary of the invertebrate records provided by KMBRC

Vernicular name	Scientific name	Notable	Notable A9	Notable B	Red-listed	Records since 2000	Most recent record
Variable damselfly	<i>Coenagrion pulchellum</i>				✓	1	2006
<i>Asiraca clavicornis</i>	<i>Asiraca clavicornis</i>				✓	2	2010
Dune tiger beetle	<i>Cicindela martima</i>				✓	4	2012
<i>Bembidion (Notaphemphanes) ephippium</i>	<i>Bembidion (Notaphemphanes) ephippium</i>	✓				2	2004
<i>Pogonus littoralis</i>	<i>Pogonus littoralis</i>				✓	1	2002
<i>Amara (Amara) curta</i>	<i>Amara (Amara) curta</i>				✓	2	2012
<i>Amara (Amara) spreta</i>	<i>Amara (Amara) spreta</i>				✓	1	2002
<i>Ophonus (Ophonus) ardosiacus</i>	<i>Ophonus (Ophonus) ardosiacus</i>				✓	1	2005
Saltmarsh short-spur	<i>Anisodactylus poeciloide</i>				✓	1	2001
<i>Dicheirotrichus obsoletus</i>	<i>Dicheirotrichus obsoletus</i>				✓	1	2012
<i>Lucinus depressus</i>	<i>Lucinus depressus</i>				✓	1	2012
<i>Demetrias (Demetrias) monostigma</i>	<i>Demetrias (Demetrias) monostigma</i>				✓	2	2002
<i>Isochnus sequensi</i>	<i>Isochnus sequensi</i>				✓	4	2002
<i>Microplontus campestris</i>	<i>Microplontus campestris</i>				✓	2	2002
<i>Pselactus spadix</i>	<i>Pselactus spadix</i>				✓	2	2002
<i>Tanymecus palliatus</i>	<i>Tanymecus palliatus</i>				✓	2	2002
<i>Hypera (Hypera) fuscocinerea</i>	<i>Hypera (Hypera) fuscocinerea</i>				✓	1	2002
<i>Haliphus (Liaphlus) variegatus</i>	<i>Haliphus (Liaphlus) variegatus</i>				✓	1	2012
<i>Oxypoda lurida</i>	<i>Oxypoda lurida</i>	✓				1	2002
<i>Aleochara (coprochara) verna</i>	<i>Aleochara (coprochara) verna</i>				✓	2	2004
<i>Gabrieus psseticus</i>	<i>Gabrieus psseticus</i>				✓	2	2002
<i>Hypocaccus (hypocaccus) metallicus</i>	<i>Hypocaccus (hypocaccus) metallicus</i>				✓	2	2004
<i>Nicrophorus interruptus</i>	<i>Nicrophorus interruptus</i>				✓	1	2007
Stag beetle	<i>Lucanus cervus</i>				✓	2	2006



Vernicular name	Scientific name	Notable	Notable A9	Notable B	Red-listed	Records since 2000	Most recent record
<i>Athous (Orthathous) campyloides</i>	<i>Athous (Orthathous) campyloides</i>			✓		1	2002
<i>Adrastus rachifer</i>	<i>Adrastus rachifer</i>				✓	2	2002
<i>Rhagonycha lutea</i>	<i>Rhagonycha lutea</i>			✓		1	2002
<i>Hedobia (Ptinomorphus) imperialis</i>	<i>Hedobia (Ptinomorphus) imperialis</i>			✓		1	2002
<i>Meligethes fulvipes</i>	<i>Meligethes fulvipes</i>	✓				2	2002
<i>Meligethes rotundicollis</i>	<i>Meligethes rotundicollis</i>	✓				3	2002
<i>Atomaria (Anchicera) scutellaris</i>	<i>Atomaria (Anchicera) scutellaris</i>				✓	1	2002
Adonis' ladybird	<i>Hippodamia (Adonia) variegata</i>			✓		2	2001
<i>Mordellistena (Mordellina) acuticollis</i>	<i>Mordellistena (Mordellina) acuticollis</i>				✓	1	2002
<i>Crypticus quisquilius</i>	<i>Crypticus quisquilius</i>			✓		2	2003
Black-headed cardinal beetle	<i>Pyrochroa coccinea</i>			✓		1	2006
<i>Lissodema denticolle</i>	<i>Lissodema denticolle</i>			✓		1	2002
Cabbage flea beetle	<i>Phyllotreta cruciferae</i>			✓		1	2002
Flax flea beetle	<i>Longitarsus parvulus</i>		✓			2	2012
<i>Longitarsus pratensis</i>	<i>Longitarsus pratensis</i>				✓	2	2002
Mallow flea beetle	<i>Podagrica fuscicornis</i>			✓		3	2004
Mallow flea beetle	<i>Podagrica fuscipes</i>		✓			1	2005
<i>Kalcapion semivittatum</i>	<i>Kalcapion semivittatum</i>		✓			1	2002
Five-spot ermel	<i>Ethmia terminella</i>				✓	1	2011
Dotted ermel	<i>Ethmia dodecea</i>			✓		7	2006
Comfrey ermel	<i>Ethmia quadrillella</i>		✓			2	2011
Bordered ermel	<i>Ethmia bipunctella</i>				✓	21	2015
Alder signal	<i>Stathmopoda pedella</i>			✓		4	2011
Painted neb	<i>Eulamprotes wilkella</i>			✓		25	2011



Vernicular name	Scientific name	Notable	Notable A9	Notable B	Red-listed	Records since 2000	Most recent record
Wainscot neb	<i>Monochroa palustrellus</i>			✓		9	2010
Mallow groundling	<i>Platyedra subcinerea</i>	✓				62	2011
Hollyhock seed moth	<i>Pexicopia malvella</i>			✓		92	2011
Fen crest	<i>Brachmia inornatella</i>			✓		5	2011
Seathorn groundling	<i>Gelechia hippophaella</i>				✓	1	2006
Beet moth	<i>Scrobipalpa ocellatella</i>	✓				38	2011
Coast groundling	<i>Caryocolum vicinella</i>			✓		1	2003
Narrow groundling	<i>Caryocolum alsinella</i>	✓				1	2007
Meadow groundling	<i>Caryocolum proxima</i>				✓	1	2004
Straw obscure	<i>Oegoconia caradjai</i>			✓		5	2011
Rest harrow	<i>Aplasta ononaria</i>				✓	38	2011
Bright wave	<i>Idaea ochrata</i>				✓	96	2011
Sub-angled wave	<i>Scopula nigropunctata</i>				✓	6	2011
Tawny wave	<i>Scopula rubiginata</i>				✓	2	2009
Kent bent-wing	<i>Phyllocnistis xenia</i>				✓	16	2011
Ground lackey	<i>Malacosoma castrensis</i>				✓	22	2011
Scarce chocolate-tip	<i>Clostera anachoreta</i>				✓	15	2011
Silver barred	<i>Deltote bankiana</i>				✓	6	2011
White spot	<i>Hadena albimacula</i>				✓	1	2007
Small ranunculus	<i>Hecatera dysodea</i>				✓	72	2011
Toadflax brocade	<i>Calophasia lunula</i>				✓	65	2015
Concolorous	<i>Photedes extrema</i>				✓	2	2011
Flame brocade	<i>Trigonophora flammea</i>				✓	1	2003
Dotted footman	<i>Pelosia muscerda</i>				✓	5	2011
Pigmy footman	<i>Eilema pygmaeola</i>				✓	26	2011

Vernicular name	Scientific name	Not able	Notable A9	Notable B	Red-listed	Records since 2000	Most recent record
Olive crescent	<i>Trisateles emortualis</i>				✓	1	2001
Dark crimson underwing	<i>Catocala sponsa</i>				✓	2	2006
Scarce black arches	<i>Nola aerugula</i>				✓	2	2011
Swallowtail	<i>Papilio machaon</i>				✓	1	2003
Small blue	<i>Cupido minimus</i>				✓	1	2008
Small heath	<i>Coenonympha pamphilus</i>				✓	61	2015
Wall Brown	<i>Lasiommata megera</i>				✓	14	2012
Bulrush veneer	<i>Calamotropha paludella</i>			✓		32	2011
Powdered grass-veneer	<i>Thisanotia chrysonuchella</i>			✓		2	2010
Waste grass-veneer	<i>Pediasia contaminella</i>			✓		37	2011
Salt-marsh grass-veneer	<i>Pediasia aridella</i>			✓		29	2011
Hook-tipped grass-veneer	<i>Platytes alpinella</i>				✓	37	2011
Marbled yellow pearl	<i>Evergestis extimalis</i>			✓		246	2011
Giant water veneer	<i>Schoenobius gigantella</i>			✓		59	2011
Diamond-spot sable	<i>Loxostege sticticalis</i>				✓	1	2002
Sulphur pearl	<i>Sitochroa palealis</i>	✓				10	2011
Golden pearl	<i>Anania verbascalis</i>			✓		1	2001
Twin-spot honey	<i>Aphomia zelleri</i>				✓	35	2011
Kent knot-horn	<i>Moitrelia obductella</i>				✓	13	2011
Rosy-striped knot-horn	<i>Oncocera semirubella</i>			✓		66	2011
Gorse knot-horn	<i>Pempelia genistella</i>		✓			19	2011
Silver-edged knot-horn	<i>Pima boisduvaliella</i>				✓	3	2011
Hoary knot-horn	<i>Gymnancyla canella</i>		✓			31	2011
Spindle knot-horn	<i>Nephoterix angustella</i>			✓		58	2011
Saltmarsh knot-horn	<i>Ancylosis oblitella</i>	✓				9	2011

Vernicular name	Scientific name	Not able	Notable A9	Notable B	Red-listed	Records since 2000	Most recent record
Agate knot-horn	<i>Nyctegretis lineana</i>				✓	15	2011
Wormwood knot-horn	<i>Euzophera cinerosella</i>			✓		46	2011
Long-legged tabby	<i>Synaphe punctalis</i>			✓		64	2011
Flecked general	<i>Stratiomys singularior</i>	✓				2	2008
Dotted bee-fly	<i>Bombylius discolor</i>	✓				3	2010
Crochet-hooked stiletto	<i>Thereva plebeja</i>	✓				1	2003
Hornet robberfly	<i>Asilus crabroniformis</i>	✓				1	2000
<i>Volucella inanis</i>	<i>Volucella inanis</i>	✓				1	2008
<i>Volucella zonaria</i>	<i>Volucella zonaria</i>	✓				1	2011
<i>Melieria picta</i>	<i>Melieria picta</i>	✓				1	2009
<i>Myopites eximius</i>	<i>Myopites eximius</i>				✓	2	2008
<i>Myopites inulaedyssentericae</i>	<i>Myopites inulaedyssentericae</i>				✓	1	2002
<i>Hydrotaea parva</i>	<i>Hydrotaea parva</i>	✓				1	2002
<i>Hedychrum niemelai</i>	<i>Hedychrum niemelai</i>				✓	5	2009
Small velvet ant	<i>Smicromyrme rufipes</i>			✓		4	2013
Spider-hunting wasp	<i>Evagetes pectinipes</i>				✓	4	2013
Brown-headed mason wasp	<i>Odynerus (Odynerus) melancephalus</i>		✓			3	2008
Mud wasp	<i>Podalonia affinis</i>				✓	5	2013
<i>Lestiphorus bicinctus</i>	<i>Lestiphorus bicinctus</i>			✓		1	2002
Four-banded weevil-wasp	<i>Cerceris quadricincta</i>				✓	13	2014
Bee wolf	<i>Philanthus triangulum</i>				✓	9	2013
Sea-aster colletes bee	<i>Colletes (colletes) halophilus</i>		✓			1	2005
Margined colletes	<i>Colletes (colletes) marginatus</i>		✓			1	2001
Trimmer's mining bee	<i>Andrena (hoplandrena) trimmerana</i>			✓		1	2008

Vernicular name	Scientific name	Notable	Notable A9	Notable B	Red-listed	Records since 2000	Most recent record
<i>Andrena (Cnemidandrena) nigriceps</i>	<i>Andrena (Cnemidandrena) nigriceps</i>			✓		1	2007
<i>Andrena (Plastandrena) pilipes</i>	<i>Andrena (Plastandrena) pilipes</i>			✓		8	2010
<i>Andrena (Micradrena) alfkenella</i>	<i>Andrena (Micradrena) alfkenella</i>				✓	1	2004
<i>Andrena (Micradrena) minutuloides</i>	<i>Andrena (Micradrena) minutuloides</i>		✓			4	2009
<i>Lasioglossum (Evylaeus) malachurum</i>	<i>Lasioglossum (Evylaeus) malachurum</i>			✓		2	2007
<i>Lasioglossum (Evylaeus) pauxillum</i>	<i>Lasioglossum (Evylaeus) pauxillum</i>		✓			2	2008
Hairy-legged mining bee	<i>Dasypoda hirtipes</i>			✓		1	2007
Silvery leaf-cutter bee	<i>Megachile (Eutricharaea) leachella</i>			✓		5	2009
<i>Coelioxys (Coelioxys) mandibularis</i>	<i>Coelioxys (Coelioxys) mandibularis</i>				✓	2	2006
<i>Nomada flavopicta</i>	<i>Nomada flavopicta</i>			✓		1	2009
<i>Nomada fucata</i>	<i>Nomada fucata</i>		✓			7	2009
6-Banded nomad bee	<i>Nomada fulvicornis</i>				✓	3	2009
<i>Anthophora (Dasymegilla) quadrimaculata</i>	<i>Anthophora (Dasymegilla) quadrimaculata</i>		✓			3	2007
<i>Bombus (Thoracobombus) sylvarum subsp. distinctus</i>	<i>Bombus (Thoracobombus) sylvarum subsp. distinctus</i>	✓				1	2010
The shining ram's-horn	<i>Segmentina nitida</i>				✓	20	2012

NB: those in bold are priority species, listed on Section 41 of NERC



APPENDIX 7.2 BIODIVERSITY RECEPTORS, ENVIRONMENTAL CHANGE AND ZOI TABLES

Appendix 7.2A: Evaluation of receptors

A1.1 **Table 7A.1** lists the receptors that are relevant to the assessment because they are either legally protected or of sufficient biodiversity importance that an effect on them could be significant, and which could be affected by the proposed development. A justification is provided for any receptors that are scoped out of further assessment because they are assessed as being of insufficient value for likely effects to be significant.

Table 7A.1

Evaluation of important receptors

Legally protected and/or 'Important' receptors recorded within the study area from desk study and/or field surveys	Legally protected and controlled species (see Box 7.2 in Chapter 7)?	Designated biodiversity sites and priority habitats and species (see Box 7.1 in Chapter 7)?	Justification if receptors are of insufficient value for effects to be significant (Box 7.3 in Chapter 7)	Scoping conclusion
Arable	No	No	All monoculture fields with little floral diversity. Common and widespread habitat throughout Kent and the UK. Assessed as being of insufficient biodiversity value. Arable fields do support wintering waders including golden plover (Thanet Coast & Sandwich Bay SPA qualifying interest species), which is evaluated separately.	Scoped Out
Arable field margins	No	Yes	Very narrow field margins populated by common arable weed species. Receptor considered of poor quality and does not fulfil Priority Habitat criteria. Assessed as being of insufficient biodiversity value.	Scoped Out
Poor semi-improved grassland	No	No	Poor-semi-improved grassland is present across much of the Site. Poor semi-improved grassland is a common and widespread habitat throughout Kent and the UK. Assessed as being of insufficient biodiversity value. This habitat may support priority species of invertebrate or invertebrate assemblages, as well as breeding priority bird species, which are evaluated separately.	Scoped Out
Semi improved grassland	No	TBC	Areas of semi improved neutral grassland is abundant within the site with as yet unknown degree of floral diversity. Areas of semi improved grassland are widely replicated within Kent. Value cannot be assessed until botanical interest surveyed and floral diversity/vegetation communities identified. See Table 7B.1	Scoped In
Reedbeds	No	Yes	See Table 7B.1	Scoped In
Tall ruderal	No	No	A species-poor habitat which is common and widespread habitat throughout Kent and the UK. Assessed as being of insufficient biodiversity value.	Scoped Out

Legally protected and/or 'Important' receptors recorded within the study area from desk study and/or field surveys	Legally protected and controlled species (see Box 7.2 in Chapter 7)?	Designated biodiversity sites and priority habitats and species (see Box 7.1 in Chapter 7)?	Justification if receptors are of insufficient value for effects to be significant (Box 7.3 in Chapter 7)	Scoping conclusion
Scrub (dense and scattered)	No	No	A species-poor habitat which is common and widespread habitat throughout Kent and the UK. Assessed as being of insufficient biodiversity value.	Scoped Out
Amenity grassland	No	No	A species-poor habitat which is common and widespread habitat throughout Kent and the UK. Assessed as being of insufficient biodiversity value.	Scoped Out
Buildings	TBC	TBC	Many site buildings with potential for roosting bats. Scoped in until building inspections undertaken and any subsequent (presence of legally protected/priority species) roosts identified.	Scoped In
Scattered trees	No	No	Scattered trees present within the Site typically comprising locally common, immature species. Where they are part of a hedgerow they are considered within that receptor. Otherwise, they are a common and widespread habitat throughout Kent and the UK. Assessed as being of insufficient biodiversity value on this Site.	Scoped Out
Hedgerows (species-poor)	No	Yes	See Table 7B.1.	Scoped In
Standing open water/ponds	No	Yes	See Table 7B.1	Scoped In
Hardstanding	No	No	Extensive areas of hardstanding comprising concrete or tarmac surfaces (e.g. former runway, taxiing aprons and access roads) are present. Very limited flora. A common and widespread habitat throughout Kent and the UK. Assessed as being of insufficient biodiversity value.	Scoped Out
Bare ground	No	No	Areas of disturbed soil and gravel, principally around buildings with limited flora. A common and widespread habitat throughout Kent and the UK. Assessed as being of insufficient biodiversity value.	Scoped Out
Ephemeral/short perennial	No	No	Area of former bare ground (disturbed soil/gravel) with a sparse vegetation community comprising abundant and widespread plant species. A common and widespread	Scoped Out

Legally protected and/or 'Important' receptors recorded within the study area from desk study and/or field surveys	Legally protected and controlled species (see Box 7.2 in Chapter 7)?	Designated biodiversity sites and priority habitats and species (see Box 7.1 in Chapter 7)?	Justification if receptors are of insufficient value for effects to be significant (Box 7.3 in Chapter 7)	Scoping conclusion
			habitat throughout Kent and the UK. Assessed as being of insufficient biodiversity value.	
Traditional orchards	No	Yes	Habitats not sensitive to the any changes in air quality. It is not known if these orchards are intensively managed e.g. with densely planted apple trees with a heavily managed short amenity grassland understorey. Assessed as being of insufficient biodiversity value.	Scoped Out
Native woodland: Semi-natural broad-leaved woodland, broad-leaved plantation woodland and ancient semi-natural woodland, wet woodland	No	Yes	See Table 7B.1	Scoped In
Reedbeds	No	Yes	See Table 7B.1	Scoped In
Coastal floodplain/grazing marsh	No	Yes	See Table 7B.1	Scoped In
Bats	Yes	Yes	See Table 7B.1	Scoped In
Great crested newts	Yes	Yes	See Table 7B.1	Scoped In
Reptiles	Yes	Yes	See Table 7B.1	Scoped In
Breeding bird assemblage: Priority/BoCC Red list species	No	Yes	See Table 7B.1	Scoped In
Nesting birds	Yes	No	See Table 7B.1	Scoped in (legal requirements)
WCA Schedule 1 species: Breeding barn owl	Yes	Yes	See Table 7B.1	Scoped In
Kestrel	Yes	Yes	See Table 7B.1	Scoped out
Winter bird assemblage: Priority/BoCC Red list species	No	Yes	See Table 7B.1	Scoped In

Legally protected and/or 'Important' receptors recorded within the study area from desk study and/or field surveys	Legally protected and controlled species (see Box 7.2 in Chapter 7)?	Designated biodiversity sites and priority habitats and species (see Box 7.1 in Chapter 7)?	Justification if receptors are of insufficient value for effects to be significant (Box 7.3 in Chapter 7)	Scoping conclusion
Invertebrates/ invertebrate assemblages	No	Yes	See Table 7B.1	Scoped In
Badger	Yes	No	No evidence of badgers found on Site. Badgers are sufficiently common and widespread in Kent that an impact upon the local population would not be significant (in EIA terms). However, they cannot be scoped out at this stage due to legal requirements only.	Scoped out (except in relation to legal requirements only)
Terrestrial priority species (brown hare, common toad, hedgehog)	No	Yes	See Table 7B.1	Scoped In
Thanet Coast & Sandwich Bay SPA/Ramsar: Wintering: Golden plover	Yes	Yes	See Table 7B.1	Scoped In
Thanet Coast & Sandwich Bay SPA: Wintering: Turnstone	Yes	Yes	See Table 7B.1	Scoped In
Thanet Coast & Sandwich Bay SPA: Breeding: Little tern	Yes	Yes	See Table 7B.1	Scoped In
Thanet Coast & Sandwich Bay Ramsar: Ramsar criterion 2: Supports 15 British Red Data Book wetland invertebrates. Ramsar criterion 6: Turnstone occur at levels of international importance.	Yes	Yes	See Table 7B.1	Scoped In
Stodmarsh SPA/Ramsar:	Yes	Yes	See Table 7B.1	Scoped In

Legally protected and/or 'Important' receptors recorded within the study area from desk study and/or field surveys	Legally protected and controlled species (see Box 7.2 in Chapter 7)?	Designated biodiversity sites and priority habitats and species (see Box 7.1 in Chapter 7)?	Justification if receptors are of insufficient value for effects to be significant (Box 7.3 in Chapter 7)	Scoping conclusion
Wintering: Hen harrier				
Stodmarsh SPA/Ramsar: Wintering: Bittern	Yes	Yes	See Table 7B.1	Scoped In
Stodmarsh SPA/Ramsar: Breeding: Gadwall	Yes	Yes	See Table 7B.1	Scoped In
Stodmarsh SPA/Ramsar: Wintering: Gadwall	Yes	Yes	See Table 7B.1	Scoped In
Stodmarsh SPA/Ramsar: Wintering: Shoveler	Yes	Yes	See Table 7B.1	Scoped In
Stodmarsh Ramsar: Ramsar criterion 2 - six British Red Data Book wetland invertebrates, two nationally rare plants and five nationally scarce species; and a diverse assemblage of rare wetland birds.	Yes	Yes	See Table 7B.1	Scoped In
Stodmarsh SAC: Annex II species - Desmoulin's whorl snail	Yes	Yes	See Table 7B.1	Scoped In
Thanet Coast SSSI: Annex 1 reefs and submerged or partially submerged sea caves.	No	Yes	See Table 7B.1	Scoped In
Margate and Long Sands SCI (inshore marine): a number of Annex I Sandbanks slightly covered by seawater at all times	No	Yes	See Table 7B.1	Scoped In

Legally protected and/or 'Important' receptors recorded within the study area from desk study and/or field surveys	Legally protected and controlled species (see Box 7.2 in Chapter 7)?	Designated biodiversity sites and priority habitats and species (see Box 7.1 in Chapter 7)?	Justification if receptors are of insufficient value for effects to be significant (Box 7.3 in Chapter 7)	Scoping conclusion
Sandwich Bay SAC: complex of Annex 1 shifting dune systems	No	Yes	See Table 7B.1	Scoped In
Stodmarsh SAC/SSSI and Stodmarsh NNR: Annex II species - Desmoulin's whorl snail	No	Yes	See Table 7B.1	Scoped in
Sandwich Bay to Hacklinge Marshes SSSI: Sand dune system and sandy coastal grassland; mudflats; saltmarsh; chalk cliffs; outstanding assemblages of marine plants and invertebrates; freshwater grazing marsh, scrub and woodland; outstanding assemblages of terrestrial plants and invertebrates; and nationally significant populations of waders.	No	Yes	See Table 7B.1	Scoped in
East Blean Woods SSSI: Primary deciduous woodland comprising mixed coppice with oak and sweet chestnut and a small plantation of Scot's pine. Diverse ground flora indicative of a long history of woodland cover. Also of interest for its moth and butterfly	No	Yes	See Table 7B.1	Scoped in

Legally protected and/or 'Important' receptors recorded within the study area from desk study and/or field surveys	Legally protected and controlled species (see Box 7.2 in Chapter 7)?	Designated biodiversity sites and priority habitats and species (see Box 7.1 in Chapter 7)?	Justification if receptors are of insufficient value for effects to be significant (Box 7.3 in Chapter 7)	Scoping conclusion
assemblage which includes the rare heath fritillary. A wide range of woodland bird species.				
Preston Marshes SSSI: fen vegetation and one of only two known localities in Kent for the rare sharp-leaved pondweed <i>Potamogeton acutifolius</i> .	No	Yes	See Table 7B.1	Scoped in
Sandwich and Pegwell Bay NNR and Kent Wildlife Trust Reserve: a complex mosaic of habitats of international importance for its bird population	No	Yes	See Table 7B.1	Scoped in
Blean Woods SAC/NNR: Ancient woodland and Blean Complex SAC Annex 1 sub-Atlantic and medio-European oak or oak-hornbeam forests of the <i>Carpinion betuli</i> and are one of the British strongholds for the heath fritillary butterfly	No	Yes	See Table 7B.1	Scoped in
Prince's Beachlands LNR: a complex mosaic of habitats of international importance for its bird population.	No	Yes	See Table 7B.1	Scoped in

Legally protected and/or 'Important' receptors recorded within the study area from desk study and/or field surveys	Legally protected and controlled species (see Box 7.2 in Chapter 7)?	Designated biodiversity sites and priority habitats and species (see Box 7.1 in Chapter 7)?	Justification if receptors are of insufficient value for effects to be significant (Box 7.3 in Chapter 7)	Scoping conclusion
Bishopstone Cliffs LNR: Cliff-top grassland	No	Yes	See Table 7B.1	Scoped in

Appendix 7B: Environmental changes and zones of influence

- A1.2 Receptors have only been assessed against potential environmental changes to which they are likely to be sensitive. For example, “hedgerow” as a receptor would not be sensitive to light, noise and vibration. Whether a receptor is sensitive or not to an environmental change has been determined based on professional judgement, project design, statutory guidance and appropriate relevant literature.
- A1.3 All designated sites with birds listed on the citation and individual bird assemblages are included within the ornithological section of **Table 7B.1** and assessed against specific environmental changes relating to birds only. Where designated sites also cite terrestrial habitats/species these are dealt with in Section 1 of the table. All environmental changes and the associated Zones of Influence (Zoi) in relation to ecological and ornithological receptors are described in **Table 7C.1**.

Table 7B.1 Environmental changes and Zones of Influence (Zol)

Section 1 deals with ecological receptors and Section 2 with ornithological receptor

Receptor	Environmental Change	Zol (where receptor is sensitive to the environmental change) – distances defined in Table 7C	Receptor within Zol?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)
Section 1 – Ecological Receptors				
Reedbeds	Land-take/Land cover change/construction/decommissioning	Within the construction/decommissioning area	No	Yes – The receptor is within the Zol.
	Dust deposition	Within 50m of construction/ the Site	No	
	Pollution	Within 15m discharge outfall	No	
	Air quality change/deposition	Within 200m of road, aircraft flight path	TBC – additional road/flight path information required	
Deciduous woodland: Semi-natural broad-leaved woodland, broad-leaved plantation woodland and ancient semi-natural woodland, traditional orchard, wood pasture and parkland	Land-take/Land cover change/construction/decommissioning	Within the construction/decommissioning area	No	Yes – The receptor is within the Zol.
	Dust deposition	Within 50m of construction/the Site	Yes	
	Pollution	Within 15m discharge outfall	No	
	Air quality change/deposition	Within 200m of road, aircraft flight path	Yes	

Hedgerows	Land-take/Land cover change/construction/decommissioning	Within the construction/decommissioning area	Yes	Yes – The receptor is within the Zol.
	Dust deposition	Within 50m of the Site	Yes	
	Pollution	Within 15m discharge outfall	No	
	Air quality change/deposition	Within 200m of road, aircraft flight path	Yes	
Ponds/standing open water	Land-take/Land cover change/ construction/decommissioning	Within the construction area	Yes	Yes – The receptor is within the Zol. See Water Environment Chapter 8.
	Dust deposition	Within 50m of construction site	Yes	
	Pollution	Within 15m discharge outfall	No	
	Air quality change/deposition	Within 200m of access road, aircraft flight path	?	
Great crested newts	Land-take/Land cover change/construction/decommissioning	Within the construction area and to a distance of 500m	TBC	TBC (to be confirmed)
	Increased light, noise and vibration	100m from proposed working area	TBC	
	Dust deposition	Within 50m of a construction site	TBC	
	Pollution	Within 15m of discharge outfall	No	
Bats	Land-take/Land cover change/construction/decommissioning	Within the construction area	TBC	TBC
	Increased light, noise and vibration	500m from proposed working area	TBC	

Badger	Land-take/Land cover change /construction/ decommissioning	Within the construction area	Yes	Yes – Receptor is within the Zol.
	Increased light, noise and vibration	30m from active sett	No	
	Increased vehicle movement	Within the Site and immediate area	Yes	
Reptiles	Land take/Land cover change	Within the construction area	TBC	TBC.
	Increase vehicle movement	Within the Site	TBC	
Terrestrial priority Invertebrates (<i>Dorycera graminum</i> , stag beetle, Black-headed Mason Wasp, Four-banded Weevil-wasp, Heath Grasper, Hornet Robberfly Desmoulin's Whorl Snail, <i>Paraclusia tigrina</i> , <i>Homoneura interstincta</i> , <i>Dolichopus virgultorum</i> , <i>Sisyra dalii</i> , <i>Tillus elongates</i> , <i>Ptiolina obscura</i> , <i>Pipizella virens</i> , <i>Platycheirus immarginatus</i> , <i>Volucella inflata</i> , <i>Aulogastromyia anisodactyla</i> , <i>Dicraeus scibilis</i> , <i>Elachiptera pubescens</i> , <i>Speccafrons halophila</i> , <i>Zophomyia tenella</i> , <i>Hylaeus pictipes</i> , <i>Neurigona erichsoni</i> , picture-winged fly, pipunculid <i>Nephrocerus flavicornis</i> , <i>Brachypalpoides lenta</i> , <i>Anopheles algeriensis</i> and moths/butterflies)	Land-take/Land cover change /construction/ decommissioning	Within the construction area	TBC	TBC. Any species recorded during invertebrate survey within the Site? Other species were recorded but not within the zone of influence and therefore scoped out. Should these species be listed within a designated site, these are dealt with separately under the named designated site receptor.
Aquatic/marine priority Invertebrates: Shining ramshorn snail; <i>Pelodytes caesus</i> , dog whelk, oyster	Land-take/Land cover change /construction/ decommissioning	Within the construction area	No	No – Receptors would not be subject to significant effects due to environmental measures included within the proposed development. See Water Chapter 8 for details of assessment of water borne effects. Should these species be listed within a designated site, these are dealt
	Pollution	Within 15m of discharge outfall	Yes	

				with separately under the named designated site receptor.
Terrestrial priority species (brown hare, common toad, hedgehog)	Land-take/Land cover change construction/ decommissioning	Within the construction area/the Site	Yes	No. Receptor would not be subject to significant effects due to environmental measures included within the proposed development. Environmental measures such as leaving no trenches left open overnight, no external lighting used between dusk and dawn and following Method Statements would reduce the risk to terrestrial priority species. Large areas of suitable habitat would be retained. The proposed works and associated environmental measures would not significantly impact local species populations.
	Increased light, noise and vibration	~30m from the construction area	Yes	
	Increased vehicle movement	Within the Site and associated external access routes	Yes	
	Pollution	Within 15m of discharge outfall	No	
Protected plant species (Schedule 15, WCA) Martin's ramping fumitory	Land-take/Land cover change /construction/ decommissioning	Within the construction area/ the Site	TBC	TBC if within Site Should these species be listed within a designated site, these are dealt with separately under the named designated site receptor.
	Dust deposition	Within 50m of a construction area/the Site	TBC	
	Pollution	Within 15m of discharge outfall	TBC	
	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	
Marine mammals (common seal, grey seal)	Land-take/Land cover change /construction/ decommissioning	Within the construction area/Site	No	No – Receptor would not be subject to significant effects due to environmental measures included within the proposed development. Only few records of these species have been recorded along the River Stour. Both grey and common seal are considered to be rarely present
	Pollution	Within 15m of discharge outfall	Yes	

				<p>and there are no suitable haul out areas. Following the environmental measures within the proposed development notably, and the risk of killing/injuring these species and contravening legislation is considered to be very low to negligible. If a protected species is recorded within the working area, works would stop immediately and the project ecologist contacted.</p> <p>All in-water works would follow environmental measures listed within Water Environment Chapter 8. These would ensure no direct or indirect effects upon the receptor occur.</p>
	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	TBC
Marine and/or Freshwater fish (barbell, European eel, sea trout, Atlantic salmon, sea lamprey, thornback skate)	Land-take/Land cover change /construction/ decommissioning	Within the construction area/Site	No	No? – Receptor would not be subject to significant effects due to environmental measures included within the proposed development.
	Pollution	Within 15m of discharge outfall	Yes	<p>All in-water works would follow environmental measures listed within Water Environment Chapter 8. These would ensure no direct or indirect effects upon the receptor occur (and are scoped out in that Chapter)</p> <p>Consequently, pollution would be kept to a minimum. The proposed works and associated environmental measures would not significantly impact local species populations.</p> <p>See Water Environment Chapter 8 for details of assessment of water borne effects.</p>

	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	
Thanet Coast and Sandwich Bay Ramsar	Land-take/Land cover change/construction/decommissioning	Within the construction area/Site	No	<p>TBC - Terrestrial habitats and invertebrates listed within citation not significantly affected by proposals. The Ramsar is located 0.925 km at its closest point from the Site. Environmental measures reduce any risk of indirect effects of water-borne pollution.</p> <p>See Water chapter 8.for details of assessment of water borne effects, and Air chapter 6. For details of assessment of air quality effects.</p>
	Pollution	Within 15m discharge outfall	Yes	
	Dust deposition	Within 50m of construction/Site	No	
	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	
Stodmarsh Ramsar: The site supports a number of uncommon invertebrates and plants	Land-take/Land cover change/construction/decommissioning	Within the construction area	No	<p>TBC - Terrestrial habitats, plants and invertebrates listed within citation not significantly affected by proposals other than potential effects from AQ changes/deposition?</p> <p>The Ramsar site is located 8.45 km from the Site at its closest point. Environmental measures reduce any risk of indirect effects of pollution. See Water chapter 8.for details of assessment of water borne effects, and Air chapter 6. For details of assessment of air quality effects.</p>
	Dust deposition	Within 50m of a construction site	No	
	Pollution	Within 15m discharge outfall	No	
	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	

Thanet Coast SSSI: Annex I reefs and submerged or partially submerged sea caves.	Land-take/Land cover change/construction/decommissioning	Within the construction area/Site	No	TBC – Receptor would not be subject to significant effects (other than potentially for air quality changes) due to environmental measures included within the proposed development. The SSSI is located 4.5 km from the Site. Environmental measures would ensure pollution is prevented and no indirect effects upon these designated habitats would occur.
	Dust deposition	Within 50m of a construction site	No	
	Pollution	Within 15m discharge outfall	No	
	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	
Sandwich Bay SAC: complex of Annex 1 shifting dune systems	Land-take/Land cover change/construction/decommissioning	Within the Site	No	TBC – Receptor would not be subject to significant effects (other than potentially for air quality changes) due to environmental measures included within the proposed development The SAC is located 0.925 km from the Site and is listed for its shifting dune habitats, environmental measures would reduce any potential indirect effects of the proposed works.
	Dust deposition	Within 50m of a construction area	No	
	Pollution	Within 15m discharge outfall	Yes	
	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	
Stodmarsh SAC/SSSI and Stodmarsh NNR: Annex II species - Desmoulin's whorl snail	Land-take/Land cover change /construction/decommissioning	Within the Site	No	TBC – Receptor would not be subject to significant effects (other than potentially for air quality changes) due to environmental measures included within the proposed development Stodmarsh SAC/SSSI and NNR is located 0.415km from the Site and as such there would be no direct impact on the site. Environmental measures would reduce effects upon the River Stour which is directly linked to the
	Dust deposition	Within 50m of a construction area	No	
	Pollution	Within 15m discharge outfall	No	

				SAC/SSSI/NNR and therefore no indirect pollution effects are anticipated. See Water Environment Chapter 8 and Air Quality Chapter 6 for detailed measures and assessment on water/air pathways.
	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	
Sandwich Bay to Hacklinge Marshes SSSI: Sand dune system and sandy coastal grassland; mudflats; saltmarsh; chalk cliffs; outstanding assemblages of marine plants and invertebrates; freshwater grazing marsh, scrub and woodland; outstanding assemblages of terrestrial plants and invertebrates.	Land-take/Land cover change /construction/ decommissioning	Within the Site	No	TBC – Receptor would not be subject to significant effects due to environmental measures included within the proposed development Although within the Zol due to the potential spread of dust and pollution, environmental measures included specifically for dust suppression and measures included within the Water and Environment chapter 8 relating to indirect pollution would reduce any potential significant effects to a non-significant level.
	Dust deposition	Within 50m of a construction area	No	
	Pollution	Within 15m discharge outfall	Yes	
	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	
East Blean Woods SSSI: Primary deciduous woodland comprising mixed coppice with oak and sweet chestnut and a small plantation of Scot's pine. Diverse ground flora indicative of a long history of woodland cover. Also of interest for its moth and butterfly assemblage which includes the rare heath fritillary.	Land-take/Land cover change /construction/ decommissioning	Within the Site	No	TBC – Receptor is not within the Zol. Receptor would not be subject to any significant effects (other than potentially for air quality changes). The SSSI is located 11.3 km from the Site and any indirect effects are considered negligible. Heath fritillary butterfly legislation would not be contravened due to the distance from the Site.
	Increased light, noise and vibration	~30m from suitable heath fritillary habitat	No	
	Dust deposition	Within 50m of a construction area	No	
	Pollution	Within 15m discharge outfall	No	

	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	
Preston Marshes SSSI: fen vegetation and one of only two known localities in Kent for the rare sharp-leaved pondweed <i>Potamogeton acutifolius</i> .	Land-take/Land cover change construction/ decommissioning	Within the Site	No	TBC. Receptor is not within the Zol? Receptor would not be subject to any significant effects (other than potentially for air quality changes). The SSSI is located 8.8 km from the Site and any indirect effects are considered negligible. Areas of sharp leaved pondweed would remain unaffected.
	Dust deposition	Within 50m of a construction area	No	
	Pollution	Within 15m discharge outfall	No	
	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	
Sandwich and Pegwell Bay NNR and Kent Wildlife Trust Reserve: a complex mosaic of habitats of international importance for its bird population	Land-take/Land cover change /construction/ decommissioning	Within the Site	No	TBC – Receptor would not be subject to significant effects due to environmental measures included within the proposed development The NNR and KWTR is located 0.925 km from the Site, any potential indirect effects of dust or pollution are minimised by environmental measures.
	Dust deposition	Within 50m of a construction area	No	
	Pollution	Within 15m discharge outfall	Yes	
	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	
Blean Woods NNR: Ancient woodland and Blean Complex SAC: Annex I sub-Atlantic and medio-European oak or oak-hornbeam forests of the <i>Carpinion betuli</i> and are one of the British strongholds for the heath fritillary butterfly	Land-take/Land cover change /construction/ decommissioning	Within the Site	No	TBC/No? – Receptor is not within the Zol? Receptor would not be subject to any significant effects (other than potentially for air quality changes). The SAC/NNR is located 11.5 km from the Site and any indirect effects are considered negligible due to the implementation of environmental measures.
	Increased light, noise and vibration	~30m from suitable heath fritillary habitat	No	
	Dust deposition	Within 50m of a construction area	No	
	Pollution	Within 15m discharge outfall	No	

	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	Heath fritillary butterfly legislation would not be contravened due to the distance from the Site.
Prince's Beachlands LNR: a complex mosaic of habitats of international importance for its bird population. Noted for butterflies, fungi and reptiles.	Land-take/Land cover change /construction/ decommissioning	Within the Site	No	TBC – Receptor is not within the Zol? Receptor would not be subject to any significant effects (other than potentially for air quality changes). The LNR is located 3.68 km from the Site and any indirect effects are considered negligible.
	Dust deposition	Within 50m of a construction area	No	
	Pollution	Within 15m discharge outfall	No	Reptiles and butterflies within the LNR would remain unaffected by works due to the distance of the proposed works.
	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	
Bishopstone Cliffs LNR: Clifftop grassland	Land-take/Land cover change /construction/ decommissioning	Within the construction area/Site	No	TBC/No – Receptor is not within the Zol? Receptor would not be subject to any significant effects (other than potentially for air quality changes). The LNR is located 9.2 km north-west from the Site and any indirect effects are considered negligible.
	Dust deposition	Within 50m of construction site	No	
	Pollution	Within 15m discharge outfall	No	
	Air quality change/deposition	Within 200m of access road, aircraft flight path	TBC	
Section 2 - Ornithology Receptors				
Thanet Coast & Sandwich Bay SPA/Ramsar: Wintering: Golden plover	Land-take/Land cover change /construction/ decommissioning	Within the construction area/Site	No	Yes – Receptor is within the Zol.
	Land-take/Land cover change /construction/	Within 100m of the Site	Yes	

	decommissioning : displacement			
	Increased light, noise and vibration from Site: Disturbance	Within 250m of the Site	Yes	
	Increased light, noise and vibration from aircraft taking off and landing: Disturbance	Within 500m vertical distance (altitude) and 1 km lateral distance of aircraft flight paths; and, for noise, within 85dB contour	Yes	
Thanet Coast & Sandwich Bay SPA: Breeding: Little tern	Land-take/Land cover change / construction/ decommissioning	Within the construction area/Site	No	No – Receptor is not within Zol Little tern no longer breeds within the Thanet Coast & Sandwich Bay SPA. Given the absence of this qualifying interest species from the SPA, no significant adverse effects are considered during either construction or operation.
	Land-take/Land cover change /construction/ decommissioning : displacement	Within 100m of the Site	No	
	Increased light, noise and vibration from Site: Disturbance	Within 250m of the Site	No	
	Increased light, noise and vibration from aircraft taking off and landing: Disturbance	Within 500m vertical distance (altitude) and 1 km lateral distance of aircraft flight paths; and, for noise, within 85dB contour	No	
Thanet Coast & Sandwich Bay SPA: Wintering: Turnstone	Land-take/Land cover change /construction/ decommissioning	Within the construction area/Site	No	Yes – Receptor is within the Zol. Marked decline in numbers using the SPA this century with the majority of birds using the northern extremities of the SPA and peak winter counts for Pegwell Bay from 2010/11 to 2014/15 ranging from 7 to 65 birds.
	Land-take/Land cover change /construction /decommissioning : displacement	Within 100m of the Site	No	
	Increased light, noise and vibration: Disturbance	Within 250m of the Site	No	

	Increased light, noise and vibration from aircraft taking off and landing: Disturbance	Within 500m vertical distance (altitude) and 1 km lateral distance of aircraft flight paths; and, for noise, within 85dB contour.		
Stodmarsh SPA/Ramsar: Wintering: Hen harrier	Land-take/Land cover change /construction/ decommissioning	Within the construction area/Site	No	TBC – Receptor is not within the Zol to be confirmed with further information on flight paths. Stodmarsh is 7.6 km distant from the Site.
	Land-take/Land cover change /construction /decommissioning : displacement	Within 100m of the Site	No	
	Increased light, noise and vibration: Disturbance	Within 250m of the Site	No	
	Increased light, noise and vibration from aircraft taking off and landing: Disturbance	Within 500m vertical distance (altitude) and 1 km lateral distance of aircraft flight paths; and, for noise, within 85dB contour.	TBC	
Stodmarsh SPA/Ramsar: Wintering: Gadwall	Land-take/Land cover change /construction/ decommissioning	Within the construction area/Site	No	TBC – Receptor is not within the Zol to be confirmed with further information on flight paths. Stodmarsh is 7.6 km distant from the Site.
	Land-take/Land cover change /construction decommissioning: displacement	Within 100m of the Site	No	
	Increased light, noise and vibration: Disturbance	Within 250m of the Site	No	
	Increased light, noise and vibration from aircraft taking off and landing: Disturbance	Within 500m vertical distance (altitude) and 1 km lateral distance of aircraft flight paths; and,	TBC	

		for noise, within 85dB contour.		
Stodmarsh SPA/Ramsar: Breeding: Gadwall	Land-take/Land cover change /construction/ decommissioning	Within the construction area/Site	No	TBC – Receptor is not within the Zol to be confirmed with further information on flight paths. Stodmarsh is 7.6 km distant from the Site
	Land-take/Land cover change /construction/ decommissioning: displacement	Within 100m of the Site	No	
	Increased light, noise and vibration: Disturbance	Within 250m of the Site	No	
	Increased light, noise and vibration from aircraft taking off and landing: Disturbance	Within 500m vertical distance (altitude) and 1 km lateral distance of aircraft flight paths; and, for noise, within 85dB contour.	TBC	
Stodmarsh SPA/Ramsar: Wintering: Bittern	Land-take/Land cover change /construction/ decommissioning	Within the construction area/Site	No	TBC – Receptor is not within the Zol to be confirmed with further information on flight paths. Stodmarsh is 7.6 km distant from the Site
	Land-take/Land cover change /construction/ decommissioning displacement	Within 100m of the Site	No	
	Increased light, noise and vibration: Disturbance	Within 250m of the Site	No	
	Increased light, noise and vibration from aircraft taking off and landing: Disturbance	Within 500m vertical distance (altitude) and 1 km lateral distance of aircraft flight paths; and, for noise, within 85dB contour.	TBC	
Stodmarsh SPA/Ramsar: Wintering: Shoveler	Land-take/Land cover change /construction/ decommissioning	Within the construction area/Site	No	TBC – Receptor is not within the Zol to be confirmed with further information on flight paths.

	Land-take/Land cover change /construction/ decommissioning: displacement	Within 100m of the Site	No	Stodmarsh is 7.6 km distant from the Site.
	Increased light, noise and vibration: Disturbance	Within 250m of the Site	No	
	Increased light, noise and vibration from aircraft taking off and landing: Disturbance	Within 500m vertical distance (altitude) and 1 km lateral distance of aircraft flight paths; and, for noise, within 85dB contour.	TBC	
Sandwich Bay & Hacklinge Marshes SSSI: Over-wintering: Grey plover and sanderling Passage: Ringed plover	Land-take/Land cover change /construction/ decommissioning	Within the construction area/Site	No	Yes – Receptor is within the Zol
	Land-take/Land cover change /construction/ decommissioning: displacement	Within 100m of the Site	No	
	Increased light, noise and vibration: Disturbance	Within 250m of the Site	No	
	Pollution	Within 15m of a discharge outfall	Yes	
	Increased light, noise and vibration from aircraft taking off and landing: Disturbance	Within 500m vertical distance (altitude) and 1 km lateral distance of aircraft flight paths; and, for noise, within 85dB contour.	TBC	
WCA Schedule 1 species: Breeding barn owl	Land-take/Land cover change /construction/ decommissioning	Within the construction area/Site	TBC	Yes – Receptor is within the Zol - TBC
	Increased light, noise and vibration: Disturbance	Nest site on/within 250m of the Site	TBC	

	Pollution	Within 15m of a discharge outfall	No	
	Increased light, noise and vibration from aircraft taking off and landing: Disturbance	Within 500m vertical distance (altitude) and 1 km lateral distance of aircraft flight paths; and, for noise, within 85dB contour.	TBC	
Winter bird assemblage: Priority/ BoCC Red list species: curlew and lapwing	Land-take/Land cover change /construction/ decommissioning	Within the construction area	TBC	Yes – Receptor is within the Zol
	Land-take/Land cover change /construction/ decommissioning: displacement	Within 100m of the Site	TBC	
	Increased light, noise and vibration: Disturbance	Within 250m from Site	TBC	
	Increased light, noise and vibration from aircraft taking off and landing: Disturbance	Within 500m vertical distance (altitude) and 1 km lateral distance of aircraft flight paths; and, for noise, within 85dB contour.	TBC	

Appendix 7C: Justification for defining zones of influence

- A1.4 Receptors have only been assessed against potential environmental changes to which they are likely to be sensitive. Whether a receptor is sensitive or not to an environmental change has been determined based on professional judgement, project design, statutory guidance and appropriate relevant literature.

Table 7C.1 Justification for defining zones of influence (Zoi)

Environmental change	Receptor (sensitive to environmental change or scale of environmental change)	Zone of Influence	Justification
Land-take/Land cover change /construction/decommissioning	All receptors	Within Site	Land-take/land cover change will take place in areas where construction/decommissioning are planned. Other areas within and outside the site boundary will not be affected by land-take/land cover change.
	Japanese Knotweed	Within ~7m of a construction area	Rhizomes from Japanese knotweed are considered to extend up to ~7m laterally from the base of the parent plant (Knotweed Code of Practice, Environment Agency 2013). Any ground disturbance within this area may promote the spread of the species.
Disturbance - Displacement	Golden plover	Within 250m of Site	This zone of influence is based on a combination of best practice and professional judgment. 250m is a mean displacement distance for wintering golden plover at wind farm sites in Germany (Hotker <i>et al.</i> (2006).
	Other/all SPA/SSSI bird species	Within 500m vertical distance (altitude) and 1 km lateral distance of aircraft flight paths; and, for noise, within 85dB contour.	Lateral disturbance distance would be assumed to be a precautionary 1km from flight paths at altitudes up to 500m (based on review by Drewitt 1999). Above 500m no disturbance by visual presence or shadow cast. For noise, use of 85db contour as the level where no impact is expected as described in the SoS decision on Lydd Airport. To be refined after further noise modelling.
Increased light, noise and vibration	Designated Sites	Dependent on site qualifying features	Flora not considered to be impacted by light, noise or vibration. If any of the species below listed as a designated feature, Zoi listed below are implemented.

Environmental change	Receptor (sensitive to environmental change or scale of environmental change)	Zone of Influence	Justification
	Bats	500m from a construction area	Typically disturbance of roosting bats is unlikely to take place in areas over 500m from the source. This is a precautionary distance based on professional judgement following a review of the Natural England and Natural Resources Body for Wales (previously CCW) guidance document 'Disturbance and protected species: understanding and applying the law in England and Wales' (2007).
	Badger	Sett ~30m from construction area	This zone of influence is based upon guidance from English Nature "Badgers and Development" (2002).
	Otter	500m from source	This zone of influence is based on professional judgement. Typically disturbance of otters is unlikely to take place in areas over 500m from the source. This distance is a precautionary distance based on professional judgement following a review of Scottish Natural Heritage guidance 'Otters & Development'.
	Water vole	Minimum ~5m from watercourse/ body to construction area	This zone of influence is based on professional judgement and best practice guidance. Water vole conservation handbook 3 rd edition 2011.
	GCN	Up to 500m from a construction area	This zone of influence is based on best practice guidance. Great crested newt mitigation guidelines, English Nature 2001.
	Terrestrial priority species, Norfolk hawk, heath fritillary	~30m from suitable habitat	This zone of influence is based on the maximum limit priority species listed may be affected by light, noise and vibration based on professional judgement.
	Barn owl	Nest site within 200m of Site	This zone of influence is based on best practice guidance. Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting (Shawyer, 2011)

Environmental change	Receptor (sensitive to environmental change or scale of environmental change)	Zone of Influence	Justification
	All SPA/SSSI qualifying interest species	Within 250m of Site	This zone of influence is based on a combination of best practice guidance and professional judgement. Disturbance buffer zone distance represents a precautionary approach for golden plover, based on a recommended 250m distance (Cutts <i>et al</i> 2009), set to sensitive species such as redshank.
Dust deposition	Designated sites, watercourses, waterbodies, Priority habitat and Priority plant species	Within ~50m of Site	The zone of influence is based on usual deposition distances for dust from construction sites.
Increased vehicle movement	Badgers, otter, brown hare, hedgehog, reptiles	Within the Site and associated external access routes	This zone of influence is based on an increase in vehicle movement on site during construction/decommissioning and risk of direct collision.
Pollution	Statutory sites, watercourses, waterbodies, great crested newts, otter, water vole, aquatic Priority species	Within 7m of a watercourse bank-top and 15m for a tidally influenced watercourse	This zone of influence is based on the Environment Agency stand-off distance that negates the requirements for a Flood Defence Consent (from a main river). Distance represents a precautionary approach for ditches i.e. non main river. Based on potential inputs of pollution to watercourses and waterbodies from construction related surface run off (in the absence of mitigation measures).
Deposition of oxides of nitrogen¹ from engine exhausts/vehicle emissions	Change can result in enrichment and/or acidification of the environment leading	European/international sites within 10km, and national/local sites	Based on the Environment Agency's guidance note "Air emissions risk assessment for your environmental permit" ² . To identify any significant effect, the air quality assessment will determine, in the long term, if the process contribution (PC) to air concentration or

¹ Assessment of sulphur oxides (SO₂) has been scoped out as such emissions are expected to be negligible (see Air Quality chapter, section 6.4).

² Environment Agency (2016) 'Air emissions risk assessment for your environmental permit'. <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>, dated 2 August 2016.

Environmental change	Receptor (sensitive to environmental change or scale of environmental change)	Zone of Influence	Justification
	to alteration of the plant community through changes in baseline conditions resulting in effects on (priority) habitats, flora, invertebrates, amphibians, bats, otters (as designated features of SACs) and birds (designated feature of SPAs)	<p>within 2km of the proposal site.</p> <p>European sites/ sensitive habitats within 200m of the construction/ operational site, and arrival/ departure roads to site.</p>	<p>deposition within any sensitive part of the designated site is more than 1% of the critical load and level. Where the PC is greater than 1% of a long term critical load or level and the predicted environmental concentration/deposition (PEC³) is greater than 70% this is a likely significant effect. In the short term, where the PC to concentrations within the designated site is less than 10% of the short term critical level, the emission is unlikely to have a significant effect. Over 10 km, the emissions due to aircraft moving to or from the airport are likely to be deposited in a dispersed manner due to their ejection at altitude. This will be determined as the assessment progresses.</p> <p>European sites/sensitive habitats within 200m of the construction/ operational site, and arrival/departure roads to site. This search parameter is based on Department for Transport (2005) Interim Advice Note 61/04: Guidance for Undertaking Environmental Assessment of Air Quality for Sensitive Ecosystems in Internationally Designated Nature Conservation Sites and SSSIs.</p>

³ PEC = process contribution + background levels

RiverOak Strategic Partners

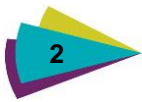
Manston Airport DCO EIA

Hydrogeological Impact Assessment



May 2017

Amec Foster Wheeler Environment
& Infrastructure UK Limited



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Document revisions

No.	Details	Date
1	Draft Report	March 2017
2	Updated Draft Report	May 2017



Executive summary

Purpose of this report



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1. Introduction

1.1 Background to this report

- 1.1.1.1 RiverOak Strategic Partners (RiverOak) is planning to reopen Manston Airport as a new air freight and cargo hub for the South East. This site is located within the district of Thanet in the county of Kent; the site location is provided in Figure 1.1.
- 1.1.1.2 The Planning Act 2008 defines what projects constitute Nationally Significant Infrastructure Projects (NSIPs) which includes 'airport-related development' and 'the alteration of an airport' which includes an 'increase by at least 10,000 per year the number of air transport movements of cargo aircraft for which the airport is capable of providing air cargo transport services'. Accordingly, the Manston Airport project is a NSIP as it involves an alteration of an airport that is located within England with an effect to increase the airport capacity by at least 10,000 per year the number of air transport movements of cargo aircraft that the airport is capable of providing given that its current capacity is zero movements.
- 1.1.1.3 Environmental Impact Assessment (EIA) is a process required by European law which brings together information about any likely significant environmental effects of a proposed development. An EIA is required for certain developments under The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the EIA Regulations). Some NSIPs always require EIA (the EIA Regulations define these under Schedule 1), others only require EIA if they are likely to have significant effects on the environment by virtue of their nature, size or location (the EIA Regulations define these in Schedule 2). RiverOak is undertaking an EIA (in accordance with the EIA Regulations) under paragraph 10(e) of Schedule 2 because of the characteristics, location and potential impact of reopening Manston Airport, to ensure that any potentially significant effects of the development on the environment are considered and where appropriate, mitigated.
- 1.1.1.4 Therefore in accordance with Regulation 6(1) of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009, RiverOak have written to the Secretary of State, via the Planning Inspectorate (PINS), to provide notification that they intend to undertake an Environmental Impact Assessment as part of the Development Consent Order (DCO) application for Manston Airport.
- 1.1.1.5 A Preliminary Environmental Information Report (PEIR) has been prepared by RiverOak as part of the consultation process required under Sections 42 and 47 of the Planning Act, and will enable consultees and other interested parties to develop an informed view of the environmental impacts of the proposed development prior to completion of the Environmental Statement.
- 1.1.1.6 The separate PIER document addresses the various aspects of the environment including the water environment. This Hydrogeological Risk Assessment has been prepared in order to inform the Water Chapter of the PIER. An accompanying but separate Flood Risk Assessment report has also been prepared.
- 1.1.1.7 Under the EIA Regulations, 'Preliminary environmental information' means information referred to in Schedule 4, Part 1 of the EIA Regulations which has been compiled by the applicant and is reasonably required to assess the environmental effects of the development and any associated development.
- 1.1.1.8 This report provides preliminary information based on the development of the project to date and data gathered up to this point, which will subsequently be provided in full and final form within the ES. As this information has been compiled at this stage in the pre-application process, the information may be incomplete and subject to further update and revision whilst the ES is being finalised.
- 1.1.1.9 In undertaking this work particular attention has been paid to the Secretary of State's comments on the Scoping Report which can be summarised as follows:
- ▶ A groundwater risk assessment in line with Groundwater protection: Principles and practice (GP3), Environment Agency (EA), August 2013, Version 1.1 should be undertaken;



- ▶ The Secretary of State considers that a quantitative risk assessment should be undertaken, unless robust justification can be provided otherwise.
- ▶ The Secretary of State agrees that an assessment of the effects of the proposals on public and private water supplies should be undertaken. This should specifically consider effects and measures relating to TCE.
- ▶ The scope of any intrusive works and associated mitigation measures are to be agreed with the EA, Thanet District Council and Southern Water.
- ▶ The Applicant should ensure that the effect of the proposals on the objectives of the Water Framework Directive (WFD), as set out in the South East River Basin Management Plan

1.2 Consultation

1.1.1.10 RiverOak is consulting on the proposed development and is inviting responses in relation to all elements of it, some of which have featured in the earlier non-statutory pre-application periods of consultation and engagement on the project.

1.1.1.11 In relation to the water environment and in particular the hydrogeological environment consultation including meetings have taken place with the Environment Agency and Southern Water reflecting the situation whereby the site sits on a Principle Aquifer and is source of public water supply.

1.2 Report Structure

1.2.1.1 This report follows a general structure in order to assess compliance with the Environment Agency's Groundwater protection: Principles and practice (GP3)¹ whereby

- ▶ Chapter 1 gives the background and report details;
- ▶ In Chapter 2 the guiding groundwater principles and the legislative framework is discussed;
- ▶ Chapter 3 describes the hydrogeological environment;
- ▶ A quantitative risk assessment is presented in Chapter 4;
- ▶ Chapter 5 is the conclusions and summary; and
- ▶ Appendix A includes details from consultations.

1.2.1.2 This report refers to and uses information collected as part of the separate Phase 1 Land Quality Assessment, therefore that report should be referenced.

¹ <https://www.gov.uk/government/publications/groundwater-protection-principles-and-practice-gp3>

2. Groundwater Principles

2.1 Protection of Groundwater

- 2.1.1.1 Groundwater supplies about one third of mains drinking water in England and up to 10 per cent in Wales. It also supports numerous private water supplies. In the Isle of Thanet all public drinking water is supplied from groundwater. Groundwater can have many benefits:
- ▶ It is water that generally needs little treatment before it can be consumed. In the Isle of Thanet groundwater has high nitrate levels therefore requires treatment to remove nitrate.
 - ▶ It provides water for rivers, wetlands and water supplies. Conservation sites lie to the north and south of Manston airport.
 - ▶ It provides essential water for industry and agriculture. There are four abstractions for agriculture with 1km of the site.
- 2.1.1.2 The overlying layers of soil and rock mean that groundwater aquifer is often relatively well protected from pollution compared with surface water, however, once polluted it can be difficult and expensive to clean up. Water passing through these layers is naturally filtered and many pollutants are degraded during the slow passage to the water table. This helps to maintain the relatively good quality of groundwater.
- 2.1.1.3 However the protection of groundwater is essential as any accidental spillage (for example liquid fuels) or the application of chemicals (e.g. fertilisers, pesticides etc.) to the ground has the potential to reach the water table. Whether it does or not will depend on the material involved and the ground conditions at that site.
- 2.1.1.4 The threats to groundwater come about from:
- ▶ Groundwater can be contaminated by a wide range of naturally occurring substances as well as by human activities. Pollution only occurs when contamination arising from human activities actually harms ecosystems, human health, material property, amenities or other legitimate uses of the environment.
 - ▶ Over abstraction of groundwater depletes this valuable resource, so we might not be able to rely on it in the future. Many rivers and wildlife also depend on groundwater and may be harmed or lost if groundwater levels become too low.
 - ▶ If too much groundwater is abstracted it may not be replenished by rainfall. This can cause springs and shallow wells to dry up and impact wetlands that depend on groundwater. The flow in rivers may also diminish or cease. Saline or poor quality water can be drawn in from the sea or from deeper in the aquifer and contaminate the groundwater.
 - ▶ Mining, quarrying and civil engineering can also increase the risks to groundwater by removing aquifer material or the overlying protective cover of soil and rock. This can cause changes in groundwater flow and increase the risk from pollution and flooding.
- 2.1.1.5 The Manston Airport development may threaten groundwater resources through the risk of contamination arising from future activities or from the development mobilising contamination from any areas of poor land quality that may exist as a result of historical activities.
- 2.1.1.6 The Airport development does not and will not require groundwater abstraction and therefore there are no threats to the quantity of groundwater resources or nearby abstractions.
- 2.1.1.7 Civil engineering required for the airport infrastructure development may increase the risks to groundwater by removing aquifer material or the overlying protective cover of soil and rock. This may cause some local exposure and mobilisation of areas of contaminated ground. It also has the potential to physically disturb groundwater.



- 2.1.1.8 The approach to protecting groundwater is set out in the Environment Agency's *Groundwater protection: Principles and practice* (commonly referred to as GP3). The priority is to protect water supplies intended for human consumption as well as ensure protection of groundwater quality that supplies dependent ecosystems. This is achieved under the Water Framework Directive (see Section 2.2) and the approach seeks to apply progressively more stringent controls as the sensitivity of the location increases (for example, applying greater controls the closer an activity is to an abstraction source).
- 2.1.1.9 Certain activities may present a particular hazard to groundwater due to a combination of the activity type, its duration and the potential for failure of measures taken to mitigate environmental impacts. Depending on the potential severity of the hazard, the Environment Agency may object (through planning or permitting controls) to such activities in certain areas. Close to sensitive receptors, the Environment Agency are likely to adopt the precautionary principle as even where the likelihood of pollution occurring is not high; the consequences may be serious or irreversible.

2.2 Legislative and Regulatory Framework

- 2.2.1.1 The control and protection of groundwater is covered by legislation and a series of guidance and policies issued by the Environment Agency. Relevant legislation includes, but is not necessarily limited to, the following:
- ▶ The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015;
 - ▶ Floods and Water Management Act 2010;
 - ▶ The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009;
 - ▶ The European Union (EU) Floods Directive (2007/60/EC), as enacted into domestic law by the Flood Risk Regulations 2009;
 - ▶ Priority Substances Directive (2008/105/EC), as enacted into domestic law by the 2010 Directions listed above;
 - ▶ The EU Water Framework Directive (2000/60/EC) (WFD), as enacted into domestic law by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003;
 - ▶ Water Act 2003;
 - ▶ The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999;
 - ▶ Environment Act 1995;
 - ▶ Land Drainage Act 1991;
 - ▶ Water Resources Act, 1991;
 - ▶ Environmental Protection Act 1990; and
 - ▶ Control of Pollution Act 1974.
- 2.2.1.2 Of particular relevance are:

2.2.2 Water Resources Act 1991

- 2.2.2.1 Section 93 of the Water Resources Act 1991 allows for the designation of statutory water protection zones (WPZs) (for groundwater or surface waters). These may be designated to prohibit or restrict the carrying out of activities that are giving rise to the entry of poisonous, noxious or polluting matter into ground or surface waters and which present a risk of pollution. They may also be used to impose requirements on persons who carry out activities in the zone to take such steps as may be specified or described by the defined WPZ.

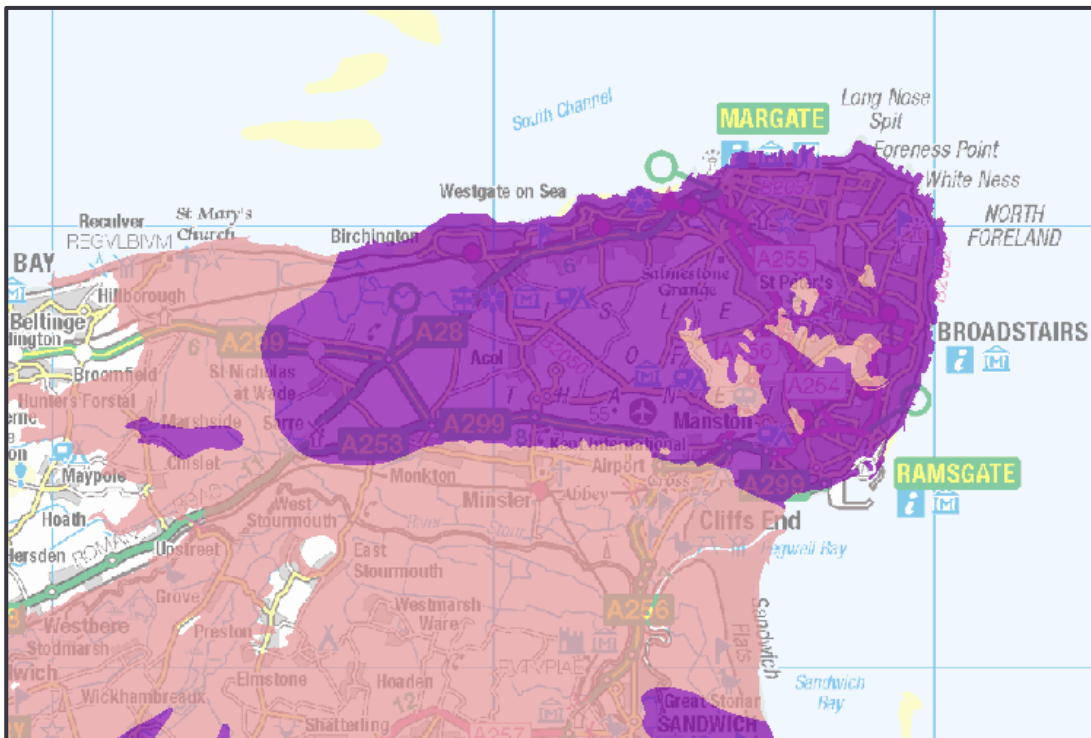
2.2.3 Water Framework Directive (2000/60/EC)

- 2.2.3.1 Article 7.1 of the WFD requires member states to formally delineate water bodies that are used for the abstraction of drinking water, called drinking water protected areas (DrWPAs). All groundwater bodies in England and Wales are classified as DrWPAs due to the low abstraction thresholds set in the WFD. Article 7.2 stipulates that the requirements of the Drinking Water Directive must be met; in England and Wales this is the responsibility of the Drinking Water Inspectorate. Article 7.3 requires the protection of these water bodies 'with the aim of avoiding deterioration in their quality in order to reduce the level of purification treatment required in the production of drinking water'. We can establish safeguard zones for this purpose if we wish.
- 2.2.3.2 Although the Article 7 objectives apply across a groundwater body, the point of compliance for Article 7.3 is at the point of abstraction. This means that applying protection measures equally over the entire land area of the DrWPA is not necessary to meet this objective.
- 2.2.3.3 There are some common elements with the requirements of Article 7 of the WFD and we encourage collaboration between Water Companies and the Environment Agency to achieve these common goals.
- 2.2.3.4 A range of general good practice advice and technical guidance is of relevance to this assessment, including the following:
- ▶ Pollution Prevention Guidance notes (PPG) (Environment Agency online);
 - ▶ Groundwater protection: Principles and Practice (GP3). Environment Agency, August 2013 version 1.1
 - ▶ CIRIA Report C532: Control of water pollution from construction sites;
 - ▶ CIRIA Report C648: Control of water pollution from linear construction projects – technical guidance;
 - ▶ CIRIA Report C649: Control of water pollution from linear construction projects – site guide ; and
 - ▶ CIRIA Report C692: Environmental good practice on site (third edition).

2.2.4 Principal Aquifer Status

- 2.2.4.1 Figure 2.1 shows the extent of the Chalk aquifer in the Isle of Thanet. The aquifer is designated Principal Aquifer that means that these layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In this area as mentioned above the Chalk aquifer is the only supply of drinking water to this part of North Kent.

Figure 2.1 Outcrop of Chalk Principle Aquifer.



Area of Principle Aquifer

Ref: [http://maps.environment-](http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=groundwater&layerGroups=default&lang=en&ep=map&scale=5&x=531500&y=181500#x=631420&y=166630&lg=3,&scale=6)

[agency.gov.uk/wiyby/wiybyController?topic=groundwater&layerGroups=default&lang=en&ep=map&scale=5&x=531500&y=181500#x=631420&y=166630&lg=3,&scale=6](http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=groundwater&layerGroups=default&lang=en&ep=map&scale=5&x=531500&y=181500#x=631420&y=166630&lg=3,&scale=6)

2.2.5 Source Protection Zones (SPZ)

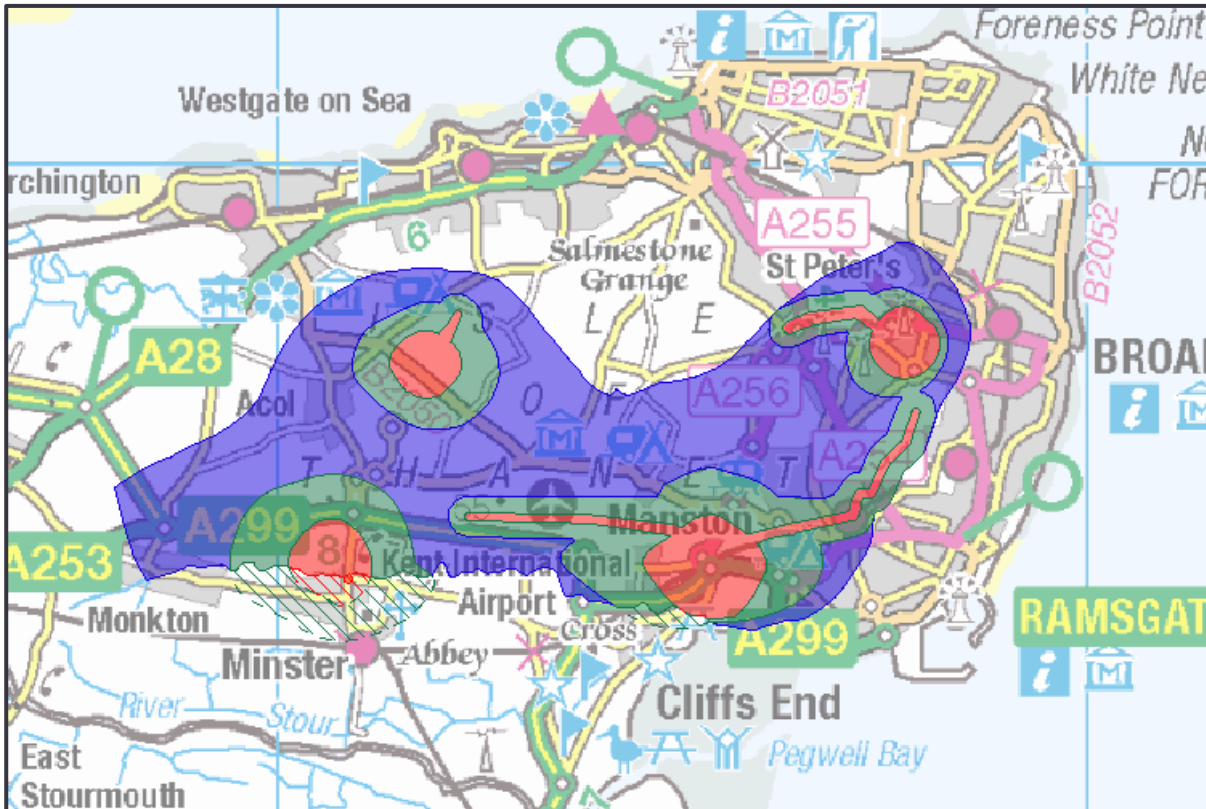
- 2.2.5.1 There are four PWS that make up the abstraction group within the Thanet Chalk block – they are Lord of the Manor, Minster B, Sparrow Castle and Rumfields.
- 2.2.5.2 The Manston Airport site is located entirely within a groundwater Source Protection Zone (SPZ) catchment. (Figure 2.2) The inner zone (SPZ1), where risk of contamination from pollution causing activities is greatest, is identified in an area to eastern end of the site and in a strip beneath the runway, and is coincident with the line of the western adit feeding the Lord of The Manor source. This is surrounded by a wider area of outer zone (SPZ2) that also dominates the area beneath the runway, in the south of the Site. The remainder of the site falls within the wider SPZ catchment area (SPZ3).
- 2.2.5.3 Table 2.2 below lists those activities not permitted within a SPZ1.
- 2.2.5.4 The EA's guidance has recently been updated² (March 2017) and there are a number of relevant position statements including:

C1 Nationally or regionally significant schemes

The Environment Agency requires the promoters of schemes of national or regional significance to protect groundwater when choosing the location for their activity or development. In the cases where this is not possible due to national or regional interests, the Environment Agency expects to be fully involved in the scheme development to mitigate groundwater risks via EPR where applicable. Promoters are expected (via the environmental impact assessment process) to identify all the potential pollution linkages and apply best available techniques to mitigate the risks.

² <https://www.gov.uk/government/collections/groundwater-protection>

Figure 2.2 Designated SPZ



Ref: <http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=531500.0&y=181500.0&topic=groundwater&ep=map&scale=5&location=London.%20City%20f%20London&lang=e&layerGroups=default&distance=&textonly=off#x=634117&y=166969&lq=1,10,&scale=7>

Inner zone (Zone 1) - Defined as the 50 day travel time from any point below the water table to the source. This zone has a minimum radius of 50 metres;

Outer zone (Zone 2) - Defined by a 400 day travel time from a point below the water table. The previous methodology gave an option to define SPZ2 as the minimum recharge area required to support 25 per cent of the protected yield. This option is no longer available in defining new SPZs and instead this zone has a minimum radius of 250 or 500 metres around the source, depending on the size of the abstraction;

- Total catchment (Zone 3)** - Defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source. In confined aquifers, the source catchment may be displaced some distance from the source. For heavily exploited aquifers, the final Source Catchment Protection Zone can be defined as the whole aquifer recharge area where the ratio of groundwater abstraction to aquifer recharge (average recharge multiplied by outcrop area) is >0.75 . There is still the need to define individual source protection areas to assist operators in catchment management.

C2 Non-nationally significant infrastructure schemes

In SPZ1 and SPZ2, the Environment Agency will only agree to proposals for infrastructure developments of non-national significance where they do not have the potential to cause pollution or harmful disturbance to groundwater flow or where these risks can be reduced to an acceptable level via EPR if applicable.

- 2.2.5.5 Where the Environment Agency judges there to be an unacceptable risk to groundwater from the storage of pollutants or their transmission through associated pipework, it will normally oppose such storage or transmission. If other material planning considerations determine that the development should proceed, the Environment Agency expects best available techniques (BAT) to be applied.

Table 2.1 Activities not permitted within a SPZ1 (from EA GP3)

EA Position statements that apply specifically to SPZ1 Column heading	
Infrastructure	<ul style="list-style-type: none"> Non-nationally significant infrastructure schemes Transport developments Pipelines and high voltage fluid filled cables Underground coal gasification, coal bed methane and shale gas extraction Oil and conventional gas exploration and extraction
Storage of pollutants	<ul style="list-style-type: none"> Underground storage (and associated pipework) Sub water table storage
Landfill	<ul style="list-style-type: none"> Landfill location
Other waste activities	<ul style="list-style-type: none"> Non-landfill waste activities
Discharge of liquid effluents into the ground	<ul style="list-style-type: none"> Sewage effluent discharges inside SPZ1 Trade effluent and other discharges inside SPZ1 Cesspools and cesspits Sewerage pipework Discharge of clean roof water to ground Sustainable drainage systems
Diffuse sources	<ul style="list-style-type: none"> Land spreading Livestock housing Storage of organic manures on farms
Cemetery developments	<ul style="list-style-type: none"> Siting cemeteries close to a water supply used for human consumption Mass casualty emergencies Cemeteries: Protecting groundwater in highly sensitive locations
Burial of animal carcasses	<ul style="list-style-type: none"> Burials close to water supply used for human consumption or farm dairies On-farm carcass burials
Managing groundwater resources	<ul style="list-style-type: none"> Physical disturbance of aquifers in SPZ1
Ground source heating and cooling	

D2 - Underground storage (and associated pipework)

The Environment Agency will normally object to new and increased underground* storage of hazardous substances in SPZ1. The Environment Agency will agree to such storage in principal and secondary aquifers outside SPZ1 only if there is evidence of overriding reasons why the:

- ▶ activity cannot take place within unproductive strata
- ▶ storage must be underground (for example public safety), in which case it is expected that the risks are appropriately mitigated

Where such storage already exists the Environment Agency will work with operators to assess and if necessary mitigate the risks, including an aim to change to above ground storage.

The Environment Agency will normally object to any redevelopment scheme involving retention of underground storage of hazardous substances in SPZ1 unless it can be demonstrated that risks to groundwater can be adequately mitigated.

For all storage of pollutants underground (hazardous substances and non-hazardous pollutants), the Environment Agency expects operators to adopt appropriate engineering standards and have effective management systems in place. These should take into account the nature and volume of the materials stored and the sensitivity of groundwater, including the location with respect to SPZs.

2.2.6 Safeguard Zone (SGZ)/Drinking Water Protection Areas (DrWPA)

The EA have indicated that for those 'at risk' Drinking Water Protection Areas (DrWPAs) they will establish a Safeguard Zone (SGZ). These non-statutory Safeguard Zones are areas where activities can impact adversely on the quality of water abstracted in the DrWPA. Action to address pollution is targeted in these zones so that extra treatment of raw water can be avoided. Safeguard Zones are a joint initiative between the Environment Agency and water companies. Safeguard Zones are one of the main tools for delivering the Drinking Water Protected Area objectives of the Water Framework Directive. The EA also state "*Drinking water safeguard zones are designated areas in which the use of certain substances must be carefully managed to prevent the pollution of raw water sources that are used to provide drinking water*". These zones are generally areas where the land use is causing pollution of the raw water.

In order to protect water resources the EA wants to ensure that activities are not polluting it with additional substances leading to the need for more treatment. By identifying Safeguard Zones for any raw water sources that are 'at risk' of deterioration this should result in the need for additional treatment.

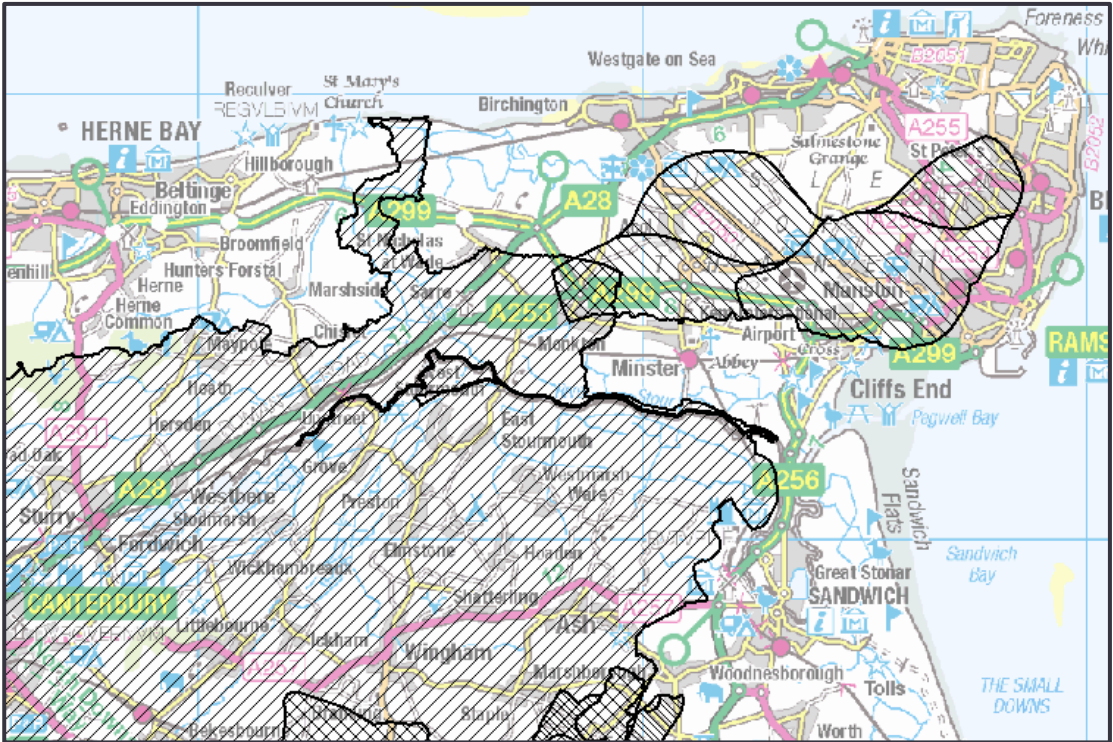
For the Thanet block the following SGZ is given:

- ▶ SGZ ref GWSGZ0115
- ▶ This groundwater Safeguard Zone is for nitrate and solvents (indicating that action to address pollution is targeted in these two substances)

In 2015 a SGZ was defined by the Environment Agency (Figure 2.3).

Currently Southern Water Services (SWS) as part of their National Environment Programme focused on the Drinking Water Protected Areas in Thanet are investigating the possible sources and pathways of groundwater pollution, specifically from nitrate and solvents. This may lead to an update and re-definition of the SPZ.

Figure 2.3 Safeguard Zones North Kent

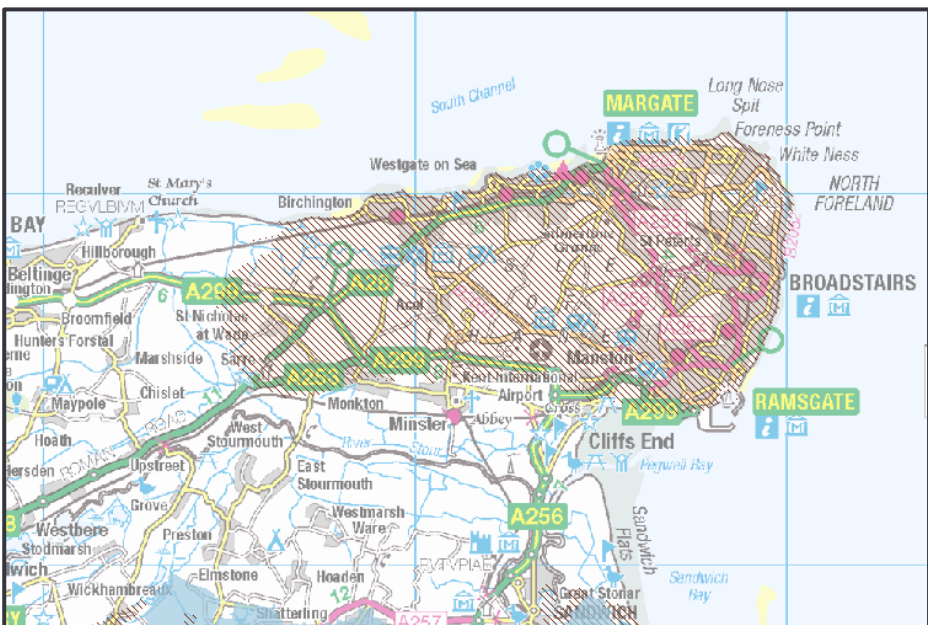


Ref: <http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=drinkingwater&layerGroups=default&lang=en&ep=map&scale=5&x=531500&y=181500#x=628093&y=163713&lg=2.3.&scale=6>

2.2.7 Nitrate Vulnerable Zone

Figure 2.4 shows the extent of the nitrate vulnerable zone for the Thanet Block. This confirms that the major issue with groundwater quality in this area is the high level of nitrate (See Chapter 3) Map from 2013.

Figure 2.4 Nitrate Vulnerable Zone



Ref <http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=nvz&layerGroups=default&lang=en&ep=map&scale=6&x=631420&y=166630>

2.3 Habitats Regulations Assessment

- 2.3.1.1 One Natura 2000 (European wildlife) site is located within 10km of the proposed development at:
- ▶ Thanet Coast & Sandwich Bay Special Protection Area and Ramsar Site.
- 2.3.1.2 The north coast of the Isle of Thanet, located approximately 3.5km north of the site, is designated as a Site of Special Scientific Significance (SSSI), a Special Area of Conservation (SAC), A Special Protection Area (SPA) and a RAMSAR site. In closer proximity to the Manston Airport site are Sandwich and Pegwell Bays, located 1.5km south east. Together these bays are part of designated National Nature Reserve (NNR), RAMSAR, SSSI, SPA and SAC sites, these sites are described more fully in the Biodiversity chapter of the ES. The proposed Manston Airport development site, due to the proximity to Sandwich and Pegwell Bay SSSI, has been identified as falling within associated SSSI effect risk zones.
- 2.3.1.3 Implementing the WFD contributes to outcomes for nature conservation and biodiversity by improving the water environment. The River Basin Management Plans (RMBP) include a summary of the measures needed for water dependent Natura 2000 sites to meet their conservation objectives. Supporting Site Improvement Plans (SIPs) provide an overview of the issues (both current and predicted) affecting the current condition and outlines the priority measures required to improve the condition of the features. Sandwich Bay SAC, Thanet coast and Sandwich Bay SPA and Thanet Coast SAC are water dependant and fall under the North East Kent (Thanet) SIP.
- 2.3.1.4 Measures for the Thanet Coast SAC and Thanet coast and Sandwich Bay SPA were completed in 2015 to enable conservation objectives to be met according to the SIP. For Sandwich Bay SAC the measures will be complete by 2027, which requires implementation of management actions to address and adapt to changes in water levels affecting sand dune vegetation.
- 2.3.1.5 The assessment of potential effects on this site are addressed in the accompanying ES, and there is also a requirement under The Conservation of Habitats and Species Regulations 2010 (SI 2010 No. 490) (the 'Habitats Regulations') to undertake a screening exercise to determine whether this (or any other) site is likely to be significantly affected by the proposed development, either alone or in combination with other plans and projects. If significant effects are likely, there will be a need for an Appropriate Assessment to be carried out. The screening, any Appropriate Assessment and subsequent assessment form part of what is known as the Habitats Regulations Assessment (HRA) process.
- 2.3.1.6 Screening and any subsequent Appropriate Assessment will be undertaken by PINS (the 'competent authority'), drawing upon information about the likely effects of the proposed development on European sites that will be provided by RiverOak. In undertaking its assessment, PINS is required to consult with Natural England (NE). To facilitate the process, Amec Foster Wheeler will also liaise with NE, and other interested parties as appropriate in the preparation of an Evidence Plan for the Habitats Regulation Assessment (HRA).

3. Hydrogeological Environment

- 3.1.1.1 The hydrogeological environment of the Thanet Chalk block has been the subject of a number of past studies by both the Environment Agency and Southern Water. These studies have primarily focussed on the assessment of the cause of high nitrate levels in the groundwater and the prediction of future trends.
- 3.1.1.2 These results of these studies have been made available to this work and therefore the baseline hydrogeological environment can be described with a high level of confidence and discussions with the EA and Southern Water have confirmed that no additional work is required to understand the groundwater environment in the vicinity of Manston Airport and the nearby Lord of the Manor PWS. However, further site investigation may be required to confirm aspects of the land quality.

3.2 Site setting and description

- 3.2.1.1 Background information has been provided by Southern Water in the following reports:
- ▶ Aquaterra, 2007. Lord of the Manor Constraints Investigation (Desk Study). Prepared for Southern Water pp. 42.
 - ▶ Atkins, 2014. Thanet sewers programme - Geotechnical and environmental investigation Phase A: desk study. Prepared for Southern Water. pp110.
 - ▶ Atkins, 2015. Thanet sewers programme: Geotechnical and environmental investigation Groundwater monitoring, February to June 2015. Prepared for Southern Water. pp208.
 - ▶ Mouchel 2007. Outline for the final report on Thanet Sewers Survey Phase II. Prepared for Southern Water. pp 98.
 - ▶ Mouchel, 2008. Groundwater Risk Assessment Interpretive Report – Isle of Thanet Groundwater Quality Assessment. Prepared for Southern Water. pp 39.
- 3.2.1.2 Relevant details from the above reports are summarised in the following sections.

3.2.2 Topography and Drainage

- 3.2.2.1 The Isle of Thanet comprises an area extending approximately 12 km east-west by 4.5 km north-south in the west and 9 km north-south in the east. It is bordered by the sea to the north, east and southeast and by the River Stour and the River Wantsum to the west (Figure 4.2).
- 3.2.2.2 Its landform consists of a plateau that slopes gently westwards from the 30m high cliffs at the coast to an elevation of 10 m AOD in the west at the edge of the River Stour valley. The highest area is located around the airfield site where elevations reach 55 m AOD. To the west and south, the flat expanse of the River Stour valley has an elevation of only 2 m AOD and in some areas is below sea level.
- 3.2.2.3 There are no perennial watercourses on the Isle of Thanet as the area is underlain by permeable chalk rock which permits infiltration of all rainfall.
- 3.2.2.4 The Manston Airport site is mainly situated at an elevation between 45-50mAOD. The southern portion is at an elevation of approximately 50mAOD, along the length of the existing runway, but rises to approximately 55mAOD in the western most corner of the site. North of the runway the site declines to approximately 40mAOD, in the west, at the crossroads of the B2050 and the B2190, forming the start of the headwater valley for the Brooksend Stream, while remaining at 45-50mAOD in the northern most part of the site.
- 3.2.2.5 The average annual rainfall recorded at Manston between 1981 and 2010 is 592.5mm (Source: Met Office).

- 3.2.2.6 There are no river watercourses on or adjacent to the site. A series of water channels and streams that form part of the Minster Marshes are located more than 1km to the south of the site. This marsh drains south into the River Stour, 3km south of the site, which flows east and into Sandwich and Pegwell Bays. Ordnance Survey (OS) mapping indicates a drainage channel on the opposite side of the road at the northern most point of the site. This is possibly associated with an operational garden nursery (Rosemary Nurseries) adjacent to the site.
- 3.2.2.7 OS mapping indicates a number of reservoirs within 3 km of the site. A number of small uncovered reservoirs are located approximately 1.5 km or more from the western most boundary of the site. A covered reservoir is located approximately 0.5 m north of the site, and one further uncovered reservoir located 0.3 km from the southern boundary of the site.
- 3.2.2.8 There are a number of other small water features (e.g. ponds) located within 3km of the site.

3.2.3 Geology

- 3.2.3.1 The Isle of Thanet is underlain by the middle sequence of the Upper Chalk Formation (White Chalk sub-group), which is part of the North Downs outcrop that extends from west near Guilford in Surrey to the Isle of Thanet on the east coast of England. The outcropping Chalk units, which are also exploited for groundwater resources, are the upper Newhaven Chalk (previously the Margate Chalk) the Seaford Chalk and underlying Lewes Nodular Chalk. The total thickness of the Chalk in the North Downs of East Kent is between 237 m (at Margate) and more than 275 m at the southern limit of the Margate Chalk outcrop.
- 3.2.3.2 The Seaford Chalk occurs at the coast and at inliers including one within the south-dipping limb of the Thanet Anticline. It is a soft, blocky white chalk with seams of small to very large flint nodules. The overlying Newhaven Chalk underlies most of the Isle of Thanet. It is composed mainly of smooth white chalk without marl seams and with few flint bands
- 3.2.3.3 The Chalk is underlain by Gault Clay and overlain by the Lower London Palaeogene Group, comprising the Thanet Formation, Lambeth Group and Thames Group. These comprise sands, silts and clays with pebbles and flint.
- 3.2.3.4 The structure underlying the Isle of Thanet is an anticline/monocline striking East-West and facing south to south-west. The steepest exposed part of the anticline occurs in Pegwell Bay on the east of the Isle, and dips at 10 degrees to the south-southwest.
- 3.2.3.5 Local to the Manston airport site the underlying bedrock across the site is the Chalk dipping to the south. The Chalk is overlain by the sands and silts of the Thanet Formation and Head deposits (composed mainly of interglacial wind-blown silts) overly these bedrock formations. The Thanet Formation is potentially located north-east of the site but was not encountered in the trial pits recorded on the BGS website.³ The Head deposits were found in trial pits in the centre and east of the site recorded on the BGS website. Based on the on the BGS trial pits the Chalk was encountered with its upper surface at 1 m. The Head deposits are overlain by made ground in the form of fill material with cinders, chalk, and building rubble, which was recorded in trial pits in the centre and north of the site, but is potentially located across the majority of the site due to the site historical use. Dark grey sandy topsoil was recorded in trial pits (BGS website) in the centre, north and east of the site.

3.3 Hydrogeology

3.3.1 Thanet Chalk block

- 3.3.1.1 The principal aquifer under the Isle of Thanet is the Chalk that has a surface area of approximately 86 km² (BGS, 2008). It is considered that about the upper 70 m (approx.) of the chalk is the productive zone of the aquifer with the majority of the public abstraction sources having adit with levels are located around 2 to -4 mAOD, (40-50 mbgl).

³ <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

- 3.3.1.2 The overlying Thanet Formation is classified by the Environment Agency as a Secondary A. It is not believed to be in hydraulic continuity with the Chalk and although in the vicinity of the site is unsaturated, it may act as a semi confining unit to the Chalk at the southern and western margins of the aquifer (Atkins, 2014). However it is a relatively thin and non-continuous formation. The base of the Chalk unit is defined by the low permeability Gault Clay Formation.
- 3.3.1.3 Recharge is predominantly via the Chalk outcrop where fracturing is developed and soils are light and permeable. Aquifer recharge is thought to occur fairly uniformly across the exposed Chalk irrespective of soil type although there may be some time lag in recharge reaching the water table where there are soils of lower leaching potential. Recharge also occurs via the semi-permeable Thanet Formation. Over the urban areas rainfall recharge will be reduced but there will be additional recharge inputs from leaking sewers and water mains.
- 3.3.1.4 The Chalk aquifer exhibits two main flow mechanisms; the rapid flow of water through fissures, and much slower flow through the matrix pore spaces. Groundwater levels from observation boreholes on the Isle of Thanet suggest that the fluctuation in groundwater levels becomes more pronounced towards the centre of the Chalk block and the topographic high, with a seasonal change in water table level of up to 5 m at Alland Grange and Fleete Reservoir compared to 0 to 2 m at the edges of the Chalk to the south of the catchment. Comparison of the groundwater level data at the Lord of the Manor well with topography suggests that the unsaturated zone during source operation is around 30 m to 35 m thick. The presence of the western adit may lead to a flattening in groundwater levels down gradient to the south, as it acts as a sump to the groundwater flowing southwards.
- 3.3.1.5 Work associated with the Environment Agency's East Kent groundwater model (Mott MacDonald, 2006), show that the winter peak in groundwater levels is typically seen in April whereas the estimated percolation from the soil zone into the Chalk is highest in November to January i.e. there is a delay of three to four months associated with recharge through the unsaturated zone. In addition there is also evidence for short term responses (in the order of a few days) to individual summer storms, indicating a recharge contribution via fast fissure pathways. This range of responses reflects the complex matrix and fissure flow processes in the unsaturated zone of the Chalk as well as variability in the nature of soils and shallow drift cover and soil zone processes.
- 3.3.1.6 The low recharge values 146 to 175 mm/yr (Entec, 2010) together with the substantial unsaturated zone thickness over most of the area will mean that movement of recharge (and therefore pollutants) through the unsaturated zone will be slow. The rate of movement of water through the unsaturated zone in the main body of the Chalk has been estimated at 0.5 m/year based on pore water profiles (Southern Water, 1985).
- 3.3.1.7 The Environment Agency⁴ have indicated that in some areas across the Thanet block recharge is known to be very rapid to the Thanet Chalk, matter of hours and days but is variable. This suggests that in places the Chalk is very competent and that possibly some karstic features may have developed.
- 3.3.1.8 The water table within the Chalk is generally a subdued reflection of the overlying topography. A groundwater mound has formed to the north-west of Ramsgate, coincident with the Chalk anticline (Atkins 2014). Generally groundwater flow radiates outward from the central topographically high area towards the coast and to a lesser extent towards the Rivers Stour and Wantsum. This is likely to over-simplify the reality of the groundwater flow. Faults, joints and topographic features which control drainage and infiltration are also likely to play a role in directing the flow of groundwater more locally
- 3.3.1.9 Figure 3.1 shows groundwater contours based on the work undertaken for Southern Water by Atkins (2014). Atkins note that the groundwater contours should be treated with caution in particular the apparent groundwater mound in the east of Thanet. This is just one possible interpretation of the data.
- 3.3.1.10 At the centre of the area the groundwater is generally around 10 mAOD, which corresponds to an unsaturated zone thickness of greater than 30 m (SWA, 1985). At the coast the unsaturated

⁴ Meeting with EA Monday 7 November 2016

thickness reduces to a few metres. Seasonal fluctuations in groundwater levels throughout the catchment are small (1–5m) and dampened at low elevations.

- 3.3.1.11 The Chalk is a dual porosity media with a high matrix porosity and low primary permeability. Porosity is strongly dependant on the lithology and diagenetic history. The upper parts of the sequence have around 30-50% porosity. Significant flow takes place within solution-enhanced fissures that constitute only a small part of the overall porosity. Such in fractures which are typically best developed in shallow horizons and dominantly in the zones of modern and past water-table fluctuations. The bulk of porosity lies within the matrix, but groundwater in the matrix in the saturated zone is virtually immobile.
- 3.3.1.12 The BGS aquifer properties database (Allen et al., 1997) lists transmissivities for the North Downs as ranging between 52–7,400 m²/day, with a geometric mean of 720 m²/day. There are no data specific to the Isle of Thanet in the database.

3.3.2 Groundwater Abstractions

- 3.3.2.1 There are no public water supply abstractions within the site boundary, but a number of people and organisations abstract water from groundwater or ponds/lakes up to 1,000m outside the site boundary (6 located within 500m, and a further 3 up to 1,000m from the site boundary). The abstractions are for private water undertaking, public water supply and agriculture (Table 3.1). It is assumed that where no permit end date is provided in the Envirocheck Report that the abstraction is currently operational.

Table 3.1 Public water supply abstractions within 1000m of the Manston Airport site

Licence Holder	Purpose	Source	NGR	Operational	Direction from Development Site	Approx. Distance from Development site centre (m)
Wilson & Wilson Ltd	Private Water Undertaking: General Use (Medium Loss)	Groundwater	631690 165470	Yes	E	176
Southern Water Services Ltd	Public Water Supply: Potable Water Supply - Direct	Groundwater	635350 165100	Yes	E	384
Southern Water Services Plc	Public Water Supply	Pond or Lake	635350 165095	Yes	E	386
Mrs L R Saunders	Spray Irrigation	Pond or Lake	632855 166805	Yes	W	474
Mrs E Green	General farming and Domestic/spray irrigation	Groundwater	632850 166810	Yes	W	481
Mrs L R Saunders	General farming and Domestic/spray irrigation	Groundwater	632850 166810	Yes	W	481
Southern Water Services Ltd	Public Water Supply: Potable Water Supply – Direct	Groundwater	630650 165140	Yes	W	805

Licence Holder	Purpose	Source	NGR	Operational	Direction from Development Site	Approx. Distance from Development site centre (m)
Southern Water Services Ltd	Public Water Supply: Potable Water Supply – Direct	Groundwater	630860 164860	Yes	SW	949
Southern Water Services Plc	Agriculture (General)	Pond or Lake	630860 164855	Yes	SW	954

3.3.2.2 Thanet District Council confirm that there are no known private water supplies within a 2km radius of the centre of the Manston Airport Site.

Public Water Supply

3.3.2.3 The Isle of Thanet Chalk aquifer has long been an important source of water for the area both for public supply and private abstraction. Southern Water abstracts groundwater for public water supply from a number of sources around the Isle of Thanet. Most sources comprise a combination of boreholes and wells and horizontal adits tunnelled into the Chalk. Figure 3.2 shows the Southern Water abstraction locations and adits (details provided by Southern Water).

3.3.2.4 Over time many of these sources have now been abandoned and in recent years abstraction has been from three sources in the Thanet Chalk:

- ▶ Lord of the Manor;
- ▶ Sparrow Castle;
- ▶ Minster B.

3.3.2.5 The Rumfields source is also part of the current water supply system but it has been out of service for several years because of a nearby contamination threat.

3.3.2.6 The Lord of the Manor abstraction is closest to Manston Airport. The source consists of two wells, Lord of the Manor and Whitehall (the latter is disused and sealed) with three adits. The source was constructed at the southern edge of Thanet to abstract groundwater which would otherwise have discharged south towards the sea, and to intercept any high permeability zones. The Whitehall abstraction was drilled in 1850, and suffered from saline intrusion, being close to the coast. Lord of the Manor was constructed to intercept the same adit system to alleviate the saline intrusion issue (Aquaterra, 2007).

3.3.2.7 The source has a daily abstraction licence of 14.77 MI/d and an annual licence of 4091 MI/a. The Lord of the Manor source is part of a group licence with Minster B, Sparrow Castle and Rumsfield (currently not used due to water quality concerns), with a combined abstraction limit of 7250 MI/a.

3.3.2.8 There are three adits at the Lord of the Manor PWS (Figure 3.3); the Eastern, Western and South-Western Adit, constructed in the 19th and early 20th century. The details are summarised as follows:

- ▶ The Western Adit is 3013m long and lies at an elevation of 2.8 mAOD to -0.71 mAOD. This adit is regularly dewatered;
- ▶ The Eastern adit is 2410m long and connects to the now-disused Whitehall source, extending for a further 1000 m east, and with a total elevation range of 0.96 mAOD to -0.81 mAOD. It has only been partially dewatered on a few occurrences (namely 1992 and 1998). There have been stability concerns raised relating to the dewatering of the Eastern Adit which Aquaterra (2007) speculated constrained the source output.; and
- ▶ The South Western Adit is 475.5 m long. The elevation of this adit is not known.

- 3.3.2.9 The maximum deployable output from the source is considered to be 1.7 MI/d, although Aquaterra (2007) concluded that the potential deployable output could be 4.5 MI/d if the Eastern Adit could be dewatered. However, an adit risk assessment suggested that the Eastern adit should not be dewatered due to the shallow elevation, unknown condition and potential for saline intrusion. (Table 3.2)

Table 3.2 Lord of the Manor Source construction details and pump test information (after Aquaterra 2007)

Borehole	Depth (mbgl)	Casing Details	Diameter	Ground Level (mAOD)	Rest Water Level (mAOD)	Comments
BH1	40.9 m			35.46 (datum at 33.01 mAOD at the Chamber Floor)	0.6 mAOD (Oct 1957)	<p>Eastern Adit (3410 m) from 0.96 mAOD to -0.8 mAOD depth (height of 1.76m)</p> <p>Constructed in 1925 - Western Adit (3103 m)</p> <p>Ceiling 2.8 mAOD to floor 0.71 mAOD (height of 3.51m)</p> <p>South western Adit 475.5 m long</p> <p>Ceiling 0.96 mAOD and floor -0.8 mAOD (height of 1.76m)</p>

*Chamber floor level

- 3.3.2.10 In addition to the Southern Water licensed abstractions, there are 13 groundwater abstractions within 1 km licensed with the Environment Agency, mainly for agricultural use (including spray irrigation), with a few for groundwater remediation programmes.
- 3.3.2.11 The most significant abstractive relevant to the Manston airport development is the Lord of the Manor source.

3.3.3 Catchment delineation and characterisation

Catchment delineation

- 3.3.3.1 Recent work on behalf of Southern Water (Amec Forster Wheeler 2017) using the Flowsource programme (© Groundwater Science) and the East Kent groundwater model has delineated the catchment area to the Lord of the Manor abstraction based on a recent actual abstraction rate of 3.5 MI/d (Figure 3.4). The total catchment zone (TCZ) to the borehole covers an area of 16 km², and extends from Chalkhole Farm in the north, to Alland Grange in the west and Newlands Farm in outskirts of Ramsgate in the east. An inner zone (SPZ1) based on a 50 day travel time to the borehole has been modelled, and extended to include the adits. An outer zone based on the area of the catchment contributing 70% of the abstracted volume covers a similar area to the TCZ.

Catchment Characterisation

- 3.3.3.2 The catchment to the Lord of the Manor source is predominantly rural, with areas of urban and suburban land to the west on the outskirts of Ramsgate (Figure 1). In the south west of the catchment the runway and apron to Manston Airport, sit over the western adit, whilst the London – Ramsgate railway line, including a tunnel section, follows the line of the eastern adit into Ramsgate.
- 3.3.3.3 Whilst the TCZ covers predominantly agricultural land, it also includes the villages and hamlets of Manston, Haine, Manston, Fleete and Woodchurch, as well as the western suburbs of Ramsgate

with its industrial estates. The catchment includes Manston Airport which sits in the south west of the catchment with its runway over the western adit, the main rail-line to London, and the A299.

- 3.3.3.4 Topographically the catchment covers the highest part of the Isle of Thanet with most land above the 40 mAOD surface contour, sloping gently towards the north and Westgate, and more steeply dropping off in the south at Cliffs End. An east-west trending ridge of land higher than 50 mAOD sits between Telegraph Hill and Manston Golf Course. From this ridge, two topographic lows, possibly dry valleys, extend to the north from Manston Golf Course towards Lydden and Fleete, and to the south towards Pegwell Bay.
- 3.3.3.5 The main changes in the land-use in the catchment between the 1930s land utilisation survey and the current day are the expansion of Ramsgate towards the west and the conversion of meadowland/grass to arable. Agricultural census data for 2010 combined with OS mapping indicates that Lord of the Manor catchment is made up of 43% urban and suburban land, and 42% agricultural land (14% wheat, 8% other arable such as peas and beans and brassicas, 9% other cereals such as barley). The remaining 15% of land area made up of roads (8%), rough grazing and woodland.
- 3.3.3.6 In their work Atkins (2014) indicate:
- ▶ Groundwater levels at Lord of the Manor are in the range -1 to +5 mAOD (36 to 30 mbgl).
 - ▶ The abstraction rate at Lord of the Manor was higher in the 1980s than more recently corresponding to the abstraction regime change. There has been a small rise in minimum groundwater levels at the site, from around 1 mAOD in the 1980s to around 2 mAOD in recent years.
 - ▶ The Lord of the Manor site has been little used since 2010.

3.3.4 Water Quality

- 3.3.4.1 Water quality and in particular nitrate concentrations have been a concern in Thanet for many years, with the levels being close to, or exceeding the prescribed concentration or value (PCV) for nitrate of 50 mg/l as nitrate or 11.3 mg/l as nitrogen (UK drinking water standard, DWI 2012). Other water quality issues include pesticides and organic compounds.

Nitrate

- 3.3.4.2 High nitrate concentrations have been an issue at the Lord of the Manor source since the 1920s, when levels already exceeded the current drinking water standard (DWS) of 11.3 mg/l as nitrogen. Concentrations have fluctuated around the DWS ever since that time. A great increase in agricultural activity occurred in the 1920s with the conversion of grassland to arable. Since the 1940s the area of land in arable production has generally increased in Kent, at the expense of grassland (Atkins, 2015). Ploughing up of orchards and conversion of land to market gardening, created a nitrate peak in the unsaturated zone that was investigated in the 1970s (Thanet Nitrate studies, see below). High concentrations of brassica crops (cauliflowers in particular) and other intensive farming on the southern edge of Thanet also contributed to the high nitrate loading.
- 3.3.4.3 Data from twenty boreholes drilled into the Chalk between 1975 and 1984 were used to profile unsaturated zone nitrate concentrations (SWA, 1985). The results were used to calculate a downward travel rate of nitrate in the unsaturated zone of 0.5m/yr. The majority of nitrate was identified as coming from fertilised land, and denitrification was not identified in the aquifer. The predictive modelling undertaken as part of the study indicated that there would be a steep rise in nitrate concentrations in groundwater; for example, at Lord of the Manor the rise would commence in the early 2000s and not level off until 2100, with an increase from ~ 53mg/INO₃) in 2000 to ~79.6 mg/l NO₃ by 2050, flattening off at ~110 mg/l NO₃ by 2100.
- 3.3.4.4 The historical use of urea-based de-icer at Manston Airport has been considered as a possible source of nitrate but as this practice was phased out in the 1990's it is no longer a source of nitrogen. More modern de-icing fluids may contain Benzotriazole (C₆H₅N₃) that if present may introduce some nitrate upon degradation.

- 3.3.4.5 The various investigations which have taken place over the past 40 years or so, including intrusive sampling and numerical modelling, have all concluded that agriculture is the main source of nitrate in groundwater on Thanet.

Nitrate Trends at the Abstraction

- 3.3.4.6 Nitrate concentrations in groundwater have historically always been high at the Lord of the Manor source, exceeding the current DWS since the 1920's (Southern Water, 1985). The trend for the period 2001 to 2005 remains relatively flat, with concentrations varying between around 50 to 65 mg/l NO₃ (Figure 5a). Subsequently concentrations appear to rise from around 57 mg/l NO₃ in 2004 to 62 mg/l NO₃ in 2010. These results are consistent with the predictions made in the 1985 Thanet Nitrate Study. After 2010 the source appears to not have been used and samples were rarely taken.
- 3.3.4.7 Concentrations show no seasonal trend or correlation with groundwater levels or abstraction rate. The main control on groundwater levels appears to be abstraction rate, rather than a regional trend controlled by climatic conditions. There are, however, within the dataset samples with relatively lower or higher nitrate concentrations compared to neighbouring samples, for example:
- ▶ June 2001 (35.8 mg/l NO₃) and May 2003 (37.5 mg/l NO₃), both of which coincide with start-up of the abstraction after a period of shut-down, and a drop in water table;
 - ▶ August 2003 (8.6 mg/l NO₃) and November 2005 (42.6 mg/l NO₃) both linked with relatively low water tables (<2 mAOD), low rainfall and increased abstraction;
 - ▶ August 2005 (69.5 mg/l NO₃) and October 2003 (60.6 mg/l NO₃), both linked to water table falling and then rising.
- 3.3.4.8 These data suggest that when the water table is low (through a combination of low recharge and increased abstraction) the borehole and adits received water with a lower nitrate concentration. When the source is started up after a period of no abstraction, lower nitrate in groundwater is also reported. This may be explained by the nitrate flux between the matrix and the fissures as rise in water table after a period of low recharge may result in a pulse of nitrate that has diffused out of the matrix to the fissures. The nitrate porewater profiles described in Mouchel (2008) show that nitrate concentrations decrease with depth through the unsaturated zone.

Sewer Headings Investigations

- 3.3.4.9 The Broadstairs, Margate, and Ramsgate sewerage systems, collectively known as the Thanet Sewers, have substantial lengths (>437km) of combined sewer laid in Chalk tunnels known as headings. These headings vary in depth from 1 to 50 m below ground level, and are of unknown condition, with some evidence of collapse (Mouchel, 2008). Sewage is a potential source of contamination, as well as bacteria, ammonium, chloride and nitrate, sewage may contain hydrocarbons, solvents, metals and other contaminants as the sewers serve domestic and industrial customers.
- 3.3.4.10 Investigations into the risk posed by unlined sewer headings were carried out in 2008 (Mouchel, 2008) and in 2014- 2015 (Atkins, 2015).
- 3.3.4.11 The main findings of these investigations were that the majority of diffuse source nitrate pollution on Thanet was from agricultural land, with some very high concentrations reported at individual boreholes. Leaking sewer headings may provide a point source of nitrate (derived from oxidation of ammonium), and also provide a source of total petroleum hydrocarbon (TPH). Nitrate contributions to groundwater from urban sources beneath Ramsgate was reported to be lower than that leaching from agricultural land, and porewater profiles beneath urban areas and parks showed much lower peaks in concentrations typically at around 12 m depth.
- 3.3.4.12 Atkins (2015) noted that trichloroethene (trichloroethylene, TCE) was identified in groundwater samples from Ramsgate and Westgate to the north of Lord of the Manor SPZs.

- 3.3.4.13 At the time of writing, a programme to line sewer headings has been completed within the SPZs to the Southern Water Thanet sources. This will work will carry on with lining of sewer headings outside of the SPZs.

Organic Contamination

- 3.3.4.14 Chlorinated solvents have historically been detected in the Thanet groundwater abstractions. These include trichloroethene (TCE), which has been identified in groundwater on Thanet, at concentrations close to and exceeding the DWS of 10µg/l, which is based on the combined concentration of PCE and TCE (Atkins, 2015). TCE has a wide range of uses including: degreaser for metal parts; cleaner for walls, clothing, and rugs; paints and glues; insecticides and fungicides; and as a dry-cleaning agent. In groundwater, it is also found as a degradation product of tetrachloroethene (PCE), another industrial solvent with uses including dry cleaning and metal degreasing.
- 3.3.4.15 There have been two water quality incidents/issues at the Lord of the Manor source. These were:
- ▶ June 1999 domestic fuel spill near to adit but remedial works ensured that the source was not impacted;
 - ▶ February 2007 – Low PAH concentrations found in an observation borehole at Cliff End and hydrocarbons also detected linked to historical rail use, transformer oil and electric cable oil.

Chlorinated Solvents Trends at the Abstraction

- 3.3.4.16 Chlorinated solvents can include a wide range of organic chemicals containing at least one chloride ion. They have been used as degreasing and cleaning agents in military, industrial, and dry-cleaning applications for many decades and much contamination is believed to be historical, resulting from previous careless handling and disposal procedures at a range of locations in the Lord of the Manor catchment. Carbon tetrachloride, historically used as a refrigerant, propellant, in foams and dry cleaning has been banned from use in consumer goods since 2002 due its impact on the ozone layer (EU regulation 2037/2000). Carbon tetrachloride use declined steeply since the 1980s due to concerns regarding its harmful effects.
- 3.3.4.17 Chlorinated solvents are volatile liquids that are denser than water. In liquid form they tend to sink through aquifers because they are denser than water – they are classed as dense non-aqueous phase liquid (DNAPL). They will continue to sink until they encounter low permeability strata or are exhausted by smearing and entrapment. DNAPL accumulations can form long-term sources of groundwater contamination. Much like nitrate, they can be persistent under typical oxidizing (aerobic) aquifer conditions. Some degradation does occur under favourable (reducing) environmental conditions. For example degradation of carbon tetrachloride to trihalomethanes, and tetrachloroethene (PCE) to Trichloroethene (TCE), and dichloroethenes, vinyl chloride can occur in groundwater as a result of reductive dechlorination. The final stage of degradation is the conversion of vinyl chloride to ethenes which generally requires oxidizing conditions. Chlorinated solvents are sparingly soluble but their solubility far exceeds drinking water standards. They are also poorly retarded and so are relatively mobile. Due to their persistence, chlorinated solvent plumes can be very large (several kilometres long).
- 3.3.4.18 The combined DWS for PCE and TCE is 10 µg/l, and vinyl chloride has a limit of 5 µg/l.
- 3.3.4.19 Water quality data from Lord of the Manor for chlorinated solvents including PCE, TCE, Carbon Tetrachloride, 1,1,1 Trichloroethane (111 TCA), Vinyl Chloride, 1,2 dichloroethane, and total trihalomethanes (degradation products of carbon tetrachloride) has been examined for the period 2001 to 2017 (Amec Foster Wheeler 2017). The solvent detected most frequently at concentrations above the combined DWS is PCE. The pattern of detection varies as follows, although the lower frequency of sampling in some years means that some peaks are likely to have been missed:
- ▶ From June 2001 and December 2002 there was a rising trend in PCE, with concentrations generally ranging between 5 and 17 µg/l, and a peak of 26 µg/l in September 2002.

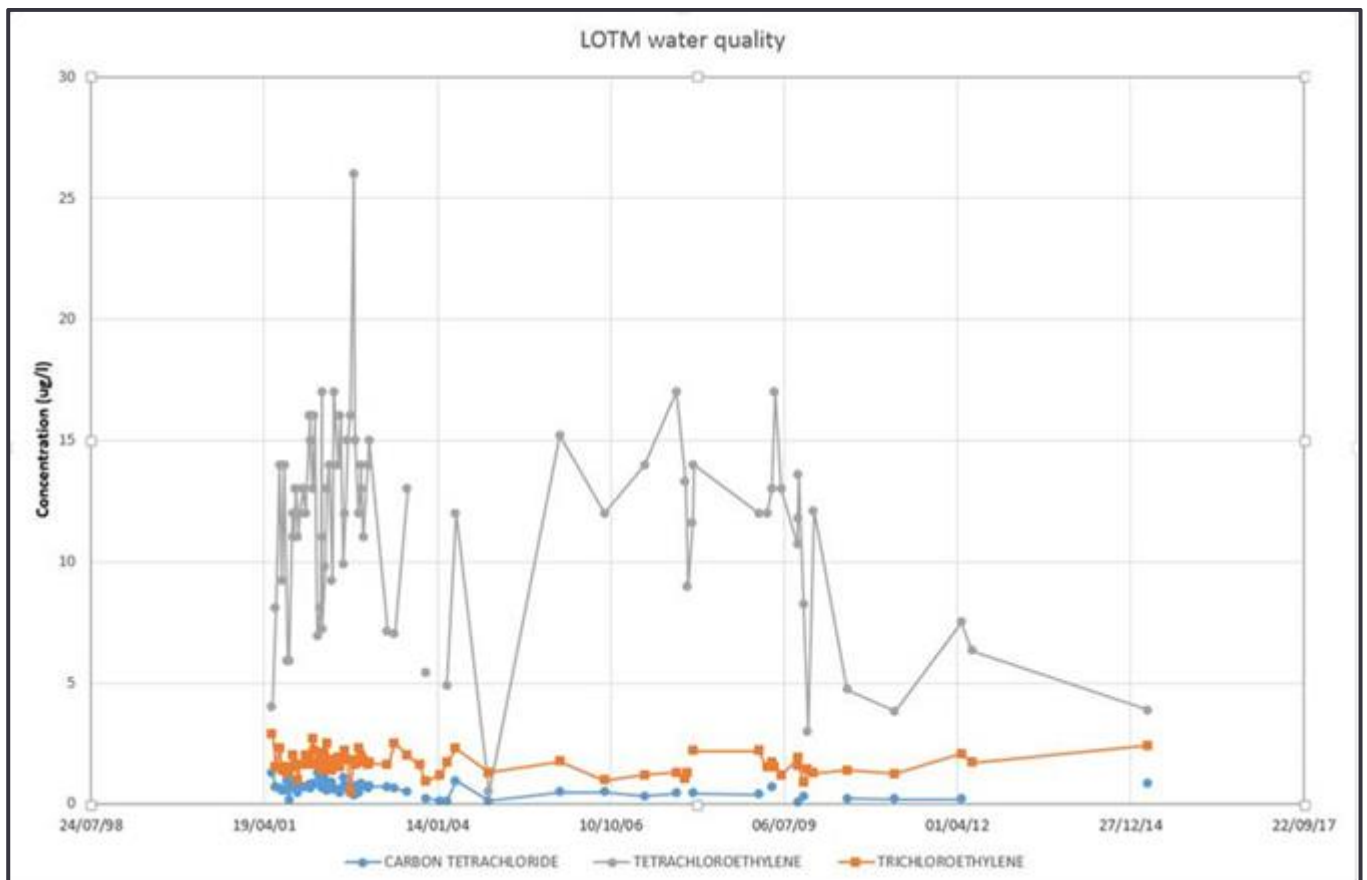
- ▶ Between May 2003 and December 2006 concentrations were between 0.5 and 15.2 µg/l although the sampling frequency was reduced.
- ▶ From 2006 to 2009 concentrations were generally between 10 to 17 µg/l and no detection in samples taken in 2009.
- ▶ Samples taken after January 2010, when the source was out of service, contained PCE at between 4.7 and 7.5 µg/l.

3.3.4.20

TCE was also detected, but always at concentrations below the combined DWS, with a peak concentration reported in June 2001 of 2.9 µg/l. Reported values follow a similar pattern to that of PCE suggesting a common source (Figure 3.5). Other solvents detected at the Lord of the Manor source include:

- ▶ 111 TCA between December 2007 and February 2008, at concentrations of 2.8 to 4.8 µg/l.
- ▶ Dichloroethane (1,2) is also analysed but remains below the analytical level of detection.
- ▶ Vinyl Chloride with a peak value of 2.4 µg/l in September 2009, but otherwise remaining at 0.11 µg/l.
- ▶ Carbon tetrachloride was consistently detected at a low concentration throughout the dataset, with a peak value of 1 µg/l in August 2002.
- ▶ Trihalomethanes at a peak value of 6 µg/l in September 2001.

Figure 3.1 Recorded solvent concentrations at the Lord of the Manor source



3.3.4.21

The trends for these solvents follow the same trend described for PCE, with the majority of elevated concentrations between 2001 and 2004, and 2007 to 2010, decreasing to lower levels in recent years.

- 3.3.4.22 The changing concentrations of PCE, and potentially TCE, appear to be correlated with groundwater levels at the abstraction. In general, samples containing no PCE coincide with periods of lower-than-usual water table (around 2 mAOD), whilst peaks in concentration typically occur when the water table is higher. This pattern may suggest that a source or plume of PCE and other reported solvents is present although the decrease in concentrations in recent years suggests that the plume may have degraded over the years. The presence of low levels of carbon tetrachloride, which was banned from use in 2002 and which underwent decline in use in the 1980s, suggests that the source of the plume is likely to be historical rather than ongoing.
- 3.3.4.23 Potential point sources of the chlorinated solvents can include manufacturing sites including electronics (degreasing), inks and dyes, photographic processing, dry cleaning industry, tanneries, former munitions sites and military repair and maintenance sites.

Pesticides

- 3.3.4.24 Southern Water samples are screened for more than 30 individual pesticide compounds with varying frequencies. The total sum of identified pesticides is also reported. The majority of analysis results are below the detection limit.
- 3.3.4.25 The most notable event shown in the pesticide data is a high spike in diuron concentrations at Lord of the Manor in 2000/2001. The Environment Agency investigated possible sources in the urban area and it concluded that diuron was applied at incorrect dilution rates to amenity land, leading to the high concentrations at the Lord of the Manor abstraction. Subsequently users switched from diuron to glyphosphate and diuron use has stayed low. Concentrations of diuron at Lord of the Manor fell gradually over the following two years to reach very low levels by 2003; diuron has rarely been detected since.
- 3.3.4.26 The BGS (2004) study identified the widespread use of diuron on Thanet in high concentrations that may give rise to an impact in years to come. Diuron and its metabolites may therefore be percolating through the soil and the unsaturated zone towards groundwater.
- 3.3.4.27 Atrazine concentrations at Lord of the Manor also exceeded the PCV in 2000–2001. Since then levels have declined and have been around 20–30 ng/l. Occasional low concentrations of simazine have been detected and there was a cluster of recordings of cyanazine at all three SWS sites in 2003–2005. Atrazine and simazine were banned for non-agricultural use (e.g. local authority, road and rail) in 1993, with further restrictions introduced in the 2000s.
- 3.3.4.28 Detection of cyanazine and simazine at concentrations below the DWS in September 2004, January 2005 and September 2006 could be linked to rainfall events, flushing applied product into the aquifer. The pesticide data suggest that although the Lord of the Manor abstraction is vulnerable to pollution, there are currently no issues with these substances.

Other Water Quality

- 3.3.4.29 Southern Water records for the Lord of the Manor abstraction show only sporadic occurrence of petroleum hydrocarbons in groundwater at low concentrations below drinking water standards. This dataset suggests that petroleum hydrocarbons are not an existing water quality issue at the abstraction.
- 3.3.4.30 Records indicating saline intrusion was reported by Southern Water Authority (1985) near Margate, possibly as a result of former groundwater abstractions at nearby PWS source in the area (Environment Agency 2004). Following abandonment of the source the level of saline intrusion may have reduced.
- 3.3.4.31 Saline intrusion is a risk due to proximity to the coast as documented in 1985 and 1956, although the reduction in abstraction due to abandonment of some of the large public water supplies may have reversed this situation (Atkins 2014).

4. Groundwater Risk Assessment

4.1 Approach

- 1.2.1 The approach adopted follows the Government guidelines for a Hydrogeological Risk Assessment report⁵ as appropriate. At this stage the information used is entirely desk based data drawing on records provided by the Environment Agency and Southern Water. No site specific investigations have been possible because of current access restrictions to the site therefore the assessment at this stage cannot be quantitative. In discussion Southern Water have indicated that they would prefer not to see any intrusive site investigations.
- 1.2.2 The Chalk aquifer of north Kent has however been the subject of a number of previous investigations and therefore the site conceptual model and preliminary risk assessment can be prepared with a reasonable level of confidence.
- 1.2.3 The conceptual model developed at this PIER stage will be reviewed and refined during subsequent environmental impact assessment.

4.2 Proposed development site and surroundings

4.2.1 Project description

- 1.2.4 The stated aim of the project is to revive Manston Airport as an airfreight hub, of national significance, with complementary passenger and engineering services. The focus is to provide a dedicated airfreight facility capable of handling in excess of 10,000 air traffic movements of air freight cargo per year that is compliant with European Aviation Safety Agency (EASA) standards. The proposed zoning of different areas within the airport is shown in Figure 4.1.
- 1.2.5 The existing 2,748 m east-west aligned runway will be retained for the reopened airport. An assessment of the runway condition will be undertaken but it is likely that it will require rehabilitating to improve the load bearing capacity for future aircraft operations. The likely rehabilitation method will be an overlay using bituminous materials.
- 1.2.6 The existing taxiway network will need modifications in order to be compliant with EASA in order to allow Manston Airport to attract the widest range of operators. This will include a new taxiway parallel to the runway, new taxiways linking the aprons and stands and modifications to existing taxiways to ensure the gradient of the slope is compliant with EASA guidelines.
- 1.2.7 The existing passenger apron to the west of the terminal building will be retained. Two new areas of apron covering approximately 208,000m² to provide sufficient areas for the parking of up to 18 aircraft will be constructed between the runway and the B2050 Manston Road. The existing cargo facilities located in the north east of the site will be relocated; new airside cargo facilities, car park and storage areas will be constructed immediately to the north of the new cargo aprons with direct access onto a new aircraft apron area. The new cargo facilities will cover approximately 66,000m² with a storage and parking area of approximately 120,000m². Due to the existing topography and the requirement for compliant taxiway and apron gradients this area will require regrading to provide a building platform for the buildings and apron.
- 1.2.8 Facilities for secondary supporting aviation uses, including aircraft maintenance repair and overhaul (MRO) and limited passenger services will also be provided. The passenger facilities will use the existing terminal and passenger apron, with sufficient space for up to four additional aircraft stands if required. The existing MRO facility will be replaced with a new facility capable of accommodating two of the largest types of aircraft.

⁵ <https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit>

- 1.2.9 The existing air traffic control building located immediately to the north of the runway will be retained. All navigational aid equipment that has been removed from the airport will be replaced to allow the airport to operate in all weather conditions. A new radar facility will be located in the original position in the northwest of the site, on the Northern Grass, to replace the former airport radar.
- 1.2.10 Historically the airport fuel tank farm was located to the south east of the site at the eastern end of the site. This location is currently operated as a private fuel supplier (Jentex Group). The number of tanks at this location has reduced over time and currently there are two tanks in use. The re-development of this location as a new fuel farm facility is being considered. This will incorporate current best practice (BAT) in the design and management of fuel storage and the proposal is for above ground tanks (as preferred by the Environment Agency and Southern Water).
- 1.2.11 In order to support the increased level of activity and development on the site, additional services will be required; this is likely to include additional internal sub-stations, communication networks, and foul and surface water connections. The surface water network will include interception, attenuation (winter and summer ponds) and pollution control facilities designed in accordance with industry best practice and agreed with the key stakeholders. Where appropriate, use will be made of existing connections to the public drainage system, or existing surface water discharge to Pegwell Bay will be used.
- 1.2.12 A new airport access for the cargo/aircraft maintenance facility is proposed on the B2190 (Spitfire Way) to the west of the existing access (Figure 2.5). This will link in with other existing proposals for highways improvements that are being prepared by the Kent County Council Highways Department. RiverOak will work with them to provide improved access in and around the airport, for example to deliver improvements to the junction of Manston Road and Spitfire Way. A landscaping zone between the new internal access road and the public highway will be provided to screen the development.
- 1.2.13 The area north of Manston Road, referred to as the 'Northern Grass' will be utilised for other aviation related purposes such as warehousing, hangars, offices and airport related business units, but will have no direct access for aircraft.

4.2.2 Airport construction phase

- 1.2.14 The initial phase of construction, which will commence following the grant of the DCO, will focus on returning the airport to operation and reusing as much of the remaining original airport infrastructure as possible. As the airport has not been operational since May 2014, and is unlikely to have been subject to regular maintenance since that date it is likely that this phase take 6-12 months during which time essential airport equipment and infrastructure will be maintained where it still exists or new equipment installed to bring it back to full use. During this time an application for an Aerodrome Licence will be submitted.
- 1.2.15 The remaining phases of development will be undertaken in accordance with the emerging and developing business case for the airport. Initially, the airport will operate using the existing infrastructure and cargo building facilities. An outline phased development is likely to comprise the following stages:
- ▶ relocate existing facilities located within new development area;
 - ▶ install new airside infrastructure (relocate taxiway alpha, new fuel farm);
 - ▶ provide new site location access;
 - ▶ upgrade site services (electricity, surface water drainage and treatment);
 - ▶ improve community facilities (museums and café/observation centre);
 - ▶ development, in phases, of new aircraft stands, aprons and cargo facilities as required; and
 - ▶ development of Northern Grass area for aviation related businesses.

4.2.3 Airport operational phase

- 1.2.16 The air freight operations, which will be the main focus for the airport, are expected to start shortly after reopening. From this initial base the airport would seek to attract additional customers and clients including offering the facilities as the base for one or more freight forwarding and handling companies.
- 1.2.17 Based on the initial assessments undertaken of the current UK air cargo market it is estimated that a reopened and developed Manston Airport, with a focus on air freight and cargo, could capture in the region of 500,000 to 600,000 tonnes of air freight by 2035.
- 1.2.18 Depending on the type of freight and the fleet-mix operating from the airport, a total of 500,000 tonnes would equate to 10,000 to 20,000 air traffic movements per year. The full details of the types of aircraft that will operate, the timings of the flights (including the spread of flights per day or week) and the types of cargo (which will dictate the type of freight handling facilities) are not fully known at this stage of the assessment. Details of all of this information will be provided for the DCO application and used within the assessment.
- 1.2.19 The main operating hours for the core airport staff will be normal office hours Monday to Friday, with essential management staff working weekends and holidays. In line with the operational requirements the airport will maintain 24 hour air traffic control, firefighting, border control, security and other essential services

4.3 Conceptual Hydrogeological Site Model

- 4.3.1.1 The conceptual model developed at this Preliminary Risk Assessment tier has been based on previous work, historical reports and a desk top study. At this stage no intrusive investigations or site specific data such as groundwater levels or land quality data are available. The conceptual model will be reviewed and refined during subsequent risk assessment tiers. The conceptual model represents the characteristics of the site and indicates the possible relations between **contaminants**, **pathways** and **receptors**, where:
- a) a **hazard** or **potential contaminant (source)** is a activity or substance which is present in, on, or under the land and has the potential to cause harm;
 - b) a **receptor** is that which could be adversely affected by the contaminant, including human beings; and
 - c) a **pathway** is a route or means by which a receptor could be exposed to, or affected by, a contaminant.
- 4.3.1.2 For a potential risk to exist at a site then all three of the above elements must be present, and linked together so that a contaminant has been identified, a receptor is located on-site and there is an exposure pathway that links the contaminant to the receptor. The term **contaminant linkage** is thus used to describe a particular combination of contaminant-pathway-receptor relationship.
- 4.3.1.3 The proposal is for the re-opening of Manston Airport and area which includes the SPZ1 for a potable groundwater abstraction (Lord of the Manor source) in the Principal Aquifer beneath the site. A conceptual model cross section showing the possible project effects is shown in Figure 4.2
- 4.3.1.4 The geology beneath the site consist of Made Ground overlying in part Thanet Formation which in turn overlies the Newhaven Chalk. Where the Thanet Formation is absent Made Ground directly overlies the Chalk.
- 4.3.1.5 Shallow perched water may occur in the Made Ground or above low permeability layers within Thanet Formation.
- 4.3.1.6 The Thanet Formation is classified by the Environment Agency as a Secondary aquifer and the Chalk as a Principal Aquifer. Given the geological setting there is little or no natural protection to the Chalk aquifer from spillages or pollution of recharge water.

- 4.3.1.7 The most stringent groundwater protection measures are therefore considered necessary due to the proximity of the SPZ1. With these measures in place, then future changes to the SPZ area or the addition of further abstractions in the vicinity of the airport site, are not foreseen to introduce any requirement for further groundwater protection measures.

4.3.2 Potential Sources

The final detailed design for the proposed airport facility has not been concluded. However, it is assumed that the proposed airport will represent similar potential sources (hazards) as the previous airport i.e. it will not lead to the introduction of any new sources of potentially polluting substances over and above what has previously existed. The potential sources on-site are detailed in Table 4.1

- 4.3.2.1 Any potential sources introduced during re-development construction will be controlled through good practice as set out in the Code of Construction Practice (CoCP) and as such are unlikely to present a significant risk to groundwater. It will be a requirement that companies undertaking any redevelopment work and all their workers and sub-contractors, are made fully aware of the hydrogeological setting and the sensitivity of the Lord of the Manor source and the appropriate measures required to minimise the risk of impact.
- 4.3.2.2 In discussion with Southern Water they identified the possible risk of increase turbidity as a result of physical disruption (e.g. vibration, shaking) associated with any demolition, foundation piling or breaking up of the runway is a concern.
- 4.3.2.3 The EA have identified that use of pesticides for weed control should be limited to areas with active drainage and that no pesticides should be used over areas of land than freely drain ion the underlying Chalk. Mechanical control of weeds is to be undertaken in these areas.

Table 4.1 Potential Contaminant Sources

Source Activity	Description	Potentially Polluting Substances
Water Treatment Facility	Plant for the treatment of on-site surface water.	Chloride, ammonium, dissolved metals, acids used for cleaning and pH balancing.
Fuel Storage	Bunded Fuel Storage on hardstanding.	TPH, BTEXs.
Re-fuelling	Spillage during re-fuelling	TPH, BTEXs.
De-icing	Storage and application of de-icing chemicals	Glycols
Foul Drainage	Leakage from new foul sewers	Nitrates, pesticides, organic solvents
Emergency Water Use	Fire water and disposal.	May become contaminated dependant on the emergency.
Made Ground perched groundwater	Any perched groundwater found in the Made Ground may be potentially polluting substances and has a high vulnerability to pollution.	Ammonium, dissolved metals, phenols and potential PAH, TPH and VOCs.
Made Ground Soils	Leaching of contaminants from Made Ground soils.	Ammonium, dissolved metals, phenols, asbestos and potential PAH, TPH, pH, carbon dioxide, and methane.

Source	Description	Potentially Polluting Substances
Historical activities at Manston Airport	The site has been used as a military airbase in the past century and light industrial activities linked to the operation of the site (engineering works, munitions, burning of petrol along the runway, fuel pipes, waste oil tanks, use and storage of Pyrene runway foam, burning ground area and fire-fighting activities, fuelling and cleaning of aircrafts/helicopters, use of de-icing chemicals, waste storage areas, acid pits, substations and transformers etc.) that may have produced historic contamination at the site.	TPH, BTEX, PAHs, heavy metals, chlorinated solvents, tetrachloromethane, PFOS, PFOA, glycols, emulsifiers, asbestos, cyanides, radium, PCBs
Existing soakaways	Some areas of the site drain to soakaways. Sediment in these soakaways may leach contamination to groundwater.	TPH, PAHs, heavy metals
Construction activities	Potential for increase turbidity	Turbidity
Pesticide application	Application of pesticides to areas that drain into the Chalk	Metaldehyde and herbicides (including MCPA, propyzamide, carbetamide, mecoprop and chlorotoluron) clopyralid, chlorotoluron, bentazone, metaldehyde, cypermethrin ⁶

4.3.3 Potential Pathways

- 4.3.3.1 The main pathway is from the surface to the natural Chalk system by vertical flow in the unsaturated zone and lateral flow in the saturated zone. The thin soils present on the Isle of Thanet do not retain pollutants and so they are readily available for leaching into the unsaturated zone and ultimately to the water table.
- 4.3.3.2 The Chalk is a dual porosity system which means that although it has many rapid pathways (fissures) available for contaminants to travel along, but the bulk of the water present is within the matrix. Matrix porewater has the potential to store dissolved contaminants. In the saturated zone contaminants move between fissures and the matrix by diffusion. The interaction between fissures and matrix acts in the short term to reduce the peak of contaminants arriving at a receptor, but contamination can have much a long duration or retention time, as even if contaminant concentrations at the source diminish and fracture water concentrations start to reduce, the stored contaminant in porewater will remain and will only diffuse out slowly to concentrations can remain at high levels for a long period of time.
- 4.3.3.3 The additional potential pathways which may be introduced due to the Project are:
- ▶ **Deep Foundation Piling:** Construction of piled foundations, other deep structures and excavations for any new buildings may create vertical pathways within the unsaturated zone.
 - ▶ **Excavations:** If dewatering is required for deep excavations, pumping has the potential to draw in contaminated groundwater from elsewhere on-site or from off-site sources creating new pathways or altering existing pathways.
 - ▶ **Demolition:** demolition of old buildings may create vertical pathways within the unsaturated zone.
 - ▶ **Boreholes:** incorrectly constructed and sealed deep site investigation or water level monitoring boreholes may create vertical pathways within the unsaturated zone.

⁶ http://www.adas.uk/Portals/0/Documents/Pesticides_Forum_annual_report_2015_web_final.pdf

- **Construction:** may cause vibration leading to increased turbidity in groundwater.

4.3.3.4 Current pathways, and pathways which may be developed due to the Project are identified in Table 4.2. As many of the pathways which are created during the construction will remain during operation phase, the pathways for both phases can be considered together.

Table 4.2 Receptors and Pathways

Receptors	Pathway
Groundwater in Thanet Formation aquifer (secondary aquifer).	Overland flow of contaminants. Discharge of contaminated groundwater through lateral flow in Made Ground into the Thanet Formation.
Groundwater in the Thanet Formation aquifer (secondary aquifer)	Vertical migration of contaminants Vertical migration via artificial pathways (e.g. foundations, deep piles). Vertical migration in excavation areas from Made Ground. Lateral groundwater flow.
Groundwater in the Chalk aquifer (principal aquifer)	Discharge of contaminated groundwater through lateral flow in Made Ground into the Chalk. Vertical migration through Thanet Formation. Vertical migration of contaminants Vertical migration via artificial pathways (e.g. deep piles, deep boreholes). Lateral groundwater flow. Vibration leading to release of turbidity
Lord of the Manor PWS Chalk aquifer	Vertical migration of contaminants Vertical migration via artificial pathways (e.g. deep piles, deep boreholes). Lateral groundwater flow into adit.
Coastal Waters	Vertical migration of contaminants Vertical migration via artificial pathways (e.g. deep piles, deep boreholes). Lateral groundwater flow to coastal discharge locations.

4.3.4 Potential Receptors

4.3.4.1 The main receptors that are potentially at risk from the proposed Project are summarised below:

- Possible perched groundwater in the Thanet Formation (Secondary aquifer);
- Groundwater in the Chalk aquifer (Principal aquifer); and
- Groundwater public supply boreholes (the Lord of the Manor source).

4.3.4.2 The likely significant effects from ground conditions on designated ecological receptors (i.e. Pegwell Bay SSSI) have been screened out of requiring further assessment. This is on the basis that the identified ecological receptor is located downstream of the Lord of the Manor abstraction and its associated adit that will intercept groundwater flowing to the south. Also, any additional mitigation measures identified as outcomes of the assessment of impacts on groundwater underlying Manston Airport will also be protective of the migration pathways through groundwater towards Pegwell Bay.

4.3.5 Conceptual model

4.3.5.1 The Chalk aquifer is unconfined and potential contaminants can migrate to the water table via fracture flow in fissures and piston flow through the Chalk matrix. Diffusion into the Chalk matrix will occur in the saturated zone. Once at the water table, contaminants are carried via groundwater

flow to the Southern Water sources, springs or marine outflows. The flow system has been conceptualised as: winter recharge causes a rise in water levels on the outcrop. Groundwater then flows towards the aquifer boundaries and major groundwater abstractions. This results in a decline in water levels in summer when there is little or no recharge (Environment Agency, 2004).

4.3.5.2

The Chalk is a dual porosity aquifer, in which any contamination that enters the Chalk migrates into the matrix under a concentration gradient. The movement of contamination between the immobile matrix porewater and flowing groundwater in fissures is controlled by diffusion across a concentration gradient and is slow. This diffusion-controlled movement limits the rate at which contamination can be flushed from the aquifer. In addition, the matrix remains saturated above the water table, where water is held by capillary forces. Typically, water within the matrix above the water table moves downwards slowly and therefore the unsaturated zone and zone of water table fluctuation can act as stores of contaminant mass. As a result, contaminant concentrations can vary in response to changes in water level.

Conceptual Understanding

- ▶ Recharge occurs mainly over the outcrop Chalk, with some run-off recharge from areas covered by less permeable head deposits. Groundwater contours suggest that the shape of the water table generally follows a subdued form of the surface topography, with flow radiating outward from the central topographically high area of the Chalk block. As a result a groundwater mound has formed to the north-west of Ramsgate, coincident with the Chalk anticline. Generally groundwater flow is radial towards the coast and to a lesser extent towards the Rivers Stour and Wantsum.
- ▶ Groundwater flow southward towards the natural discharge areas between Cliffs end and Pegwell is intersected by the Lord of the Manor abstraction and its associated adits.
- ▶ Flowsource modelling (Amec Foster Wheeler, 2017) suggests that the western adit receives water from the area beneath the north west of Manston Airport and the large area of agricultural land to the north, whilst groundwater flowing to the eastern adit is derived from the eastern part of the catchment up hydraulic gradient of Ramsgate (Figure 3.4).
- ▶ Groundwater levels and the source configuration and construction suggests that the input from the western adit is reduced at low water tables. The eastern adit appears to consistently collect water from the eastern part of the catchment, including the suburbs of Ramsgate. Water quality data for solvents and nitrate appears to confirm this understanding of flow.
- ▶ Both solvents and nitrate behave similarly; both are relatively conservative in aerobic aquifers and low concentrations tend to coincide with low water tables of less than 2 mAOD. During high to average water tables, elevated concentrations of both are detected at the borehole.
- ▶ The sources of nitrate in groundwater are derived from both urban (run-off, sewers and mains) and agricultural sources. Unsaturated zone porewater profiles suggest that the concentrations of nitrate beneath urban areas and parks is lower than beneath arable land.
- ▶ The source of solvents is likely to be historical, linked to light industry, with the potential for multiple sources and plumes, but interaction with these sources appears to increase at a water table at or above 2-3 mAOD. The source of nitrate is likely to be agricultural activity.

4.3.5.3

Figure 4.2 shows the relationship between the Southern Water source, its adits and the Chalk aquifer.

4.3.5.4

Travel time estimates for flow through the unsaturated Chalk are around 0.5 m/yr and with an unsaturated zone of up to 40 m then travel times from the surface to the water table may be in excess of 80 years. However the existence of fissures within the chalk can result in more rapid movement through the unsaturated zone following heavy rainfall although there is no evidence of this at Manston airport. Travel time through the saturated chalk is a product of hydraulic conductivity, gradient and porosity. Taking typical values for Chalk groundwater then velocities of around 0.5 m/day may be expected. However, once water has entered the adit travel time to the abstraction borehole can be considered to be instantaneous.

4.4 Hydrogeological Risk Assessment

4.4.1.1 A Risk Assessment following the EA guidance GP3 has been carried out using the Manston Airport conceptual source-pathway-receptor linkages identified. The site activity is identified as an operational airport and the receptor considered is the Lord of the Manor abstraction/western adit.

4.4.1.2 As the Manston airport location cannot be changed and is a scheme of national significance, then in accordance to Environment Agency requirements, the emphasis is placed on the protection of groundwater. The environmental impact assessment process and this accompanying HIA identifies all the potential pollution linkages and the best available techniques to mitigate the risks. The Environment Agency has been involved in discussions of the development in order to mitigate groundwater risks.

4.4.1.3 As identified in Chapter 2 above the presence of the SPZ around the Lord of the Manor Source influences the assessment as follows:

- ▶ SPZ1: Potentially polluting activities are not permitted in a SPZ1. The proposed development does not identified any new potentially polluting activities in this area. The SPZ1 extends along the line of the western adit to The Lord of the Manor source which is more or less coincident with the runway. Drainage from the runway will be collected and diverted off site therefore the potential for pollution from activities on the runway is minimised.
- ▶ SPZ2: the Environment Agency will only agree to proposals for infrastructure developments where they do not have the potential to cause pollution or harmful disturbance to groundwater flow or where these risks can be reduced to an acceptable level. In order to reduce risks then the Environment Agency expects best available techniques (BAT) to be applied. Activities within SPZ2 have been assessed on this basis.

4.4.1.4 The following assessment therefore considers potential activities with SPZ2 which the assumption that there will be no new potentially polluting activities within the currently defined SPZ1.

4.4.2 Hazard Identification and Risk Register

4.4.2.1 Hazard identification (contaminant source) has been undertaken for the current site and for the planned future airport to evaluate whether the development (with appropriate mitigation measures) is acceptable in terms of the risk to the receptors. The following has been undertaken:

- ▶ Identification of sources that could give rise to pollution reaching receptors;
- ▶ Identification of pathways that could release contaminants to the environment covering both acute (short-term, catastrophic) and chronic (long-term, less-severe) mechanisms;
- ▶ Assessment of the likelihood of a release occurring;
- ▶ Assessment of the consequence of a release to receptors;
- ▶ Identification of mitigation measures that would be put in place to stop contaminants escaping into the environment;
- ▶ Assignment of a relative measure to each of the above parameters to enable a qualitative assessment of the overall risk level (low, medium, high, critical); and
- ▶ Recommendations for additional measures or monitoring where a residual risk has been identified.

4.4.3 Risk Register

4.4.3.1 The risk register considers the on-site sources which have potential to cause contamination at the Lord of the manor source. These are listed in Table 4.3. At present no site investigation work has been undertaken to confirm or otherwise the presence of contamination and the final detail and layout of the development is not finalised so the details and location of such aspects as the fuel storage tanks are yet to be confirmed.

Table 4.3 Potential Sources

Source	Description	Potentially Polluting Substances
Water Treatment Facility	Plant for the treatment of on-site waste water.	Chloride, ammonium, dissolved metals, acids used for cleaning and pH balancing.
Fuel Storage	Fuel Storage tanks.	TPH, BTEXs.
Re-fuelling	Spillage during re-fuelling	TPH, BTEXs.
De-icing storage and use	De-icing chemical storage and application to planes, runway and taxiways	Glycols
Drainage system including car parks	Receives various low strength liquors.	Micro-biological, oil and grease, suspended solids.
Foul Drainage	Leakage from new foul sewer connections	Nitrates, pesticides, organic solvents
Emergency Water Use/fire-fighting	Fire water and disposal.	May become contaminated dependant on the emergency.
Fire-fighting training	Firefighting training ground	Possible pollutants: tetrachloromethane, PFOS, PFOA
Made Ground perched groundwater	Any perched groundwater in the Made Ground may have potentially polluting substances.	Ammonium, dissolved metals, phenols and potential PAH, TPH and VOCs.
Made Ground Soils	Site is underlain by a layer of Made Ground soils that may be contaminated.	Ammonium, dissolved metals, phenols, asbestos and potential PAH, TPH and carbon dioxide, methane.
Historic activities at Manston Airport	The site has been used as a military airbase in the past century and light industrial activities linked to the operation of the site (engineering works, munitions , burning of petrol along the runway, fuel pipes, waste oil tanks, use and storage of Pyrene runway foam, burning ground area and fire-fighting activities, fuelling and cleaning of aircrafts/helicopters, use of de-icing chemicals, waste storage areas, acid pits, substations and transformers.) may have produced historic contamination at the site.	Potential ammonium, dissolved metals, phenols, PAH, TPH, BTEX, PAHs, heavy metals, chlorinated solvents, tetrachloromethane, PFOS/PFOA, glycols, emulsifiers, asbestos, cyanides, radium, PCBs.
Construction activities	Potential for increase turbidity	Turbidity
Pesticide application	Application of pesticides to areas that free drain into the Chalk	Metaldehyde and herbicides (including MCPA, propyzamide, carbetamide, mecoprop and chlorotoluron) clopyralid, chlorotoluron, bentazone, metaldehyde, cypermethrine

4.4.3.2 For each source, the risk register considers the hazard (e.g. event causing a release of a contaminated substance to the environment), the consequence of the release (e.g. pollution at a receptor), the likelihood of the event, the mitigation measures that can be implemented to prevent or reduce the consequence of the event. The assessment considers the risk before and after safeguards are put in place.

4.4.3.3 Where the overall risk is identified as high or above then the proposed Project is considered to represent an unacceptable risk unless further mitigation measures can be implemented.

4.4.4 Hazards

4.4.4.1 For each of the identified sources, the conceptual model identifies possible mechanisms that could result in the release of contaminants to the environment by assessing each of the categories: Location, Failures, Maintenance, Operational, and Other where applicable. Contamination due to surface water flooding and flood water management has been considered in the Flood Risk Assessment and therefore will not be considered in this assessment.

4.4.4.2 The main failure mechanisms that could result in a release to the environment for the sources considered for this development are:

- ▶ Leak from fuel and chemical (de-icing compounds/fire-fighting foam additives) storage tanks;
- ▶ Failure or overtopping of bunds or concrete floors/hardstanding during refuelling etc.;
- ▶ Spillage from fire-fighting training ground;
- ▶ Failure of liners of attenuation bunds;
- ▶ Leakage from drainage network;
- ▶ Leakage of effluent from foul main network;
- ▶ Contamination following an emergency incident; and
- ▶ Application of pesticides to free draining areas.

4.4.4.3 Additional failure mechanisms that could result in an increased risk to the environment during the construction phase of the project are:

- ▶ Possible vertical and lateral pathways would be generated between aquifers during SI work;
- ▶ Creation of vertical groundwater pathways between aquifers through piled foundations, other deep structures and excavations;
- ▶ Mobilisation of poor quality groundwater within the Made Ground or Thanet Formation; and
- ▶ Earth and groundworks during demolition and construction mobilising contaminants into the Chalk aquifer

4.4.5 Mitigation Measures

4.4.5.1 The important mitigation measure is that no potentially polluting activities will be located in SPZ 1.

4.4.5.2 For any potentially polluting activities located in SPZ2 the proposed mitigation measure are summarised below. Standard mitigation measures in line with good practice and guidance will be implemented where appropriate, including measures to manage flood risk and drainage which will be set out in the accompanying FRA.

4.4.5.3 The prevention of leakage and spillage of hazardous materials stored or used on-site will be addressed through environmental permitting during the operational phase. Mitigation measures will be documented in a future Environmental Management Plan (EMP) for Manston airport. The prevention of pollution from construction and demolition groundworks will be implemented through mitigation measure identified in the CoCP.

4.4.5.4 It will be necessary that all companies and organisations undertaking any redevelopment work and all their workers and sub-contractors are made fully aware of the hydrogeological setting and the sensitivity of the Lord of the Manor source and the appropriate measures required to minimise the risk of impact.

4.4.5.5 The main mitigation measures that have been considered are listed below but these will be reviewed and revised once the final scheme is agreed and the results of any initial site investigation data are available:

- ▶ All drainage will be collected in appropriately sized attenuation pond(s) and treated prior to discharge off site. Facilities will allow the interception and segregation of contaminated water and cleaner water (e.g. roof run-off). Ponds will be monitored for possible leakage. Environmental monitoring of surface waters;
- ▶ Discharge of treated water and clean water to Pegwell Bay rather than to ground with appropriate monitoring of water quality;
- ▶ All drainage pipework to be surveyed to allow the identification of leaks/failures; these will be repaired to meet modern standards;
- ▶ All storage tanks will be appropriately designed to current standards (e.g. double skinned, bunded etc.) design of required tank bunds to provide 110 per cent storage capacity based on largest tank capacity with allowance for 1:100 rainfall event;
- ▶ Deliveries of any chemicals to be to designated, bunded, areas: use of control levels and alarms to identify leaks or overflows;
- ▶ Fire-fighting training ground will be appropriately sized, using a lined (impermeable base) hardstanding and with a perimeter bund;
- ▶ Monitoring of the airport instrumentations, inspections and daily walk around;
- ▶ Documented maintenance and inspection procedures; and
- ▶ Environmental monitoring of surface waters.

During the development and construction phase additional measures may include:

- ▶ Avoidance of deep boreholes, particularly in the more sensitive parts of the site, with all SI boreholes restricted to the minimum depth required to obtain geotechnical data for design purposes;
- ▶ No groundwater level monitoring boreholes to be constructed;
- ▶ Dewatering or flow barriers for groundwater in the Made Ground during groundworks so that flow into Thanet Formation or Chalk is prevented;
- ▶ Possible groundwater flow in the Thanet Formation to be taken into account in the design of deeper structures and in the selection of any infill materials;
- ▶ All contaminated ground will be investigated and remediation (as required) will be completed prior to the site being redeveloped;
- ▶ Physical work within close proximity of the adit may be potentially restricted (in type, timing and duration) subject to a further assessment; and
- ▶ Piling to be avoided but if required will be designed to minimise hydrogeological risk⁷ by using piling techniques that minimise disturbance and that also provide good seals.

4.4.6 Risk Matrix

4.4.6.1 The risk matrix combines the likelihood of a hazard event occurring with the consequence of the event to derive an overall risk (negligible, low, medium, high and severe). The likelihood and consequence categories are summarised in Table 4.4 and 4.5 respectively and the combined risk table is set out in Table 4.6 and individual hazards are then assessed using this risk matrix.

4.4.6.2 The likelihood of an event is ranked using criteria developed by Amec Foster Wheeler in relation to applied to catchment risk assessment in the Water industry and so relate to experience within the Water Industry and with individual water companies. The consequences used are in the context of the Lord of the Manor source which has been identified as the one key receptor.

⁷ *Piling and Preventative Ground Improvement Methods on Land Affected by Contamination: guidance on Pollution Prevention* (National Groundwater and Contaminated Land Centre report NC/99/73) and *Piling into contaminated sites* (Environment Agency publication).

Table 4.4 Likelihood criteria

	Likelihood					
	1	2	3	4	5	6
	Remote	Likely	Unlikely	Possible	Likely	Highly Likely
Historical	Unheard of in the water industry	Has occurred one or twice in the water industry	Has occurred many times in the industry.	Has been experienced once or twice by a Water Company	Has occurred frequently in a Water Company's experience	Has occurred frequently at a particular location
Frequency: (Continuous Operation)	Once every 10,000 - 100,000 years at location	Once every 1,000 - 10,000 years at location	Once every 100 - 1,000 years at location	Once every 10 - 100 years at location	Once every 1 - 10 years at location	More than once a year at location or continuously
Probability: (Single Activity)	1 in 100,000 - 1,000,000	1 in 10,000 - 100,000	1 in 1,000 - 10,000	1 in 100 - 1,000	1 in 10 - 100	> 1 in 10

4.4.6.3 Consequences are also assessed in terms of the effect on the Lord of the Manor source and the effect of this source to continue to supply drinking water.

Table 4.5 Environmental Consequence of an Event

Consequence	Description
A	Catastrophic Large scale impact. Results in exceedance of drinking water standards in PWS borehole with the need to shut down supply or implement additional treatment. Long term/permanent impact.
B	Massive Large scale impact. Results in exceedance of drinking water standards in abstraction with the need to shut down supply or implement additional treatment.
C	Major Large Scale impact on the Chalk aquifer with major exceedance of water quality standards, and exceedance of drinking water standards. Long term (months/years) impact.
D	Moderate Moderate scale impact on Chalk Aquifer with some deterioration in water quality standards and drinking water standards. Potable abstractions need monitoring and may need to be taken out of supply. Medium term impact (weeks/months)
E	Minor Minor scale impact on Chalk aquifer with minor deterioration in water quality standards with low risk to groundwater abstractions. Medium term (weeks/months) impact
F	Slight Limited with little or no deterioration in water quality standards. Short term (days/weeks) impact.

4.4.6.4 The combination of likelihood and consequences leads to a qualitative assessment of the overall risk that is categorised from negligible to severe.

Table 4.6 Risk Matrix

Consequence	Likelihood					
	Remote	Highly Unlikely	Unlikely	Possible	Likely	Highly Likely
Catastrophic	Low	Medium	High	High	Severe	Severe
Massive	Low	Medium	Medium	High	High	Severe
Major	Negligible	Low	Medium	Medium	High	High
Moderate	Negligible	Low	Low	Medium	Medium	High
Minor	Negligible	Negligible	Negligible	Low	Medium	Medium
light	Negligible	Negligible	Negligible	Negligible	Low	Medium

4.4.7 Results

4.4.7.1 The combined risk table set out in Table 4.6 has been used to assess the individual hazards (as identified in Table 4.3). Details are given in Table 4.7. The assessment identifies that, without mitigation measures, a number of hazard events could result in a medium to severe risk to groundwater receptors i.e. the Lord of the Manor source.

Table 4.7 Determination of hydrogeological risks

Potential Source		Likelihood	Consequence	Risk	Mitigation	Revised Likelihood	Residual Risk
Activities associated with the long term operation of the airport							
Water Treatment Facility	Leakage from on-site waste water lagoon and treatment plant.	Possible	Moderate	Medium	Lagoons constructed to high standards and monitored. Discharge of treated water and clean water to Pegwell Bay rather than to ground with appropriate monitoring of water quality;	Highly unlikely	Negligible
Fuel Storage	Leakage from Fuel Storage tanks.						
	- aviation fuel	Possible	Massive	High	All storage tanks will be appropriately designed to current standards (e.g. double skinned, banded etc.) design of required tank bunds to provide 110 per cent storage capacity based on largest tank capacity with allowance for 1:100 rainfall event.	Highly unlikely	Medium
	- other chemicals e.g. de-icer	Possible	Moderate	Medium		Highly unlikely	Low
Re-fuelling	Spillage during re-fuelling	Likely	Minor	Medium	Re-fuelling be to in designated areas with active drainage areas with fuel interceptors: use of control levels and alarms to identify leaks or overflows etc.	Highly unlikely	Negligible
De-icing storage and use	De-icing chemical storage and application to planes, runway and taxiways	Highly likely	Moderate	High	Application in designated areas with active drainage areas where run-off is lead to water treatment lagoons.	Unlikely	Low
Drainage system including car parks	Pollution of and leakage from the drainage network.	Possible	Minor	Low	Drainage will be upgraded to modern standards and all flow collected in appropriately sized attenuation pond(s) and treated prior to discharge off site. Facilities will allow the interception and segregation of contaminated water and cleaner water (e.g. roof run-off). Ponds will be monitored for possible leakage.	Unlikely	Negligible
Foul Drainage	Leakage from foul sewer connections	Unlikely	Minor	Negligible	All foul drainage pipework to be surveyed to allow the identification of leaks/failures; these will repaired to meet modern standards.	Highly unlikely	Negligible
Emergency Water Use/fire-fighting	Fire water disposal.	Possible	Minor	Low	Application in designated areas with active drainage areas where run-off is lead to water treatment lagoons.	Unlikely	Negligible
Fire-fighting training	Spillage from fire-fighting training ground	Possible	Moderate	Medium	Fire-fighting training ground will be appropriately sized, using a lined (impermeable base) hardstanding and with a perimeter bund.	Unlikely	Low
Pesticide application	Application to free draining areas	Unlikely	Moderate	Low	Pesticides only applied to hardstanding areas with active drainage to water treatment works.	Highly unlikely	Negligible
The site has been used as a military airbase in the past century and light industrial activities linked to the operation of the site (engineering works, munitions , burning of petrol along the runway, fuel pipes, waste oil tanks, use and storage of Pyrene runway foam, burning ground area and fire-fighting activities, fuelling and cleaning of aircrafts/helicopters, use of de-icing chemicals, waste storage areas, acid pits, substations and transformers etc.) may have produced historic ground contamination at the site.	Possible vertical and lateral pathways would be generated between aquifers during SI work and earth and groundworks during demolition and construction mobilising contaminants into the Chalk aquifer	Possible	Moderate	Medium	Water table deep (>30m below ground level) and earthworks are expected to be in dry material. No new deep boreholes to be constructed. Ground investigations and remediation (as required) will be completed (prior to the site being redeveloped/constructed). If saturated material encountered then this will contained and if contaminated remediated as appropriate.	Highly unlikely	Low
Made Ground perched groundwater may be polluted by overlying contaminated ground	Creation of vertical groundwater pathways between aquifers through piled foundations, other deep structures and excavations.	Unlikely	Minor	Negligible	Deep excavation and piling will be minimised	Highly unlikely	Negligible
Any perched water in the Thanet Formation may be of poor quality	Mobilisation of poor quality groundwater within the Made Ground or Thanet Formation by SI work.	Unlikely	Minor	Negligible	If saturated material encountered then this will contained and if contaminated remediated as appropriate.	Highly unlikely	Negligible

- 4.4.7.2 The risk have been re-assessed following the implementation of any mitigation measures thus leading to a residual risk. After mitigation measures the risk for the majority of hazard events are low or negligible, with the exception of possible leakage from aviation fuel tanks which remains as a medium risk.
- 4.4.7.3 The Environment Agency guidelines indicated that they will agree to such storage in principal and secondary aquifers outside an SPZ1 provided there is evidence of overriding reasons why the:
- ▶ activity cannot take place within unproductive strata; and
 - ▶ storage must be underground (for example public safety), in which case it is expected that the risks are appropriately mitigated. For Manston discussions with the EA they have indicated their preference for storage to be above ground.
- 4.4.7.4 Where such storage already exists (as in the case of the potential use of the existing Jentex site) the Environment Agency “will work with operators to assess and if necessary mitigate the risks, including an aim to change to above ground storage”.
- 4.4.7.5 For all storage of pollutants underground (hazardous substances and non-hazardous pollutants), the Environment Agency expects operators to adopt appropriate engineering standards and have effective management systems in place. These should take into account the nature and volume of the materials stored and the sensitivity of groundwater, including the location with respect to SPZs.
- 4.4.7.6 These aspects will be taken in to consideration in the design of new facilities and the risk from leakage from fuel tanks could further be reduced by:
- a) regular inspection of tanks and operating facilities and tank integrity monitoring programme would be required;
 - b) tanks with vent/overflow outlets directed to the emergency spillage containment tank and then a tertiary containment gallery regular inspection of bunds and impermeable surfaces;
 - c) implementation of strict fuel delivery and control systems; and
 - d) detailed emergency response procedure in the event of a failure.
- 4.4.7.7 Although residual effects are considered for the temporary works during the construction phase a CoCP will be produced to manage activities during construction, and it is expected that an Environmental Management plan (EMP) will be produced for the operation of the Project. Mitigation measures will be outlined in the CoCP,
- 4.4.7.8 The Environmental Management Plan and FRA should aim to ensure that the EA’s objective of “Good Status by 2027” for the Kent Isle of Thanet Chalk Water Framework Directive (WFD) groundwater body is not compromised.
- 4.4.7.9 Consideration of the hydrogeological risks at this stage, before the Project layout design has been finalised, allows designers to incorporate mitigation measures to minimise the groundwater risks from the Manton Airport development.

5. Conclusions

5.1 Site setting and history

- 5.1.1.1 Manston airport has been an airport for approximately 100 years with the level of activity increasing significantly from WWII. The airport has not been active since 2014. The adjacent Lord of the Manor source dates from the 19th Century and the western adit was built in 1923.
- 5.1.1.2 The Manston site is located over the Thanet Chalk Block which has been the subject to a number of hydrogeological studies and therefore the conceptual groundwater environment is understood with some confidence.
- 5.1.1.3 Groundwater flow in the Thanet Block is approximately radial from with flow broadly from north to south under Manston Airport towards Pegwell Bay.
- 5.1.1.4 The main issue across the Thanet Block is that current groundwater quality does not meet drinking water standards due to the high level of nitrate therefore treatment is required.
- 5.1.1.5 Water quality records show suggest that there is a low level of infrequent contamination from solvents and pesticides but records do not identify either a significant or persistent contamination that can be attributed entirely too past activities at the airport. It is possible however that some incidents may have gone unrecorded. Some small levels of residual contamination leading to low concentrations TCE when water levels are a high has been identified.
- 5.1.1.6 The Southern Water Lord of the Manor source, together with three others sources are the sole supply of drinking water in Thanet and therefore has a high strategic importance.
- 5.1.1.7 The Source Protection Zone (SPZ) associated with Lord of the Manor source extends to include the Manston site and the presence of a western adit that runs approximately along the line of the runway, leads to an extension of the SPZ1 into this area.
- 5.1.1.8 The adit will result in the majority of the groundwater flowing from the north to be captured by the source. Any contamination of the groundwater by activities to the north, including across the Manston site and the wider catchment may result in poor water quality at the Lord of The Manor.
- 5.1.1.9 Give the location of the site, its proximity to the Lord of the Manor source and adit and the strategic important of the source then a hydrogeological risk assessment has been undertaken.

5.2 Hydrogeological Risk Assessment

- 5.2.1.1 A qualitative risk assessment has been undertaken for the Manston Airport development in relation to groundwater. There are no surface water courses although this has been examined as part of a separate FRA. The assessment first summarised the geology, hydrology and hydrogeology. This information is used to develop a conceptual site model that identifies the potential sources of contamination, pathways and receptors.
- 5.2.1.2 Consultation has taken place with the EA and Southern Water to confirm the conceptual model and the likely hazards.
- 5.2.1.3 The risk assessment assumes that no new potentially polluting activities will occur in the SPZ1. The hazards assessed are all assessed as potentially occurring in SPZ2.
- 5.2.1.4 The hydrogeological risk assessment has identified those hazard events that could result in a release of contaminants to the environment, the consequence of the release and the likelihood of the event occurring. A number of significant hazard events have been identified and for each an appropriate set of mitigation measures (safeguards) have been proposed such that the residual risk is concluded to be low or negligible.

- 5.2.1.5 The exception is a hazard event associated with failure of aviation fuel tanks which coincides with a failure of a bund and/or impermeable surface. However, although the likelihood of this event is considered to highly unlikely, the consequences are considered to be massive therefore the risk is assessed as Medium.
- 5.2.1.6 The risk could further be reduced by:
- ▶ regular inspection of tanks and operating facilities and tank integrity monitoring programme would be required;
 - ▶ tanks with vent/overflow outlets directed to the emergency spillage containment tank and then a tertiary containment gallery regular inspection of bunds and impermeable surfaces;
 - ▶ implementation of strict fuel delivery and control systems; and
 - ▶ detailed emergency response procedure in the event of a failure.

5.3 Summary

- 5.3.1.1 The past history of use of the site as an airport does not appear to have resulted in any significant water quality issues therefore continued use of an airport employing modern environmental measures should ensure that future water quality issues may be minimal.
- 5.3.1.2 The new development will not result in any new activities that will introduce additional hazards. The application of modern standards, improved drainage and regular monitoring and maintenance will ensure that the risk to groundwater is low or negligible.
- 5.3.1.3 All development in the catchment area to this source should implemented to the highest standards to ensure that the risk of contamination is kept to a minimum. Appropriate training and awareness to be given to all staff involved in the development and construction.
- 5.3.1.4 The on-site storage of aviation fuel is identified as the one area of Medium risk and as such this aspect of the development should be subject to the most stringent controls.

6. References

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Appendix A

Minutes of meetings with Environment Agency and Southern Water

Minutes

Date: Monday 7 November 10.00

Meeting at: The Environment Agency, Orchard House, Endeavour Park, London Road, Addington, Kent, ME19 5SH

Subject / purpose:

38199 - Manston Airport DCO EIA – Baseline Data Collection Methodology and PEIR Meeting

Attendees:

Jennifer Wilson (JW) – Environment Agency (EA)
Lisa Westcott (LW) – EA

Apologies:

Suzanne Burgoyne - AFW

Oliver Gardner (OG) – Amec Foster Wheeler (AFW)
Tim Haines (TH) – AFW
Barry Mitchson (MB) – AFW

Minutes:

Action by:

- 1 Introduction were made and OG thanked all for attendance. OG gave an overview of the project, the role of Amec Foster Wheeler, the RiverOak proposals for Manston Airport, and the current programme for the DCO.

Work has commenced on the baseline surveys and the preparation of the Preliminary Environmental Information Report (PEIR), currently programme is for PEIR to be completed Q1 with the six weeks statutory consultation to follow.

Access to the site has still not been agreed, but RiverOak are in discussions with PINS and the landowner over access for the environmental surveys.

- 2 OG thanks EA for the response to the scoping report and the Scoping Opinion. AFW welcome an on-going dialogue with the EA and other consultees over the scope of the assessment through the project in order to ensure that the EIA is focused on the potentially significant effects.
- 3 TH and LW led a discussion around Groundwater; it was recognised that the EA, Southern Water (SW) and RiverOak have the same aims, that the proposed development does not make the situation on site any worse, and that improvements are included in the development to achieve environmental benefits.

There was a brief discussion on the groundwater baseline on site:

The site is above the Thanet Chalk aquifer, there is an adit at approx. 0m AOD (40-50m BGL) below the runway which feeds the Lord of the Manor (LOM) public water supply borehole located to the southeast of the airport. Recharge is known to be very rapid to the Thanet Chalk, matter of hours and days but is variable. The rate of recharge under Manston is not known. .

Primary concern is the water quality; issues across the Thanet Chalk are with nitrates (persistent issue), solvents and pesticides (both intermittent). This is also true for the LOM source. LW stated that it wasn't known if there was a historic issue with hydrocarbons as SW didn't provide any information on these, BM/TH stated that if they were present in large quantities it would be possible to smell and/or taste them and so SW would be aware if there was an issue.

EA stated RiverOak would need to ensure that the proposed development did not make the quality issues worse. It was acknowledged that there was another large adit to the east feeding LOM from the area below Ramsgate, which may also contribute to poor water quality.

It was acknowledge due to the rapid recharge rate for the aquifer that the 30-40m of unsaturated zone should not be taken as providing a high level of protection; but also that with the likely fast travel times (especially along the adit) then any pollution reaching the water table may have passed through to LOM some time ago (unless it is persistent and/or ongoing).

It was agreed that the conceptual understanding of the site is well known and therefore there wasn't a need for any further work to establish this. Although the conceptual understanding will still need to be presented and discussed in any site report to ensure an accurate conceptual model (source, pathway, receptors) is established.

However the EA would need to understand the distribution of contaminants across the site so that future work didn't result in their mobilisation.

EA would not want to see intrusive works near the adit or within SPZ1, and acknowledge the desire of SW for the minimum level of intrusive work so as to avoid mobilising contaminants and creating pathways through the unsaturated zone. However some boreholes (in target areas) would be needed to the water table to see if any pollution/contamination is reaching the water table. The desk study and other site investigations will be used to inform the need for any boreholes; it was agreed to undertake further discussions in the future to establish what is suitable for intrusive investigations in different areas of the site.

AFW proposed using WQ data from SW and if needed additional samples from the source would be collected and analysed, possibly by SW, it was agreed that AFW should look into this option with SW. LH contact SW to request WQ data

- 4 BM led a discussion around Land Quality. AFW have completed desk studies and following a site visit will finalise the Phase 1 report. BM finalise Phase 1 report

This has identified potential sources of contaminated related to previous use as an airport, but BM stated in many years' experience working on former RAF sites rumours of buried aircraft and other heavily contaminated material where generally false.

BM proposed that AFW will undertake shallow investigations, trial pits for example, at the known potential sources of contamination in order to characterise the risk. But at this stage AFW not going to propose systematic grid across the site as there is a lot of historic information, including the MOD survey from the late 1990s and a targeted approach was more appropriate. BM also noted there may be a number of sources (such as glycols) which could be excluded at an early stage due to their high solubility and rapid degradation. JW/LW agreed to targeted investigations provide this was justified and agreed to review the scope of the site investigations; EA would want to see at least a preliminary risk assessment as part of the application.

BM to prepare scope of works for Phase 2 investigations

The EA would expect to see a plan for investigation work with a justification for why some things were not included (if that is the case).

BM to review East Kent Access Road SI data

LW discussed other potential sources on contamination within the vicinity of the site, these include the Jentex site, and a former petrol station in Cliffs End. LW also stated that phenols had been detected during the SI for the East Kent Access Road to the south of the airport but that the source was unknown, BM stated these unlikely to be related to the airport but that AFW will review information from this development in the phase 1.

- 5 OG stated that work on refining the airport master plan is ongoing, although the overall scale of development will be similar to that shown in the scoping report. The development will be phased with initial work aimed at putting in new taxiway and sufficient aprons/stands/hangers for first phase of operation. The drainage and water treatment network would be done during the first stage.

OG to feedback design issues to RPS

OG stated that RiverOak at looking at different options for the location of a new fuel farm for the airport. These include the Jentex Fuels site located to the southeast of the airport; although RiverOak will need to look into costs and implications of remediation and/or construction at this site. EA stated that this site has long been a concern, especially given the location close to the SPZ; the EA would be unlikely to approve site for bulk fuel storage due to location within SPZ1.

EA stated that they would request that any fuel tanks located anywhere on site are to be located above ground, TH stated that it was common practice now to use buried tanks due to safety considerations. LW stated that there are precedents locally at Tesco where above ground fuel tanks have been required.

- 6 TH led a discussion on the proposals for surface drainage. The proposals are for all new areas, taxiways, aprons, aircraft stands and hangers, to be connected to drainage; two balancing ponds (one 'clean' and one 'dirty') with water treatment and

OG to feedback drainage design issues to RPS

interceptors/traps, discharge will be via the existing discharge to Pegwell Bay. OG stated that SW were also keen to be able to use the existing discharge to Pegwell Bay when they need to pump to waste from LOM they have to use tankers.

Any existing drainage, e.g. for runway, would be brought up to modern standards and connected to new system. OG stated that in early discussions with Southern Water they indicated they were not concerned about potential effects to the recharge rate to the aquifer, and they did not want to see any SuDS or similar schemes. Currently none are was proposed at this stage.

LW and JW stated concept was acceptable with following caveats:

- Ponds would need to be properly constructed with sufficient operational control measures
- Ensure 'dirty' water lagoon wasn't a potential source for odour
- Condition survey of pipe to Pegwell Bay, also check if there are any other connections to this pipe;
- New discharge consent would be needed (JW will contact EA consents team to discuss)
- Also need details of the operational procedure and controls to show the system will be properly managed
- EA would like to see water saving measures implemented, for example grey water use, re-use of run off from roofs.

The status of the former MOD foul sewer on site was unknown, AFW to check on status with SW and also ask for any information on the foul sewerage capacity on or in the vicinity of the site.

A WFD assessment might be required for discharge

- 7 There was a discussion on what work would be required as part of the DCO application and what documents/studies the EA would like to see.

As noted above AFW will undertake target intrusive investigations and produce a preliminary risk assessment with an outline/timeline for further investigations. EA are happy with this approach and will seek to secure conditions to the application for a programme of further intrusive investigation.

OG stated that a draft Construction Environmental Management Plan (CEMP) would be produced, but this would be high level given that construction was to be phased and that construction techniques would not be finalised; JB/LW agreed that at this stage a full CEMP wasn't needed and that the EA would seek to secure conditions to the application for a CEMP.

LW also stated that the DCO application should include sufficient information on the operational procedures for the airport, for example the use of pesticides to control insects, locations was de-

icing and washing of aircraft, emergency procedure and spill response.

- 8 OG said that AFW would like to work with the EA to prepare a Statement of Common Ground (SoCG); a draft template for the SoCG has been prepared and will be submitted to the EA for review.

OG draft SoCG

AFW will prepare minutes of meeting (MoM) for this and other meetings and submit to the EA for review comment. These MoM can then form the basis for the SoCG. All agreed to the benefit of this approach.

OG MoM

- 9 TH proposed that ongoing consultation would be via email and phone, with meetings held when there was reports/data to review. The next date will be a possible meeting to discuss the draft PEIR/baseline data.

JW requested that at the next meeting could the airport master planners (RPS) attend to present more detail on the plans and in particular the drainage strategy. OG stated they would be available and would attend.

It was agreed by all that a joint meeting with EA and Southern Water, once plans were sufficient well developed, would be of use.

Minutes

Date: Wednesday 22 February 2107 @ 11.00

M Southern House, Saprrowgrove,
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at:

Subject / purpose:

38199 - Manston Airport DCO EIA – Pre PEIR Consultation Meeting

Attendees:

Chris Neslon (CN) – Senior Technical Manager Southern Water
Marta Karpezo (MK) Development coordinator, Southern Water
John Moore (JM) – Hydrogeologist Southern Water
Tim Haines (TH) – Amec Foster Wheeler (AFW)
Geoff Dewick (GD)– RPS Planning & Development (RPS)

Apologies:

Stuart Ward – Southern Water

Minutes:

Action by:

1 Introductions were made and TH thanked all for attendance.

2 TH and GD gave an overview of the project, the role of Amec Foster Wheeler and RPS in the RiverOak proposals for Manston Airport, and the current programme for the DCO.

A scoping report had been issued for consultation in June 2016. It was noted that through some administrative oversight that Southern Water had not commented on the Scoping report, although earlier meeting between AFW and Southern Water had taken place. AFW will remind SW of the relevant references.

AFW to provide planning ref.

The PINS Scoping Opinion was received in August 2016.

Work has subsequently commenced on the baseline surveys and the preparation of the Preliminary Environmental Information Report (PEIR), currently programme is for the PEIR to be completed during Q2 2017, with six weeks statutory consultation to follow in early summer 2017.

As part of the PEIR work consultation was taking place with key stakeholders on those aspects identified as needing to be addresses. The groundwater impact and drainage aspects of the development are identified as important together with any potential land quality issues. Meetings have already taken place with the Environment Agency, and another meeting is planned for march 2017.

As RiverOak do not own the site access has been subject to separate negotiations and access was authorised by PINS under Section 53 of

the Planning Act 2008 in December 2016. A walk over survey took place on the 7-9 February 2017 and was conducted by AFW and RPS and included land quality and water teams. The authorisation from PINS allows for further access, if required, to do further environmental surveys.

- 3 GD explained that work on refining the airport master plan is ongoing, although the overall scale of development will be similar to that shown in the scoping report. The proposals and the work required was essentially reinstating the use as an airport so no significant change in use but new infrastructure would be required in order to allow the airport to handle, as a minimum, 10,000 air reflight traffic movements (flights) per year. The development would be over a number of phases driven by growth in use of the airport over a 20 year period. The initial phase would see a refurbishment of onsite infrastructure, installing a new taxiway and sufficient aprons/stands/hangers for first phase of operation. The drainage and water treatment network would be done during the first stage. Subsequent phasing would see additional hangars and freight handling facilities.

In the current area immediately to the north new light industry and commerce units associated with the airport would be developed as needed.

- 4 CN welcomed the opportunity to be briefed on proposed development. SW have been involved in discussions with two other separate development options for the site.

SW emphasised that the airport site required special consideration due to the presence of the western adit feeding the Lord of the Manor (LOM) source. The LOM source was one of few potable water supplies feeding North East Kent and water supplies in the area were limited and therefore any threat to the deployable output of this source would have serious implications.

Plans of the adit alignment and diagrams of the LOM pumping wells were handed over.

- 5 Hydrogeological Conceptual Model – it was agreed that given the level of previous studies that the overall conceptual model was well understood and that there was no requirement for any additional field investigations to improve the confidence in the conceptual understanding.

Primary concern is the water quality; issues across the Thanet Chalk are with nitrates (persistent issue), solvents and pesticides (both intermittent). This is also true for the LOM source. TH stated that it wasn't a historic and persistent issue with hydrocarbons and JM agreed given the absence of GAC treatment

TH mentioned that AFW were undertaking a separate piece of work for

SW (Mike Packman) on the definition of a Safeguard Zone for the LOM source. Mike had agreed that any relevant information and conclusions from that work could be used to inform the conceptual model for the hydrogeological risk assessment needed for the Manston development EIA.

A need for on-site fuel storage tanks was discussed. HSE guidance in light of the Buncefield incident is that below ground storage tanks were preferable. SW would not countenance below ground storage. TH indicated that this issue was known to the EA and they stated that there are precedents locally at Tesco where above ground fuel tanks have been required. However there may be size implications.

GD stated that RiverOak at looking at different options for the location of a new fuel farm for the airport. These could include the Jentex Fuels site located to the southeast of the airport which was previously used. The EA have indicated that this site may be a concern given the location close to the SPZ.

JM indicated that the current SPZ designation could not be regarded as definitive given the nature of flow through the Chalk but they would not want to see any new works in the area designated as SPZ 1.

JM said SW would not accept any intrusive works near the adit or within SPZ1, and emphasises the desire of SW for the minimum level of intrusive work so as to avoid mobilising contaminants and creating pathways through the unsaturated zone.

TH mentioned that the EA would be looking for a degree of land quality classification and this would require a degree of SI work and intrusive work.

CN hoped that the development would not suffer from a cumulative impact of all three potential developments doing separate SI programmes – would be better if one was done and the results shared.

6 GD led the wide ranging discussions on the existing and proposed surface water drainage. The main points were:

- Current drainage is considered to be positive with runway, hand standing and building drainage leading to an underground tank in the NW corner. Storm water is then collected and pumped to the western end of the runway and then gravity drains to the eastern end of the site to outfall via a 1200mm main to Pegwell Bay.
- The current drainage from the more recent passenger terminals and car part area is not known but is understood to connect via interceptors to the existing surface water network.
- The arrangement for foul sewerage from the site is not known and is assumed to be to the north. SW indicated that if a formal “capacity check” request is made then they could indicate if the local foul sewer has the capacity to meet future demands.

GD to submit capacity check request for foul sewer

GD to send plan of route of Pegwell

- GD mentioned the new sewer being installed to the SW of the site that it looks like it may cross the Pegwell main discharge pipe. GD to send details of the route of the latter to MK so that this can be checked. Bay discharge main
- Going forward the existing drainage network would be surveyed, repaired, upgrade or replaced as needed with water collected in an attenuation pond located on the north side of the site (again a topographic low) with an adjacent and linked treatment pond (e.g. aeration). From there water would be pumped the Pegwell Bay outfall main either directly or possibly using the existing route if the latter is appropriate.
- An important requirement will be to get a new discharge consent to Pegwell Bay
- All the drainage would be positive so in effect most of the rainfall/recharge across the site would be collected and drained off site. Discussion with the EA indicated that they would like to see more sustainable use of water, soakaways, green roofs, grey water recycling etc.
- CN note that normally they would put soakaways of roof drainage etc. as their preferred solution but given the special circumstance of this site they would not advocate the use of soakaways. MK said that water recycling would be acceptable.
- Existing areas of grass remain mostly untouched. There is possibility that some of the overly wide runway would be excavated to create some recycled aggregate for building work. SW would prefer the runway to be left alone give the proximity to the adit and high risk of water quality failure due to turbidity and if work was necessary then to be properly designed to ensure no damage to the adit due to ground shaking etc.
- The airport would have to have both firefighting facilities (hydrants etc.) and a fire fighting training area. It would need to be identified if this could be supplied by main water or if storage tanks are needed across the site. GD to put in a capacity check request with respect to the mains water supply. GD to submit capacity check request for mains water

CN indicated that SW would be comfortable with a design that captured all rainfall and runoff and took it off site.

BM proposed that AFW will undertake shallow investigations, trial pits for example, at the known potential sources of contamination in order to characterise the risk. But at this stage AFW are not going to propose systematic grid across the site as there is a lot of historic information, including the MOD survey from the late 1990s and a targeted approach was more appropriate. BM also noted there may be a number of sources (such as glycols) which could be excluded at an early stage due to their high solubility and rapid degradation. JW/LW agreed to targeted investigations provide this was justified and agreed to review the scope of the site investigations; EA would want to see at least a preliminary risk assessment as part of the application.

The EA would expect to see a plan for investigation work with a justification for why some things were not included (if that is the case).

LW discussed other potential sources on contamination within the vicinity of the site, these include the Jentex site, and a former petrol station in Cliffs End. LW also stated that phenols had been detected during the SI for the East Kent Access Road to the south of the airport but that the source was unknown, BM stated these unlikely to be related to the airport but that AFW will review information from this development as part of the Land Quality Phase 1 assessment.

- 7 The forthcoming PEIR document is to provide preliminary environmental information for the statutory (Section 42 of the Planning Act) consultations, and also to reflect the current round of consultation and to scope the development so the number of potential issues are reduced and therefore the breath of the subsequent EIA can be limited to those remaining issues with a potential significant effect.

The views of SW would influence the development and the details put forward. There will be further iteration with the EA and possibly is advantageous a three way meeting with AFW/EA/SW.

CN supported a meeting and confirmed that the minutes of this meeting could be shared with the EA.

As part of the DCO application AFW will undertake target intrusive investigations and produce a preliminary risk assessment with an outline/timeline for further investigations. The EA were happy with this approach and will seek to secure conditions to the application for a programme of further intrusive investigation.

The DCO application will include sufficient information on the operational procedures for the airport, for example the use of pesticides to control insects, locations was de-icing and washing of aircraft, emergency procedure and spill response.

- 8 A brief discussion was had on the works during development:

- GD explained that to add the new taxi-way and aircraft stands and to meet aviation regulations some land raising was necessary to flatten the gradient. This would be a cut and fill exercise. CN indicated that such work would have to demonstrate no risk to the adit (i.e. no increase in turbidity of the water).
- Geotechnical SI work will be required of new building/foundations. At this stage the need for piling was not known. CN emphasised the need for any piling methods to minimise ground disturbance
- SI for land quality assessment will be as least intrusive as possible (subject to any requirements form the EA).
- Long-term requisite surveillance may be required by the EA but

the need for this will be the subject of further discussions.

- 9 TH said that AFW would like to work with SW to prepare a Statement of Common Ground (SoCG); a draft template for the SoCG has been prepared and will be provided once these minutes had been finalised. AFW to draft SoCG

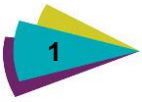
10 AOB

TH mentioned next meeting with EA is on 6th March and the discharge to Pegwell Bay would be on the agenda.

The possible use of the existing discharge pipe to Pegwell Pay by SW when they need to pump to waste from LOM remains something to be considered.

It was agreed by all that a joint meeting with EA and Southern Water, once plans were sufficient well developed, would be of use.





Appendix 9.1 Designated Heritage Assets within the Search Area

Table 9.1.1 Scheduled Monuments

List Entry	Design UID	Object ID	Name
1004203	DKE19220	24	Enclosure and ring ditches 200yds (180m) ENE of Minster Laundry
1004228	DKE19214	3	Anglo-Saxon cemetery S of Ozengell Grange

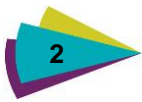


Table 9.1.2 Listed Buildings

HER UID	Mon UID	Object ID	Name	Monument Type
TR 36 NE 2108	MKE34726	25597	Ozengell Grange	Site, House, Outbuilding, Date Stone
TR 36 NE 2247	MKE35332	24890	Barn About 50 Metres East of Ozengell Grange	Site, Timber Framed Barn, Tithe Barn, Aisled Barn
TR 36 NE 2379	MKE34789	24863	Barn at Preston Farm (Tr 3507 6686)	Site, Timber Framed Barn, Aisled Barn
TR 36 NW 22	MKE34788	25656	Remains of Monastic Building, Now Outbuilding	Site, First Floor Hall House, Outbuilding, Augustinian Grange
TR 36 NW 229	MKE35294	24854	Manston Court and Wall Adjacent	Site, House, Wall
TR 36 NW 522	MKE35037	25244	Wayborough Manor	House, Site, Jettied House, Courtyard, Arch
TR 36 NW 552	MKE97770	77981	Manston War Memorial	War Memorial (Freestanding)
TR 36 NW 1012	MKE35293	24853	Old Forge House	Site, House, Date Stone
TR 36 NW 1013	MKE35152	25348	Way House and Wayborough House, And Garden Wall Attached	Site, Timber Framed House, House, Garden Wall, Outbuilding
TR 36 NW 1015	MKE34790	25657	Barn at Manston Green	Site, Timber Framed Barn, Aisled Barn, Barn
TR 36 NW 1018	MKE34786	25654	Grove Farmhouse and Walled Front Garden	Site, House, Steps, Garden Wall
TR 36 NW 1031	MKE35295	24862	Granary About 25 Metres South of Manston Court Farmhouse	Site, Granary, Timber Framed Building, Staddle Stone
TR 36 NW 1046	MKE35034	25246	Prospect Inn	Site, Public House, Public House, Conservatory
TR 36 NW 1049	MKE35036	25248	Tudor Cottage, Way Hill	Site, Jettied House, House
TR 36 NW 1052	MKE35040	10393	Cleve Court and Cleve Lodge	House, Site, Service Wing, Timber Framed Building, Steps
TR 36 NW 1055	MKE34922	25140	Flete Lodge	Site, House
TR 36 NW 1060	MKE34998	11047	Cheeseman's Farm	Site, Farmhouse
TR 36 SE 753	MKE97772	77983	Eastern of two Concrete Second World War 4-inch gun emplacements, Little Cliffsend Farm	Coast Battery Gun Site
TR 36 SW 162	MKE34758	25628	53 And 55 Foad's Lane	Site, House
TR 36 SW 171	MKE35151	25245	Rose Cottage	Site, End Jetty House
TR 36 SW 179	MKE35035	25247	Bay Tree Cottage	Site, House, Date Stone, Plaque
TR 36 SW 180	MKE35027	25235	Rose Cottage and Pansy Cottage	Site, House, Laundry, Bakehouse



HER UID	Mon UID	Object ID	Name	Monument Type
TR 36 SW 182	MKE35025	25233	Psalm Cottage	Site, House
TR 36 SW 183	MKE35024	15463	Chapel House	Chapel, House, Site, Undercroft



Table 9.1.3 Conservation Areas

Object ID	Name	Area (ha)
445	Acol Conservation Area	38814.74

Table 9.1.4 Protected Military Remains

Design UID	Object ID	Name
DKE20136	123	ME109
DKE20248	235	BB893
DKE21799	952	Crash site of Messerschmitt Bf109E-4
DKE21805	946	Crash site of Heinkel HE 111H-2
DKE21806	945	Crash site of Messerschmitt BF110D
DKE21807	944	Crash site of Messerschmitt BF110D
DKE21808	943	Crash site of Supermarine Spitfire I
DKE21809	942	Crash site of Supermarine Spitfire I
DKE21823	929	Crash site of Bristol Blenheim
DKE21825	927	Crash site of Consolidated B24H Liberator
DKE21826	926	Crash site of Consolidated B24J Liberator
DKE21827	925	Crash site of Hawker Typhoon IB
DKE21828	924	Crash site of Hawker Typhoon IB
DKE21829	936	Crash site of Heinkel HE111H-2



Appendix 9.2 Historic Environment Record Data and Historic England Archive

Table 9.2.1 Kent County Council Historic Environment Record Data: Events (Point Data)

Event UID	Object ID	Name	Organisation	Event Type
EKE3995	303-304	Thanet Gas Pipeline, Phase 1	Canterbury Archaeological Trust	Excavation
EKE4199	888-895	Monkton Gas Pipeline: Phases III - IV	(Isle of)Thanet Archaeological Unit	Evaluation
EKE4847	426	Desk based assessment of the Kent International Business Park	Trust for Thanet Archaeology	Desk Based Assessment
EKE5692	7433-7434	Watching Brief on Margate & Broadstairs WTW Enhancement Scheme	Wessex Archaeology	Watching Brief
EKE8121	2211-2212	Monkton to Mount Pleasant (A253 Duelling)	Canterbury Archaeological Trust	Excavation
EKE8122	2213	Evaluation at Laundry Road, Minster	Isle of Thanet Archaeological Unit	Evaluation
EKE8123	2214	Excavation of a Beaker Burial From Manston	Isle of Thanet Archaeological Unit	Excavation
EKE8342	2935	Evaluation on Land Adjacent to No.6 Laundry Road, Minster, Thanet	Trust for Thanet Archaeology	Evaluation
EKE8386	2977	Chalk Hill palaeoenvironmental assessment (geotechnical survey)	ArchaeoScape Consulting	Borehole Survey
EKE8388	2981	Excavation at Kent International Park, Manston 1997	Trust for Thanet Archaeology	Excavation
EKE8420	3014	Evaluation at Ramsgate Harbour Approach Road, Ramsgate	Canterbury Archaeological Trust	Evaluation
EKE8863	2401	Watching brief at Manston Court Farm, Manston, Thanet	Canterbury Archaeological Trust	Watching Brief
EKE11465	3458	Geotechnical work at Manston Airport	Foundation and Exploration Services	Geotechnical Survey



Event UID	Object ID	Name	Organisation	Event Type
EKE11565	5337	Desk based assessment of Oaklands Nursery site, Cliffsend	Trust for Thanet Archaeology	Desk Based Assessment
EKE11819	5876	Geotechnical survey at Westwood Industrial Estate, Manston Road, Ramsgate	Kent Site Investigation Ltd	Geotechnical Survey
EKE11851	5897	Watching brief at Bradgate Caravan Park, Manston Court Road, Margate	Trust for Thanet Archaeology	Watching Brief
EKE11900	5997-6006	Geotechnical survey at the proposed NHS Medical Centre, Manston Road, Ramsgate	Ashdown Site Investigation Ltd	Geotechnical Survey
EKE12049	6129	Desk based assessment of a proposed EDF Substation, Manston	Museum of London Archaeology	Desk Based Assessment
EKE12055	6133	Survey of buildings at Grove Farm, Manston	Trust for Thanet Archaeology	Building Survey
EKE12117	6234	Desk based assessment of land at Spratling Court Farm, Spratling Street, Manston	Trust for Thanet Archaeology	Desk Based Assessment
EKE12141	4082	Watching brief on land adjacent to 19 Mount Green Avenue, Cliffsend	Trust for Thanet Archaeology	Watching Brief
EKE12156	3437	Watching brief on land adjacent to Martrice, Windsor Road, Cliffsend	Trust for Thanet Archaeology	Watching Brief
EKE12183	3680	Desk based assessment of the proposed wind turbine installation at the Tesco Superstore, Manston	Trust for Thanet Archaeology	Desk Based Assessment
EKE12291	6338	Building survey of a pillbox on Manston Road allotments, Ramsgate	The Historic Environment Consultancy	Building Survey
EKE12316	6344-6354 and 6356-6357	Watching brief on geotechnical test pits on the East Kent Access route	Trust for Thanet Archaeology	Watching Brief
EKE12477	6566	Watching brief on an extension to the Reclamet Recycling Centre, Woodchurch Road, Woodchurch	Trust for Thanet Archaeology	Watching Brief
EKE12790	2262-2266	Building survey of buildings at Manston Court Farm	Holt and Wooton Ltd	Building Survey
EKE12835	6812	Watching brief at Columbus Avenue, Manston Park	Swale and Thames Archaeological Survey Company	Watching Brief, Evaluation



Event UID	Object ID	Name	Organisation	Event Type
EKE12956	6999	Excavations of an Iron Age pit and a Roman cave, Spratling Court Farm chalk pit, Manston	Colin A. Baker	Excavation
EKE13030	7205	Watching brief of land south of Great West Autos, Manston Court Road, Ramsgate	Swale and Thames Archaeological Survey Company	Watching Brief
EKE13054	7243	Watching brief at Bradgate Caravan Park, Manston Court Road, near Manston	Trust for Thanet Archaeology	Watching Brief
EKE13134	7618	Survey of a Second World War air raid shelter, Manston Airport	Kent Underground Research Group	Field Survey
EKE13190	8150	Survey of features in the cliff face, Pegwell Bay	A J Daniels	Field Survey
EKE13300	8285	Desk based assessment of Thorne Farm	Wardell Armstrong Consulting Group	Desk Based Assessment
EKE13405	8936	Margate and Broadstairs Urban Wastewater Treatment Scheme excavation phase	Wessex Archaeology	Excavation
EKE13406	8937	Watching brief during pipe installation, Margate to Broadstairs (2005)	Wessex Archaeology	Excavation
EKE13537	9143	A256 East Kent Access Route, Desktop Assessment	Oxford Archaeology	Desk Based Assessment
EKE13950	10015	Erection of a detached bungalow, land adjacent to Bay View, Windsor Road, Ramsgate, Kent	Trust for Thanet Archaeology	Watching Brief
EKE14830	10100-10101	Two palaeolithic test-pits excavated at The Loop, Manston, 2013	University of Southampton	Test Pit
EKE14878	10134	The Dump, Manston Road, Margate, Watching Brief	Trust for Thanet Archaeology	Watching Brief
EKE14991	10194	Little Cliffsend Farmhouse, Chalk Hill CT12 5HA, Statement of Heritage Significance	Architectural Archaeology	Building Survey, Desk Based Assessment
EKE15385	10393	Watching brief conducted at Crabapple Farm Stables, Woodchurch Road, Birchington, Kent.	Trust for Thanet Archaeology	Watching Brief



Table 9.2.2 Kent County Council Historic Environment Record Data: Events (Linear Data)

Event UID	Object ID	Record Type	Name	Organisation	Event Type
EKE8131	201	Intrusive	Watching Brief on the Sparrow Castle - Manston Water Pipeline	Trust for Thanet Archaeology	Watching Brief
EKE11490	111	Non-intrusive	Desk based assessment of the Margate-Weatherlees Hill Sludge Transfer Pipeline	Wessex Archaeology	Desk Based Assessment
EKE11491	112	Non-intrusive	Geophysical survey of the Margate-Weatherlees Hill Sludge Transfer Pipeline route	GSB Prospection	Geophysical Survey
EKE11619	126	Intrusive	Excavation along a pipeline between Deal and Ramsgate, Sandwich Bay	Wessex Archaeology	Excavation
EKE11864	134	Intrusive	First phase of a watching brief on the Fleete Reservoir to Haine Hospital section of the Thanet Water Supply Strategy Fleete-Rumsfields Water Main	Wessex Archaeology	Watching Brief
EKE13336	272	Intrusive	Excavation of area prior to pipe installation, Margate to Broadstairs (2005)	Wessex Archaeology	Excavation
EKE13367	318-334	Intrusive	Archaeological evaluation at Thorne Farm, Kent (2013)	Wardell Armstrong Consulting Group	Evaluation
EKE13402	415-419	Intrusive	Archaeological investigation of land south of Preston Road, Manston, Kent	Swale and Thames Archaeological Survey Company	Watching Brief
EKE13914	650	Non-intrusive	Desk-based assessment for the China Gateway site, Manston, 2008	Scott Wilson Kirkpatrick & Co Ltd.	Desk Based Assessment
EKE14600	735-77	Intrusive	Archaeological Evaluation Report: Land at Manston Green (Ozengell Grange) Haine Road, Ramsgate, Kent	Archaeology South-East	Trial Trench
EWX8094	247	Non-intrusive	North Kent Coast Rapid Coastal Zone Assessment Survey Phase II: Field Assessment (Pilot)	Wessex Archaeology	Photographic Survey
EWX8626	248	Non-intrusive	Assessment Survey, North Kent Coastal Zone: Phase II, Year Two	Wessex Archaeology	Field Observation (Visual Assessment)

Table 9.2.3 Kent County Council Historic Environment Record Data: Events (Area Data)

Event UID	Object ID	Record Type	Name	Organisation	Event Type
EKE4219	1983	INT	Excavation at Lord of the Manor	(Isle of)Thanet Archaeological Unit	Excavation
EKE4663	2368	INT	Rescue excavation at Ozengell/Lord of the Manor	Trust for Thanet Archaeology	Rescue Excavation
EKE4863	2434	INT	Evaluation of the Nethercourt Estate	Trust for Thanet Archaeology	Evaluation
EKE5863	2989	INT	Watching Brief at Manston Airport, Manston	Trust for Thanet Archaeology	Watching Brief
EKE8120	3112	NON	Geophysical Survey for Proposed Improvements to A253, Minster and Monkton, Thanet	Clark Laboratory	Geophysical Survey
EKE8140	2415	INT	Evaluation at Spratling Court Farm, Manston	Trust for Thanet Archaeology	Evaluation
EKE8291	3169	INT	Evaluation at Kent International Business Park, Manston	Trust for Thanet Archaeology	Evaluation
EKE8292	3170	INT	Evaluation at Kent International Business Park, Manston	Trust for Thanet Archaeology	Evaluation
EKE8387	3212	INT	Archaeological work at the Kent International Business Park, Manston, Thanet	Trust for Thanet Archaeology	Evaluation
EKE8388	1590	INT	Excavation at Kent International Park, Manston 1997	Trust for Thanet Archaeology	Excavation
EKE8652	3326	INT	Watching Brief at Laundry Hill Business Park, Minster, Thanet	Trust for Thanet Archaeology	Watching Brief
EKE8863	2062	INT	Watching brief at Manston Court Farm, Manston, Thanet	Canterbury Archaeological Trust	Watching Brief
EKE9331	3431	INT	Evaluation on land between Queensdown Road and Woodchurch Road, Margate	Swale and Thames Archaeological Survey Company	Evaluation
EKE9356	3443	INT	Evaluation of land adjacent to 19 Mount Green Avenue, Cliffsend, Ramsgate	Trust for Thanet Archaeology	Evaluation
EKE9368	925	INT	Evaluation at the former allotments site, Manston Road, Ramsgate	Archaeology South-East	Evaluation



Event UID	Object ID	Record Type	Name	Organisation	Event Type
EKE9614	3908	INT	Tesco Site, Manston Road, Ramsgate, Kent, Archaeological Evaluation 1995	Wessex Archaeology	Evaluation
EKE9955	5733	INT	Excavation at Cliffs End Farm, Ramsgate	Wessex Archaeology	Excavation
EKE10061	197	INT	Archaeological Evaluation at Manston Park Bungalows, Manston Park, Manston, Thanet	Trust for Thanet Archaeology	Evaluation
EKE10278	6816	NON	Historic Environment of the North Kent Coast: Rapid Coastal Zone Assessment Survey	Wessex Archaeology	Desk Based Assessment
EKE10352	213-215	INT	Excavation of Tesco Site, Manston Road, Ramsgate, Kent	Wessex Archaeology	Excavation
EKE10436	931	INT	An evaluation at Manston Road, Ramsgate	Trust for Thanet Archaeology	Evaluation
EKE11134	2133	INT	Investigations of land at Columbus Avenue, Manston Park, Manston, Thanet	Swale and Thames Archaeological Survey Company	Watching Brief
EKE11145	72	INT	Watching brief at the former Haine Road Garage, Haine Road, Ramsgate	Canterbury Archaeological Trust	Watching Brief
EKE11152	1026	INT	Watching brief of land to the rear of 75 High Street, Minster, Thanet	Thames Valley Archaeological Services	Watching Brief
EKE11162	1618	INT	Watching brief at Cummins Factory, Columbus Avenue, Manston Park, Manston	Museum of London Archaeology	Watching Brief
EKE11180	1921	INT	Watching brief on groundworks for 17 caravan spaces at Wayside Caravan Park, Way Hill, Minster	Trust for Thanet Archaeology	Watching Brief
EKE11204	953	INT	Watching brief on land adjoining 12 St. Catherine's Grove, Manston	Trust for Thanet Archaeology	Watching Brief
EKE11272	384	INT	Evaluation at 42 Tothill Street, Minster-in-Thanet	Trust for Thanet Archaeology	Evaluation
EKE11477	1982	INT	Lord of the Manor I Excavation	Trust for Thanet Archaeology	Excavation
EKE11491	542	NON	Geophysical survey of the Margate-Weatherlees Hill Sludge Transfer Pipeline route	GSB Prospection	Geophysical Survey



Event UID	Object ID	Record Type	Name	Organisation	Event Type
EKE11501	1960	INT	Evaluation for the A253 from Monkton to Minster	Trust for Thanet Archaeology	Evaluation
EKE11566	311	INT	Evaluation at the Oaklands Nursery site, Cliffsend	Trust for Thanet Archaeology	Evaluation
EKE11793	1231	INT	Evaluation of passenger and cargo side taxiways and aprons, Manston Airport	Trust for Thanet Archaeology	Evaluation
EKE11830	1078	INT	Evaluation at Queensdown Riding and Livery Centre, Castlemayne Avenue, Woodchurch, Thanet	Trust for Thanet Archaeology	Evaluation
EKE11835	1236	INT	Evaluation of land north of Westgate Avenue and north east of Woodchurch Road, Woodchurch	Trust for Thanet Archaeology	Evaluation
EKE11845	1926	INT	Evaluation at the Hanger, The Loop, Manston	Trust for Thanet Archaeology	Evaluation
EKE11850	97	INT	Evaluation at Bradgate Caravan Park, Manston Court Road, Margate	Trust for Thanet Archaeology	Evaluation
EKE11899	1951	INT	Evaluation at 26 Clive Road, Cliffsend	Trust for Thanet Archaeology	Evaluation
EKE12032	1496	INT	Evaluation at Grove Farm, Manston Road, Manston	Trust for Thanet Archaeology	Evaluation
EKE12039	1498	INT	Evaluation at the site of the former Haine Road Garage, Ramsgate	Canterbury Archaeological Trust	Evaluation
EKE12042	678	INT	Evaluation on land at Tothill Street, Minster	Canterbury Archaeological Trust	Evaluation
EKE12054	2052	INT	Excavation at Grove Farm, Manston	Trust for Thanet Archaeology	Excavation
EKE12062	683	INT	Evaluation at the site of a proposed EDF Substation, Manston Court Road, Manston	Museum of London Archaeology	Evaluation
EKE12098	1349	NON	Marine geophysical survey for the Thanet Offshore Wind Farm project	EGS International	Geophysical Survey
EKE12299	967	INT	Evaluation of land north-west of the 'Loop', Manston	Canterbury Archaeological Trust	Evaluation



Event UID	Object ID	Record Type	Name	Organisation	Event Type
EKE12390	924	INT	Evaluation at the Manston Road allotments, Ramsgate	Wessex Archaeology	Evaluation
EKE12391	926	INT	Strip, map and sample excavation of the former allotments, Manston Road, Ramsgate	Archaeology South-East	Strip Map And Sample
EKE12469	867	INT	Evaluation at Bradgate Caravan Park, Manston Court Road	Trust for Thanet Archaeology	Evaluation
EKE12505	2178	INT	Watching brief at Telegraph Hill Industrial Estate, Minster	Oxford Archaeology	Watching Brief
EKE12665	2262	INT	Evaluation of land adjacent to Preston Park Caravan Site, Spratling Street, Manston	Trust for Thanet Archaeology	Evaluation
EKE12692	530	INT	Evaluation of land fronting Tothill Street, Mount Pleasant	Museum of London Archaeology	Evaluation
EKE12793	2301	INT	Evaluation of land at the south east area of the Loop, near Manston	Swale and Thames Archaeological Survey Company	Evaluation
EKE12840	2345	INT	Strip, map and sample excavation at The Loop, Merlin Way and Spitfire Way, Manston	Swale and Thames Archaeological Survey Company	Strip Map And Sample
EKE12896	2382	INT	Excavation of Lord of the Manor cemetery north of the railway line	Trust for Thanet Archaeology	Excavation
EKE12950	2404	INT	Evaluation of land at the Air Atlanta site, Columbus Avenue, Manston Park, Manston	Swale and Thames Archaeological Survey Company	Test Pit, Evaluation
EKE12964	2436	INT	Strip, map and sample excavation of Plot 5, Kent International Business Park, Manston	Trust for Thanet Archaeology	Strip Map And Sample
EKE13218	3284	NON	Geophysical survey of land at Thorne Farm, Ramsgate	Wardell Armstrong Consulting Group	Magnetometry Survey
EKE13220	3286	NON	Fieldwalking survey of land at Thorne Farm, Ramsgate	Wardell Armstrong Consulting Group	Systematic Fieldwalking Survey
EKE13367	4138	INT	Archaeological evaluation at Thorne Farm, Kent (2013)	Wardell Armstrong Consulting Group	Evaluation
EKE13402	5538	INT	Archaeological investigation of land south of Preston Road, Manston, Kent	Swale and Thames Archaeological Survey Company	Watching Brief



Event UID	Object ID	Record Type	Name	Organisation	Event Type
EKE13407	5485-5501	INT	Excavations along the route of the East Kent Access route (A256) 2009-2011	Oxford Wessex Archaeology Joint Venture	Excavation, Systematic Fieldwalking Survey, Metal Detection Survey
EKE13609	5167	NON	Proposed solar farm on land near Manston CT12 5BQ. Cultural Heritage desk based assessment	URS	Desk Based Assessment
EKE13647	5166	EVS	Land at Manston Airfield, Thanet, Kent, Geophysical survey	Headland Archaeology	Magnetometry Survey
EKE13766	5540-5554	INT	Archaeological excavation of land adjacent Tesco Store, Manston Road, Ramsgate, 2004	Trust for Thanet Archaeology	Strip Map And Sample, Test Pit, Excavation
EKE13783	5566	INT	Trial trenching evaluation at the site of a new car-park, Manston Airport, 2004	Swale and Thames Archaeological Survey Company	Evaluation, Excavation, Strip Map And Sample
EKE13915	5734-5748	INT	Archaeological evaluation at Cliffs End Farm, Thanet, 2004	Wessex Archaeology	Trial Trench
EKE13948	5815	INT	The Dump, Manston Road, Margate, Kent: Archaeological watching brief report	Trust for Thanet Archaeology	Watching Brief
EKE14292	6169	NON	Proposed solar and sustainable farm on land near Manston, Manston Road, Cultural Heritage Desk-Based Assessment	URS	Desk Based Assessment
EKE14571	6537	NON	Archaeological Desk-Based Assessment: Land North of Canterbury Road East, Ramsgate, Kent	Trust for Thanet Archaeology	Desk Based Assessment
EKE14600	6512-6516	INT	Archaeological Evaluation Report: Land at Manston Green (Ozengell Grange) Haine Road, Ramsgate, Kent	Archaeology South-East	Trial Trench
EKE14608	6505	NON	Desk Based Assessment: Land at Manston Road, Ramsgate: archaeological desk-based assessment	CgMs Consulting	Desk Based Assessment
EKE14664	6569-6572	NON	Historic Building Recording Report. Wood Farm, Manston Road, Manston, Kent	Trust for Thanet Archaeology	Building Survey
EKE14679	6363	NON	Historic building assessment. Second World War Building at Bay View, Windsor Road, Ramsgate, Kent	Canterbury Archaeological Trust	Building Survey
EKE14698	6393	INT	Land South of Invicta Way, Ramsgate, Kent. Archaeological Watching Brief Report	Trust for Thanet Archaeology	Watching Brief



Event UID	Object ID	Record Type	Name	Organisation	Event Type
EKE14703	6587-6589	NON	Land South of Canterbury Road West and adjacent to Cottington Road, Ramsgate, Desk-Based Assessment	Wessex Archaeology	Field Visit, Desk Based Assessment
EKE14894	6967	NON	Air photo and lidar mapping and interpretation for land at Ozengell Grange, Ramsgate	Alison Deegan	Aerial Photography, Lidar Survey
EKE14895	6968-6972	NON	Desk-based assessment (including uxo risk assessment), Land at Ozengell Park, Ramsgate	CgMs Consulting	Desk Based Assessment
EKE14923	7360-7408	INT	Manston Road, Manston, Kent: Archaeological Evaluation	Canterbury Archaeological Trust	Evaluation
EKE14978	7588-7597	INT	Archaeological Watching Brief: Plot 9 and 10, Former Youngs Nursery	Trust for Thanet Archaeology	Watching Brief
EKE14997	7676	EVS	Survey of Buildings and Structures Associated with Manston Airport and the Surrounding Areas.	Kent County Council	Building Survey
EKE15013	7706	NON	The Goodwin Sands and the Downs, off Kent. Overview of Archaeological Investigations.	Wessex Archaeology	Walkover Survey
EKE15402	8206	NON	Land North of Cliffsend Road, Ramsgate. Magnetometer Survey Report	Archaeological Surveys Ltd	Magnetometry Survey
EKE15607	8468, 8469, 8472, 8474-8482	INT	Land South of Canterbury Road West and adjacent to Cottington Road, Ramsgate, Kent, Archaeological Evaluation Report	Wessex Archaeology	Trial Trench

Table 9.2.4 Kent County Council Historic Environment Record Data: Monuments (Point Data)

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
MKE62996	MKE62996	44314	FS	Medieval copper alloy brooch	Findspot
MKE65448	MKE65448	46878	FS	Early Medieval copper alloy harness fitting	Findspot
MKE73843	MKE73843	54160	FS	Iron Age silver coin	Findspot
MKE73868	MKE73868	53728	FS	Iron Age copper alloy coin	Findspot
MKE73869	MKE73869	53729	FS	Iron Age copper alloy coin	Findspot
MKE73875	MKE73875	53666	FS	Iron Age copper alloy ring	Findspot
MKE73915	MKE73915	54172	FS	Iron Age copper alloy coin	Findspot
MKE73917	MKE73917	54174	FS	Iron Age silver coin	Findspot
MKE73918	MKE73918	54175	FS	Iron Age gold coin	Findspot
MKE73920	MKE73920	54177	FS	Iron Age copper alloy coin	Findspot
MKE73921	MKE73921	54178	FS	Iron Age copper alloy coin	Findspot
MKE73922	MKE73922	54179	FS	Iron Age copper alloy coin	Findspot
MKE73923	MKE73923	54180	FS	Iron Age copper alloy coin	Findspot
MKE73924	MKE73924	54181	FS	Iron Age copper alloy coin	Findspot
MKE73951	MKE73951	54208	FS	Iron Age copper alloy coin	Findspot



HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
MKE73956	MKE73956	54213	FS	Iron Age copper alloy coin	Findspot
MKE73958	MKE73958	54215	FS	Medieval copper alloy weight	Findspot
MKE73959	MKE73959	54216	FS	Iron Age copper alloy bow brooch	Findspot
MKE73983	MKE73983	54240	FS	Iron Age copper alloy coin	Findspot
MKE73990	MKE73990	54247	FS	Iron Age copper alloy coin	Findspot
MKE73991	MKE73991	54248	FS	Iron Age copper alloy coin	Findspot
MKE73992	MKE73992	54249	FS	Iron Age copper alloy coin	Findspot
MKE73993	MKE73993	54250	FS	Iron Age copper alloy coin	Findspot
MKE73994	MKE73994	54251	FS	Iron Age copper alloy coin	Findspot
MKE74000	MKE74000	54257	FS	Medieval copper alloy brooch	Findspot
MKE74003	MKE74003	54260	FS	Iron Age copper alloy coin	Findspot
MKE74029	MKE74029	54682	FS	Iron Age copper alloy coin	Findspot
MKE74041	MKE74041	54694	FS	Iron Age copper alloy coin	Findspot
MKE74082	MKE74082	54710	FS	Early Medieval copper alloy brooch	Findspot
MKE74084	MKE74084	54712	FS	Iron Age copper alloy coin	Findspot
MKE74094	MKE74094	54426	FS	Iron Age silver coin	Findspot



HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
MKE74101	MKE74101	54433	FS	Iron Age coin	Findspot
MKE74102	MKE74102	54434	FS	Iron Age coin	Findspot
MKE74117	MKE74117	54288	FS	Iron Age coin	Findspot
MKE74131	MKE74131	54302	FS	Iron Age coin	Findspot
MKE74132	MKE74132	54303	FS	Iron Age silver coin	Findspot
MKE74146	MKE74146	54455	FS	Iron Age coin	Findspot
MKE74155	MKE74155	54722	FS	Iron Age coin	Findspot
MKE74156	MKE74156	54838	FS	Iron Age coin	Findspot
MKE74164	MKE74164	54846	FS	Roman silver finger ring	Findspot
MKE74166	MKE74166	54848	FS	Iron Age copper alloy coin	Findspot
MKE74178	MKE74178	54860	FS	Iron Age copper alloy coin	Findspot
MKE74182	MKE74182	54726	FS	Iron Age copper alloy coin	Findspot
MKE74216	MKE74216	54462	FS	Early Medieval gold pendant	Findspot
MKE74235	MKE74235	54320	FS	Roman copper alloy hair pin	Findspot
MKE74243	MKE74243	54328	FS	Roman copper alloy coin	Findspot
MKE74244	MKE74244	54329	FS	Roman copper alloy coin	Findspot

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
MKE74245	MKE74245	54330	FS	Roman copper alloy coin	Findspot
MKE74246	MKE74246	54331	FS	Medieval copper alloy buckle	Findspot
MKE74247	MKE74247	54332	FS	Post Medieval copper alloy buckle	Findspot
MKE74248	MKE74248	54471	FS	Medieval copper alloy buckle	Findspot
MKE74249	MKE74249	54472	FS	Early Medieval copper alloy small long brooch	Findspot
MKE74250	MKE74250	54473	FS	Early Medieval copper alloy small long brooch	Findspot
MKE74251	MKE74251	54474	FS	Post Medieval copper alloy knife	Findspot
MKE74252	MKE74252	54475	FS	Bronze Age ingots	Findspot
MKE74253	MKE74253	54476	FS	Bronze Age ingots	Findspot
MKE74254	MKE74254	54477	FS	Early Medieval brooch	Findspot
MKE74255	MKE74255	54478	FS	Early Medieval grave contents	Findspot
MKE74256	MKE74256	54479	FS	Iron Age grave contents	Findspot
MKE74258	MKE74258	54480	FS	Copper alloy purse bar	Findspot
MKE74259	MKE74259	54481	FS	Unknown copper alloy bead	Findspot
MKE74260	MKE74260	54482	FS	Unknown copper alloy bead	Findspot
MKE74261	MKE74261	54483	FS	Roman copper alloy spoon	Findspot



HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
MKE74262	MKE74262	54484	FS	Bronze Age copper alloy hoard	Findspot
MKE74271	MKE74271	54333	FS	Iron Age copper alloy coin	Findspot
MKE74277	MKE74277	54873	FS	Iron Age copper alloy coin	Findspot
MKE74300	MKE74300	54753	FS	Iron Age copper alloy coin	Findspot
MKE74364	MKE74364	54361	FS	Iron Age gold coin	Findspot
MKE74388	MKE74388	54499	FS	Iron Age silver coin	Findspot
MKE74389	MKE74389	54500	FS	Iron Age copper alloy coin	Findspot
MKE74409	MKE74409	54779	FS	Iron Age copper alloy coin	Findspot
MKE74413	MKE74413	54783	FS	Iron Age copper alloy coin	Findspot
MKE74414	MKE74414	54784	FS	Iron Age copper alloy coin	Findspot
MKE74415	MKE74415	54785	FS	Iron Age copper alloy coin	Findspot
MKE74424	MKE74424	54909	FS	Iron Age copper alloy coin	Findspot
MKE74425	MKE74425	54910	FS	Iron Age copper alloy coin	Findspot
MKE74430	MKE74430	54915	FS	Iron Age copper alloy coin	Findspot
MKE74432	MKE74432	54917	FS	Iron Age silver coin	Findspot
MKE74434	MKE74434	54919	FS	Iron Age copper alloy coin	Findspot



HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
MKE74435	MKE74435	54920	FS	Iron Age copper alloy coin	Findspot
MKE74450	MKE74450	54980	FS	Iron Age copper alloy coin	Findspot
MKE74456	MKE74456	54986	FS	Iron Age copper alloy coin	Findspot
MKE74462	MKE74462	54512	FS	Iron Age silver coin	Findspot
MKE74463	MKE74463	54513	FS	Iron Age copper alloy coin	Findspot
MKE74466	MKE74466	54379	FS	Iron Age copper alloy coin	Findspot
MKE74479	MKE74479	54392	FS	Iron Age copper alloy coin	Findspot
MKE74492	MKE74492	54519	FS	Iron Age silver coin	Findspot
MKE74500	MKE74500	54524	FS	Iron Age copper alloy coin	Findspot
MKE74501	MKE74501	54525	FS	Iron Age silver coin	Findspot
MKE74512	MKE74512	54536	FS	Iron Age copper alloy coin	Findspot
MKE74513	MKE74513	54537	FS	Iron Age copper alloy coin	Findspot
MKE74514	MKE74514	54538	FS	Iron Age copper alloy coin	Findspot
MKE74515	MKE74515	54402	FS	Iron Age copper alloy coin	Findspot
MKE74519	MKE74519	54406	FS	Iron Age copper alloy coin	Findspot
MKE74543	MKE74543	54941	FS	Iron Age copper alloy coin	Findspot



HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
MKE74544	MKE74544	54942	FS	Iron Age copper alloy coin	Findspot
MKE74545	MKE74545	54943	FS	Iron Age copper alloy coin	Findspot
MKE74549	MKE74549	54947	FS	Iron Age copper alloy coin	Findspot
MKE74550	MKE74550	54948	FS	Iron Age copper alloy coin	Findspot
MKE80125	MKE80125	59185	FS	Iron Age copper alloy harness fitting	Findspot
MKE80139	MKE80139	59782	FS	Copper alloy knife	Findspot
MKE80144	MKE80144	59784	FS	Copper alloy chape	Findspot
MKE80149	MKE80149	59785	FS	Copper alloy mount	Findspot
MKE80159	MKE80159	59789	FS	Copper alloy spoon	Findspot
MKE80175	MKE80175	59803	FS	Roman copper alloy unidentified object	Findspot
MKE80176	MKE80176	59804	FS	Early Medieval copper alloy brooch	Findspot
MKE80178	MKE80178	59806	FS	Copper alloy brooch	Findspot
MKE80179	MKE80179	59807	FS	Copper alloy buckle	Findspot
MKE80180	MKE80180	59808	FS	Copper alloy coin	Findspot
MKE80184	MKE80184	59812	FS	White metal blade	Findspot
MKE86831	MKE86831	66358	FRM	Plumstone Farm	Farmstead

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
MKE86901	MKE86901	66428	FRM	Outfarm north west of Cleve Court Farm	Farmstead
MKE86902	MKE86902	66429	FRM	Cleve Court Farm	Farmstead
MKE86904	MKE86904	66431	FRM	Street Farm	Farmstead
MKE86916	MKE86916	66443	FRM	Alland Grange Farm	Farmstead
MKE86917	MKE86917	66444	FRM	Wayborough Farm	Farmstead
MKE86918	MKE86918	66445	FRM	Outfarm west of Wayborough Farm	Farmstead
MKE86961	MKE86961	66488	FRM	Wayborough Farm	Farmstead
MKE86962	MKE86962	66489	FRM	Cheesman's Farm	Farmstead
MKE86971	MKE86971	66498	FRM	Pouces	Farmstead
MKE86972	MKE86972	66499	FRM	Thorne Farm	Farmstead
MKE87015	MKE87015	66542	FRM	Vincent Farm	Farmstead
MKE87016	MKE87016	66543	FRM	Fleet Farm	Farmstead
MKE87017	MKE87017	66544	FRM	Fleete Court	Farmstead
MKE87018	MKE87018	66545	FRM	Manston Court	Farmstead
MKE87020	MKE87020	66547	FRM	Foster's Folly	Farmstead
MKE87021	MKE87021	66548	FRM	Manston Green Farm	Farmstead

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
MKE87022	MKE87022	66549	FRM	Grove Farm (Manston Grove)	Farmstead
MKE87023	MKE87023	66550	FRM	Bush Farm	Farmstead
MKE87024	MKE87024	66551	FRM	Great Cliffsend Farm	Farmstead
MKE87025	MKE87025	66552	FRM	Farmstead at Cliffsend	Farmstead
MKE87047	MKE87047	66574	FRM	Little Cliffsend Farm	Farmstead
MKE87048	MKE87048	66575	FRM	Ozengell Grange (Ozengell Farm)	Farmstead
MKE87049	MKE87049	66576	FRM	Sprattling Court Farm	Farmstead
MKE87050	MKE87050	66577	FRM	Preston Farm	Farmstead
MKE88749	MKE88749	68309	FRM	Rose Farm	Farmstead
MKE88751	MKE88751	68311	FRM	Cliffsend Farm (Bethlehem Farm)	Farmstead
MKE92417	MKE92417	72745	MON	Possible neolithic pit, neolithic pottery and mesolithic and neolithic flints at Cliffs End Farm.	Pit
MKE97011	MKE97011	77141	FS	Medieval Copper alloy brooch	Findspot
MKE97017	MKE97017	77147	FS	Post Medieval Copper alloy seal matrix	Findspot
MKE97061	MKE97061	77191	FS	Copper alloy furniture fitting	Findspot
MKE97063	MKE97063	77193	FS	Copper alloy dress hook	Findspot
MKE97064	MKE97064	77194	FS	Copper alloy mount	Findspot

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
MKE97568	MKE97568	77728	MON	Dump of surplus equipment from an American Airbase, South East of 'The Dump', Manston Road, Margate.	Refuse Disposal Site
MKE97850	MKE97850	78017	MON	Late Iron Age/ Early Roman Material (Manston)	Pit, Linear Earthwork
MKE98504	MKE98504	78594	MON	Multi-compartment ?HE stores	
MWX43748	MWX43748	71393	MON	Brickworks, Pegwell	Brickworks
TR 36 NE 26	MKE7606	14995	MON	Early Medieval cemetery and associated finds, Ozengall, Ramsgate and Manston	Inhumation, Cemetery, Coffin
TR 36 NE 28	MKE7608	41911	MON	Site of Upper Court Manor House, St. Lawrence, Ramsgate	Manor House, Boundary Ditch
TR 36 NE 40	MKE7620	15010	MON	Two Iron Age pits found on Thirlmere Avenue, Nethercourt, Ramsgate	Pit
TR 36 NE 51	MKE7631	70319	MON	Late Neolithic enclosures renovated and used as barrows in the Bronze Age, Ozengell Grange, Manston	Round Barrow, Henge, Crouched Inhumation, Cremation
TR 36 NE 54	MKE7634	15025	MON	Bronze Age round barrow, Manston	Round Barrow
TR 36 NE 56	MKE7636	15027	MON	Barrow/ring ditch cropmark features, Nethercourt, Ramsgate	Round Barrow, Ring Ditch
TR 36 NE 85	MKE7665	15051	MON	Cropmark of enclosure and curvilinear feature, Lydden, Manston	Enclosure, Curvilinear Enclosure, Ditch
TR 36 NE 87	MKE7667	15053	MON	Possible barrow cropmark, Manston	Barrow?
TR 36 NE 88	MKE7668	15054	MON	Ditched enclosure cropmark, Manston	Macula, Ditched Enclosure?
TR 36 NE 108	MKE7688	15075	MON	Double ditched ring ditch, near Ozengell Grange, Ramsgate	Pit, Ring Ditch
TR 36 NE 109	MKE7689	15076	MON	Rectilinear enclosure, near Ozengell Grange, St. Lawrence, Ramsgate	Rectilinear Enclosure, Pit

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NE 119	MKE7699	15085	MON	Romano-British ditches and midden materials, Manston	Midden
TR 36 NE 121	MKE7701	15089	MON	Medieval settlement/industrial Site?, Manston, Thanet	Settlement?, Industrial Site?, Enclosure, Grubenhuis?, Manor House?
TR 36 NE 127	MKE7707	15094	MON	Possible Romano-British domestic site, Nethercourt, Ramsgate	Settlement?, Cremation, Ditched Enclosure, Post Hole
TR 36 NE 174	MKE7754	15147	MON	Possible Roman pond, Manston	Chalk Pit?, Enclosure, Pond?
TR 36 NE 175	MKE7755	15148	MON	Roman building and enclosure, near Lydden, Manston	Building, Ditched Enclosure
TR 36 NE 177	MKE7757	15150	MON	Roman Villa Farm at the site of Ozengell Grange, Ramsgate	Villa, Inhumation, Building
TR 36 NE 181	MKE7761	15154	MON	Barrow, North of Canterbury Road West, Manston	Barrow
TR 36 NE 182	MKE7762	15155	MON	Late Neolithic / early Bronze Age barrow, North of Canterbury Road West	Oval Barrow
TR 36 NE 223	MKE9022	70797	MON	Romano-British quarry at Spratling Court Farm, Manston	Quarry
TR 36 NE 227	MKE15593	6037	MON	Farmhouse, barn and possible monastic grange, Ozengell Grange, Ramsgate	Barn, House, Grange?
TR 36 NE 245	MKE16130	6623	MON	Undated ring ditch, St. Lawrence, Ramsgate	Ring Ditch
TR 36 NE 274	MKE15675	6122	MON	Ring ditch cropmarks, Ozengell Grange, Ramsgate	Ring Ditch
TR 36 NE 275	MKE15676	6123	MON	Ring ditch cropmarks, St. Lawrence, Ramsgate	Ring Ditch
TR 36 NE 276	MKE15677	6124	MON	Ring ditch cropmarks, possible barrows, Ozengell Grange, Ramsgate	Ring Ditch
TR 36 NE 283	MKE78386	57837	MON	Ring ditch, north of Cliffs End	Ring Ditch

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TR 36 NE 341	MKE15598	6042	FS	Site of Romano-British building - Staner hill, Ramsgate	Findspot
TR 36 NE 343	MKE15868	6333	FS	Romano-British scatter, Stanton Hill, Manston	Findspot
TR 36 NE 344	MKE15869	6334	MON	Prehistoric pottery, Anglo-Saxon feature and finds, Ozengell Grange, Ramsgate	Post Hole?
TR 36 NE 376	MKE16591	7115	MON	Chalk pit at Coldswood Farm, Manston	Chalk Pit
TR 36 NE 377	MKE16592	7116	MON	Chalk pit at Spratling court, Manston	Chalk Pit
TR 36 NE 397	MKE17181	7596	MON	Prehistoric flint scatter, prehistoric pot and an undated pit, Manston Road, Ramsgate	Flint Scatter, Pit
TR 36 NE 402	MKE8260	15634	MON	Newington windmill	Windmill
TR 36 NE 406	MKE19917	9275	MON	Late Bronze Age/early Iron Age postholes & pits, north of Canterbury Road West, Manston	Post Hole, Pit
TR 36 NE 427	MKE9236	16066	MON	Bronze Age/Early Medieval/Medieval site, Manston Rd	Ditch, Ditch, Pit, Post Hole, Wall
TR 36 NE 455	MKE21104	334	MON	Saxo-Norman buildings and enclosures, Manston Road, Ramsgate	Grubenhau, Enclosure, Ditch, Timber Framed Building, Enclosure, Pit, Oven
TR 36 NE 471	MKE43270	8161	MON	Late Bronze Age settlement/activity located on site of Tesco, Manston Road, Ramsgate, Kent	Enclosed Settlement, Ditch, Gully, Post Built Structure, Quarry, Pit, Post Hole, Post Built Structure
TR 36 NE 477	MKE43356	40069	MON	Early Neolithic shallow cut found on site of new Tesco store south of Manston Road, Ramsgate	Pit
TR 36 NE 484	MKE44238	40210	MON	Middle Bronze Age settlement/activity located on site of Tesco, Manston Road, Ramsgate, Kent	Pit
TR 36 NE 485	MKE44242	40213	MON	Anglo-Saxon settlement/activity located on site of Tesco, Manston Road, Ramsgate, Kent	Grubenhau, Ring Ditch, Ditch
TR 36 NE 486	MKE44246	10418	MON	Post-Medieval settlement/activity located on site of Tesco, Manston Road, Ramsgate, Kent	Trackway

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NE 511	MKE78645	58503	FS	Bronze Age flints, Bradgate Caravan Park	Findspot
TR 36 NE 548	MKE39791	20328	MON	Possible machine gun post in Stannar Court	Fortification
TR 36 NE 566	MKE80477	59982	MON	Former site of a Second World War Pillbox, Manston Road	Pillbox
TR 36 NE 577	MKE80594	60125	FS	Mesolithic worked flints, Manston Road, Ramsgate	Findspot
TR 36 NE 578	MKE80595	60126	FS	Neolithic worked flints, Manston Road, Ramsgate	Findspot
TR 36 NE 579	MKE80596	60127	MON	Late Bronze Age enclosure and pits, Manston Road, Ramsgate	Enclosure?, Ditch, Pit
TR 36 NE 580	MKE80597	60128	MON	Late Bronze Age/Early Iron Age field system, Manston Road, Ramsgate	Field System, Ditch, Trackway, Pit
TR 36 NE 581	MKE80598	60129	MON	Iron Age field system, Manston Road, Ramsgate	Field System, Ditch, Trackway
TR 36 NE 582	MKE80599	60130	MON	Roman cremations, Manston Road, Ramsgate	Cremation, Quarry, Ditch, Grave Marker?, Post Hole, Ditch
TR 36 NE 583	MKE80601	60142	MON	Anglo-Saxon occupation, Manston Road, Ramsgate	Grubenhous, Post Hole, Stake Hole
TR 36 NE 584	MKE80604	60143	MON	Medieval enclosures, Manston Road, Ramsgate	Enclosure?, Ditch
TR 36 NE 588	MKE76838	56828	FS	Anglo-Saxon gold shilling ('thrymsa'), Isle of Thanet	Findspot
TR 36 NE 589	MKE76839	56829	FS	Anglo-Saxon silver early penny ('sceat'), Isle of Thanet	Findspot
TR 36 NE 590	MKE76840	56830	FS	Anglo-Saxon silver early penny ('sceat'), Isle of Thanet	Findspot
TR 36 NE 591	MKE76841	56831	FS	Anglo-Saxon silver early penny ('sceat'), Isle of Thanet	Findspot

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NE 592	MKE76842	56832	FS	Anglo-Saxon silver early penny ('sceat'), Isle of Thanet	Findspot
TR 36 NE 593	MKE76843	56833	FS	Anglo-Saxon silver early penny ('sceat'), Isle of Thanet	Findspot
TR 36 NE 594	MKE76844	56834	FS	Anglo-Saxon copper alloy 'styca', Isle of Thanet	Findspot
TR 36 NE 595	MKE76845	56835	FS	Anglo-Saxon silver penny, Isle of Thanet	Findspot
TR 36 NE 598	MKE89593	69269	MON	Neolithic settlement, Preston Park Caravan Site	Curvilinear Enclosure, Ditch, Gully, Pit
TR 36 NE 599	MKE89594	69270	MON	Early Bronze Age gully, Preston Park Caravan Site	Gully
TR 36 NE 600	MKE89595	69271	MON	Medieval ditches, Preston Park Caravan Site	Ditch
TR 36 NE 601	MKE89601	69279	MON	Middle Bronze Age cremation cemetery, Manston Road, Ramsgate	Cremation Cemetery, Cremation, Ritual Pit
TR 36 NE 634	MKE90713	70798	FS	Mesolithic or Neolithic worked flints, Spratling Court Farm, Manston	Findspot
TR 36 NE 635	MKE90714	70799	MON	Middle Iron Age chalk quarry, Spratling Court Farm, Manston	Quarry
TR 36 NE 636	MKE90715	70800	FS	Worked flints and pottery in hillwash deposits, Spratling Court Farm, Manston	Findspot
TR 36 NE 637	MKE90716	70801	MON	Roman cave, Spratling Court Farm	Dene Hole?
TR 36 NE 673	MKE97453	77598	MON	Undated features, Manston Green, Ramsgate, Kent	Pit, Post Hole?
TR 36 NE 674	MKE97454	77599	FS	2 Conjoining Early Post-Medieval Peg Tiles, Manston Green, Ramsgate	Findspot
TR 36 NE 679	MKE98345	78450	MON	Second World war roadblock at A256 Haine Road, Hollins Bottom.	Roadblock

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NE 2001	MKE17304	7695	MON	Romano-British and Jutish features and associated finds, Nethercourt Estate, Ramsgate	Ditch, Grave?
TR 36 NE 2010	MKE39431	303	MON	Pillbox	Pillbox
TR 36 NE 2108	MKE34726	25597	LB	OZENGELL GRANGE	Site, House, House, Outbuilding, Date Stone
TR 36 NE 2166	MKE39434	306	MON	Second World War roadblock.	Defence Work
TR 36 NE 2168	MKE39694	20005	MON	Pillbox	Pillbox
TR 36 NE 2170	MKE39707	20020	MON	Pillbox	Pillbox
TR 36 NE 2171	MKE39706	20019	MON	Pillbox	Pillbox
TR 36 NE 2178	MKE39693	20004	MON	Pillbox	Pillbox
TR 36 NE 2247	MKE35332	24890	LB	BARN ABOUT 50 METRES EAST OF OZENGELL GRANGE	Site, Timber Framed Barn, Tithe Barn, Aisled Barn
TR 36 NE 2379	MKE34789	24863	LB	BARN AT PRESTON FARM (TR 3507 6686)	Site, Timber Framed Barn, Aisled Barn
TR 36 NE 2403	MKE91370	72043	FS	Single small Palaeolithic handaxe discovered during the Margate and Broadstairs Urban Wastewater Treatment Scheme (2005 to 2006)	Findspot
TR 36 NE 2405	MKE91805	72395	MON	Cropmark of a probable chalk pit visible on 1990 aerial photograph	Chalk Pit
TR 36 NE 2407	MKE91771	72357	MON	Pair of ring-ditches that may be contiguous	Ring Ditch
TR 36 NE 2409	MKE92140	72595	MON	Bronze Age to iron age features found during 2004 excavations	Hollow Way, Ditch, Gully, Pit, Ditch, Gully
TR 36 NE 2421	MKE97295	77932	MON	Auxiliary Unit Observation Post	Auxiliary Unit Observation Post

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NE 2422	MKE98697	78691	MON	Lidar and Air photo record of Ozengell Grange area; Neolithic and Bronze Age	Ring Ditch, Ring Ditch, Mound?
TR 36 NE 2423	MKE98698	78692	MON	Air Photo and Lidar mapping, Ozengel Grange, Ramsgate; Iron age and Roman	Enclosure, Ditch, Rectilinear Enclosure, Boundary
TR 36 NE 2424	MKE98701	78693	MON	Air Photo and Lidar Mapping, Ozengell Grange, Ramsgate; Early Medieval/Anglo-Saxon	Grave
TR 36 NE 2425	MKE98702	78695	MON	Air photo and lidar mapping for land at Ozengell Grange, Ramsgate; Medieval	Rectilinear Enclosure, Pit, Enclosure, Feature
TR 36 NW 15	MKE7793	15185	MON	Caves of uncertain origin, Cheeseman's Farm and Alland Grange, Acol and Minster	Cave, Air Raid Shelter
TR 36 NW 16	MKE7794	15186	MON	Cheeseman's Camp enclosure, Cheeseman's Farm, Minster and Acol parishes	Enclosure
TR 36 NW 18	MKE7796	15188	MON	Chalk cut chamber, Acol Farm	Chalk Pit?, Dene Hole?
TR 36 NW 22	MKE34788	25656	LB	Remains Of Monastic Building, Now Outbuilding	Site, First Floor Hall House, Outbuilding, Augustinian Grange
TR 36 NW 26	MKE7804	15196	FS	Iron Age coins found at an unknown location on the Isle of Thanet	Findspot
TR 36 NW 27	MKE7805	15197	MON	Late 1st century/early 2nd century Romano-British cremations, Minster	Cremation
TR 36 NW 28	MKE7806	15198	FS	Roman coin hoard, Mount Pleasant, Minster	Findspot
TR 36 NW 34	MKE7812	15204	MON	Site of barrow, near Cliffs End, Minster parish	Round Barrow, Burial
TR 36 NW 35	MKE7813	15205	MON	Early Iron Age pits, near Cliffs End, Minster parish	Pit
TR 36 NW 39	MKE7817	15209	MON	Probable Bronze Age barrows, near Mount Pleasant, Minster parish	Ring Ditch, Rectangular Enclosure
TR 36 NW 50	MKE7828	15219	FS	Roman occupation site and associated finds, near Manston airport, Minster parish	Findspot, Ditch, Hollow



HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 55	MKE7833	72177	FS	Palaeolithic flint implement, surface find from Telegraph Hill, Minster, Thanet	Findspot
TR 36 NW 71	MKE7849	15237	MON	Possible post-medieval field boundary, in fields near Vincent Farm, Margate	Field Boundary?
TR 36 NW 72	MKE7850	15241	MON	Cropmarks of possible graves, near Monkton Road, Margate	Grave?
TR 36 NW 80	MKE7858	15249	MON	Cropmarks of enclosures, The Nook Hackthorn Farm, Margate	Enclosure
TR 36 NW 81	MKE7859	15250	MON	Ring ditch, Enclosure crop marks, Margate	Ring Ditch, Enclosure
TR 36 NW 82	MKE7860	15252	MON	Cropmarks of enclosure, Flete Farm, near Manston	Enclosure, Ditch, Pit
TR 36 NW 83	MKE7861	15253	MON	Cropmarks of enclosures, barrows & field systems, near Woodchurch	Enclosure
TR 36 NW 84	MKE7862	15254	MON	Enclosure and barrow cropmarks, Minster, Thanet	Enclosure, Barrow
TR 36 NW 85	MKE7863	15255	MON	Bronze Age barrows, near Mount Pleasant, Minster, Thanet	Barrow, Pit
TR 36 NW 86	MKE7864	15256	MON	Enclosure cropmarks, Mount Pleasant, Minster parish	Enclosure
TR 36 NW 92	MKE7870	15261	MON	Enclosure cropmark, Manston, Minster parish	Enclosure
TR 36 NW 123	MKE7901	15290	MON	Barrow cropmark feature, near Retreat Farm, Margate	Barrow
TR 36 NW 132	MKE7910	57846	MON	Undated enclosure, Margate	Site
TR 36 NW 133	MKE7911	15303	MON	Enclosure	Enclosure
TR 36 NW 134	MKE7912	15304	MON	Possible post-medieval field boundary	Field Boundary
TR 36 NW 135	MKE7913	15305	MON	Possible post-medieval field boundary	Field Boundary

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 136	MKE7914	15306	MON	Undated enclosures, margate	Enclosure
TR 36 NW 137	MKE7915	15307	MON	Possible barrow site, near Vincent Farm, Margate	Barrow
TR 36 NW 138	MKE7916	15308	MON	Enclosure	Enclosure
TR 36 NW 139	MKE7917	15312	MON	Undated ring ditch, margate	Ring Ditch
TR 36 NW 166	MKE7944	15348	MON	Goalpost enclosures, Monkton and Acol parishes	Enclosure, Pit
TR 36 NW 168	MKE7946	15343	MON	Double ditch and pit cropmarks, Monkton parish	Sub Circular Enclosure, Pit
TR 36 NW 169	MKE7947	6155	MON	Cropmark of possible Bronze Age round barrow, Acol	Barrow
TR 36 NW 170	MKE7948	15342	MON	Ring ditch and pit cropmarks, near Cheeseman's Farm, Acol	Pit, Ring Ditch
TR 36 NW 171	MKE7949	15345	MON	Enclosure cropmark, near Rose Farm, Minster parish	Goal Post Enclosure
TR 36 NW 172	MKE7950	15347	MON	Ring ditch cropmarks, Minster, Thanet	Barrow, Ring Ditch, Pit?
TR 36 NW 173	MKE7951	15349	MON	Trackway cropmarks, Minster	Trackway
TR 36 NW 174	MKE7952	15350	MON	Ring ditch cropmark, Minster	Ring Ditch
TR 36 NW 175	MKE7953	15365	MON	Ring ditch and barrow cropmarks, near Mill House Hospital, Minster	Ring Ditch
TR 36 NW 176	MKE7954	15351	MON	Ring ditch cropmark (possible barrow), Cottage Hill, Minster	Ring Ditch
TR 36 NW 177	MKE7955	15352	MON	Late Neolithic/Early Bronze Age ditched enclosure, Laundry Road, Minster	Settlement, Ditched Enclosure
TR 36 NW 178	MKE7956	15353	MON	Barrow enclosure cropmark, Minster, Thanet	Barrow

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TR 36 NW 179	MKE7957	15354	MON	Sub circular cropmark (possible barrow), Minster, Thanet	Barrow
TR 36 NW 180	MKE7958	15355	MON	Ring ditch cropmark, Manston	Ring Ditch
TR 36 NW 181	MKE7959	15356	MON	Iron Age ditch, Minster	Ditch
TR 36 NW 182	MKE7960	15358	MON	Roman-British industrial/settlement site, Minster	Industrial Site, Pit, Settlement
TR 36 NW 183	MKE7961	15359	FS	Romano-British finds, near Manston Airport, Minster	Findspot
TR 36 NW 184	MKE7962	15360	MON	Romano-British surface and associated finds, near the A253, Minster	Iron Working Site
TR 36 NW 185	MKE7963	15361	MON	Iron Age occupation site, Minster	Settlement, Pit, Ditch
TR 36 NW 186	MKE7964	15362	MON	Early medieval burials, near the A253, Minster	Inhumation Cemetery
TR 36 NW 187	MKE7965	15363	MON	Romano-British cemetery, near the A253, Minster	Cemetery
TR 36 NW 188	MKE7966	15364	MON	Romano-British ditch, near A253, Minster	Ditch
TR 36 NW 189	MKE7967	15366	MON	Female inhumation burial, near A253, Minster	Inhumation
TR 36 NW 190	MKE7968	15367	MON	Iron Age settlement, near A253, Manston	Settlement, Pit
TR 36 NW 192	MKE7970	15370	FS	Iron arrow barb fragments, Minster	Findspot
TR 36 NW 193	MKE7971	15371	FS	Bronze blade and fragments, near A253, Minster	Hoard
TR 36 NW 195	MKE7973	15373	MON	Early medieval inhumations, near A253, Minster	Cemetery
TR 36 NW 208	MKE7985	15384	MON	Enclosure cropmark, Mount Pleasant, Minster	Enclosure

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TR 36 NW 209	MKE7986	15385	MON	Roman industrial/occupation site, Minster	Settlement, Bloomery
TR 36 NW 210	MKE7987	15386	MON	Enclosure and round barrow cropmarks, near Manston Airport, Minster	Barrow, Enclosure
TR 36 NW 211	MKE7988	15387	MON	Enclosure soilmark, Monkton parish	Enclosure
TR 36 NW 212	MKE7989	15388	FS	Romano-British pottery, Cleve Court, Monkton	Findspot
TR 36 NW 214	MKE7991	15391	MON	Barrow and linear feature cropmarks, near Mount Pleasant, Minster, Thanet	Barrow, Linear Feature
TR 36 NW 215	MKE7992	15392	MON	Inhumation burials, Minster Laundry Industrial Estate, Minster	Inhumation
TR 36 NW 216	MKE7993	15393	FS	Early-medieval bead and iron knife, near A253, Minster	Findspot
TR 36 NW 218	MKE7995	15395	MON	Undated inhumation burials, Minster	Inhumation
TR 36 NW 220	MKE7997	15397	FS	Belgic pottery	Findspot
TR 36 NW 221	MKE7998	15398	FS	Romano-British pottery	Findspot
TR 36 NW 222	MKE7999	15399	MON	Denehole, Plumstone road, Monkton parish	Dene Hole
TR 36 NW 224	MKE8001	15403	FS	Celtic coin, Acol	Findspot
TR 36 NW 225	MKE15256	5661	FS	Iron Age pottery, near Cleve Court, Monkton parish	Findspot
TR 36 NW 226	MKE15257	5664	MON	Bronze Age/early Iron Age settlement, near Pouces Cottages, Minster	Settlement
TR 36 NW 228	MKE8832	15845	MON	Manston grange farm	Barn, Barn
TR 36 NW 229	MKE35294	24854	LB	Manston Court And Wall Adjacent	Site, House, Wall

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 233	MKE9002	15924	MON	Ring ditch cropmark, Plumstone Farm, Monkton	Ring Ditch
TR 36 NW 234	MKE9003	15925	MON	Ring ditch cropmark, near Vincent Farm, Ramsgate	Ring Ditch
TR 36 NW 237	MKE9009	15929	MON	Undated maculas and pits, near Plumstone Farm, Monkton	Macula, Pit
TR 36 NW 238	MKE15647	6091	MON	Romano-British settlement, Minster parish	Shrine, Hollow Way, Enclosure, Well
TR 36 NW 239	MKE15648	6092	MON	Romano British features, Minster parish	Granary, Hollow Way, Enclosure, Pit, Post Hole
TR 36 NW 240	MKE15649	6093	MON	Anglo-Saxon cemetery, hollow way and ditch, Minster parish	Cemetery, Hollow Way, Ditch
TR 36 NW 241	MKE15678	6125	MON	Macula cropmark feature, possible barrow, Dellside, Minster, Thanet	Macula, Barrow?
TR 36 NW 242	MKE15679	6126	MON	Ring ditch cropmark, Manston Park, Acol	Ring Ditch
TR 36 NW 243	MKE15680	6130	MON	Macula cropmark feature, possible Neolithic long barrow, Ramsgate	Macula, Long Barrow?
TR 36 NW 244	MKE15681	6131	MON	Ring ditch cropmark feature, Manston aerodrome, Minster	Ring Ditch
TR 36 NW 245	MKE15682	6132	MON	Ring ditch cropmark, Manston Aerodrome, Minster	Ring Ditch
TR 36 NW 246	MKE15683	6133	MON	Medieval Farmstead, Manston, Thanet	Farmstead, Timber Framed Building, Enclosure
TR 36 NW 249	MKE15686	6136	MON	Ring ditch cropmark feature, Laundry Road, Minster	Ring Ditch
TR 36 NW 251	MKE15696	57848	MON	Ring ditch and enclosure cropmarks, Kent International Business Park, Acol	Enclosure, Ring Ditch, Henge?
TR 36 NW 252	MKE15697	6146	MON	Three ring ditches, Cleve Court, Monkton	Ring Ditch



HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 253	MKE15698	6149	MON	Ring ditch cropmark and possible trackway, Kent International Business Park	Round Barrow, Trackway
TR 36 NW 254	MKE15699	6150	MON	Medieval farmstead enclosure, Kent International Business Park, Acol	Farmstead, Enclosure, Grubenhaus
TR 36 NW 255	MKE15700	6153	MON	Enclosure cropmark, Kent International Business Park, Acol	Enclosure
TR 36 NW 256	MKE15701	15344	MON	Cropmark of Bronze Age round barrow, Manston, Minster	Round Barrow
TR 36 NW 257	MKE15702	6175	MON	Cropmarks of ring ditches and trackway, Acol	Trackway, Ring Ditch
TR 36 NW 258	MKE15703	6157	MON	Possible Kiln base, Cleve Court, Monkton parish	Kiln?
TR 36 NW 259	MKE15704	6158	MON	Undated ditch and pit, Manston	Ditch, Pit
TR 36 NW 260	MKE43806	40009	CRA	Douglas Havoc Mark I BB893	Aircraft Crash Site, Douglas
TR 36 NW 301	MKE15865	6330	MON	Prehistoric pit/ditch, Mount Pleasant, Minster parish	Feature
TR 36 NW 306	MKE16170	6665	MON	Goal post enclosure and linear cropmarks, Mount Pleasant, Minster	Enclosure, Linear Feature, Pit
TR 36 NW 308	MKE16891	4341	MON	Ring ditch cropmark, Mount Pleasant	Ring Ditch
TR 36 NW 324	MKE16085	6571	MON	Post medieval Icehouse, Cleve Court	Icehouse
TR 36 NW 327	MKE16433	6943	MON	Freehold chalk pit, Minster	Chalk Pit
TR 36 NW 328	MKE16434	6944	MON	Dellside chalk pit, Minster	Chalk Pit
TR 36 NW 329	MKE16461	6974	MON	Way chalk pit, Minster parish	Chalk Pit
TR 36 NW 331	MKE16465	6978	MON	Thorne Hill chalk pit, Minster parish	Chalk Pit

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 332	MKE16753	7283	BLD	One man air raid shelter, near the Spitfire Memorial, Manston	Air Raid Shelter
TR 36 NW 335	MKE16690	7217	MON	Cheeseman Farm caves chalk pit, Acol	Chalk Pit
TR 36 NW 336	MKE16695	7222	MON	Chalkpits at Cheeseman's Farm, Minster and Acol parishes	Chalk Pit
TR 36 NW 337	MKE16696	7223	MON	Mount Pleasant chalk pit, Minster parish	Chalk Pit, Lime Kiln
TR 36 NW 342	MKE16760	7289	MON	Old chalk pit, near Vincent Farm, Margate	Chalk Pit
TR 36 NW 356	MKE17243	6156	MON	Round barrow, Kent International Business Park, Acol	Round Barrow
TR 36 NW 357	MKE17244	6154	MON	Shallow depression (possible Bronze Age pond barrow?), Acol	Hollow
TR 36 NW 359	MKE17246	7651	MON	Iron Age enclosure at Kent International Business Park, Acol	Pit, Ditch, Enclosure, Farmstead
TR 36 NW 361	MKE9104	15997	MON	Undated ring ditch, near Plumstone Farm, Monkton	Ring Ditch
TR 36 NW 368	MKE15445	5873	MON	Iron Age pits at Manston	Pit
TR 36 NW 369	MKE15446	5874	MON	Romano-British or later pits at Manston	Pit
TR 36 NW 373	MKE16100	6589	MON	Cropmark complex in Manston Airfield, Minster parish	Enclosure, Linear System
TR 36 NW 376	MKE16106	6595	MON	Ring ditch and macula cropmark features, Monkton	Macula, Ring Ditch, Pit
TR 36 NW 377	MKE16107	6596	MON	Undated cropmark features, near Plumstone Farm, Monkton	Barrow, Linear Feature, Ring Ditch, Pit Defined Enclosure
TR 36 NW 378	MKE16108	6598	MON	Linear cropmark system near Alland Grange	Linear System

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 379	MKE16109	6599	MON	AP linear feature	Linear Feature
TR 36 NW 380	MKE15684	6134	MON	Ring ditch cropmark, Mill House Hospital, Minster	Ring Ditch
TR 36 NW 381	MKE15685	6135	MON	Ring ditch cropmark feature, Mill House Hospital, Minster	Ring Ditch
TR 36 NW 382	MKE19915	9272	MON	Iron Age pit, Laundry Road, Minster parish	Pit
TR 36 NW 383	MKE19916	9273	MON	Early medieval burial(s?) and pit, Laundry Road, Minster	Pit?, Inhumation
TR 36 NW 384	MKE19925	9282	MON	Unidentified pit, near Manston Airport, Minster parish	Pit?, Ditch?
TR 36 NW 385	MKE19926	9283	FS	Elizabethan coin found near Cheeseman's Farm, Minster	Findspot
TR 36 NW 386	MKE19927	9284	FS	Romano-British pottery sherds and tile fragments, near Manston Park, Minster parish	Findspot
TR 36 NW 389	MKE20118	9489	MON	Prehistoric pits, near Cleve Court, Manston	Midden, Cremation?, Pit?
TR 36 NW 390	MKE20119	9490	FS	Bronze Age spearhead, near Cleve Court, Manston	Findspot
TR 36 NW 391	MKE20120	9492	FS	Bronze Age axehead, near Cleve Court, Manston	Findspot
TR 36 NW 392	MKE20121	9493	FS	Early medieval beads, near Cleve Court, Manston	Findspot
TR 36 NW 393	MKE20122	9494	MON	Iron Age features, near Cleve Court, Manston	Ditch, Pit
TR 36 NW 395	MKE20150	9524	MON	Late Neolithic/early Bronze Age features, Kent International Business Park, Acol	Pit?, Site?
TR 36 NW 396	MKE20151	9525	MON	Middle Bronze Age ditch and pit, Kent International Business Park, Acol	Site, Ditch, Pit
TR 36 NW 397	MKE20152	9526	MON	Possible Neolithic/early Bronze Age site, Manston, Acol	Ditch, Pit

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 398	MKE20154	9528	MON	World War II slit trench, Kent International Business Park, Monkton and Acol parishes	Slit Trench
TR 36 NW 399	MKE20153	9527	MON	Site of an RAF bombing range, Kent International Business Park, Monkton and Acol parishes	Bombing Range
TR 36 NW 401	MKE20602	10006	MON	Undated ring ditch, north of Manston Airport, Minster parish	Ring Ditch
TR 36 NW 405	MKE20987	796	FS	Coin of Charles I found near Cheeseman's Farm, Minster	Findspot
TR 36 NW 432	MKE40120	37479	MON	Manston military and civil aviation airfield	Airfield
TR 36 NW 435	MKE42991	38904	MON	Field Boundary of Probable Bronze Age date, and prehistoric flints, Manston Park Bungalows	Field Boundary?
TR 36 NW 437	MKE43393	39377	MON	Manston Caves, a mid 18th century chalk mine	Chalk Pit
TR 36 NW 439	MKE77191	57080	FS	Prehistoric flints, St. Catherine's Grove, Manston	Findspot
TR 36 NW 447	MKE77251	57143	MON	Cropmarks of enclosures and a trackway, west of Manston	Rectilinear Enclosure, Trackway, Field System, Linear Feature
TR 36 NW 448	MKE77252	57144	MON	Cropmark of a ring ditch, west of Manston	Ring Ditch
TR 36 NW 450	MKE78190	33582	MON	Possible Roman pits, improvements to the A253 west of Minster	Pit
TR 36 NW 451	MKE78185	57618	MON	Undated ditches/possible ditches, improvements to the A253 west of Minster	Ditch
TR 36 NW 452	MKE78204	35489	MON	Undated pallisade trench or wall foundation, improvements to A253 west of Minster	Palisade Ditch?
TR 36 NW 453	MKE78202	38728	MON	Later Prehistoric post holes, improvements on the A253 west of Minster	Post Hole
TR 36 NW 454	MKE78206	57621	MON	Bronze Age burial, improvement to the A253 west of Minster	Human Remains, Crouched Inhumation

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 455	MKE78213	57628	MON	Part of Anglo-Saxon sunken featured building, improvements on A253 west of Minster	Grubenhau
TR 36 NW 456	MKE78220	57635	MON	Ring ditches, pits, and linear features	Ring Ditch, Barrow Cemetery?, Pit, Linear Feature, Enclosure, Grubenhau?
TR 36 NW 457	MKE78388	57840	MON	Goalpost enclosures, Monkton and Acol parishes	Enclosure
TR 36 NW 461	MKE78397	57847	MON	Irregular enclosure, south of Westbrook	Enclosure
TR 36 NW 466	MKE78611	58470	MON	Bronze Age ditch, Manston Airport	Ditch
TR 36 NW 467	MKE78612	58471	MON	Roman pit, Manston Airport	Pit, Hearth
TR 36 NW 468	MKE78613	58472	MON	Medieval occupation, Manston Airport	Ditch, Pit, Demolition Debris
TR 36 NW 469	MKE78614	58473	FS	Early Iron Age to Roman pottery, Manston Airport	Findspot
TR 36 NW 470	MKE78615	58474	FS	Late Bronze Age to Early Iron Age pottery, Manston Airport	Findspot
TR 36 NW 471	MKE78616	58475	FS	Mid Saxon to medieval pottery, Manston Airport	Findspot
TR 36 NW 474	MKE78621	58481	MON	Anglo-Saxon Sunken Featured Building, Queensdown Riding and Livery Centre	Grubenhau, Pit, Ditch, Post Hole
TR 36 NW 475	MKE78623	58482	MON	A possibly Late Iron Age pit, Queensdown Riding and Livery Centre	Pit
TR 36 NW 476	MKE78633	58490	MON	Roman ditch, Woodchurch	Ditch
TR 36 NW 477	MKE78639	58497	MON	Bronze Age ditch and post holes, The Hanger, The Loop, Manston	Ditch, Post Hole
TR 36 NW 481	MKE78779	58624	MON	Medieval quarry, Grove Farm, Manston	Quarry

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 482	MKE78784	58629	MON	Neolithic pit and pottery, Tothill Street, Minster	Pit
TR 36 NW 483	MKE78785	72560	MON	Bronze Age round barrow, Tothill Street, Minster	Round Barrow
TR 36 NW 484	MKE78786	58631	MON	Iron Age settlement, Tothill Street, Minster	Pit, Ditch, Inhumation, Post Alignment, Quarry
TR 36 NW 485	MKE78787	58632	FS	Roman pottery, Tothill Street, Minster	Findspot
TR 36 NW 486	MKE78788	58633	MON	Probable Second World War structure, Tothill Street, Minster	Structure
TR 36 NW 487	MKE80244	59858	FS	Bronze age flints, Manston Court Road, Manston	Findspot
TR 36 NW 488	MKE80245	59859	MON	Possible Roman post holes, Manston Court Road, Manston	Post Hole
TR 36 NW 489	MKE80483	60039	MON	Palaeolithic worked flints, The Loop, Manston	Lithic Working Site
TR 36 NW 490	MKE80484	60040	MON	Late Iron Age post holes, Manston	Post Hole
TR 36 NW 494	MKE80647	60201	MON	Undated ditch, Bradgate Caravan Park	Ditch
TR 36 NW 495	MKE80651	60205	MON	An undated ditch, Woodchurch Road	Ditch
TR 36 NW 498	MKE76982	56954	FS	Anglo-Saxon silver early penny ('sceat'), Manston	Findspot
TR 36 NW 499	MKE76983	56955	FS	Merovingian gold tremissis, Manston	Findspot
TR 36 NW 500	MKE89615	69296	MON	Middle Bronze Age-Late Bronze Age occupation, Tothill Street	Enclosure, Ditch, Post Built Structure, Round House (Domestic)
TR 36 NW 501	MKE89616	69297	MON	Late Iron Age-Roman occupation, Tothill Street	Ditch, Grubenhau, Extended Inhumation, Post Hole

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 502	MKE89714	69978	MON	Middle Bronze Age enclosures, The Loop, Manston	Pit, Trackway, Enclosure, Post Hole, Waterhole, Settlement?, Double Ditched Enclosure?
TR 36 NW 503	MKE89715	69397	MON	Medieval gully, The Loop, Manston	Gully
TR 36 NW 504	MKE90441	69986	FS	Mesolithic/Early Neolithic flints, The Loop	Findspot
TR 36 NW 506	MKE89856	70669	CRA	Crash site of Heinkel He111H-2	Aircraft Crash Site, He111
TR 36 NW 507	MKE89855	70671	CRA	Crash site of Hawker Typhoon IB	Aircraft Crash Site, Typhoon
TR 36 NW 508	MKE89854	70673	CRA	Crash site of Hawker Typhoon IB	Aircraft Crash Site, Typhoon
TR 36 NW 509	MKE89853	70675	CRA	Crash site of Consolidated B24J Liberator	Aircraft Crash Site, B24 Liberator
TR 36 NW 510	MKE89852	70677	CRA	Crash site of Consolidated B24H Liberator	Aircraft Crash Site, B24 Liberator
TR 36 NW 512	MKE89850	70682	CRA	Crash site of Bristol Blenheim	Aircraft Crash Site, Blenheim
TR 36 NW 513	MKE90718	70856	MON	An undated trackway, Manston	Trackway
TR 36 NW 518	MKE90888	71158	MON	Second World War air raid shelter, Manston Airport	Air Raid Shelter
TR 36 NW 522	MKE35037	25244	LB	Wayborough Manor	House, Site, Jettied House, Courtyard, Arch
TR 36 NW 529	MKE91050	71439	MON	Possible ring ditch, Thorne Farm, Ramsgate	Ring Ditch?
TR 36 NW 530	MKE91051	71440	MON	Possible ring ditch, Thorne Farm, Ramsgate	Ring Ditch?
TR 36 NW 531	MKE91052	71441	FS	Roman pottery, Thorne Farm, Ramsgate	Findspot

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 532	MKE91053	71442	FS	Medieval pottery and peg tile, Thorne Farm, Ramsgate	Findspot
TR 36 NW 533	MKE91192	71610	MON	Cropmark of a ring ditch, to the north east of Minster	Ring Ditch
TR 36 NW 534	MKE91193	71611	MON	Cropmark of a ring ditch, north of Minster	Ring Ditch
TR 36 NW 535	MKE91197	71615	MON	Cropmark of a ring ditch, south of Manston near A253	Ring Ditch
TR 36 NW 536	MKE91199	71617	MON	Cropmark of a ring ditch, south of Manston near the A253	Ring Ditch
TR 36 NW 537	MKE91201	71619	MON	Cropmark of a ring ditch, north of Cleve Court Farm near Acol	Ring Ditch
TR 36 NW 538	MKE91202	71620	MON	Cropmark of a ring ditch, North of Cleve Court Farm, near Acol	Ring Ditch
TR 36 NW 539	MKE91203	71621	MON	Cropmark of a rectilinear enclosure, north of Cleve Court Farm near Acol	Rectilinear Enclosure
TR 36 NW 543	MKE91210	71627	MON	Cropmark of a ring ditch, to the east of Manston runway	Ring Ditch
TR 36 NW 544	MKE91211	71628	MON	Cropmark of a ring ditch, to the east of Manston runway	Ring Ditch
TR 36 NW 545	MKE91212	71629	MON	Cropmark of a ring ditch, to the east of Manston runway	Ring Ditch
TR 36 NW 546	MKE91373	72046	FS	East Kent Access route: Palaeolithic flake, found during excavations	Findspot
TR 36 NW 547	MKE91908	72455-72456	MON	Features identified by geophysical survey on the site of a proposed solar farm at Manston Airfield	Site
TR 36 NW 549	MKE87019	66546	FRM	Wood Farm	Farmstead
TR 36 NW 550	MKE97536	77696	MON	Undated Pit, Bay View, Windsor Road, Ramsgate	Pit

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 551	MKE97645	77850-77851	FS	Flint flake and pleistocene geological sequence, The Loop, Manston	Findspot
TR 36 NW 552	MKE97770	77981	LB	Manston War Memorial	War Memorial (Freestanding)
TR 36 NW 553	MKE98004	78153	MON	Site of RNAS Manston	Seaplane Base
TR 36 NW 666	MKE97488	77644	BLD	Second World War semi-sunken brick building, located on Windsor Road.	Building
TR 36 NW 885	MKE98024	78162	MON	World War Two aircraft dispersal bay at the former Manston Airport.	Dispersal Pen
TR 36 NW 888	MKE98027	78163	MON	World War Two RAF Battle HQ at the former Manston Airport.	Airfield Defence Site
TR 36 NW 890	MKE98029	78164-78165	MON	RAF Manston intelligence hut.	Airfield Building
TR 36 NW 894	MKE98340	78444	MON	Royal Observer Corps Listening Post	Underground Monitoring Post
TR 36 NW 1012	MKE35293	24853	LB	Old Forge House	Site, House, Date Stone
TR 36 NW 1013	MKE35152	25348	LB	Way House And Wayborough House, And Garden Wall Attached	Site, Timber Framed House, House, Garden Wall, Outbuilding
TR 36 NW 1015	MKE34790	25657	LB	Barn At Manston Green	Site, Timber Framed Barn, Aisled Barn, Barn
TR 36 NW 1017	MKE34787	25655	MON	Former site of a barn about 50 metres south west of Grove Farmhouse	Site, Timber Framed Barn, Aisled Barn
TR 36 NW 1018	MKE34786	25654	LB	Grove Farmhouse And Walled Front Garden	Site, House, Steps, Garden Wall
TR 36 NW 1031	MKE35295	24862	LB	Granary About 25 Metres South Of Manston Court Farmhouse	Site, Granary, Timber Framed Building, Staddle Stone
TR 36 NW 1041	MKE39395	20310	MON	Pillbox	Pillbox



HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 1043	MKE39396	20311	MON	Pillbox	Pillbox
TR 36 NW 1044	MKE39432	77418	MON	Pillbox	Pillbox
TR 36 NW 1046	MKE35034	25246	LB	Prospect Inn	Site, Public House, Conservatory
TR 36 NW 1047	MKE39397	20312	MON	Pillbox	Pillbox
TR 36 NW 1048	MKE39391	20306	MON	Pillbox	Pillbox
TR 36 NW 1049	MKE35036	25248	LB	Tudor Cottage, Way Hill	Site, Jettied House, House
TR 36 NW 1050	MKE39437	308	MON	Anti Invasion Defence Site	Defence
TR 36 NW 1052	MKE35040	10393	LB	Cleve Court And Cleve Lodge	House, Site, Service Wing, Timber Framed Building, Steps
TR 36 NW 1055	MKE34922	25140	LB	Flete Lodge	Site, House
TR 36 NW 1059	MKE39347	20264, 77422	MON	Pillbox	Pillbox
TR 36 NW 1060	MKE34998	11047	LB	Cheeseman's Farm	Site, Farmhouse
TR 36 NW 1062	MKE39398	274	MON	Pillbox	Pillbox
TR 36 NW 1064	MKE39433	305	MON	Pillbox	Pillbox
TR 36 NW 1065	MKE39436	307	MON	Anti Invasion Defence Site	Defence
TR 36 NW 1068	MKE39345	20262	MON	Pillbox	Pillbox

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 1071	MKE39387	20302	MON	Pillbox	Pillbox
TR 36 NW 1072	MKE39390	20305	MON	Pillbox	Pillbox
TR 36 NW 1075	MKE39389	20304	MON	Pillbox	Pillbox
TR 36 NW 1076	MKE39346	20263	MON	Pillbox	Pillbox
TR 36 NW 1077	MKE39388	20303	MON	Pillbox	Pillbox
TR 36 NW 1086	MKE89836	70733	CRA	Crash site of Supermarine Spitfire I	Aircraft Crash Site, Spitfire
TR 36 NW 1087	MKE89835	70735	CRA	Crash site of Supermarine Spitfire I	Aircraft Crash Site, Spitfire
TR 36 NW 1088	MKE89834	70737	CRA	Crash site of Messerschmitt Bf110D	Aircraft Crash Site, Me110
TR 36 NW 1089	MKE89833	70738	CRA	Crash site of Messerschmitt Bf110D	Aircraft Crash Site, Me110
TR 36 NW 1090	MKE89832	70739	CRA	Crash site of Heinkel He 111H-2	Aircraft Crash Site, He111
TR 36 NW 1091	MKE89826	70747	CRA	Crash site of Messerschmitt Bf109E-4	Aircraft Crash Site, Me109
TR 36 NW 1095	MKE91194	71612	MON	Cropmark of a ring ditch, to the north of Minster, Thanet	Ring Ditch
TR 36 NW 1096	MKE91196	71614	MON	Cropmarks of four ring ditches, to the north of Minster, Thanet	Ring Ditch
TR 36 NW 1097	MKE91335	71991	MON	Thorne Farm: Two shallow ditches, undated	Ditch
TR 36 NW 1098	MKE91336	71992	MON	Thorne Farm: possible Roman inhumation and possible undated ditch	Inhumation, Ditch
TR 36 NW 1099	MKE91337	71993	MON	Thorne Farm: Two shallow ditches, early Iron Age and undated	Ditch

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 1100	MKE91578	72280	MON	Linear cropmark features Way Farm cottages	Linear Feature
TR 36 NW 1102	MKE91581	72281	MON	Linear cropmarks at Lord of the Manor, Thanet	Linear Feature
TR 36 NW 1106	MKE91804	72394	MON	Possible ring-ditch on 1982 aerial photograph but not visible on south-west side. On 1967 aerial photo it appears to be a chalk pit	Ring Ditch?, Chalk Pit?
TR 36 NW 1107	MKE91767	72351-72353	MON	Two windmills beneath Manston Airfield	Windmill, Building
TR 36 NW 1108	MKE91773	72358	MON	Romano-British burials and cremations discovered during excavation and pipeline work	Inhumation Cemetery, Cremation Cemetery
TR 36 NW 1108	MKE91779	72363-72366	MON	Former location of four boundary stones that do not follow the parish boundary	Boundary Stone
TR 36 NW 1111	MKE91784	72373	MON	"The Manor House", Lord of the Manor, Manston	Toll House
TR 36 NW 1122	MKE91817	72404	MON	Cropmark of a possible chalk pit at Thorne Farm	Chalk Pit?
TR 36 NW 1123	MKE91819	72405	MON	Linear parallel cropmarks east of Thorne Farm	Linear Feature
TR 36 NW 1125	MKE91823	72408	MON	Dew-pond or small chalk pit, Pouces Cottages	Chalk Pit?
TR 36 NW 1127	MKE91830	72416	MON	Cropmark of a probable chalk pit, middle of a line of three between Way Hill and Thorne Hill	Chalk Pit
TR 36 NW 1128	MKE91831	72417	MON	Cropmark of a probable chalk pit, westernmost of a line of three between Way Hill and Thorne Hill	Chalk Pit
TR 36 NW 1128	MKE91832	72418	MON	Cropmark of a probable chalk pit, easternmost of a line of three between Way Hill and Thorne Hill	Chalk Pit
TR 36 NW 1130	MKE91833	72419	MON	Cropmark of a probable chalk pit, east of Wayborough House	Chalk Pit?
TR 36 NW 1131	MKE91836	72422	MON	Cropmark of a probable small chalk pit, north-east of Thorne Farm adjacent to a concrete farm track	Chalk Pit?

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 1133	MKE91839	72425	MON	Cropmarks of possible very small pits adjacent A253 north of Cliffsend	Pit
TR 36 NW 1135	MKE91829	72415	MON	Crop-soil markings showing two ring-ditches, Way	Ring Ditch
TR 36 NW 1136	MKE92016	72544	MON	Roman circular enclosure discovered during the East Kent Access Route excavations (2009-2011)	Enclosure, Stock Enclosure?
TR 36 NW 1137	MKE92015	72543	MON	Roman fields and enclosures, possibly part of a 'ladder' settlement discovered during the East Kent Access Route excavations (2009-2011)	Ditch, Enclosure
TR 36 NW 1138	MKE92014	72542	MON	Roman trackway discovered during the East Kent Access Route excavations (2009-2011)	Trackway
TR 36 NW 1139	MKE92013	72541	MON	Early bronze age pit discovered during the East Kent Access Route excavations (2009-2011)	Pit
TR 36 NW 1140	MKE92012	72540	MON	Second World War zig-zag trench discovered during the East Kent Access Route excavations (2009-2011)	Trench
TR 36 NW 1141	MKE92011	72539	MON	Medieval linear feature discovered during the East Kent Access Route excavations (2009-2011)	Linear Feature
TR 36 NW 1142	MKE92010	72538	MON	Three Anglo-Saxon graves discovered during the East Kent Access Route excavations (2009-2011)	Inhumation
TR 36 NW 1143	MKE92009	72537	MON	Anglo-Saxon cemetery discovered during the East Kent Access Route excavations (2009-2011)	Cemetery, Inhumation
TR 36 NW 1144	MKE92008	72536	MON	Anglo-Saxon cemetery discovered during the East Kent Access Route excavations (2009-2011)	Cemetery, Inhumation, Cremation
TR 36 NW 1145	MKE92007	72535	MON	Two Anglo-Saxon hollow ways discovered during the East Kent Access Route excavations (2009-2011)	Hollow Way
TR 36 NW 1146	MKE92006	72534	MON	Romano-British cemetery discovered during the East Kent Access Route excavations (2009-2011)	Cemetery, Inhumation
TR 36 NW 1147	MKE92005	72533	MON	1st to 3rd century AD cemetery and enclosure discovered during the East Kent Access Route excavations (2009-2011)	Cemetery, Cremation, Inhumation, Enclosure, Oven?
TR 36 NW 1148	MKE91997	72524	MON	Possible iron age field system discovered during the East Kent Access Route excavations (2009-2011)	Ditch, Field System?

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 1149	MKE91998	72525	MON	Late Anglo-Saxon pits discovered during the East Kent Access Route excavations (2009-2011)	Pit
TR 36 NW 1151	MKE92001	72528	MON	Second World War defensive trenches discovered during the East Kent Access Route excavations (2009-2011)	Trench
TR 36 NW 1152	MKE92002	72529	MON	Late bronze age enclosure, ditches and pit discovered during the East Kent Access Route excavations (2009-2011)	Enclosure, Pit, Ditch
TR 36 NW 1153	MKE92003	72530	MON	Early to middle iron age post-built structures, ditch, pit and inhumation discovered during the East Kent Access Route excavations (2009-2011)	Post Built Structure, Pit, Post Hole, Ditch, Inhumation
TR 36 NW 1154	MKE92004	72531	MON	Two large trackways of late iron age / Roman date discovered during the East Kent Access Route excavations (2009-2011)	Trackway
TR 36 NW 1154	MKE92004	72532	MON	Two large trackways of late iron age / Roman date discovered during the East Kent Access Route excavations (2009-2011)	Trackway
TR 36 NW 1155	MKE92017	72545	MON	Five sunken-feature buildings discovered during the East Kent Access Route excavations (2009-2011)	Grubenhous, Inhumation, Post Hole, Pit, Hearth
TR 36 NW 1156	MKE92018	72546	MON	Small Roman cemetery discovered during the East Kent Access Route excavations (2009-2011)	Cemetery, Inhumation, Cremation
TR 36 NW 1157	MKE92019	72547	MON	One inhumation and two cremations discovered during the East Kent Access Route excavations (2009-2011)	Cemetery, Inhumation, Cremation
TR 36 NW 1158	MKE92020	72548	MON	Roman linear features discovered during the East Kent Access Route excavations (2009-2011)	Ditch
TR 36 NW 1159	MKE92021	72549	MON	Anglo-Saxon trackway discovered during the East Kent Access Route excavations (2009-2011)	Trackway
TR 36 NW 1160	MKE92022	72550	MON	Small Anglo-Saxon cemetery discovered during the East Kent Access Route excavations (2009-2011)	Inhumation
TR 36 NW 1161	MKE92023	72551	MON	Second World War zig-zag defensive trench discovered during the East Kent Access Route excavations (2009-2011)	Trench
TR 36 NW 1162	MKE92027	72552	MON	Bronze Age ring-ditch discovered during the East Kent Access Route excavations (2009-2011)	Ring Ditch, Inhumation

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 1163	MKE92029	72553	MON	Bronze Age ring-ditch discovered during the East Kent Access Route excavations (2009-2011)	Ring Ditch, Inhumation
TR 36 NW 1164	MKE92031	72554	MON	Small bronze age ring-ditch discovered during the East Kent Access Route excavations (2009-2011)	Ring Ditch, Inhumation
TR 36 NW 1165	MKE92033	72555	MON	Seven probable bronze age inhumation burials and one cremation discovered during the East Kent Access Route excavations (2009-2011)	Inhumation, Cremation
TR 36 NW 1166	MKE92036	72556	MON	Medieval field or enclosure discovered during the East Kent Access Route excavations (2009-2011)	Enclosure?
TR 36 NW 1167	MKE92038	72557	MON	Iron Age horseshoe enclosure, ditches and boundaries discovered during the East Kent Access Route excavations (2009-2011)	Enclosure, Ditch, Pit
TR 36 NW 1168	MKE92040	72558	MON	Possible Roman or medieval features discovered during the East Kent Access Route excavations (2009-2011)	Ditch, Pit
TR 36 NW 1169	MKE92043	72559	MON	Bronze Age barrow (possibly with neolithic origins) discovered during the East Kent Access Route excavations (2009-2011)	Barrow?, Ring Ditch, Pit
TR 36 NW 1170	MKE92045	72561	MON	Bronze Age barrow (possibly with neolithic origins) discovered during the East Kent Access Route excavations (2009-2011)	Barrow?, Ring Ditch, Grave, Inhumation, Ditch
TR 36 NW 1171	MKE92046	72562	MON	Bronze Age barrow discovered during the East Kent Access Route excavations (2009-2011)	Barrow?, Ring Ditch, Inhumation, Ditch, Pit?
TR 36 NW 1172	MKE92047	72563	MON	Iron Age or Roman pits discovered during the East Kent Access Route excavations (2009-2011)	Pit
TR 36 NW 1173	MKE92049	72565	MON	Bronze Age pit, discovered during the East Kent Access Route excavations (2009-2011)	Pit
TR 36 NW 1174	MKE92050	72566	MON	Iron Age features, including probable post-built structure and inhumation discovered during the East Kent Access Route excavations (2009-2011)	Post Hole, Post Built Structure, Inhumation
TR 36 NW 1176	MKE92160	72609	MON	Late iron age / early Roman settlement and enclosures, Manston Airport car-park	Enclosure, Pit, Gully, Grubenhau, Quarry, Pottery Kiln, Cremation
TR 36 NW 1177	MKE92404	72729	FS	Early medieval pottery fragments recovered during excavation	Findspot

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 1178	MKE92402	72728	FS	Roman pottery has been recorded at this location. No further details.	Findspot
TR 36 NW 1179	MKE92048	72564	MON	Foundations associated with the 19th century Fever Hospital, discovered during the East Kent Access Route excavations (2009-2011)	Infectious Diseases Hospital, Well
TR 36 NW 1180	MKE92406	72732	MON	Semi-underground hangar dating to First World War, still partly extant	Hangar?
TR 36 NW 1181	MKE92407	72734	MON	Reputed semi-underground hanger dating to First World War, shown on OS map	Hangar?
TR 36 NW 1182	MKE92409	72736	BLD	Possible nissen hut, maybe of Second World War origin, noted in 2008 desk-based assessment	Nissen Hut?
TR 36 NW 1183	MKE92442	72767	MON	Former Second World War oil depot, Canterbury Road West, Ramsgate	Storage Tank, Control Room, Pump House
TR 36 NW 1190	MKE93154	73367	MON	Auxiliary Unit operational base	Auxiliary Unit Operational Base
TR 36 NW 1191	MKE97848	78016	MON	Early Roman Cremation Burials and Roman Pottery (Manston Road)	Cremation Burial, Cremation Pit
TR 36 NW 1193	MKE97851	78018	MON	Post-Medieval Material and Features	Building, Quarry
TR 36 NW 1194	MKE97925	78088	MON	Prehistoric Features, Pottery and Struck Flint, Manston Road	Linear Feature, Curvilinear Enclosure, Plough Marks
TR 36 NW 1195	MKE97926	78089	MON	Undated Archaeological Features, Manston Road	Pit, Post Hole, Ditch, Linear Feature
TR 36 NW 1196	MKE98299	78394	MON	Hill House Military Hospital, Minster, Ramsgate	Hospital
TR 36 NW 1200	MKE93226	73410	MON	Second World War Auxiliary Unit base. Top of Windsor Road, Cliffsend.	Auxiliary Unit Operational Base
TR 36 NW 1201	MKE97293	77416	MON	Alland Grange Farmhouse: Set of tunnels used by a Special Duties Organisation (Auxiliary units).	Auxiliary Unit Operational Base
TR 36 NW 1202	MKE97294	77931	MON	Pillbox	Pillbox

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 1203	MKE97296	77420	MON	Semi-underground hangar dating to First World War, never finished.	Aircraft Hangar
TR 36 NW 1220	MKE97922	78085	MON	Trench system visible as crop marks	Trench
TR 36 NW 1221	MKE97923	78086	MON	Zig-zag trench system visible as earthworks	Trench
TR 36 NW 1222	MKE97924	78087	MON	Zig-zag trench system	Trench
TR 36 NW 1237	MKE98158	78282	MON	?1946 aerial shows very clearly large semi-circle cluster of accommodation units fronting on Manston Road.	Airfield Defence Site
TR 36 NW 1238	MKE98159	78283	MON	Approx site of ?radar array	Airfield Defence Site
TR 36 NW 1242	MKE98408	78497	MON	Approximate position of 'Klein-kampfanlage' shown on 11.1940 Luftwaffe map	Pillbox
TR 36 NW 1243	MKE98410	78499	MON	Position of 'Radio Station' shown on 11.1940 Luftwaffe map.	Airfield Building
TR 36 NW 1244	MKE98411	78500	MON	Approximate position of 'Klein-kampfanlage' .	Pillbox
TR 36 NW 1245	MKE98412	78501	MON	?Ammunition WW2 store.	Ammunition Store
TR 36 NW 1246	MKE98413	78503	MON	?Ammunition WW2 store	Ammunition Store
TR 36 NW 1247	MKE98414	78504	MON	?Ammunition WW2 store	Ammunition Store
TR 36 NW 1248	MKE98415	78505	MON	?Ammunition WW2 store	Ammunition Store
TR 36 NW 1249	MKE98416	78506	MON	?Ammunition WW2 store	Ammunition Store
TR 36 NW 1250	MKE98417	78507	MON	?Ammunition WW2 store	Ammunition Store

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NW 1251	MKE98418	78508	MON	?Ammunition WW2 store	Ammunition Store
TR 36 NW 1252	MKE98419	78509	MON	?Ammunition WW2 store	Ammunition Store
TR 36 NW 1253	MKE98420	78510	MON	?Ammunition WW2 store	Ammunition Store
TR 36 NW 1254	MKE98421	78511	MON	Bank to ?contain blast.	Earthworks
TR 36 NW 1255	MKE98422	78512	MON	?Ammunition WW2 store	Ammunition Store
TR 36 NW 1256	MKE98423	78513	MON	?Ammunition WW2 store	Ammunition Store
TR 36 NW 1257	MKE98424	78514	MON	?Ammunition WW2 store	Ammunition Store
TR 36 NW 1258	MKE98425	78515	MON	Bank to ?contain blast.	Earthworks
TR 36 NW 1259	MKE98426	78516	MON	Bank to ?contain blast.	Earthworks
TR 36 NW 1260	MKE98429	78518	MON	2013 extant ?CHLradio tower .	Radio Tower
TR 36 NW 1261	MKE98470	78558	MON	Possible Klein-kampfanlage shown on 11.1940 Luftwaffe map.	Pillbox
TR 36 NW 1262	MKE98471	78559	MON	Possible Klein-kampfanlage shown on 11.1940 Luftwaffe map	Pillbox
TR 36 NW 1263	MKE98472	78560	MON	Klein-kampfanlage shown on 11.1940 Luftwaffe map.	Pillbox
TR 36 NW 1264	MKE98473	78561	MON	'Munitions dump' shown on 11.1940 Luftwaffe map.	Ammunition Store
TR 36 NW 1265	MKE98474	78562	MON	Hidden auxiliary base	Auxiliary Base
TR 36 SE 17	MKE8018	15421	MON	Enclosure cropmark and sub circular feature, Ramsgate	Enclosure, Grubenhaus?

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 SE 20	MKE8021	15424	MON	Cropmark ring ditches, Ramsgate, Thanet	Ring Ditch, Barrow
TR 36 SE 21	MKE8022	15425	MON	Ring ditch cropmarks, Ramsgate	Ring Ditch
TR 36 SE 22	MKE8023	15426	MON	Ring ditch cropmarks, Ramsgate	Ring Ditch
TR 36 SE 23	MKE8024	15427	MON	Ring ditch and possible Anglo-Saxon barrow, Ramsgate	Barrow, Ring Ditch
TR 36 SE 25	MKE8026	15429	MON	Area cropmark features, Ramsgate	Site
TR 36 SE 26	MKE8027	15430	MON	Medieval rems	Pit
TR 36 SE 31	MKE8032	15435	MON	Slit trench cropmark, Ramsgate	Slit Trench
TR 36 SE 35	MKE8036	15439	MON	Medieval well shaft	Well
TR 36 SE 37	MKE8038	15441	FS	Romano-British coins brooch and key	Findspot
TR 36 SE 42	MKE8043	15448	MON	Probable Bronze Age barrow, Little Cliffs End, Ramsgate	Barrow, Ring Ditch, Pit
TR 36 SE 48	MKE10066	84	FS	Iron Age coin	Findspot
TR 36 SE 210	MKE91979	72507	MON	Early iron age pit discovered during the East Kent Access Route excavations (2009-2011)	Pit
TR 36 SE 319	MKE15420	57902	MON	Neolithic pit, Chalk Hill	Pit
TR 36 SE 320	MKE15421	5847	MON	Roman inhumation, Cliffsend	Inhumation
TR 36 SE 336	MKE17684	8023	MON	Possible location of Grubenhau, Pegwell, near Ramsgate	Pit, Grubenhau
TR 36 SE 342	MKE20149	9522	MON	Late Neolithic/Early Bronze Age inhumation burial, Harbour Approach Road, Ramsgate	Crouched Inhumation

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 SE 463	MKE39697	20010	MON	Pillbox	Pillbox
TR 36 SE 464	MKE39696	68984	MON	Pillbox	Pillbox
TR 36 SE 465	MKE39695	20006	MON	Pillbox	Pillbox
TR 36 SE 470	MKE39657	57686	BLD	Pillbox	Pillbox
TR 36 SE 483	MKE39669	19984	MON	Pillbox	Pillbox
TR 36 SE 572	MKE39312	68783	MON	Pillbox	Pillbox
TR 36 SE 659	MKE78441	57921	MON	Roman features, Cliffsend	Pit, Feature
TR 36 SE 683	MKE78436	57913	MON	Late Bronze Age/Early Iron Age pits and ditch/possible enclosure, Chalk Hill	Pit, Enclosure?
TR 36 SE 685	MKE78440	57918	MON	Late Iron Age feature, Chalk Hill	Feature
TR 36 SE 686	MKE78442	57928	MON	Anglo Saxon inhumation, Chalk Hill	Inhumation
TR 36 SE 687	MKE78443	114	MON	Two undated pits/post holes, Chalk Hill	Pit?
TR 36 SE 688	MKE78444	57944	MON	Remains of an undated ditch, Chalk Hill	Ditch?
TR 36 SE 716	MKE90963	71252	MON	Early medieval shell midden, Pegwell Bay	Shell Midden, Pit
TR 36 SE 720	MKE80506	60060	MON	An undated feature with a shell midden, Cliffs End	Feature, Shell Midden
TR 36 SE 733	MKE91822	72407	MON	Amorphous cropmark of possible infilled chalk pit	Chalk Pit?

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 SE 735	MKE91789	72379	MON	Parallel cropmarks of a curving linear feature with a possible bank and ditch encompassing features to the south	Linear Feature
TR 36 SE 737	MKE91992	72519	MON	Neolithic pits containing struck flints and early neolithic pottery discovered during the East Kent Access Route excavations (2009-2011)	Pit
TR 36 SE 738	MKE91994	72521	MON	Late iron age enclosure and features discovered during the East Kent Access Route excavations (2009-2011)	Enclosure, Pit
TR 36 SE 739	MKE91996	72523	MON	Anglo-Saxon cemetery and pits discovered during the East Kent Access Route excavations (2009-2011)	Cemetery, Inhumation, Grave, Pit, Hearth
TR 36 SE 753	MKE97772	77983	LB	Eastern of two Concrete Second World War 4-inch gun emplacements, Little Cliffsend Farm	Coast Battery Gun Site
TR 36 SE 754	MKE97773	77984	BLD	Western 4-inch gun emplacement, Little Cliffsend Farm	Coast Battery Gun Site
TR 36 SW 24	MKE8072	15468	MON	Iron Age burials (found 1959)	Burial
TR 36 SW 33	MKE8081	15478	MON	Bronze Age enclosure and ring ditch	Ditch, Circular Enclosure
TR 36 SW 35	MKE8083	15480	MON	Crouched Inhumation, Cliffs End	Crouched Inhumation
TR 36 SW 58	MKE8103	15493	MON	Prehistoric barrows, enclosures etc found north of Bethlehem Farm, Minster, Thanet	Barrow, Enclosure, Henge?, Farmstead?, Field System, Inhumation, Ditch, Pit
TR 36 SW 88	MKE16061	6560	MON	Ring ditch cropmark, Minster	Ring Ditch
TR 36 SW 97	MKE16051	6534	MON	Rectilinear cropmark enclosure, Thorne hill, Minster	Rectilinear Enclosure, Linear Feature, Pit
TR 36 SW 99	MKE15849	6313	MON	Undated archaeological features, Beech Grove, Ramsgate	Ditch, Pit, Post Hole, Hearth
TR 36 SW 100	MKE15863	6328	FS	Neolithic flints, potin coins, prehistoric pottery and Romano-British tiles, Abbey farm, Minster	Findspot

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 SW 106	MKE15879	6345	MON	Undated crouched inhumation burial, Cliffsend, Ramsgate	Crouched Inhumation
TR 36 SW 110	MKE16457	6969	MON	Foxborough lane brickfield, Minster	Brickworks
TR 36 SW 111	MKE16441	72378	MON	Site of Cliffsend Crossing chalk pit	Chalk Pit
TR 36 SW 123	MKE21075	317	MON	Romano-British ditches, sunken featured building, two cemeteries and pit containing prehistoric pottery	Ditch, Pit, Post Hole, Cremation Cemetery
TR 36 SW 130	MKE21097	327	MON	Possible Bronze Age features, Cliffsend, Ramsgate	Ditch
TR 36 SW 134	MKE41621	8538	MON	Six early Bronze Age round barrows, Cliffs End Farm	Round Barrow, Ring Ditch, Post Built Structure, Inhumation?
TR 36 SW 137	MKE39392	20307	MON	Pillbox	Pillbox
TR 36 SW 138	MKE39399	275	MON	Pillbox	Pillbox
TR 36 SW 162	MKE34758	25628	LB	53 And 55 Foad's Lane	Site, House, House
TR 36 SW 171	MKE35151	25245	LB	Rose Cottage	Site, End Jetty House
TR 36 SW 179	MKE35035	25247	LB	Bay Tree Cottage	Site, House, Date Stone, Plaque
TR 36 SW 180	MKE35027	25235	LB	Rose Cottage And Pansy Cottage	Site, House, Laundry, Bakehouse
TR 36 SW 182	MKE35025	25233	LB	Psalm Cottage	Site, House
TR 36 SW 183	MKE35024	15463	LB	Chapel House	Chapel, House, Site, Undercroft
TR 36 SW 224	MKE78684	58530	MON	Prehistoric occupation site, Clive Road, Cliffsend	Post Hole, Round House (Domestic)

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 SW 229	MKE80268	59881	MON	Anglo-Saxon Cemetery and possible feasting site, Cliffs End Farm	Inhumation Cemetery, Pit, Ditch, Beam Slot?
TR 36 SW 230	MKE80269	72751	MON	Late bronze age enclosure and other features found at Cliffs End Farm.	Ditch, Enclosure, Midden, Post Hole, Palisade?
TR 36 SW 231	MKE80270	72369	MON	Disused gasometer behind Mission Room	Gas Holder
TR 36 SW 232	MKE80271	59883	MON	Medieval ditch and pit, Cliffs End Farm	Ditch, Pit, Tree Throw
TR 36 SW 235	MKE80503	60057	MON	Prehistoric ditch, Cliffs End	Ditch, Post Hole?
TR 36 SW 236	MKE80504	60058	MON	Undated ditch terminal or pit, Cliffs End	Ditch?
TR 36 SW 237	MKE80505	60059	MON	Bronze Age features, Cliffs End	Ditch, Pit?
TR 36 SW 241	MKE80618	14587	MON	Cropmarks of a curvilinear feature and possible sub-rectangular enclosure, north of Cliffs End	Linear Feature, Subrectangular Enclosure?
TR 36 SW 279	MKE43649	39903	CRA	ME109	Aircraft Crash Site, Me109
TR 36 SW 282	MKE90479	72756	MON	Late Bronze Age/Iron Age ritual and mortuary site, Cliffs End Farm	Crouched Inhumation, Pit, Enclosure, Quarry?, Funerary Enclosure?, Post Hole, Cremation
TR 36 SW 288	MKE15872	6338	FS	Bronze Age artefacts, Abbey Farm	Findspot
TR 36 SW 289	MKE16463	6976	MON	Thorne Farm chalk pit, near Cliffs End, Minster parish	Chalk Pit
TR 36 SW 290	MKE78390	6561	MON	Possible ring ditch, north of Cliffs End	Ring Ditch?
TR 36 SW 291	MKE78391	57839	MON	Ring ditch, north of Cliffs End	Ring Ditch
TR 36 SW 292	MKE78392	57842	MON	Possible ring ditch, north of Cliffs End	Ring Ditch?

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 SW 297	MKE91768	72354	MON	Ovate ring cropmark Minster	Feature
TR 36 SW 297	MKE91769	72355	MON	Possible circular cropmark, Thorne Cottages, Minster	Feature
TR 36 SW 304	MKE91808	72396	MON	Cropmark of sub-rectilinear ditched enclosure , c. 50 x 35m, east of Cliffsend Farm Cottages	Enclosure
TR 36 SW 310	MKE91827	72413	MON	Ditch visible as a cropmark topping a shallow rise	Ditch?
TR 36 SW 312	MKE91828	72414	MON	Cropmark shows rectangular enclosure with causeway entrance	Enclosure
TR 36 SW 313	MKE91834	72420	MON	Cropmark of a probable chalk pit, east of Thorne Farm	Chalk Pit?
TR 36 SW 314	MKE91835	72421	MON	Cropmark of a probable small chalk pit, east of Thorne Farm	Chalk Pit?
TR 36 SW 317	MKE91787	72375	MON	6 possible pits defined as cropmarks, located between Thorne Farm and St Augustine's Golf Course	Pit
TR 36 SW 318	MKE91788	72376	MON	Crop-mark anomaly suggesting area of disturbance on southern side of Thorne Farm	Feature
TR 36 SW 323	MKE91801	72391	MON	Curving cropmark probably defining an ovate ditched enclosure but NW side is not visible	Curvilinear Enclosure
TR 36 SW 326	MKE91800	72390	MON	Cropmark indicating a ditch or gully that appears to define a trapezoidal enclosure located north of Cliffsend Farm Cottages	Ditch
TR 36 SW 328	MKE91821	72406	MON	Partial cropmark of a probable ring-ditch	Ring Ditch
TR 36 SW 329	MKE91824	72410	MON	Possible structure platform, Red Cottages, Minster	Building Platform?
TR 36 SW 361	MKE91913	72471	MON	Neolithic activity north of Great Cliffsend Farm, discovered during East Kent Access Route excavations 2009-2011, zone 9	Pit, Enclosure
TR 36 SW 362	MKE91914	72472	MON	Late bronze age well with possible wattle lining, discovered during East Kent Access Route excavations 2009-2011, zone 9	Well?

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 SW 365	MKE91956	72482	LND	Large palaeochannel discovered during the East Kent Access Route excavations (2009-2011)	Palaeochannel
TR 36 SW 366	MKE91957	72483	MON	Mesolithic tranchet axe discovered during the East Kent Access Route excavations (2009-2011)	Findspot
TR 36 SW 367	MKE91958	72484-42485	MON	Bronze Age activity discovered during the East Kent Access Route excavations (2009-2011)	Ditch, Pit, Cremation Burial
TR 36 SW 367	MKE91959	72486	MON	Iron Age ditches discovered during the East Kent Access Route excavations (2009-2011)	Ditch
TR 36 SW 367	MKE91960	72487-72490	MON	Iron Age ditches, enclosures and post-built structures discovered during the East Kent Access Route excavations (2009-2011)	Ditch, Enclosure, Post Built Structure
TR 36 SW 370	MKE91961	72491-72493	MON	Roman ditches, enclosures and boundary ditches discovered during the East Kent Access Route excavations (2009-2011)	Field System, Boundary Ditch, Post Built Structure, Enclosure
TR 36 SW 371	MKE91962	72494-72495	MON	Anglo-Saxon sunken featured buildings discovered during the East Kent Access Route excavations (2009-2011)	Grubenhau
TR 36 SW 372	MKE91963	72496	MON	Medieval ditches discovered during the East Kent Access Route excavations (2009-2011)	Ditch
TR 36 SW 373	MKE91964	72497	FS	Small assemblage of residual early prehistoric finds discovered during the East Kent Access Route excavations (2009-2011)	Findspot
TR 36 SW 374	MKE91965	72498	FS	Small bronze age agricultural settlement discovered during the East Kent Access Route excavations (2009-2011)	Gully, Pit, Ditch, Cremation Burial, Cenotaph?
TR 36 SW 374	MKE91968	72501	MON	Middle to late iron age settlement discovered during the East Kent Access Route excavations (2009-2011)	Enclosure, Ditch, Gully
TR 36 SW 376	MKE91969	72502	MON	Middle to late iron age settlement discovered during the East Kent Access Route excavations (2009-2011)	Enclosure, Ditch, Gully, Post Hole, Hollow Way
TR 36 SW 377	MKE91970	72503	MON	Romano-British burials and cremations discovered during the East Kent Access Route excavations (2009-2011)	Inhumation, Cremation
TR 36 SW 378	MKE91971	72504	MON	Romano-British ditches and hollow way discovered during the East Kent Access Route excavations (2009-2011)	Hollow Way, Ditch, Pit

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 SW 379	MKE91974	72505	MON	Bronze Age double ring-ditch discovered during the East Kent Access Route excavations (2009-2011)	Ring Ditch
TR 36 SW 380	MKE91975	72506	MON	Bronze Age ring-ditch discovered during the East Kent Access Route excavations (2009-2011)	Ring Ditch
TR 36 SW 382	MKE91980	72508	MON	Prehistoric palisade, discovered during the East Kent Access Route excavations (2009-2011)	Palisade
TR 36 SW 384	MKE91983	72510	MON	Middle iron age pits, trapezoidal enclosure, sunken feature building discovered during the East Kent Access Route excavations (2009-2011)	Enclosure, Grubenhau, Pit, Post Built Structure, Post Hole
TR 36 SW 385	MKE91985	72511	MON	Middle iron age pits west of the trapezoidal enclosure discovered during the East Kent Access Route excavations (2009-2011)	Pit, Post Built Structure, Inhumation
TR 36 SW 385	MKE91986	72512	MON	Middle iron age pits south of the trapezoidal enclosure discovered during the East Kent Access Route excavations (2009-2011)	Pit
TR 36 SW 386	MKE91987	72513	MON	Middle iron age pits east of the trapezoidal enclosure discovered during the East Kent Access Route excavations (2009-2011)	Pit
TR 36 SW 387	MKE91988	72514	MON	Middle iron age features north of the trapezoidal enclosure discovered during the East Kent Access Route excavations (2009-2011)	Pit, Quarry, Animal Burial, Fence?
TR 36 SW 388	MKE91990	72517	MON	At least one Anglo-Saxon inhumation discovered during the East Kent Access Route excavations (2009-2011)	Inhumation
TR 36 SW 389	MKE91982	72509	MON	Early iron age pits discovered during the East Kent Access Route excavations (2009-2011)	Pit
TR 36 SW 390	MKE91989	72515-72516	MON	Roman sunken-featured buildings and pits discovered during the East Kent Access Route excavations (2009-2011)	Pit, Grubenhau, Oven?, Post Hole, Stake Hole, Ramp
TR 36 SW 391	MKE91991	72518	MON	Post-medieval chalk quarry discovered during the East Kent Access Route excavations (2009-2011)	Quarry
TR 36 SW 393	MKE91993	72520	MON	Late bronze age and early iron age ditches and D-shaped double-ditched enclosure discovered during the East Kent Access Route excavations (2009-2011)	Enclosure, Trackway, Ditch
TR 36 SW 395	MKE91995	72522	MON	Roman enclosures, pits and ditches discovered during the East Kent Access Route excavations (2009-2011)	Enclosure, Pit

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 SW 399	MKE91999	72526	MON	Post-medieval chalk quarries discovered during the East Kent Access Route excavations (2009-2011)	Chalk Pit
TR 36 SW 400	MKE92000	72527	MON	Probable iron age field system discovered during the East Kent Access Route excavations (2009-2011)	Ditch, Gully, Field System?
TR 36 SW 400	MKE92051	72567	MON	Pit containing Neolithic pottery discovered during the East Kent Access Route excavations (2009-2011)	Pit
TR 36 SW 401	MKE92052	72568	MON	Two small pits, each containing a middle bronze age pot, discovered during the East Kent Access Route excavations (2009-2011)	Pit
TR 36 SW 402	MKE92054	72569	MON	Middle bronze age to early iron age field system discovered during the East Kent Access Route excavations (2009-2011)	Pit, Ditch, Field System
TR 36 SW 404	MKE92057	72570	MON	Iron age field system discovered during the East Kent Access Route excavations (2009-2011)	Ditch, Gully, Field System, Pit, Trackway
TR 36 SW 405	MKE92060	72571	MON	Roman ditches discovered during the East Kent Access Route excavations (2009-2011)	Ditch
TR 36 SW 405	MKE92064	72572	MON	Roman ditches, gullies, pits and cremations discovered during the East Kent Access Route excavations (2009-2011)	Ditch, Gully, Pit, Cremation
TR 36 SW 406	MKE92424	72752	MON	Late bronze age enclosure - the 'Central enclosure', Cliffs End Farm	Enclosure, Pit, Ditch
TR 36 SW 407	MKE92427	72754	MON	Late bronze age enclosure - the 'southern enclosure', Cliffs End Farm	Enclosure
TR 36 SW 408	MKE92434	72764	MON	Probable Second World War concrete slab, part of an anti-aircraft battery, Cliffs End Farm	Anti Aircraft Gun Emplacement?
TR 36 SW 417	MKE98621	78651-78652	MON	Magnetometer survey at land north of Cliffsend road, Cliffsend, Ramsgate, Kent	Archaeological Feature? (1 Enclosure, Linear Ditches, Pits And Possible Trackway)
TR 36 SW 1123	MKE91809	72397	MON	Possible ring-ditch, 50m diameter, north of Telegraph Hill	Ring Ditch

Table 9.2.5 Kent County Council Historic Environment Record Data: Monuments (Linear Data)

HER UID	Mon UID	Object ID	Record Type	Name	Monument Type
TR 36 NE 282	MKE78385	105	MON	Possible trackway, SE of Manston	Trackway?
TR 36 NE 675	MKE97608	2539	MON	Neolithic to Bronze Age Activity along the Margate to Broadstairs Pipe Installation	Enclosure, Barrow?, Ring Ditch, Ditch, Pit, Trackway, Post Hole
TR 36 NE 676	MKE97609	2540	MON	Late Iron Age to Roman occupation, pipeline installation between Margate and Broadstairs.	Ditch, Pit, Hollow Way?, Cremation Cemetery, Inhumation Cemetery, Oven, Grave, Post Hole, Tree Throw
TR 36 NE 677	MKE97610	2541	MON	Anglo-Saxon and Medieval features, Margate to Broadstairs pipeline installation.	Building, Bakery, Wall, Ditch, Gully, Pit
TR 15 NE 1063	MKE56547	63	MON	Ashford & Margate Railway	Railway
TR 36 NE 2406	MKE91816	2469	MON	Straight linear feature visible as a cropmark running from Lord of the Manor to the east end of Manston airfield	Linear Feature
TR 36 NW 438	MKE75996	75	MON	Dunstrete	Trackway
TR 36 NW 893	MKE98032	2585	MON	"The Loop" at the former Manston Airport.	Taxiway
TR 36 NW 1100	MKE91577	2455-2458	MON	Linear cropmark features north of Minster House	Linear Feature
TR 36 NW 1101	MKE91580	2446-2448	MON	Linear cropmarks north of Cliffs End	Linear Feature
TR 36 NW 1102	MKE91581	2449-2450	MON	Linear cropmarks at Lord of the Manor, Thanet	Linear Feature
TR 36 NW 1102	MKE91582	2451-2452	MON	Earthworks east of Dellside, Wayborough Hill, Minster	Linear Earthwork
TR 36 NW 1104	MKE91583	2453	MON	Earthwork, Way Hill, Minster	Linear Earthwork
TR 36 NW 1105	MKE91584	2454	MON	Earthwork east of Way Farm Cottages, Minster	Linear Earthwork

Table 9.2.6 Kent County Council Historic Environment Record Data: Monuments (Polygon Data)

HER UID	Mon UID	Object ID	Record Type	Name	Mon Type
MWX43151	MWX43151	1397	MON	WWII coastal defences to the north of Cliffsend Farm, west of Pegwell	Pillbox, Slit Trench, Bank (Earthwork), Military Building, Machine Gun Emplacement
MWX43152	MWX43152	1446	MON	WWII coastal defences NNE of Cliffsend Farm, west of Pegwell	Slit Trench, Machine Gun Emplacement, Pillbox
MWX43158	MWX43158	1447	MON	Cropmarks on Chalk Hill, west of Pegwell	Sub Circular Enclosure, Pit Cluster, Ditch
MWX43170	MWX43170	1448	MON	Two possible pits visible as crop marks, west of Pegwell, Ramsgate	Pit
MWX43184	MWX43184	3424	MON	Complex of WWII coastal defences and gun emplacements, Pegwell Bay, west of Ramsgate	Slit Trench, Bank (Earthwork), Barbed Wire Entanglement, Anti Aircraft Battery, Nissen Hut, Machine Gun Post, Military Building, Pillbox
MWX43229	MWX43229	3441	MON	Three WWII structures, located around Pegwell Bay, W of Ramsgate	Military Building, Pillbox
MWX43230	MWX43230	3442	MON	WWII beach scaffolding along the coast at Pegwell Bay	Beach Scaffolding
TR 36 NE 58	MKE7638	5157	MON	Early medieval burials and grave goods, Ozengell cemetery, near Monkton	Inhumation Cemetery, Inhumation, Ring Ditch, Barrow?, Grave Slab
TR 36 NE 2423	MKE98698	6844-6847	MON	Air Photo and Lidar mapping, Ozengel Grange, Ramsgate; Iron age and Roman	Enclosure, Ditch, Rectilinear Enclosure, Boundary
TR 36 NE 2425	MKE98702	6848-6850	MON	Air photo and lidar mapping for land at Ozengell Grange, Ramsgate; Medieval	Rectilinear Enclosure, Pit, Enclosure, Feature
TR 36 NW 87	MKE7865	31	MON	Cropmark complex, Minster	Enclosure, Ring Ditch
TR 36 NW 881	MKE98020	6387	MON	T2 Hangar at Manston Airport.	Aircraft Hangar
TR 36 NW 882	MKE98021	6388	MON	Civil Control Tower at the former Manston Airport	Control Tower
TR 36 NW 883	MKE98022	6389	MON	Crash fire station at the former Manston Airport.	Fire Tender House



HER UID	Mon UID	Object ID	Record Type	Name	Mon Type
TR 36 NW 884	MKE98023	6390	MON	Mechanical transport hangar at the former Manston Airport.	Aeroplane Repair Section Shed
TR 36 NW 886	MKE98025	6391	MON	RAF Manston Control Tower.	Night Fighter Station Watch Office, Control Tower
TR 36 NW 887	MKE98026	6392	MON	An office building at the former Manston Airport.	Workshop
TR 36 NW 889	MKE98028	6393	MON	Civil terminal at the former Manston Airport.	Terminal Building, Terminal Building
TR 36 NW 891	MKE98030	6394	MON	Former married quarters close to RAF Manston.	Airmens Quarters
TR 36 NW 892	MKE98031	6395	MON	Main runway at the former Manston Airport.	Runway
TR 36 NW 1106	MKE91766	5457	MON	Site of Isle of Thanet Union Workhouse with isolated smallpox infirmary	Workhouse, Hospital
TR 36 SE 324	MKE16630	6208	MON	World War II battery at Little Cliffsend Farm, Ramsgate	Battery, Gun Emplacement, Machine Gun Emplacement, Military Building, Barbed Wire Entanglement
TR 36 SE 469	MKE39435	1539	MON	Anti invasion defence site	Defence, Machine Gun Emplacement, Pillbox, Slit Trench, Bank (Earthwork)
TR 36 SW 417	MKE98621	6653-6654	MON	Magnetometer survey at land north of Cliffsend road, Cliffsend, Ramsgate, Kent	Archaeological Feature?

Table 9.2.7 Historic England: AMIE Events (Points Data)

Activity ID	Name	Activity	Easting	Northing
639594	Gas Pipeline Site:Phase 3/4	Excavation	630000	165700
639598	Way/Manston Airfield	Excavation	632300	165700
639609	Thorne Farm	Excavation	633200	165500
639613	Manston Aerodrome	Excavation	634100	165400
639614	Cliffs End	Excavation	634500	165200
639615	Manston	Excavation	635300	165700
639617	Lydden/Sprattling Court Farm, Manston	Excavation	635400	166500
639618	Lord of The Manor	Excavation	635400	165300
639619	Lord of The Manor	Excavation	635400	165300
639620	Osengall/Ozingell	Excavation	636100	165400
639621	Osengall	Excavation	636100	165400
639622	Nethercourt Estate (Stalrad Factory)/Lord of The Manor	Excavation	636000	165230
641119	Osengall	Excavation	636100	165400
660247	Selling to Thanet Trunk Water Main: Site T	Watching Brief	634200	167200
660248	Selling to Thanet Trunk Water Main: Site U	Watching Brief	634400	167200
660249	Selling to Thanet Trunk Water Main: Site R	Watching Brief	631100	166200
660250	Selling to Thanet Trunk Water Main: Site S	Watching Brief	631100	166200

Activity ID	Name	Activity	Easting	Northing
660252	Sparrow Castle to Manston Pipeline, Birchington	Watching Brief	631900	165700
660254	Lord of The Manor Junction(A253/A256)	Excavation	635000	165000
660256	Manston	Excavation	635100	165200
937168	Ozengell / Lord of The Manor	Excavation	635500	165300
1001578	Thanet Way Duelling (Phase 1)	Evaluation	631100	166100
1001589	Thanet Trunk Water-Main	Excavation	631100	166100
1001614	Spratling Court Farm, Manston	Excavation	635000	165700
1001644	Nethercourt Estate	Evaluation	635800	165300
1044843	Richborough Wtw - Ramsgate Main	Watching Brief	635300	164500
1064774	A253 Thanet Way Extension	Excavation	630200	165600
1069394	Ramsgate Main (Sandwich Bay Project)	Watching Brief	636000	164600
1069800	Kent International Business Park	Evaluation	631300	166500
1071512	A253 Monkton-Minster	Evaluation	630200	165600
1073467	Monkton To Mount Pleasant (A253 Dualling)	Excavation	630910	165790
1234345	Kent International Business Park	Excavation	631300	166500
1326139	Laundry Road, Minster	Evaluation	631700	165600
1328995	The Oaklands Nursery Site, Cliffsend	Desk Based Assessment	634490	164090
1354413	Land at Laundry Hill Business Park	Watching Brief	631650	165350

Activity ID	Name	Activity	Easting	Northing
1371823	Way Hill	Watching Brief	632400	165500
1379126	Land at London Manston Airport	Evaluation	634500	166500
1389602	Spratling Court Farm, Manston Road	Environmental Impact Assessment	635000	165700
1403456	Land at 4-6 St Marys Road	Watching Brief	631880	165620
1405785	London Manston Airport	Environmental Impact Assessment	634500	166500
1410715	Edf Substation Site	Evaluation	634390	166900
1434919	189 Ramsgate Road, Broadstairs	Evaluation	633800	166800
1434925	Land at Westgate Avenue/Woodchurch Road	Evaluation	633300	167600
1434928	The Hangar, The Loop	Evaluation	631800	166580
1459646	Cummins Factory, Columbus Avenue, Manston Park	Watching Brief	631455	166941
1469473	Manston Park Bungalows	Evaluation	632720	166690
1480757	Fleet-Rumfields Water Pipeline	Watching Brief	635640	165960
1481675	Former Allotments, Manston Road	Evaluation	636161	165834
1484438	Manston Court Farm	Watching Brief	634300	166600
1484534	Land at Cliffs End Farm	Evaluation	634800	164200
1484540	Grove Farm, Manston Road	Evaluation	634750	166600
1520096	Thanet Water Supply Strategy: Fleete to Rumfields	Excavation	634500	167300
1523916	Land Adjacent to 19 Mount Green Avenue	Evaluation	634953	164394



Activity ID	Name	Activity	Easting	Northing
1528279	Cliff's End Farm, Ramsgate	Excavation	634790	164200
1533278	Land at Tesco Superstore, Manston	Desk Based Assessment	636170	165500
1565389	Land North-West of The Loop	Excavation	631540	166730
1577513	Manston Business Park	Desk Based Assessment	631705	166560
1579521	Thorne Farm Solar Array	Geophysical Survey	633300	165290
1579625	Land at Thorne Farm	Systematic Fieldwalking Survey	633300	165290
1586209	Land at Thorne Farm	Evaluation	633257	164961
1592721	Land near Manston Airport	Geophysical Survey	634367	166037
1593111	Land at Thorne Farm	Watching Brief	633158	165310
1604003	Land North of Cliffsend Road	Geophysical Survey	634720	164485
1604556	Land Fronting Tothill Street	Evaluation	631123	165548

Table 9.2.8 Historic England: AMIE Monuments (Points Data)

Mon ID	Name	Easting	Northing
468866	Anglo-Saxon inhumation cemetery, with some Roman burials, at Ozengall.	636150	165470
468869	Cropmarks of a rectilinear enclosure, apparently double ditched, with rounded corners.	636000	165600
468908	Two Iron Age pits, cropmarks of enclosures, and fields	636310	165210
468933	Sub-circular enclosure	636390	165250
468962	Anglo-Saxon inhumation cemetery, part of Ozengall cemetery.	635540	165120
469018	Ring ditch	635700	165200
469019	Poss large enclosure	635800	165200
469029	Roman-British remains, including ditches and middens.	635400	166500
469031	Medieval enclosures	635300	165700
469035	Cropmarks of a Roman-British building; possibly a duplicate of TR 36 NE 27.	636100	165600
469041	Possible Romano-British domestic site	636000	165230
469096	Cropmarks of enclosures, Roman dewpond or chalk workings.	635000	167500
469097	Cropmarks of enclosures and a possible Roman building.	635100	167500
469099	Romano-British burials found within an Anglo-Saxon cemetery.	636000	165500
469103	Cropmark of ring-ditch - probably ploughed out barrow	635000	165200
469104	Late Neolithic/early Bronze age burial pit with crouched inhumation, found in ring ditch cropmarks	635150	165220
469170	`U' chalk cut chamber	630380	166840



Mon ID	Name	Easting	Northing
469182	Domestic building probably using material from the demolished Manston Manor	634310	166700
469197	Late 1st to early 2nd century Roman-British cremations	630970	165540
469198	Findspot of a coin hoard, possibly Roman or Anglo-Saxon	631500	165700
469217	EIA pits	634100	165400
469229	Ring ditches (prob sites of barrows)	630500	165800
469263	Wayborough Manor (15th c)	631940	165060
469264	Cleve Court (18th c and later)	631140	166330
469281	Possible PM field boundary	633870	168100
469290	Cropmarks of enclosure	633500	167500
469291	Ring ditch, enclosures	633950	167880
469292	Cropmarks of enclosure	634900	167500
469295	Cropmarks of ring ditches - probably ploughed out barrows	631188	165599
469296	Cropmarks of enclosures	631200	165800
469302	Enclosure	633500	166200
469344	Possible Post Medieval field boundary	633820	167780
469345	Possible Post Medieval field boundary	634070	167810
469347	Cropmarks of ring ditch - possible ploughed-out barrow	633590	167520
469349	Ring ditch	633500	167400

Mon ID	Name	Easting	Northing
469383	Track	630900	165500
469384	Ring ditch	630700	165300
469386	Ring ditch cropmark	632350	165360
469387	Cropmark	631700	165600
469390	Ring ditch	634986.8	165199.3
469391	Ditch containing some Early Iron Age sherds	630000	165660
469394	Findspot consisted of closely-packed flints and small pieces of iron slag, with sherds of Belgic and Romano British pottery.	632870	165480
469395	Shallow pits and Iron Age pottery, possibly indicating a settlement site	633170	165460
469396	Group of three Anglo-Saxon graves, one grave may have been covered by a small boat.	633370	165430
469397	A Romano-British inhumation and cremation cemetery	633420	165410
469398	Ditch containing Romano-British potsherds	633630	165330
469399	Inhumation of uncertain date	634120	165220
469400	Traces of Late Iron Age settlement	634300	165150
469402	Barbed iron projectile points of uncertain date	630320	165670
469417	Cropmark of rectangular enclosure	631200	165600
469418	A Roman industrial and occupation site	631187	165803
469419	Cropmarks of enclosures and possible round barrows	631560	165850

Mon ID	Name	Easting	Northing
469420	Double-ditched enclosure observed as a soil mark	630700	166400
469421	Romano-British potsherds findspot	631100	166200
469423	Cropmark site featuring small ring ditches and linear ditches	631500	165600
469424	Inhumations burials, now destroyed	631700	165500
469425	Late 7th century Anglo Saxon bead and knife findspot	631489	165701
469427	Group of five inhumations with grave goods, uncertain date	630300	165600
469429	Belgic sherds findspot	634200	167200
469430	Romano-British pottery and building materials findspot	634400	167200
469431	Denehole near Plumstone Road featured Romano-British potsherds in its fill, probably residual	630230	166770
469482	Cropmark of ring ditch	635550	164600
469487	Medieval pit or ditch containing pottery	635700	164400
469500	Md well shaft	635750	164380
469502	Roman coins, brooch, and key findspot	635250	164450
469507	Cropmark of ring ditches - probably ploughed-out barrows	635900	164900
469529	Chapel of St Nicholas	633410	164970
469564	IA burials	634940	164330
469591	Crouched inhumation accompanied by a bell beaker	634550	164790
469613	Pits and grave, all probably Iron Age, in area of cropmarks	634700	164600

Mon ID	Name	Easting	Northing
511812	A barn built in 1702 at Manston Grange farm	634747	166216
858919	Iron Age coin	635850	164650
949168	Wayborough Manor	632920	165050
949183	Chapel House	633420	164970
1066630	Four large, rectangular pits, seen as cropmarks, possible Early Medieval grubenhauser	635950	164600
1152134	A 7th century Anglo-Saxon inhumation cemetery	630560	165750
1193831	Several archaeological features on Chalk Hill	636000	164600
1193954	A Romano-British inhumation at Cliffsend	635300	164500
1193956	A Jutish inhumation	635680	164780
1375546	World War Two German Messerschmitt Me109 fighter aircraft crash site	632600	164900
1413716	The site of a Royal Observer Corps monitoring post	633400	166500
1413779	The site of a Royal Observer Corps monitoring post	631540	165680
1423424	Bethlehem Battery	634744	164441
1423869	World War II pillbox	635200	164300
1423881	Pair of World War II gun emplacements at Little Cliffs End Farm	635654	164446
1424621	Pillbox	633900	167100
1424626	Second World War reinforced concrete pillbox	634100	166800
1424627	Second World War reinforced concrete pillbox	634100	166600



Mon ID	Name	Easting	Northing
1425862	Site of Second World War pillbox	636300	165600
1425863	Site of Second World War pillbox	635900	165900
1425864	Second World War reinforced concrete pillbox	632600	165700
1425865	Second World War defence site; type uncertain	633900	165200
1425866	Site of Second World War roadblock	635500	165100
1425867	Second World War defence site; type uncertain	635900	164500
1425868	Defence site; type uncertain	633000	165100
1425869	Second World War defence site; type uncertain	631400	165300
1428738	Second World War reinforced concrete pillbox	632800	166700
1428739	Second World War reinforced concrete pillbox	633100	166900
1428741	Second World War reinforced concrete pillbox	633600	166800
1428742	Pillbox	632900	166100
1428743	Second World War reinforced concrete pillbox	633000	165600
1428744	Second World War reinforced concrete pillbox	633700	164400
1428749	Second World War reinforced concrete pillbox	634400	166900
1428750	Second World War reinforced concrete pillbox	634000	165900
1428751	Second World War reinforced concrete pillbox	634500	165500
1428752	Second World War reinforced concrete pillbox	634400	165600



Mon ID	Name	Easting	Northing
1428753	Site of Second World War pillbox	634600	164100
1428810	Pillbox	635400	164500
1428847	Site of Second World War pillbox	635600	165300
1428848	Second World War reinforced concrete pillbox	635300	165300
1428849	Pillbox	635500	164900
1428851	Site of Second World War pillbox	635100	164500
1428852	Site of Second World War pillbox	635700	164700
1428862	Second World War reinforced concrete pillbox	635500	165900
1428863	Site of Second World War pillbox	635700	165600
1454907	Heavy Anti Aircraft Battery Ramsgate F5	635500	165500
1454908	Heavy Anti Aircraft Battery Ramsgate F6	631200	166200
1457711	The cropmarks of two ditches of uncertain date	633660	165210
1457724	The cropmark of a possible Prehistoric enclosure	634840	164900
1457783	A linear cropmark of uncertain date	632650	165420
1473745	Cliffsend Heavy Anti Aircraft Battery	634900	164500
1485781	Pegwell Bay Emergency Coastal Battery	635100	164300
1554191	Battle of Thanet	634705	167714
1561195	Searchlight Battery Hc05 2x	635200	167200



Mon ID	Name	Easting	Northing
1561319	Searchlight Battery HC06 C	633900	166500
1561328	Searchlight Battery HC06 F	632200	166400
1561332	Searchlight Battery HC06 A	632500	167200
1561336	Searchlight Battery HC06 B	634000	167700
1561340	Searchlight Battery HC06 D	634300	165100
1561344	Searchlight Battery HC06 E	633000	164900



Table 9.2.9 Historic England: AMIE Monuments (Linear Data)

Mon ID	Name	Easting	Northing
1043538	Dunstrete	631329	165811
1357335	Ashford and Margate Branch Railway	618476	160622

Table 9.2.10 Historic England: AMIE Monuments (Linear Data)

Mon ID	Name	Easting	Northing
468945	Cropmarks of ring ditches representing the site of a round barrow cemetery	635500	165300
468954	Probable round barrow	635020	165390
468958	Sites of 2 probable round barrows	635800	165000
468995	Cropmark of enclosure and curvilinear feature	635177	167536
468997	Possible barrow	635100	167500
468998	Cropmark	635203	165680
469114	Cropmarks of barrows and field boundary systems	636400	165300
469161	Two disused chalkpits	632100	166360
469164	Cheesemans Camp	632350	166800
469196	IA coins	634500	167500
469214	Barrow (site of) EBA primary and a secondary find	634100	165400
469260	Roman pottery, iron slag	633500	165500
469265	A Lower Palaeolithic handaxe findspot	631500	165500
469282	Cropmarks of possible round barrows and graves	634100	168200
469293	Cropmarks of enclosures, barrows, and field systems	633500	167300
469294	Cropmarks of enclosures & barrows	632500	166500
469297	A large complex of cropmarks including enclosures and three ring ditches (Scheduled Monument)	631935	165409
469333	Possible barrow	633500	167900

Mon ID	Name	Easting	Northing
469342	Cropmark	634404	168101
469343	Enclosure	634237	167873
469346	Five enclosures	633692	167632
469348	Enclosure	633318	167612
469376	Enclosures	630456	166795
469377	Two ring ditches observed as cropmarks	630600	166430
469378	Probable barrows	630500	166500
469379	Possible barrow site	631700	166900
469380	Ring ditch and two pits	632200	166900
469381	Cropmarks	632614	166145
469382	Ring ditches and barrows	630700	165600
469385	Group of ring ditches observed as cropmarks	631320	165800
469388	Possible barrow	631900	165300
469389	Possible barrows	632100	165500
469392	A possible Iron Age to Romano-British industrial settlement	632400	165580
469393	Potin coin and Romano-British potsherds findspot	632560	165550
469403	Mid-ribbed blade of bronze findspot	630500	165500
469405	Three graves, possibly Anglo-Saxon, plus a ditch associated with Iron Age potsherds	630110	165650
469474	Cropmarks of a curvilinear enclosure, possibly a later Prehistoric farmstead	635874	164610

Mon ID	Name	Easting	Northing
469481	Cropmarks of two ring ditches, probably plough-levelled round barrows; the larger barrow may be Bronze Age and the smaller Saxon	635660	164750
469483	Cropmark of ring ditches	635870	164900
469484	Cropmarks of two ring ditches, probably plough-levelled barrows	636080	164840
469486	Cropmark	635560	164500
469492	Slit trenches	635200	164300
469532	A Roman cremation	634500	164500
469546	Dubnovellaunian gold stater	633500	164500
469587	Cropmarks of a Bronze Age ring ditch and enclosure	634824	164667
469622	Rectilinear enclosure	632895	164762
511813	Barn	634767	166222
534707	Manston Court Farmhouse	634500	166500
1130151	A double-ditched barrow or small henge, and a group of Romano-British features associated with sunken features	630200	165600
1236090	A skull, described as Saxon, found embedded in the cliff at Pegwell Bay	635500	164500
1365153	BB893	633300	166200
1402686	London Manston Airport	633185	166134
1428788	Second World War Type 24 Pillbox	635895	164972
1453986	Isle of Thanet Union Workhouse	631153	165400