Written submissions received for the London Assembly's Thames Estuary Airport Investigation

TEA-001A

Royal Society for the Protection of Birds

Thank you for inviting the RSPB to provide comments on the proposed Thames Estuary airport.

Please find attached to this email the RSPB's initial analysis of Doug Oakervee's Thames Estuary Airport Feasibility Review (the Review). In addition, I have also attached a zip file containing the relevant citation documents for the ten internationally protected nature conservation sites listed in the analysis I hope you find the information useful. The RSPB views the proposal to build an airport in the Thames Estuary as a totally unfeasible and impractical scheme. Our key concerns are summarised below:

• The Thames Estuary is an area of outstanding international importance for birds; consequently an airport in this location is likely to have adverse effects on internationally designated sites. The environmental effects are likely to be significant and wide ranging. They could include the loss of protected habitats, disturbance of sensitive protected species, increased atmospheric emissions, including emissions of greenhouse gases, and alteration to the hydrodynamics of the Estuary resulting in accelerated patterns of erosion and/or deposition. These effects could lead to a population scale decline of bird populations in and around the Thames Estuary

• Designated sites in the Estuary already experience significant pressure from existing activities and developments in the Estuary; these pressures will only increase with future proposed developments. The impacts of an airport in combination with existing and planned developments are likely to be significant, and we consider that these impacts are likely to be impossible to mitigate.
• The carbon costs of constructing and operating a new airport in the Thames Estuary would be entirely at odds with the Government's carbon reduction commitments. The proposal will lock the UK into yet more carbon-intensive infrastructure for decades. If the airport were to be progressed therefore, it would place a huge and expensive burden on other sectors of the economy to decarbonise even further to account for the contribution from aviation.

In answer to the specific questions posed in your email (below in bold), I have directed you to the relevant section of the attached analysis.

1. Location and nature of protected sites & species
Please refer to these two sections:

• Page 2 - The importance of the Thames Estuary
• Page 3 - Impacts on designated nature conservation from an airport in the Thames Estuary

2. Damage to wildlife sites
Please refer to this section:

• Page 3 - Impacts on designated nature conservation from an airport in the Thames Estuary
• Page 9 – Climate change

2. Birdstrike

Please refer to this section:
• Page 5 – Safety and bird strike

3. Difference in environmental impact between an airport site a few miles offshore, and one on the coast.

• We have not addressed this point in the analysis, as proposals need to be assessed on a case by case basis. In the absence of detailed information on the precise location of any airport it is difficult to predict the likely impact of that proposal. However, please see the section on safety and birds strike (page 5) where we refer to concerns raised regarding the proposed airport at Cliffe. With many similarities between possible airports at Cliffe and in the Thames Estuary, concerns regarding bird strike risk could be of at least a similar scale and nature.

The RSPB has for many years advocated a more integrated vision and strategy for all proposed developments in the Thames. To that end we would welcome an initiative to integrate infrastructure and regeneration needs in the Thames Estuary with safeguarding of the environment and nature. We believe that the GLA could play a leading role in facilitating this.

I hope this information is useful and please let me know if I can be of further help. I would be grateful if you could keep me informed of any developments with the airport proposal.

Yours sincerely

Fay Bouri
Conservation Officer

(Please note the letter from the RSPB refers to a file of citation documents for the ten internationally protected nature conservation sites listed in the analysis. These documents are available on request from Ian Williamson at ian.williamzon@london.gov.uk)

TEA-001B

RSPB Oakervee feasibility study

Summary
Douglas Oakervee produced the 'Thames Estuary Airport Feasibility Review' in October 2009 following a request from London's Mayor, Boris Johnson for the feasibility of an airport in the Thames Estuary to be evaluated.

An airport in this location is not a new idea; it has previously been considered and rejected, partly because of the ecological sensitivity of the Thames Estuary Location. The Thames Estuary has nine internationally important nature conservation designations, the majority of which relate to rare and vulnerable bird species.

These designated sites already experience significant pressure from an array of existing activities and developments that occur in that broad location. The pressure also continues to increase, with several other projects, such as major port developments and energy infrastructure, being proposed in the area.

The environmental effects of an airport in this location are likely to be significant and wide ranging. They could include the loss of protected habitat, disturbance of sensitive protected species, increased atmospheric emissions, including emissions of greenhouse gases, and alteration to the hydrodynamics of the Estuary resulting in accelerated patterns of erosion and/or deposition. These effects could lead to a population scale decline of bird populations in and around the Thames Estuary.

The scale of potential effects would result in likely significant effects on protected habitats and species in the internationally designated nature conservation sites. These adverse effects would be very difficult, and in all probability, impossible to mitigate.

Given the range of alternatives solutions to the airport available and in the absence of imperative reasons of overriding public interest, an airport in the Thames Estuary could not be consented without contravention of UK law on the protection of nature conservation. The RSPB therefore views the proposal as a totally unfeasible and impractical scheme

Introduction
An airport in the Thames Estuary has previously been considered in the Government's 2003 Aviation White Paper, to which all key players, including the aviation industry,contributed. The White Paper conclusively ruled out an airport in the Thames Estuary.
Despite this however, London's Mayor, Boris Johnson, requested a study into the feasibility of the potential for an airport in the Thames Estuary. Subsequently, Douglas Oakervee produced the 'Thames Estuary Airport Feasibility Review' in October 2009.
From the very outset of London's Mayor first raising the idea of developing a major new airport in the Thames Estuary, the RSPB has had serious concerns about the likely environmental consequences. However, the Feasibility Review falls short of adequately considering the likely environmental effects of such a proposal and thus the feasibility of creating an airport in the estuary. As such, the Review fails to alleviate the RSPB's concerns regarding the likely direct and in-direct environmental effects, as well as the consequences on the UK's ability to meet commitments to its climate change targets.

The importance of the Thames Estuary and the designated sites for conservation

The RSPB is pleased to see that Oakervee acknowledges the internationally outstanding, sensitive environment of the Thames Estuary:

> *"When reviewing the Thames Estuary and the creation of a sustainable future for London and the South East of England…we must recognise the sensitivity of the environment and safeguard it to the best of our ability. The challenges we face in the Thames Estuary are complex and the approach needs to be rethought if we are to avoid leaving future generations an even bigger challenge with an even bigger price tag."* (page 21).

The challenges in the estuary are indeed complex, and the consequent approach to managing the estuary needs to reflect this. With such a proposal likely to result in significant environmental damage, a "rethought approach" for a "sustainable future", as Oakervee suggests, should logically discard the idea of an estuary airport as wholly unfeasible.

The Thames Estuary is a dynamic place formed by the meeting of the Thames, the North Sea and the landforms of London, Kent and Essex. The estuary is an area of outstanding international importance for birds; reflected by a network of Special Protection Areas designated under EU Directive and protected accordingly. The estuary has the highest concentration of bird species in internationally important numbers in the south east. The diversity of waterbird species places the estuary in the top five internationally important sites in the UK, out of 143 recorded.

Whilst the Oakervee Review acknowledges the conservation importance and environmental sensitivities of the estuary, it wholly fails to comprehend the real implications of an airport in the estuary, instead choosing to adopt the line that the environmental harm arising from such an airport can be managed.

Thames activities/developments

The Thames Estuary area is currently the focus of many existing activities including large-scale commercial port operations, minerals extraction, dredging, transportation, recreation and numerous energy projects. The area is also presently the focus for new developments in a variety of sectors including further large-scale port and energy projects.

These activities alone, and together with other pressures such as climate change, exert a significant pressure on the sensitive habitats and species in the Thames Estuary. These existing pressures may also be exacerbated if potential future developments that may also have an impact on the estuary, such as the proposed lower Thames crossing, get the go ahead.

Impacts on designated nature conservation from an airport in the Thames Estuary

As acknowledged in the Feasibility Review, an airport in the Thames Estuary could clearly result in significant environmental effects:

> *"It takes little imagination to appreciate that if any of the proposals or schemes under consideration were introduced without appropriate amelioration measures then the impact on this precious ecological reserve could be disastrous and in this day and age almost certainly unacceptable" (page 28).*

However, despite recognising this, the Review fails to understand that an airport in the estuary is an impractical and unfeasible proposition, with very little opportunity to apply "appropriate amelioration measures". As such, an airport will undoubtedly result in significant damage to the environment, protected habitats and species. Further to this, it is unfortunate and disappointing that the Review, when listing the impacts of an airport in the Thames (on page 40), does not identify potential significant environmental harm as a "disadvantage".

Instead, the Review proceeds with considering a broad location of a possible airport as approximately *"7Km to 10Km north east of Whitstable in the direction of the Shivering Sands Fort and The Kentish Flats Wind Farm"*.

Due to its location, the proposal has the potential to directly and indirectly impact on of a range of internationally protected nature conservation sites (Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites), including:

- Essex Estuaries SAC;
- Foulness (Mid-Essex Coast Phase 5) SPA and Ramsar;
- Benfleet and Southend Marshes SPA and Ramsar;
- Thames Estuary and Marshes SPA and Ramsar;
- Medway Estuary and Marshes SPA and Ramsar;
- The Swale SPA and Ramsar;
- Thanet Coast SAC; and
- Thanet Coast & Sandwich Bay SPA and Ramsar.

In addition, the airport would have a direct impact in the Outer Thames proposed SPA (pSPA), and the Margate and Long Sands possible SAC (pSAC). Government policy affords the same level of protection for a pSPA as it would a designated SPA. A candidate SAC (cSAC) is also afforded the same level of protection as a classified SAC. However, although the pSAC is not afforded the same protection as a cSAC, we strongly recommend that this site be considered as though it were a cSAC, since this classification is likely to come into effect by the end of 2010.

Designated for a wide range of species and habitats, these sites are also underpinned and protected by the national Site of Special Scientific Interest (SSSI) notification.

The Feasibility Review also identifies that access to the airport would be via new road and rail infrastructure from the Kent and Essex coastlines. Whilst not certain at this stage, it is suggested that tunnels would be utilised for the sea section of the routes. The broad location of these new infrastructure developments could potentially coincide with the Thanet Coast & Sandwich Bay SPA and Ramsar, The Swale SPA and The Swale SAC, on the Kent coastline in addition to the Benfleet and Southend Marses SPA and Ramsar, the Foulness (Mid-Essex Coast Phase 5) SPA and Ramsar, and the Essex Estuaries SAC on the Essex coastline.

There are clearly, therefore, a large number of internationally designated nature conservation sites that could be affected (both directly and in-directly) by a new airport in the Thames Estuary. The potential impacts on protected bird species, from the airport alone, are numerous and significant. These include:

- direct loss of bird foraging habitat (and thus a reduction of food resource) in the Outer Thames Estuary pSPA;

- disturbance to birds from airport construction, including noise, vibration and lighting effects, resulting in displacement of a large (foraging) area in the estuary;
- disturbance to birds from airport operation, resulting in displacement of a large (foraging) area in the estuary;
- direct loss of (foraging, roosting and/or loafing) coastal and inland bird habitat due to airport transport links to Essex and Kent;
- disturbance to coastal and inland sites from associated transport links to Essex and Kent;
- potential alterations to hydrodynamics – flow changes can resulting accelerated patterns of erosion and/or deposition and therefore potential loss of intertidal habitat;
- atmospheric pollution - NOx is the principal pollutant arising from aircraft and road traffic associated with airports. Deposition of nitrogen compounds (nitrates (NO3), nitrogen dioxide (NO2) and nitric acid (HNO3)) can cause eutrophication of soils and water. This alters the species composition of plant communities and can eliminate sensitive species; and
- water pollution as a result of accidental spillage of aviation or other fuel. From loss of foraging, roosting and/or loafing habitat, through direct and indirect habitat loss and from increased human disturbance, bird populations could face decline in and around the Thames Estuary. This will have knock on effects for the environment and wider ecosystem because of the Thames Estuary's international importance (being in the top five internationally important sites in the UK) due to the numbers of waterbirds found there during winter and on migration.

Safety and bird strike

The hazard to aircraft from bird strike is well known and at estuary sites, an obvious concern. The Feasibility Review, although recognising bird strike as an issue, suggests it is solvable:

> *"data indicates that although bird strikes are a real issue there are ways to overcome the problem without being aggressive towards the birds. Whilst much is written on how best to resolve the problem and should be reviewed in detail, I believe the issue should be addressed with the RSPB to find the right solution for the Thames Estuary" (page 51).*

The RSPB considers it impossible to control bird strike risk for an airport in this location without "being aggressive towards birds", since attempting to control the risk of bird strike will require many invasive techniques, including intensive and wide spread bird scaring.

In the RSPB's response to the Air Transport White Paper in 20032, we drew attention to our concerns regarding aircraft safety at an airport at Cliffe, which was to be located in the midst of the Greater Thames (in a similar position to that of a possible Thames Estuary airport).

With regards to an airport at Cliffe and the 2003 Air Transport White Paper, several studies were undertaken to assess bird strike, including research commissioned by the Secretary of State for Transport. All studies concluded a significant risk of bird strike, with the Secretary of State's report (by CSL and BTO, published in March 2003) concluding that:

• "Without a comprehensive and aggressive bird management programme in place, incorporating careful and considered airport design, appropriate habitat management and active bird control, an airport could not operate safely in this location.
• Even with such world class management and mitigation measures in place, the hazard posed by birds is severe and would probably be higher than at any other major UK airport."

Pages 203-4 of the CSL/BTO report place this in perspective. The expected number of damaging bird strikes at an airport at Cliffe would be between 2.97 and 8.65 per year, whilst total hull loss would be expected to occur between 1 in 102 years and 1 in 297 years. Yet, for ten of the largest civil airports in the UK, the estimated rate of total hull loss is between 1 in 304 and 1 in 1210 years, with a mean of 1 in 653.5 years.

In other words, the hazard associated with the Cliffe option was, at best, equal to the greatest risk at any of the top ten UK civil airports in 2003 and, at worst, the level of risk was up to 12 times higher. And this is with a bird hazard management regime in place which would have a major adverse impact on the waterfowl and waterfowl habitats of the SPA.

The RSPB therefore concluded that the level of bird strike risk associated with the Cliffe option was unacceptable, in terms of human safety. We further concluded that the habitat modification and active bird scaring measures associated with reducing the level of bird strike risk even to this unacceptably high level was also wholly unacceptable in terms of its implications for the SPA.

With many similarities between possible airports at Cliffe and in the Thames Estuary, we are very concerned that the risk of bird strike could be of at least a similar scale and nature.

A key consideration in assessing bird strike risk is bird flight lines. However, the Feasibility Review does not attempt to provide any primary information on bird movement within the broad airport location, but instead makes reference to flight path mapping provided by MetroTidal:

> *"MetroTidal in their studies have produced a map of the flight paths across the estuary and is included as Figure 20 below. If this is representative of the actual situation it would appear that the likely location is relatively free from bird movements. This coincides with my own visit to the area" (page 51)".*

It is very concerning that the conclusion is reached that "the likely location is relatively free from bird movements" when the MetroTidal study appears to relate to a location further to the west of the broad airport location. Furthermore, the robustness of the MetroTidal data is unclear, as no details are provided on the timing or duration of the study.

Decision making
With any proposal for an airport in the Thames Estuary, the Habitats Regulations 19943 (among other requirements such as environmental impact assessment) will apply. And as such the relevant competent authority will have to determine whether the project is likely to have a significant effect on either the Ramsar sites4, the SPAs, pSPA5 and/or the SACs (known collectively as the European sites) either alone or in combination with other plans or projects.

The Likely Significant Effect Stage - any project not directly connected with or necessary to the management of an European site is to be subject to an appropriate assessment of its implications for that site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects.

If the project is likely to have such an effect there is a legal duty for the competent authority to make an appropriate assessment of the implications for the European sites in view of those sites' conservation objectives. The project can only receive permission if it can be ascertained that it will not adversely affect the integrity of the European sites.

As part of the appropriate assessment mitigation measures can be considered. The Feasibility review in recognising the potential impacts on the environment, suggests that:

> *"It will…be necessary to pioneer mitigation measures to create equal habitats to maximise the survival potential of all."*

However, whilst there may be some mitigation measures available to avoid and/or reduce the harm, providing "equal habitats" will only compensate for the harm/loss rather than avoid or reduce the harm. The RSPB believes that many effects of such a proposal on protected species cannot be mitigated, and therefore adverse effects cannot be avoided.

If it cannot be ascertained that the project will not adversely affect the integrity of the European sites, the provisions in regulations 49 and 53 of the Habitats Regulations would fall for consideration namely that there are no less damaging alternative solutions to the project, there are imperative reasons of overriding public interest to justify the project receiving permission despite the adverse effects on the integrity of the European sites and that compensatory measures can be provided before those effects occur.

The RSPB believes that there are alternatives solutions to the project and that there are no imperative reasons of overriding public interest. Finally, we believe it would also be extremely challenging, if not impossible, to replicate the habitats lost elsewhere.

Climate change

The RSPB welcomes the Feasibility Review's acknowledgement of the seriousness of climate change and the recognition of the scale of reductions in emissions required:

> *"Recent revisions to government policy with respect to climate change and the requirement for an 80% reduction in carbon emissions by 2050 must be the driving force behind many major decisions and how we live in the years to come." (Page 23).*

It is therefore surprising and concerning that the Review fails to address the issue that the carbon costs (of both constructing and operating a new airport in the Thames Estuary) would be entirely at odds with the Government's carbon reduction commitments.

Such a proposal will lock the UK into yet more carbon-intensive infrastructure for decades. If the airport were to be progressed therefore, it would place a huge and expensive burden on other sectors of the economy to decarbonise even further to account for the contribution from aviation.

With the greater travel distances between London and the proposed airport compared to London's existing airports8, the additional distances required to travel to the new airport would have a further significant carbon cost.

In any serious proposal, we would expect to see detailed analysis of the carbon cost of building and operating the airport, together with measures for mitigating the substantial carbon release. However, we do not believe that a development of this size or nature could adequately mitigate these impacts in an increasingly carbon-constrained world.

Conclusion

We are very concerned that the Thames Estuary is even being considered as a location for a new international airport. The proposal is likely to harm the sensitive estuarine habitats and species of the designated sites through habitat loss, noise disturbance and atmospheric pollution.

Given the evidence of the impacts of climate change on biodiversity and the significant and rapidly increasing contribution aviation is making to global warming, the RSPB also has serious concerns that a new airport is likely contribute to environmental degradation via exacerbating climate change and would seriously hamper all attempts to cut the UK's greenhouse gas emissions.

TEA-002

Medway Council

Evidence was received from Medway Council in the form of their *Feasibility Review*, dated 14 January 2010. If you wish to view an electronic copy of this document please contact Ian Williamson, Scrutiny Manager at ian.williams@london.gov.uk

TEA-003

Kent County Council

Thames Estuary Airport Objections – from Kent County Council

1. Ecological objections

Significant negative impact on the Thames Estuary Special Protection Areas

The Thames Estuary has significant areas of internationally protected wildlife habitats - Special Protection Areas (SPA) – which see some 300,000 migrant birds on an annual basis. As Natura 2000 sites, SPAs are afforded the highest level of legal protection. Under the EU Habitats and Species Directive (92/43/EEC), all Member States have a duty to protect Natura 2000 sites from deterioration of their natural habitats and the habitats of their component species. This is applied in England through the Conservation (Natural Habitats etc.) regulations 1994, as amended.

An airport situated in the Thames Estuary would damage (and potentially destroy) significant areas of the SPA and it is therefore difficult to see how the proposed airport will be able to show that, beyond reasonable scientific doubt, it would not negatively impact the SPA. In order for the project to go ahead, it will need to demonstrate "imperative reasons of overriding public interest" and show no alternative exists. Even if these tests could be satisfied, large scale compensation, through recreation of damaged or lost habitat, will be required to address the effects on the Greater Thames Estuary SPAs – it is considered that adequate compensation could not be found within the area (or potentially elsewhere).

Significant negative impact on the Outer Thames Estuary Proposed Special Protection Area

The Outer Thames Estuary Proposed Special Protection Area (pSPA) has been identified as the wintering area for 38% of the UK red-throated diver population (Listed on Annex 1 of the EC Birds Directive). As above, it is considered that an airport situated in the estuary would have a significant negative impact on areas of this pSPA. In addition to direct disturbance of the birds, for which the area is proposed, their primary prey species (sprat and herring) are also likely to be negatively affected. Sprat and herring are particularly sensitive to noise and vibration, and construction and operational activities have the potential to negatively affect the submerged sand banks where this species live.

pSPA are afforded the same level of protection as designated SPAs and the same requirements, and concerns over meeting these requirements, outlined above would apply to this proposed site.

Management of bird strike risk and detrimental effect of this on the SPA's bird populations

In order to ensure the safety of aircraft and passengers using an airport situated in the estuary as proposed, extensive bird control measures would need to be undertaken (e.g. bird scaring and nest control). The Government's Aviation White Paper noted that the estuary airport presented a significantly higher risk of bird strike than at any other major

airport in the UK – even with management, up to 12 times higher. Furthermore, the previous proposal for an airport at Cliffe highlighted major bird strike safety concerns which "could not be managed to an acceptably low level of risk".

In an area of key international and national importance for birds, the extent of the measures necessary to reduce the risk of bird strike to acceptable levels would be highly detrimental to the Special Protection Areas, legally protected for their bird populations.

Bird disturbance from aircraft activity in the Special Protection Areas

In addition to the detrimental affects on the bird population from direct damage of the SPA and management of bird strike, disturbance from the noise, sight and lighting of day and night aircraft movements are also of concern. This is particularly applies to the vitally important intertidal feeding areas of mudflat and saltmarsh in the SPA.

Potential inhibition of SPA enhancement and potential deterioration of site

The aerodrome authority would have a right to comment on, and object to, land management changes that may become bird attractants within 13km of the aerodrome. Such objections, if upheld, would inhibit any future SPA enhancement/management measures, potentially leading to the SPAs' condition becoming unfavourable.

Potential negative changes to hydrological and sedimentary estuary processes and resulting loss of intertidal habitat

The ability of the area to support the internationally and nationally important bird populations could be diminished if the proposed development results in changes to the hydrological and sedimentary regimes of the Estuary. Intertidal habitats (e.g. mudflats, saltmarsh and seagrass) are dependent on the stability of these regimes and are crucial to the Thames Estuary ecosystem, whilst also contributing to the management of flooding risk.

A barrier across the estuary would have significant effects, including a reduction in the tidal range and loss of intertidal habitat. These concerns are supported by the Thames Estuary 2100 (TE2100) project. This project has predicted that 1,200 hectares of salt marsh and mudflat could be lost this century as a result of sea level rise and efforts are being made to recreate this loss in order to comply with EU habitats and birds directives. The proposed airport development would make this objective even more of a challenge to meet.

Potential flood risk impacts

The Thames estuary is particularly vulnerable to sea level rise and flooding. The full impact of the airport development in terms of flood risk to land and properties along the length of the estuary will require extensive study (particularly if incorporating a barrier) and must consider existing management policies within the relevant Shoreline Management Plans.

Reduction in water quality and pollution from airport construction and operation

Water pollution, as a result of the construction (for example suspended sediment) and operational phases (for example runway runoff) of the proposed airport development, is highly likely to be detrimental to the intertidal habitats of the Thames Estuary (including those in the SPAs).

TE2100 research suggests that the construction of a barrier would adversely affect the water quality of the Thames, and would result in difficulties in meeting Water Framework Directive (2000/60/EC) standards as a result of "the impoundment of polluted waters." This "impoundment" would be particularly severe if a tidal energy unit was incorporated into the project.

Detrimental impact of Thames Estuary fisheries

The Thames Estuary is a significant nursery and spawning ground for many commercially important fish and hosts important shellfisheries. The health of these fisheries is important to the ecosystem as a whole, in addition to their economic and anthropogenic importance. The proposed airport could adversely affect these fisheries through:

- Increased levels of suspended solid concentrations.
- Noise and vibrations causing avoidance behaviour, physiological damage or mortality.
- Artificial lighting affecting reproduction and migration.
- Reduced fish movement and migration, particularly relevant for barrier option.

Disturbance of, and negative impact on, protected marine species

Protected species such as short-snouted seahorses (legally protected under Wildlife & Countryside Act 1981 (as amended), and UKBAP species) common and grey seals (legally protected under the Conservation of Seals Act 1970) and cetaceans (legally protected under Conservation (Natural Habitats etc) Regulations and EU Habitats Directive) are known in the waters of the Thames Estuary.

These marine species will be vulnerable to any reduction in the quality of the habitat and noise and vibration impacts – likely affects of the proposed airport.

2. Historic Environment/Heritage objections

General

The Thames estuary has formed an arterial route into the heart of England for at least 400,000 years. As a result of this important strategic location the estuary is extremely rich in archaeological remains from the Palaeolithic to the second world war. It also contains buried prehistoric landscapes, preserved as sea level rose after the end of the last glaciation.

In the estuary between Cliffe and Herne Bay there are records of 462 shipwrecks, many of which date from the last world war, including the SS Montgomery which is located 250m to the north of the Medway Approach Channel. The wreck contains about 3000 tons of explosives, including about 1400 tons of TNT; it has been surveyed and is regularly checked for its condition.

Because of its strategic position the estuary has always been important for defence of the realm, with many nationally important sites from the Tudor period to WW2, including the Maunsell Sea Forts located in the estuary on Red Sands and the Shivering Sands, close to the suggested airport location off Sheppey.

The north coasts of the Hoo peninsula and Sheppey are particularly important historically because of their key positions protecting access to the inner Thames estuary, Medway estuary and Swale sea channel respectively.

Each of the possible landfall sites is considered below:

Sheppey landfall

Within 3 km of the suggested road route lie:

- more than 1,440 Historic Environment Record records. These include:
- 276 listed buildings (43 Grade I or Grade II*)
- 8 scheduled monuments (Minster Abbey, Castle Rough medieval moated site, Murston old church, Chetney Cottage anti-aircraft site, Shurland House and Queenborough Castle, Boxted Roman villa, Church Farm ringwork),
- 12 conservation areas and
- 8 parks and gardens included in the Kent Historic Gardens Compendium.

The route of the M2 link passes through a landscape rich in heritage sites. These include the home of British aviation at Muswell Manor, Leysdown, an important area of Roman and medieval salt working and a landscape known to contain numerous prehistoric sites at Kingsborough Farm and Shrubsoles Hill, Brambledown.

Further to the west the route crosses an important historic landscape in the marshes of southern Sheppey with its military remains from the Second World War including pillboxes and defence obstacles and maritime assets including historic barges, wharves and jetties. The area is also likely to be rich in palaeoenvironmental remains.

Across the Swale at Iwade excavations have revealed extensive archaeological remains including cremation burials and extensive enclosures, field boundaries and settlement evidence from the bronze Age and iron ages and activity from the Anglo-Saxon and medieval periods. At Grovehurst evidence of important neolithic activity has been found and Milton Regis is thought to have been a Saxon royal estate centre from at least the sixth century AD. Significant remains are likely to be encountered in this area.

Cliffe landfall

A proposed site at Cliffe would be likely to have a high adverse impact on important archaeological and historical features. These features include the full range of findspots, occupation sites, Listed Buildings, and military and industrial structures dating from the Palaeolithic through to the recent past.
The Historic Environment Record lists:

- more than 1,000 records on the Hoo Peninsula including:
- more than 60 listed buildings
- five Scheduled Monuments (Cliffe Fort, Cooling Castle, Slough Fort, St. Mary's Priory and the Coastal Artillery Defences at Grain).

- three other nationally important sites within the Peninsula are due to be considered by English Heritage for scheduling (Cliffe Cement Works A & B, Curtis's and Harvey's explosive factory and a decoy pond.

In addition to the protected sites there are a large number of sites and findspots in the area. The recorded sites represent only a small proportion of the actual resource likely to be present. Prehistoric sites have been located at Cliffe, Allhallows, High Halstow and the Isle of Grain, the location of a major multi-period site. Recent survey work produced a significant increase in the number of Iron Age and Roman sites. Similar estuary locations in Essex and elsewhere have demonstrated that this type of location has a high archaeological potential.

In addition to this, the area is likely to contain a particularly high potential for palaeo-environmental data for what may prove to be a largely intact archaeological landscape. This information alone is likely to be of regional and even national importance.

Whitstable

The Whitstable area from Graveney to Chestfield contains more than

- 470 records in the Historic Environment Record. These include:
- 7 scheduled monuments (6 of them related to salt-working indicating the importance of the theme in this area
- more than 100 listed buildings, plus another 100 on the Canterbury City Council local list, and
- 7 conservation areas, including those related to the historic town of Whitstable.

In addition to the protected sites there are numerous heritage assets in the area. There are numerous prehistoric sites from Swalecliffe, Radfall Corner and Brooklands Farm, including the site of a prehistoric log boat from Seasalter. Anglo-Saxon and medieval remains are also known from the area including another log boat from Graveney. A recent study has also identified an important defence landscape in the area with numerous surviving assets related to the Second World War. The most important heritage asset in the area may is probably the medieval and post medieval town of Whitstable itself. This is one of Kent's heritage 'gems' and the setting of the town would certainly be damaged were an airport to be located anywhere in the vicinity.

As with the two other sites the inter-tidal zone is of very high potential for the discovery of archaeological remains in this area and a recent inter-tidal survey discovered dozens of new sites that certainly extend out beneath the sea.

3. Planning and Transport Objections

Economics

Airport reputed to cost some £40bn. Unclear how it would be funded and what element of public funding would be required. A new offshore airport is likely to be significantly worse value for money than other options with which it would need to compete, unless Government sought to regulate prices and investment in the London airport network, contrary to its policies and actions towards privatisation.

Thames Estuary Airport (TEA) would need to attract at least one major airline alliance to switch from Heathrow. The airline industry very reluctant to move from Heathrow and most unlikely to do so unless offered very attractive deal on landing charges, reducing income for the airport. To be viable a new hub airport would require extensive seeding – moving significant existing services from Heathrow in particular to provide an attractive choice of routes from the outset so that the new airport could compete. There are no established or internationally accepted policy mechanisms which could ensure such relocation of airline operations.

A new offshore airport requires major investment at the outset, and lacks flexibility in the face of market change because it cannot be developed incrementally. It is an "all or nothing" proposal.

TEA is poorly positioned in relation to the catchment area of the South East which currently focuses west of London. It is poorly positioned to capture market share particularly from Heathrow.

Would not be ready until 2030, ie 20 years hence. There will be a need to expand runway capacity at the existing London airports in the interim (Heathrow, Stansted and/or Gatwick), further eroding viability of TEA.

Continued significant growth in air travel (after the recession) is far less certain than in the past with the need to comply with carbon targets. It is more likely that costs of air travel will rise significantly above inflation

Maximising capacity at existing runways (including Manston), incremental expansion at existing London airports and development of regional airports is better to meet the changing levels of demand rather than big bang approach which is inflexible and highly risky

Transport

TEA requires extensive and costly new road and rail infrastructure which is likely to attract significant opposition. Strategically the location is a 'cul de sac' – it is the only destination on the routes needed to serve it and as such their viability depends entirely on the success of the airport

If successful, TEA would increase traffic on strategic road and rail links in Kent – no figures available but likely to be significant over a large area of Kent

- would strain capacity on A2/M2 (already mostly four lanes) with little scope for significant increase in capacity. Would probably require widening of three lane sections of M25, two lane M26, three lane M20 and two lane A249 with appropriate junction improvements

- would cause pressure on the capacity of HS1 and Kent domestic rail services using HS1 (Eurostar likely to be immune).

It is very unlikely that by 2030 there will be spare capacity on High Speed 1 which is linked to the Channel Tunnel for passenger and freight services, and provides commuter

services in Kent and East London. The stopping patterns and terminal location must be attractive to long distance air travellers.

Significant adverse impact therefore on Kent's economic development plans (Ashford, E Kent etc) which depend on maximising existing and planned transport infrastructure.

Urban Development & Regeneration

The urbanisation and travel impacts of a new airport with 4 runways will be very great. Little of the additional pressure could be absorbed in the immediate area of landfall for the road and rail links to the airport. Major green-field land release would be required in Kent and Essex.

To be viable the new airport must transfer passengers from other South East airports. A dramatic pace of urban development and investment in public services would be needed in advance of the airport opening to provide workforce and services on day one of the airport operation. There would be matching under capacity and loss of activity in the Heathrow area.

The services and labour supply required to support the airport would need to be located as closer to the island as possible. Little development could be absorbed in Sheppey and Southend requiring major development on green-field land in Kent and Essex.

Safety

National Air Traffic Services (NATS) was concerned over severe problems a new airport at Cliffe would create. TEA could be expected to raise similar problems that need to be fully investigated.

The proposed airport construction in the Estuary could have significant consequences for flood protection within London and the Thames Estuary area. The implications would need detailed assessment

TEA-004

Port of London Authority

Evidence was received from the Port of London Authority in the form of their *Paper on the Proposal for an Airport in the Thames Estuary*, dated 26 February 2010. If you wish to view an electronic copy of this document please contact Ian Williamson, Scrutiny Manager at ian.williams@london.gov.uk