



Integrated Waste Management Facility, Rivenhall Airfield – Increasing the Stack Height

Habitats Regulations Assessment



Essex County Council



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Place Services is a leading public sector provider of integrated environmental assessment, planning, design and management services. Our combination of specialist skills and experience means that we are uniquely qualified to help public organisations meet the requirements of the planning process, create practical design solutions and deliver environmental stewardship.

Our Natural Environment Team has expertise of arboriculture, biodiversity, countryside management and ecology. This multidisciplinary approach brings together a wide range of experience, whether it is for large complex briefs or small discrete projects. We aim to help our clients protect and improve the natural environment through their planning, regulatory or land management activities. This approach ensures that not only that our clients will fulfil their legal duties towards the natural environment, but they do so in a way that brings positive benefits to wildlife and people.

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Glossary of Acronyms

AA	Appropriate Assessment
AEOI	Adverse Effect On Integrity for Habitats Sites
EU	European Union
EclA	Ecological Impact Assessment
Ha	Hectare
HRA	Habitats Regulations Assessment
IROPI	Imperative Reasons of Overriding Public Interest
IRZ	Impact Risk Zone
Km	Kilometre
LPA	Local Planning Authority
LSE	Likely Significant Effect
NE	Natural England
NPPF	National Planning Policy Framework
NSIP	Nationally Strategic Infrastructure Project
SAC	Special Area of Conservation
SACO	Supplementary Advice on Conservation Objective
SIP	Site Improvement Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
ZOI	Zone of Influence

Summary

A Habitats Regulations Assessment (HRA) Screening Report has been prepared by Place Services to enable Essex County Council to comply with Regulation 63 of The Conservation of Habitats and Species Regulations 2017.

This report aims to consider the elements increasing the stack height of the Integrated Waste Management Facility at Rivenhall Airfield which needs to be screened for potential for Likely Significant Effect (LSE) on one of more Habitats (European) Sites.

There are a wide range of potential impacts upon Habitats Sites which could arise as a result of components of the proposals, the following have been considered most likely to cause a Likely Significant Effect:

- Increase in *disturbance*;
- Changes in *water quality*;
- Changes in *air quality*.
- Loss of *functionally linked land* (land outside the SPAs and Ramsar sites)

The following Habitats Sites were scoped in as they are within 20km of the development and may be affected by impacts relating to the proposed increasing of the stack height of the Integrated Waste Management Facility:

- Abberton Reservoir SPA and Ramsar site
- Colne Estuaries (Mid-Essex Coast Phase 2) SPA and Ramsar site
- Blackwater Estuary (Mid-Essex Coast Phase 4) SPA and Ramsar site
- Essex Estuaries SAC

However, despite the location for the development lying within the Zone of Influence for the Blackwater Estuary SPA & Ramsar site and Essex Estuaries SAC, Natural England's formal consultation response Natural England has not raised any concerns regarding atmospheric nitrogen deposition in its response. Their view is that the proposal to increase the height of the stack would not result in any likely significant effect on any Habitats Site. This HRA therefore concludes that further assessment is not needed for this project. The development can therefore, subject to other considerations, be granted consent and Essex CC can demonstrate its compliance with the UK Habitats Regulations 2017.



1. Introduction

1.1 The Purpose of This Report

This report is to provide a Habitats Regulations Assessment (HRA) for the proposals for increasing the stack height of the Integrated Waste Management Facility at Rivenhall Airfield, Coggeshall Road (A120), Braintree CO5 9DF in accordance with Article 6(3) and (4) of the EU Habitats Directive and with Regulation 63 of the Conservation of Habitats and Species Regulations 2017.

The Conservation of Habitats and Species Regulations (2017) require the Competent Authority (in this instance Essex County Council) to undertake a HRA before making a decision about permission for project that may result in an adverse effect on the integrity of a European Site¹ as defined in the National Planning Policy Framework (NPPF, 2019).

This HRA screening report aims to:

- Consider the elements of the project needing screening for Likely Significant Effect (LSE).
- Assess the potential for in combination effects from other projects and plans in the area.
- Identify if there are any outstanding issues that need further investigation.

It is not considered that there are any serious limitations to this HRA screening.

Natural England has responded to the proposals by providing bespoke advice ref 22264 (10th August 2017):

“Based upon the information provided, Natural England advises the Council that the proposal is unlikely to affect any statutorily protected sites or landscapes.”

1.2 Project details for the increase of the stack (chimney) height of the Integrated Waste Management Facility, Rivenhall Airfield

The planning application details are as follows:

Proposals:

Full planning application to increase stack (chimney) height from 85m Above Ordnance Datum to 108m AOD (35m above existing ground levels to 58m above existing ground levels) of the Integrated Waste Management Facility.

and

¹ Habitats Site: Any site which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017 for the purpose of those regulations and those listed in paragraph 176 of the NPPF (2019). This includes potential Special Protection Areas and possible Special Areas of Conservation; listed or proposed Ramsar sites; and sites identified, or required, as compensatory measures for adverse effects on Habitats Sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.



Continuation of Integrated Waste Management Facility permitted by ESS/34/15/BTE without compliance with conditions 2 (application details), 14 (stack [chimney] design and cladding), 17 (Combined Heat & Power Plant Management Plan) and 56 (maximum stack height) to amend details resulting from the increase in stack height.

Location: Land at Rivenhall Airfield, Coggeshall Road (A120), Braintree CO5 9DF

Planning application number: ESS/36/17/BTE & ESS/37/17/BTE

The Integrated Waste Management Facility comprises Anaerobic Digestion Plant treating mixed organic waste, producing biogas converted to electricity through biogas generators; Materials Recovery Facility for mixed dry recyclable waste to recover materials e.g. paper, plastic, metals; Mechanical Biological Treatment facility for the treatment of residual municipal and residual commercial and industrial wastes to produce a solid recovered fuel; De-inking and Pulping Paper Recycling Facility to reclaim paper; Combined Heat and Power Plant (CHP) utilising solid recovered fuel to produce electricity, heat and steam; extraction of minerals to enable buildings to be partially sunken below ground level within the resulting void; visitor/education centre; extension to existing access road; provision of offices and vehicle parking; and associated engineering works and storage tanks.

All documentation relating to this application can be found on the Essex County Council planning portal:

<https://planning.essex.gov.uk/planningapplication.aspx?AppNo=ESS/36/17/BTE>

<https://planning.essex.gov.uk/planningapplication.aspx?AppNo=ESS/37/17/BTE>

1.3 Habitats Sites and Habitats Regulations Assessments

Habitats Sites is the term used in the NPPF (2019) to describe the network of sites of nature protection areas. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and Habitats. The sites are designated under the European Union (EU) Birds Directive (Council Directive 79/409/EEC on the Conservation of Wild Birds) and the EU Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora).

The Birds Directive requires the establishment of Special Protection Area (SPAs) for birds. The Habitats Directive similarly requires Special Area of Conservation (SACs) to be designated for other species and for Habitats. UK planning policy ensures that Wetlands of International Importance (Ramsar sites) are also part of the network. Together, SPAs, SACs and Ramsar Sites make up the network of Habitats Sites in England. They can also be known as European Sites or Natura 2000 (N2K). Sites that are being considered for designation referred to as candidate SACs or proposed SPAs are also be included for the purposes of a Habitats Regulations Assessment (HRA).

HRAs are a statutory requirement and should be undertaken by the competent authority to ensure that plans and projects comply with Birds Directive and the Habitats Directive. In England and Wales these are transposed into The Conservation of Habitats and Species Regulations 2017. The Conservation of Habitats and Species Regulations 2017 are commonly known as the 'Habitats Regulations'.

HRA is the process by which the requirements of the Habitats Directive are implemented, and ensures that plans or projects will not adversely affect Habitats Sites. It should demonstrate how a *Plan* or *Project* is compatible with EU obligations, as required by Regulation 63 and 643 of The Conservation of Habitats and Species Regulations 2017.

2. Method and Approach

Requirements are set out within Regulations 63 and 64 of the Habitats Regulations, where a series of steps and tests are followed for plans or projects that could potentially affect Habitats Sites. The steps and tests set out within Regulations 63 and 64 are commonly referred to as the 'Habitats Regulations Assessment' process. The Government has produced core guidance for competent authorities and developers to assist with the HRA process. This can be found on the Defra website. <http://www.defra.gov.uk/habitats-review/implementation/process-guidance/guidance/sites/>

The legislation does not require a fixed methodology but case law has shaped the way it should be undertaken. The HRA is a sequential process and it is generally divided into four stages, which are set out below in Table 1. Each of the stages contains a number of sequential steps, comprising the tests or procedures required by the Habitats Directive.

The first stage of a Habitats Regulations Assessment is called 'screening' and is carried out to determine whether the project is likely to have a likely significant effect (LSE) on any Habitats sites, either alone or in combination with other plans or projects.

Since the Court judgement (CJEU People Over Wind v Coillte Teoranta C-323/17), in Spring 2018 mitigation measures can no longer be taken into account when carrying out a screening assessment to decide whether a development is likely to result in significant effects on a Habitats Site. Therefore, where mitigation is required, an appropriate assessment (Stage 2) needs to be undertaken, under the Conservation of Habitats and Species Regulations 2017.

Where a likely significant effect has been identified, projects should only be permitted when it has been proven that there will be no adverse effects on the integrity of Habitats Sites. The legislation can allow projects that may result in negative impacts on the integrity of a site if the competent authority is satisfied that, there are no alternative solutions, the plan or project must be carried out for Imperative Reasons of Overriding Public Interest (IROPI) (Regulation 64). However this will require suitable compensation to ensure that the overall coherence of the series of such sites is retained.

The HRA should be undertaken by the 'competent authority' - in this case Essex County Council. It is being undertaken by Place Services on behalf of Essex County Council.

Table 1. Stages of the Habitats Regulations Assessment Process

Stage	Tasks	Outcome
Stage 1 HRA Screening (Regulation 63)	- Describe the project - Identify potential effects to a Habitats Site - Assess if any effects on a Habitats Site, either alone or in combination, with other plans or projects are likely to be significant	- Where significant effects are unlikely, prepare a 'finding of no significant effect' report and plan can be adopted. - Where significant effects are judged likely, either alone or in combination or there is a lack of information to prove otherwise, go to Stage 2. <i>People over Wind CJEU ruling (April 2018) means that it is not possible to consider mitigation measures when screening for impacts.</i>
Stage 2 Appropriate Assessment (Regulation 63)	Consider if impacts are likely to affect any qualifying features; those projects that are likely to result in adverse effects on the integrity of any	- If no adverse effect on site integrity either alone or in combination, the plan can be adopted. - If it is not possible to ascertain no adverse

Stage	Tasks	Outcome
	Habitats Sites should be assessed. Consider mitigation measures if necessary and re-screen plan	effect on site integrity, go to Stage 3. <i>Holohan CJEU ruling (November 2018) now imposes more detailed requirements on the competent authority at Appropriate Assessment stage.</i>
Stage 3 Assessment of alternative solutions (Regulation 64)	- Identify whether alternative solutions exist that would achieve the objectives of the plan and have no or a lesser effect on the integrity of a Habitats Site(s). - If effects remain after alternative solutions been considered, consider whether the policies and/or projects should proceed with modification or the policies (and projects) be removed from the plan.	- If there are alternative solutions to the plan, it cannot be adopted without modification. - If no financially, legally or technically viable alternatives exist, go to Stage 4.
Stage 4 IROPI (Regulation 64)	- Consider if the risk and harm to the Habitats Site is over-ridden by Imperative Reasons of Over-riding Public Interest. - Identify and prepare delivery of compensatory measures to protect the overall coherence of the Natura 2000 network and notify Government.	- If there are IROPI and compensatory measures, the plan can be adopted - If there are no IROPI and the plan cannot be adopted.

2.1 Screening of Likely Significant Effects

Habitat Sites which may be subject to likely significant effect as a result of the proposals should be identified in Stage 1 of the HRA process.

This HRA is based upon knowledge of the surrounding Habitats Sites, the details of the proposal itself as well as the advice provided by Natural England and Environment Agency on the proposals.

2.2 Identifying Habitats Sites, their Conservation Objectives and Qualifying Features

Their qualifying features and conservation objectives of the Habitats Sites, together with current pressures on and potential threats should be used to inform the assessment.

This information was drawn from the Standard Data Forms for SACs and SPAs and the Information Sheets for Ramsar Wetlands as well as Natural England's Site Improvement Plans and the most recent conservation objectives. An understanding of the designated features of each Habitats Site and the factors contributing to its integrity has informed the assessment of the potential Likely Significant Effects of the proposals.

Key sources of the Habitats Sites information were found at:



- JNCC: <http://jncc.defra.gov.uk/>
- Site Designation features and Conservation Objectives- Designated Sites View: <https://designatedsites.naturalengland.org.uk/>
- Site Improvement Plans, eg: <http://publications.naturalengland.org.uk/publication/6270737467834368>
- MAGIC (the Multi Agency Geographic Information website): www.magic.gov.uk

The full list of nearby Habitats Sites, their qualifying features and conservation objectives can be found in Appendix 1 including web links to further information.

The list of key vulnerabilities / factors affecting site integrity can be found in



Appendix 2, including links to further information.

The Zones of influence (ZOIs) which are provided on the MAGIC website have been used as a starting point in determining Likely Significant Effect on Habitats Sites and spatial data has been used to determine the proximity of potential development locations to the Habitats Sites.

The following Habitats Sites within 20km which could be affected by the proposals have been identified:

- Abberton Reservoir SPA and Ramsar site – approximately 11540m
- Blackwater Estuary (Mid-Essex Coast Phase 4) Special Protection Area (SPA) and Ramsar site - approximately 13934m
- Colne Estuary (Mid-Essex Coast Phase 2) Special Protection Area (SPA) and Ramsar site - approximately 19637m
- Essex Estuaries SAC – approximately 13934m

The SPAs are designated on the basis of supporting important numbers of water-birds, especially geese, ducks and waders. Brent geese also feed and waders roost in surrounding areas of agricultural land outside the SPA.

In the Colne Estuary (containing the nearest Habitat Sites), there is a wide variety of coastal habitats which include mud-flat, saltmarsh, grazing marsh, sand and shingle spits, disused gravel pits and reedbeds which provide feeding and roosting opportunities for the large numbers of water birds that use the site. Breeding Little Tern nest on shell, sand and shingle spits.

The Ramsar sites are designated due to the presence of extensive saltmarsh habitat, nationally rare plants and invertebrates, saltmarsh plant communities and important populations of waterfowl and wading birds.

The Essex Estuaries Special Area of Conservation is designated on the basis of its estuarine and coastal habitats.

Further details and the Conservation Objectives are set out within Appendix 1.

2.3 Impact Pathways

During the screening stage the proposal is screened for Likely Significant Effects. There is only a single potential impact although Natural England's consultation response ref: 22264 (10th August 2017) indicated that there was no likely significant effect from the proposal.

Thus, an increase to the stack height of the Integrated Waste Management Facility is not considered likely to affect any Habitats Sites through impacts from changes in air quality. This is explored in more detail below:

Air Quality

Atmospheric pollutants generated by waste management facilities are generally from chimney emissions.

Air pollution (risk of atmospheric nitrogen deposition) is listed in the key vulnerabilities / factors affecting site



integrity for the Essex Estuaries Site Improvement Plan (SIP). It states the following:

“Atmospheric nitrogen deposition exceeds the relevant critical loads for coastal dune habitats used by breeding terns and hence there is a risk of harmful effects. However, on the Essex estuaries declines in the numbers of breeding terns appear to be due mainly to erosion of a man-made cockle-shingle bank (at Foulness) and to disturbance (elsewhere), rather than to over-vegetation of breeding areas caused by nitrogen deposition.”

The target set for Waterbird assemblage in Natural England’s Supplementary Advice is to “Maintain concentrations and deposition of air pollutants at below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).” However, no critical levels have been set by APIS (Air Pollution Information System (APIS), 2015). The target has been set due to a lack of evidence that the feature is being impacted by any anthropogenic activities.

Natural England has not raised any concerns regarding atmospheric nitrogen deposition in its response.



3. Screening of Likely Significant Effects

3.1 Screening for Likely Significant Effect

This chapter summarises the potential for Likely Significant Effects identified. It advises as to where Likely Significant Effects can be ruled out.

A single impact pathway of air quality was identified in Chapter 2 above and this has been screened for LSE below. Where this is likely to result in a significant effect, or where there is uncertainty, in line with the precautionary approach being applied in the HRA, until significant effects can be ruled out, they are treated as giving rise to 'Likely Significant Effects'.

Seven Habitats Sites were considered, the closest being the Abberton Reservoir Special Protection Area (SPA) and Ramsar site which is situated approximately 11km and the Essex Estuaries Special Area of Conservation (SAC) which is approximately 13km from proposed Integrated Waste Management Facility (IWMF) at Rivenhall Airfield. However there are no Habitats Sites scoped in for HRA screening, based on the fact that the site lies outside the Impact Risk Zones for the underpinning SSSIs and both Natural England and the Environment Agency's formal advice.

The Environment Agency response to the planning applications (ref: AE/2017/121867/01-L01, 18 September 2017) stated that:

"The Industrial Emissions Directive (IED) requires permit applicants to demonstrate that Best Available Techniques ('BAT') are being applied at a particular location using appropriate design measures and taking local environmental conditions into account. The design can include additional measures for abatement and emissions reduction at source in addition to stack height selection.

The company submitted a Cost Benefit Analysis within its permit application to support its demonstration of BAT for the incinerator design.

In addition to proposing a stack height of 58 metres above surrounding ground levels, the company has proposed a more stringent reduction of emissions at source in order to demonstrate BAT. A tighter emission limit for nitrogen dioxide (daily average of 150 mg/Nm³) has been proposed by the company compared to the normal daily average for waste incineration plants of 200 mg/Nm³ (the standard set within the IED). Hence although the stack height of the proposed incinerator is lower than that of other plants of similar or greater size for which we have issued permits, the actual environmental impact of nitrogen dioxide will in fact be one of the lowest in the country.

Following an assessment of the company's cost benefit analysis, we are satisfied that the proposed stack height of 58 metres above surrounding ground levels is BAT for the proposed plant.

As part of our decision making process, we have thoroughly checked the air quality and human health impact modelling assessments provided within the company's permit application. We have also undertaken a rigorous sensitivity analysis of these assessments including the effect of local topography and the proximity of buildings on the dispersion of pollutants (i.e. using a range of different input parameters within the modelling). Their conclusion is that we consider the proposed facility is unlikely to contribute to any breach of the relevant air quality standards for human health and the environment.



It is important to note that we reached the same conclusion as this for the company's first permit application which we refused on the basis of a stack height of 35 metres (above surrounding ground level). This means that even with a stack height of 35 metres we were satisfied that no air quality or human health thresholds would have been exceeded for the proposed incinerator. However, in addition to meeting all the required air quality and human health standards, permit applicants must also demonstrate to us how they intend to minimise the impact of their emissions on the environment by applying BAT. We believe that the design of the proposed incinerator, incorporating a stack height of 58 metres above surrounding ground levels, is now such that pollutant emissions to air will be minimised."

In the "Response to the PAIN report" (Honace Gent Fairhead & Co Ltd, Oct 2018) it confirms that no European designated site was identified as requiring consideration with the air quality assessment needed to support the planning application and no Habitats Sites were scoped in for HRA screening. Section 8 states that:

"At an elevation of 108 mAOD, the proposed 23 m increase in stack height reduces the environmental impact of the IWMF's emissions on local air quality to a lower level than that originally reviewed and approved in the extant planning permission. A detailed sensitivity analysis has been undertaken using more recent data from Stansted and Andrewsfield Meteorological Office weather stations. The sensitivity analysis demonstrates that the data and weather station location have a negligible change to the conclusions of the Dispersion Modelling Assessment. Fundamentally, the effect of increasing the stack height to 58m above surrounding ground level reduces the impact of emissions from the IWMF further."

The assessment demonstrated that the use of the Andrewsfield or Stansted weather data will not change the magnitude of change predicted as part of the Significance of Air Quality Effects report, or the conclusions of the Dispersion Modelling Assessment. The predicted distribution of emissions does not change significantly using the updated Andrewsfield and Stansted data, nor does the impact of the IWMF's emissions at sensitive receptors. The conclusions of the air quality assessment remain unchanged, namely: At an elevation of 108 mAOD, the proposed 23 m increase in stack height reduces the environmental impact of the IWMF's emissions on local air quality to a lower level than that originally reviewed and approved for the extant implemented planning permission"

Within Essex County Council's Development and Regulation Committee Report DR/05/16 the ecological and biodiversity impacts of the IWMF were fully considered when planning permission was granted, and it was noted that:

Natural England has raised no objection to the amendments to the proposals or the discharge of the conditions. The County's ecologist is satisfied with submitted details with respect to the condition 53 (ecological survey update) and condition 54 Habitat Management Plan) and these conditions can be discharged. No adverse comments have been received with respect to the traffic calming measures for the haul road required under condition 62 to protect otters and voles.... the amended development details do not give rise to any additional adverse impacts not addressed through the original mitigation and the proposals are considered to be in accordance with WLP policy W10E and do not conflict with BDLPR policies, 80, 81 & 84.

Through consultation into the application(s) to increase the height of the IWMF's stack Natural England has confirmed:

Natural England currently has no comment to make on the variation of conditions 2, 14 and 17
In line with Essex County Council's original decision of the 26 February 2015 to grant planning permission ESS/34/15/BTE, the emissions from the proposed 23m increase in the 7m diameter stack will not impact on ecologically sensitive receptors or habitats.

It is therefore concluded that there will be no likely significant effect from the development alone.



3.2 In combination with other plans and projects

In combination assessment is required as the project alone will not have a Likely Significant Effect on any Habitats sites but it may have an insignificant adverse effect. It is therefore necessary to extend the assessment to consider the cumulative effects of the proposal to increase the height of the chimney at the IWMF, Rivenhall Airfield, with other plans or projects.

The Waddenzee judgment provides a clear interpretation of the legislation protecting Habitats Sites. Paragraphs 53 and 54 of the Judgment state: “according to the wording of that provision [Article 6(3) of the Habitats Directive] an appropriate assessment of the implications for the site concerned of the plan or project must precede its approval and take into account the cumulative effects which result from the combination of the plan or project with other plans or projects in view of the sites conservation objectives. Such an assessment therefore implies that all the aspects of the plan or project which can, individually or in combination with other plans or projects, affect those objectives must be identified in the light of the best scientific knowledge in the field.

When considering the combined effects of plans or projects, the combined effect on the ecological functioning of the site interest feature must be considered carefully, as the effect can often be greater than the sum of each individual element. This effect is often referred to as a synergistic effect.

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects are particularly important in ecological impact assessments as many ecological features are already exposed to background levels of threat or pressure and may be close to critical thresholds where further impact could cause irreversible decline. Effects can also make habitats and species more vulnerable or sensitive to change.

Different types of actions can cause cumulative impacts and effects:

- Additive/incremental – multiple activities/projects (each with potentially insignificant effects) added together to give rise to a significant effect due to their proximity in time and space. The effect may be additive ($1+1 = 2$) or synergistic ($1+1 = 3$).
- Associated/connected – a development activity ‘enables’ another development activity e.g. phased development as part of separate planning applications. Associated developments may include different aspects of the project which may be authorised under different consent processes. It is important to assess impacts of the ‘project’ as a whole and not ignore impacts that fall under a separate consent process.

A series of individually modest impacts may, in combination, produce a significant impact. Cumulative impacts may only occur over time, so plans or projects which are completed, approved but uncompleted, or proposed should all be considered. The assessment should not be restricted to similar types of plans and projects. Any projects likely to result in an in-combination effect, not yet approved or proposed (with sufficient details to be assessed), are considered within this assessment.

As the potential impacts from the proposal relate to air quality, the other plans or projects under consideration are particularly those for commercial/industrial development proposed for other Essex authorities and those within Essex and are listed in Table 2 below. There are no projects identified by the Environment Agency likely to result in cumulative impacts with the revised details for this facility. Having considered the Site Improvement Plans for the Habitats Sites within scope for this development, Natural England do not consider that the proposal is likely to result in a significant effect on any Habitats Sites, either alone or in combination with other plans & projects.

Table 2 Other plans or projects considered for in combination effects with increasing the height of the stack

Plan/Project	Potential for in combination effects
Minerals Local Plan for Essex	May contribute to increased vehicle movements on the road network within Braintree and thereby contribute to air quality impacts from sites.
Essex and Southend-on-sea Waste Local Plan	May contribute to increased vehicle movements on the road network within Braintree and thereby contribute to air quality impacts from sites.
Essex Local Transport Plan 3 2011-2026 (LTP3)	Sets out road schemes that could potentially affect traffic, and therefore air quality, close to European designated sites. Important in terms of encouraging sustainable transport.
Braintree Local Plan	Likely to contribute to increased vehicle movements on the road network within Braintree and thereby contribute to air quality impacts.

The HRA Report for North Essex Authorities Shared Strategic Part 1 for Local Plans (2017) stated that, in line with Highways Agency's Design Manual for Roads & Bridges (DMRB) HA 207/07, Vol. 11, Section3, Part 1 Air Quality, it has been assumed that only those roads forming part of the primary road network (motorways and 'A' roads) are likely to experience any significant increases in vehicle traffic as a result of development (i.e. greater than 1,000 AADT). As such, where a site is within 200m of only minor roads, no significant effect from traffic-related air pollution is considered to be the likely outcome.

The only Habitats (European) sites within 200m of major roads, which are may experience increases in traffic as a result of the Strategic Part 1 are the Stour and Orwell Estuaries SPA and Ramsar site - A120 at Manningtree and A137 at Harwich. A similar approach has been taken for both the Essex Local Transport Plan 3 and one of the key 'Outcomes' identified is to reduce carbon dioxide (CO₂) and improve air quality through lifestyle changes, innovation and technology. As the Environment Agency is satisfied that the proposed increased height to the stack will not result in likely significant effect, the issues of air quality can be scoped out for further assessment.

The HRA for the replacement Minerals Plan for Essex concluded that when considering the ecologically relevant impacts of a Minerals Local Plan, by far the largest contribution to NO_x will generally be made by the associated road traffic. It can be seen from the preceding analysis that Epping Forest SAC is the only European site in Essex for which air quality is a significant issue.

The Essex and Southend-on-Sea Waste Local Plan followed the DMRB requirement for HRA screening of policies of 200m from Habitats (European) sites for impacts from vehicle exhaust, 10km for energy from waste, 1k for landfill gas flares, 500m for dust and 1km for biopathogens (composting facilities only) the latter principally for Epping Forest SAC. Natural England's Impact Risk Zones are in line with this trigger distance and their formal consultation response was that this development is screened out for likely significant effects either alone or in combination.

All potential plans and projects likely to cause significant air quality effects will however need to be considered at project level once sufficient details have been provided for any planning application.

The proposed increase to the stack height of the consented IWMP at Rivenhall Airfield acting 'in combination' with other plans or projects (i.e., Local Plans within scope) is only likely to make an insignificant contribution to the current situation of the Critical Loads and Levels for air quality impacts on Habitats (European) sites.

Based on the submitted details and comments from statutory consultees, it is considered that the proportionate contribution of emissions from *increasing the stack height* of the IWMP at Rivenhall Airfield would not differ from those already assessed for the consented project. No mitigation is therefore necessary for increasing the stack height of the consented IWMP at Rivenhall Airfield when considered in combination with other plans and projects.



Any potential projects do not considered to have sufficient details currently available to be included in an in combination assessment as this would not provide any certainty of likely impacts. Any relevant future projects will trigger project level HRA assessments by the competent authority on submission of details seeking consents.

It is therefore concluded that there will be no likely significant effect from the development in combination with other plans and projects.



4. Conclusion

This Habitats Regulation Assessment considers the implications arising from the proposed increase of the stack height for the consented Integrated Waste Management Facility at Rivenhall Airfield (ESS/36/17/BTE and ESS/37/17/BTE).

In applying the HRA Test 1 – the significance test, ECC has concluded that, based on the development type and proximity to Habitats (European) sites, increasing the height of the chimney at the consented IWMF at Rivenhall Airfield does not constitute a 'likely significant effect' (LSE) to a Habitats (European) site in terms of air quality.

Consequently Essex County Council can therefore conclude that it is possible to rule out the potential for likely significant effects from the development either alone and in combination with other plans and projects.



Appendix 1. Characteristics of nearby Habitats Sites

Habitats Sites, Their Conservation Objectives and Relevant Targets.

Site name/code	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)
Colne Estuary (Mid-Essex Coast Phase 2)			
The Colne Estuary is a comparatively short and branching estuary, with five tidal arms that flow into the main channel of the River Colne. The estuary has a narrow intertidal zone predominantly composed of flats of fine silt with mud-flat communities typical of south-eastern English estuaries. The estuary is of importance for a range of wintering wildfowl and waders, in addition to breeding Little Tern <i>Sterna albifrons</i> which nest on shell, sand and shingle spits. There is a wide variety of coastal habitats which include mud-flat, saltmarsh, grazing marsh, sand and shingle spits, disused gravel pits and reedbeds which provide feeding and roosting opportunities for the large numbers of waterbirds that use the site.			
Colne Estuary (Mid-Essex Coast Phase 2) SPA (UK9009243)	2701.43	A046a <i>Branta bernicla bernicla</i> ; Dark-bellied brent goose (Non-breeding) A059 <i>Aythya ferina</i> ; Common pochard (Breeding) A082 <i>Circus cyaneus</i> ; Hen harrier (Non-breeding) A137 <i>Charadrius hiaticula</i> ; Ringed plover (Breeding) A162 <i>Tringa totanus</i> ; Common redshank (Non-breeding) A195 <i>Sterna albifrons</i> ; Little tern (Breeding) Waterbird assemblage	With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change; Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; • The extent and distribution of the habitats of the qualifying features • The structure and function of the habitats of the qualifying features • The supporting processes on which the habitats of the qualifying features rely



Site name/code	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)
			- The population of each of the qualifying features, and, - The distribution of the qualifying features within the site
Colne Estuary (Mid-Essex Coast Phase 2) Ramsar (UK11015)	2701.43	<u>Ramsar criterion 1</u> The site is important due to the extent and diversity of saltmarsh present. This site, and the four other sites in the Mid-Essex Coast complex, includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total saltmarsh in Britain. <u>Ramsar criterion 2</u> The site supports 12 species of nationally scarce plants and at least 38 British Red Data Book invertebrate species. <u>Ramsar criterion 3</u> This site supports a full and representative sequences of saltmarsh plant communities covering the range of variation in Britain. <u>Ramsar criterion 5</u> Assemblages of international importance; species with peak counts in winter; 32041 waterfowl (5 year peak mean 1998/99-2002/2003) <u>Ramsar criterion 6</u> Species/populations occurring at levels of international importance:	None available.



Site name/code	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)
		Species with peak counts in winter: • <i>Branta bernicla bernicla</i>; Dark-bellied brent goose (Non-breeding) • <i>Tringa totanus</i>; Common redshank (Non-breeding) Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species with peak counts in winter: • <i>Limosa limosa islandica</i>; Black-tailed godwit	
Abberton Reservoir Abberton Reservoir is located close to the Essex coast. It is a large, shallow, freshwater storage reservoir built in a long, shallow valley and is the largest freshwater body in Essex. It is one of the most important reservoirs in Britain for wintering wildfowl, with a key role as a roost for wildfowl and waders feeding in adjacent estuarine areas. The site is also important for winter feeding and autumn moulting of waterbirds. The margins of parts of the reservoir have well-developed plant communities that provide important opportunities for feeding, nesting and shelter. Abberton Reservoir is important especially as an autumn arrival area for waterbirds that subsequently spend the winter elsewhere.			
Abberton Reservoir SPA (UK9009141)	726.2	Over winter; Golden Plover <i>Pluvialis apricaria</i>, 3,714 individuals representing at least 1.5% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6) This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:	



Site name/code	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)
		During the breeding season; Cormorant <i>Phalacrocorax carbo</i>, 490 pairs representing at least 1.2% of the breeding Northwestern Europe population (5 year mean, 1993-1997) Over winter; Gadwall <i>Anas strepera</i>, 518 individuals representing at least 1.7% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6) Shoveler <i>Anas clypeata</i>, 654 individuals representing at least 1.6% of the wintering Northwestern/Central Europe population (5 year peak mean 1991/2 - 1995/6) Teal <i>Anas crecca</i>, 5,326 individuals representing at least 1.3% of the wintering Northwestern Europe population Assemblage qualification: A wetland of international importance. The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl Over winter, the area regularly supports 39,155 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Black-tailed Godwit <i>Limosa limosa islandica</i>, Lapwing <i>Vanellus vanellus</i>, Coot <i>Fulica atra</i>, Goldeneye <i>Bucephala clangula</i>, Tufted Duck <i>Aythya fuligula</i>, Pochard <i>Aythya ferina</i>, Pintail <i>Anas acuta</i>, Wigeon <i>Anas penelope</i>, Cormorant <i>Phalacrocorax carbo</i>, Great Crested Grebe <i>Podiceps cristatus</i>, Shoveler <i>Anas clypeata</i>, Teal <i>Anas crecca</i>, Gadwall <i>Anas strepera</i>, Golden Plover <i>Pluvialis</i>	



Site name/code	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)
		<i>apricaria</i> .	
Abberton Reservoir Ramsar site	726.2	Over winter the area regularly supports: 39763 waterfowl (5 year peak mean 1991/92-1995/96) Over winter the area regularly supports: - Gadwall, <i>Anas strepera</i> - Red-breasted Merganser, <i>Mergus serrator</i> - Shoveler, <i>Anas clypeata</i>	None available
Blackwater Estuary (Mid-Essex Coast Phase 4) The Blackwater Estuary is the largest estuary in Essex north of the Thames and, is one of the largest estuarine complexes in East Anglia. Its mudflats, fringed by saltmarsh on the upper shores, support internationally and nationally important numbers of overwintering waterfowl. Shingle and shell banks and offshore islands are also a feature of the tidal flats. The surrounding terrestrial habitats; the sea wall, ancient grazing marsh and its associated fleet and ditch systems, plus semi-improved grassland are also of high conservation interest. This rich mosaic of habitats supports an outstanding assemblage of nationally scarce plants and a nationally important assemblage of rare invertebrates. There are 16 British Red Data Book species and 94 notable and local species. The diversity of estuarine habitats results in the sites being of importance for a wide range of overwintering waterbirds, including raptors, geese, ducks and waders. The site is also important in summer for breeding terns.			
Blackwater Estuary SPA (Mid-Essex Coast Phase	4395.15	- A046a <i>Branta bernicla bernicla</i>; Dark-bellied brent goose (Non-breeding) - A059 <i>Aythya ferina</i>; Common pochard (Breeding)	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:



Site name/code	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)
4) UK9009245		- A082 <i>Circus cyaneus</i>; Hen harrier (Non-breeding) - A137 <i>Charadrius hiaticula</i>; Ringed plover (Breeding) - A141 <i>Pluvialis squatarola</i>; Grey plover (Non-breeding) - A149 <i>Calidris alpina alpina</i>; Dunlin (Non-breeding) - A156 <i>Limosa limosa islandica</i>; Black-tailed godwit (Non-breeding) - A195 <i>Sterna albifrons</i>; Little tern (Breeding) - Waterbird assemblage Further information can be found via Natural England's Supplementary Advice.	- The extent and distribution of the habitats of the qualifying features - The structure and function of the habitats of the qualifying features - The supporting processes on which the habitats of the qualifying features rely - The population of each of the qualifying features, and, - The distribution of the qualifying features within the site.
Blackwater Estuary Ramsar site (Mid-Essex Coast Phase 4) 4) UK11007	4395.15	<u>Ramsar criterion 1</u> Qualifies by virtue of the extent and diversity of saltmarsh habitat present. This site, and the four others in the Mid-Essex Coast complex, includes a total of 3,237 ha that represent 70% of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain. <u>Ramsar criterion 2</u> The invertebrate fauna is well represented and includes at least 16 British Red Data Book species. In descending order of rarity these are: Endangered: a water beetle <i>Paracymus aeneus</i>; Vulnerable: a damselfly <i>Lestes dryas</i>, the flies <i>Aedes flavescens</i>, <i>Erioptera bivittata</i>, <i>Hybomitra</i>	None available.



Site name/code	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)
		<i>expollicata</i> and the spiders <i>Heliophanus auratus</i> and <i>Trichopterna cito</i>; Rare: the beetles <i>Baris scolopacea</i>, <i>Philonthus punctus</i>, <i>Graptodytes bilineatus</i> and <i>Malachius vulneratus</i>, the flies <i>Campsicemus magius</i> and <i>Myopites eximia</i>, the moths <i>Idaea ochrata</i> and <i>Malacosoma castrensis</i> and the spider <i>Euophrys</i>. <u>Ramsar criterion 3</u> This site supports a full and representative sequences of saltmarsh plant communities covering the range of variation in Britain. <u>Ramsar criterion 5</u> Assemblages of international importance; species with peak counts in winter; 105061 waterfowl (5 year peak mean 1998/99-2002/2003) <u>Ramsar criterion 6</u> Species/populations occurring at levels of international importance: Species with peak counts in winter: • <i>Pluvialis squatarola</i>; Grey plover • <i>Calidris alpina alpina</i>; Dunlin • <i>Limosa limosa islandica</i>; Black-tailed godwit Species/populations identified subsequent to designation for possible future consideration under criterion 6.	



Site name/code	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)
		Species with peak counts in winter: <i>Tadorna tadorna</i>; Common shelduck <i>Pluvialis apricaria apricaria</i>; European golden plover <i>Tringa totanus tetanus</i>; Common redshank	
Essex Estuaries The Mid-Essex Coast comprises an extensive complex of estuaries and intertidal sand and silt flats, including several islands, shingle and shell beaches and extensive areas of saltmarsh. The proposed SPA follows the boundaries of five SSSIs: the Colne Estuary, the Blackwater Estuary, Dengie, the River Crouch Marshes and Foulness.			
Essex Estuaries SAC UK0013690	46109.95	H1110 Sandbanks which are slightly covered by sea water all the time; Subtidal sandbanks H1130 Estuaries H1140 Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats. H1310 Salicornia and other annuals colonizing mud and sand; Glasswort and other annuals colonising mud and sand H1320 Spartina swards (<i>Spartinion maritimae</i>); Cord-grass swards H1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) H1420 Mediterranean and thermo-Atlantic halophilous scrubs	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring: - The extent and distribution of qualifying natural habitats - The structure and function (including typical species) of qualifying natural habitats, and - The supporting processes on which qualifying natural habitats rely



Site name/code	Area (ha)	Qualifying Features	Conservation objectives (only available for SACs & SPAs)
		(<i>Sarcocornetea fruticosi</i>)	



Appendix 2. Key vulnerabilities / factors affecting site integrity from Site Improvement Plans

Key vulnerabilities / factors affecting site integrity

Essex Estuaries:

- Blackwater Estuary (Mid-Essex Coast Phase 4) SPA
- Colne Estuary (Mid-Essex Coast Phase 2) SPA
- Crouch & Roach Estuaries (Mid-Essex Coast Phase 3) SPA
- Dengie (Mid-Essex Coast Phase 1) SPA
- Essex Estuaries SAC
- Foulness (Mid-Essex Coast Phase 5) SPA



Key vulnerabilities / factors affecting site integrity

1. Coastal Squeeze:

Coastal defences along much of the Essex coastline prevent intertidal habitats from shifting landward in response to rising sea levels. As a result, these habitats are being gradually degraded and reduced in extent, with knock-on effects on the waterbirds and other species they support. 'Managed realignment' schemes and additional intervention measures to create new areas of intertidal habitat and reduce erosion rates are being implemented but more will be needed to offset future losses. Grazing marshes in the SIP area are important for waterbirds and are also threatened by sea level rise because most are near or below mean high tide level, currently protected behind seawalls.

2. Public Access/Disturbance:

Breeding and overwintering waterbirds are susceptible to human disturbance from a range of land- and water-based activities - including boating and watersports, walking, bait-digging, fishing and wildfowling - as well as low-flying aircraft. Some activities, such as powerboating, may produce physical disturbance to habitats. Moderate levels of disturbance in less sensitive locations may have no significant effect on the numbers of birds using the SIP area but the types, levels and locations of potentially disturbing activities are constantly changing. Managing the changes to minimise the risk of disturbance impacts will require a better understanding of which species and habitats are most susceptible, which types of activity are most disturbing, and which locations and times of year are most sensitive.

3. Fisheries: Commercial marine and estuarine

Commercial fishing activities categorised as Amber or Green under Defra's revised approach to commercial fisheries in EMSs are being assessed by Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA) to determine whether management is required. For activities categorised as Amber and Green these assessments should take account of any relevant in combination effects with other fishing activities. Shellfish dredging over subtidal habitats has been identified as an Amber activity and is considered a high priority for assessment and development of possible management for the site.

4. Planning Permission: general

Several of the issues affecting the Essex Estuaries and the management of disturbance effects on the sites are related to each other, and addressing them is likely to require an improved overview of the relative sensitivities of different habitats, species and locations to different types of development (perhaps summarised as sensitivity maps and matrices for the SIP area). Difficult issues include: (a) Assessing the cumulative effects of numerous, small and often 'non-standard' developments (b) Development outside the SPA/SAC boundaries can have negative impacts, particularly on the estuaries' birds (c) Assessing the



Key vulnerabilities / factors affecting site integrity

indirect, 'knock-on' effects of proposals (d) Pressure to relax planning conditions on existing developments.

5. Changes in species distributions

Declines in the numbers of some of the waterbird species using the Essex Estuaries SIP area may be due to changes in their distributions or population levels at a national or continental scale, possibly linked to climate change. For example, milder winters may be allowing birds to overwinter closer to their northern breeding grounds, or changes on the breeding grounds may be reducing breeding success. When assessing SPA condition, distinguishing these types of large-scale effect from effects produced by changes within the site itself is important.

6. Invasive Species:

An increase in Pacific oyster *Crassostrea gigas* settlement and colonisation within the European Marine Site (EMS) may result in areas of foreshore being covered in such numbers as to make them difficult to access and utilise as feeding grounds for overwintering birds. The importance of Pacific oysters for the local shellfish industry is recognised, however Natural England would not like to see an overall increase in the extent of foreshore across the EMS populated by Pacific oysters. Other non-native invasive species such as the American whelk tingle *Urosalpinx cinerea* and Slipper limpet *Crepidula fornicata* are known to occupy subtidal muddy habitats, potentially impacting native communities through competition for resources and predation.

7. Fisheries: Recreational marine and estuarine

Recreational bait digging may impact waterbirds by reducing prey availability and creating disturbance in intertidal feeding areas. It could also damage the intertidal mudflats and sandflats and associated sub-features and communities, such as eelgrass beds. The extent of the activity and potential impacts on site features are not currently well understood.

8. Fisheries: Recreational marine and estuarine

Bottom towed fishing gear (i.e. any fishing instrument designed to take sea fisheries resources from the seabed) has been categorised as a 'Red' for the interest features listed, specifically the seagrass beds *Zostera* spp, a sub-feature of the SAC, as part of Defra's revised approach to commercial fisheries management in European Marine Sites (EMS). Appropriate management measures will be implemented and enforced by Kent and Essex Inshore Fisheries and Conservation Authority (IFCA) who have put in place the 'Bottom Towed Fishing Gear Byelaw' within the SAC to prohibit the above fishing gear being used over the majority of known seagrass beds.



Key vulnerabilities / factors affecting site integrity

9. Fisheries: Recreational marine and estuarine

Marine fisheries carried out under private rights, or under management defined in Several or Hybrid Orders, fall outside Defra's revised approach to commercial fisheries management in EMSs. A variety of fishing gears are used in these fisheries (e.g. Hydraulic and non-hydraulic dredging and shore based activities (e.g. shellfish collection)) which may be applying pressure to site features, including abrasion of the seabed, visual disturbance, and habitat structure changes. Potential impacts need to be better understood and assessed with potential management introduced if required.

10. Invasive Species:

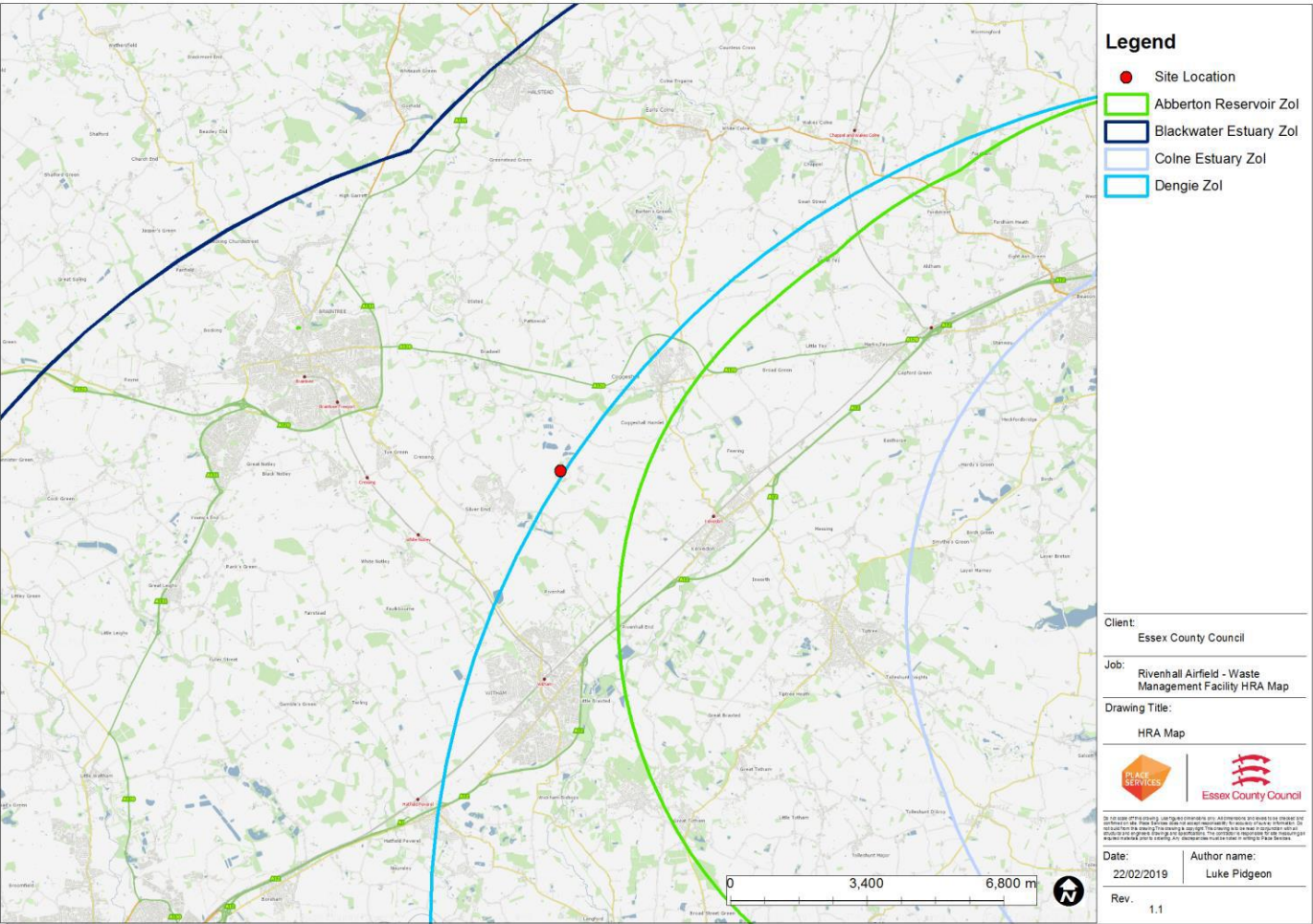
The invasive Common cord-grass *Spartina anglica* occurs widely within this site, as well as native Small cord-grass *Spartina maritima* in certain locations, and the site is designated for H1320 *Spartina* swards. There is a need to improve understanding of the dynamics of *S.anglica* on the site in order to determine if changes in the species' distribution adversely affect other species and habitats, including feeding and roosting areas of SPA bird species.

11. Air Pollution: risk of atmospheric nitrogen deposition

Atmospheric nitrogen deposition exceeds the relevant critical loads for coastal dune habitats used by breeding terns and hence there is a risk of harmful effects. However, on the Essex estuaries declines in the numbers of breeding terns appear to be due mainly to erosion of a man-made cockle-shingle bank (at Foulness) and to disturbance (elsewhere), rather than to over-vegetation of breeding areas caused by nitrogen deposition.



Appendix 3 IWMF stack, Rivenhall Airfield and Locations of the Habitats Sites' Zones of Influence





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