



Thurrock Flexible Generation Plant

**Preliminary Environmental Information Report
Chapter 7: Historic Environment**

Date: September 2018

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Preliminary Environmental Information Report

Volume 3

Chapter 7

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Summary

This document and associated appendices provide the Preliminary Environmental Information Report in terms of the historic environment. It provides information on the baseline and a preliminary assessment of the effect, if any of Thurrock Flexible Generation Plant on the significance of heritage assets.

Qualifications

This document has been prepared by Dan Slatcher BA, MA MCIfA who has 25 years’ experience of Environmental Impact Assessment.

1. Introduction

1.1 Purpose of this chapter

- 1.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents the findings of Environmental Impact Assessment (EIA) work undertaken to date concerning potential impacts of Thurrock Flexible Generation Plant on the historic environment.
- 1.1.2 The PEIR is being published to inform pre-application consultation. Comments. Following consultation, comments on the PEIR will be reviewed and taken into account in preparation of the Environmental Statement (ES) that will accompany the application to the Planning Inspectorate (PINS) for development consent.
- 1.1.3 The direct and indirect effects of the proposed development on the historic environment of the area, including buried archaeological sites, historic buildings and historic landscapes, are considered. It aims to identify all effects on these heritage assets both in terms of the potential for physical disturbance and effects on setting and to assess the overall effect and significance of these predicted effects.
- 1.1.4 The chapter reports on studies, including a combination of field surveys and desktop research, to describe, classify and evaluate the existing resource. The likely impacts are assessed during the construction, operational and decommissioning phases of the proposed development. Full details of the proposed development are presented in Volume 2, Chapter 2: Project Description and accompanying figures, which set the basis against which this assessment has been conducted.
- 1.1.5 This chapter summarises information contained within technical reports, which are included at Volume 6, Appendix 7.1: Historic Environment Desk-Based Assessment and Volume 6, Appendix 7.2: Geophysical Survey Report.
- 1.1.6 In particular, this PEIR chapter:
- presents the existing environmental baseline established from desk studies, surveys and consultation to date;
 - presents the potential environmental effects on the historic environment arising from Thurrock Flexible Generation Plant, based on the information gathered and the analysis and assessments undertaken to date;
 - identifies any assumptions and limitations encountered in compiling the environmental information; and

- highlights any necessary monitoring and/or mitigation measures that could prevent, minimise, reduce or offset the possible environmental effects identified in the EIA process.

1.2 Planning policy context

- 1.2.1 Planning policy for energy generation Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to the historic environment, is contained in the Overarching National Policy Statement (NPS) for Energy (EN-1; DECC, 2011a) and the NPS for Fossil Fuel Electricity Generating Infrastructure (EN-2, DECC, 2011b).
- 1.2.2 NPS EN-1 includes guidance on what matters are to be considered in the assessment. These are summarised in Table 1.1 below.

Table 1.1: Summary of NPS EN-1 and EN-2 provisions relevant to this chapter.

| Summary of NPS EN-1 and NPS EN-2 provision | How and where considered in the PEIR |
|---|---|
| Archaeology and Cultural Heritage | |
| Applicants should provide a description of the significance of the heritage assets affected by the proposed development and the contribution of their setting to that significance. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on the significance of the heritage asset (paragraph 5.8.8). | The significance of all heritage assets affected by Thurrock Flexible Generation Plant is assessed in Section 4 of this chapter, including the contribution that their setting makes to that significance. |
| As a minimum the applicant should have consulted the relevant Historic Environment Record (or, where the development is in English or Welsh waters, English Heritage or Cadw) and assessed the heritage assets themselves using expertise where necessary according to the proposed development's impact (paragraph 5.8.8). | All relevant Historic Environment Records have been consulted. See Volume 6, Appendix 7.1: Historic Environment Desk-Based Assessment. |
| Where a development site includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out an appropriate Desk Based Analysis and, where such desk-based research is insufficient to properly assess the interest, a field evaluation (paragraph 5.8.9). | A desk-based assessment has been prepared (Volume 6, Appendix 7.1) and a geophysical survey (Volume 6, Appendix 7.2) has been undertaken. |
| Where proposed development will affect the setting of a heritage asset, representative visualisations may be necessary to explain the impact (paragraph 5.8.9). | Appropriate visualisations have been prepared for the built part of the application site in order to demonstrate how the proposed works could affect the settings of heritage assets. These are shown in Volume 3, Chapter 7: Landscape and Visual Resources. |

1.2.3 NPS EN-1 also highlights a number of factors relating to the determination of an application and in relation to mitigation. These are summarised in Table 1.2 below.

Table 1.2: Summary of NPS EN-1 policy on decision making relevant to this chapter.

| Summary of NPS EN-1 policy on decision making (and mitigation) | How and where considered in the PEIR |
|--|--|
| Heritage | |
| <p>In considering applications, the decision-maker should seek to identify and assess the particular significance of any heritage asset that may be affected by the proposed development, including by development affecting the setting of a heritage asset, taking account of:</p> <ul style="list-style-type: none"> evidence provided with the application; any designation records; the Historic Environment Record, and similar sources of information; the heritage assets themselves; the outcome of consultations with interested parties; and where appropriate and when the need to understand the significance of the heritage asset demands it, expert advice. <p>(paragraph 5.8.11, NPS EN-1).</p> | <p>The evidence outlined in paragraph 5.8.11 of NPS EN-1 is provided in this chapter, Volume 6, Appendix 7.1: Historic Environment Desk-Based Assessment and Volume 6, Appendix 7.2: Geophysical Survey Report.</p> |
| <p>In considering the impact of a proposed development on any heritage assets, the decision-maker should take into account the particular nature of the significance of the heritage assets and the value that they hold for this and future generations. This understanding should be used to avoid or minimise conflict between conservation of that significance and proposals for development (paragraph 5.8.12, NPS EN-1).</p> | <p>An assessment of the significance of those heritage assets which may be affected by Thurrock Flexible Generation Plant has been made in Section 4 of this of this chapter.</p> |
| <p>The decision-maker should take into account the desirability of sustaining and, where appropriate, enhancing the significance of heritage assets, the contribution of their settings and the positive contribution they can make to sustainable communities and economic vitality. The decision-maker should take into account the desirability of new development making a positive contribution to the character and local distinctiveness of the historic environment. The consideration of design should include scale, height, massing, alignment, materials and use. The decision-maker should have regard to any relevant local authority development plans or local impact report on the proposed development (paragraph 5.8.13, NPS EN-1).</p> | <p>Mitigation measures have been proposed where appropriate to ensure that the significance of heritage assets is sustained as far as possible. The location of built parts of Thurrock Flexible Generation Plant have been selected in order to allow for the minimum visual impact (see Volume 2, Chapter 3: Consideration of Alternatives). Mitigation measures are identified in Table 2.11 of this chapter.</p> |

| Summary of NPS EN-1 policy on decision making (and mitigation) | How and where considered in the PEIR |
|---|--|
| <p>There should be a presumption in favour of the conservation of designated heritage assets and the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be. Once lost heritage assets cannot be replaced and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Loss affecting any designated heritage asset should require clear and convincing justification. Substantial harm to or loss of a Grade II listed building park or garden should be exceptional. Substantial harm to or loss of designated assets of the highest significance, including SMs; registered battlefields; Grade I and II* listed buildings; Grade I and II* registered parks and gardens; and World Heritage Sites, should be wholly exceptional (paragraph 5.8.14, NPS EN-1).</p> | <p>Appropriate visualisations have been prepared for the built part of the application site in order to demonstrate how the proposed works could affect the settings of heritage assets. These are shown in Volume 3, Chapter 7: Landscape and Visual Resources.</p> |
| <p>Any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of development, recognising that the greater the harm to the significance of the heritage asset, the greater the justification will be needed for any loss. Where the application will lead to substantial harm to or total loss of significance of a designated heritage asset, the decision-maker should refuse consent unless it can be demonstrated that the substantial harm to or loss of significance is necessary in order to deliver substantial public benefits that outweigh that loss or harm (paragraph 5.8.15, NPS EN-1).</p> | <p>Significance of effects on designated heritage assets are included in Section 4 of this chapter.</p> |
| <p>Not all elements of a World Heritage Site or Conservation Area will necessarily contribute to its significance. The policies set out in paragraphs 5.8.11 to 5.8.15 (see above) apply to those elements that do contribute to the significance. When considering proposals, the decision-maker should take into account the relative significance of the element affected and its contribution to the significance of the World Heritage Site or Conservation Area as a whole (paragraph 5.8.16, NPS EN-1).</p> | <p>Significance of effects on Conservation Areas are included in Section 4 of this chapter. There are no World Heritage Sites or elements of in the Thurrock Flexible Generation Plant historic environment study area.</p> |
| <p>Where loss of significance of any heritage asset is justified on the merits of the new development, the decision-maker should consider imposing a condition on the consent or requiring the applicant to enter into an obligation that will prevent the loss occurring until it is reasonably certain that the relevant part of the development is to proceed (paragraph 5.8.17, NPS EN-1).</p> | <p>Appropriate mitigation measures are included in Section 4 of this chapter, and summarised in Table 6.1</p> |

| Summary of NPS EN-1 policy on decision making (and mitigation) | How and where considered in the PEIR |
|--|---|
| When considering applications for development affecting the setting of a designated heritage asset, the decision-maker should treat favourably applications that preserve those elements of the setting that make a positive contribution to, or better reveal the significance of, the asset. When considering applications that do not do this, the decision-maker should weigh any negative effects against the wider benefits of the application. The greater the negative impact on the significance of the designated heritage asset, the greater the benefits that will be needed to justify approval (paragraph 5.8.18, NPS EN-1). | Effects on designated heritage assets, including effects on their settings are included in Section 4 of this chapter. |

- 1.2.4 A number of other policies are relevant to the historic environment including:
- National Planning Policy Framework (NPPF) (Department for Communities and Local Government (DCLG), 2012);
 - Web based planning practice guidance is provided by the DCLG: Conserving and enhancing the historic environment (last updated April 2014); and
 - Infrastructure Planning (Decisions) Regulations 2010.
- 1.2.5 Key provisions of these policies are set out in Table 1.3: Summary of along with details as to how these have been addressed within the assessment.

Table 1.3: Summary of other relevant policies relevant to historic environment.

| Summary of provision | How and where considered in the Environmental Statement |
|---|--|
| National Planning Policy Framework | |
| Paragraph 128 notes that in determining applications local planning authorities should require an applicant to provide a description of the significance of any heritage assets affected and the contribution of their setting to that significance. The level of detail should be proportionate to the importance of the heritage asset and no more than is sufficient to understand the potential impact of the proposal on the significance of the heritage asset. | An assessment of the significance of the impact on heritage assets affected by Thurrock Flexible Generation Plant, including their setting, is given in Section 4 in this chapter. |

| Summary of provision | How and where considered in the Environmental Statement |
|---|---|
| A heritage asset is defined in the NPPF at page 52 as a building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage assets include designated heritage assets and assets identified by the local planning authority (including local listing). | A description of the method used to identify heritage assets, including consultation with local planning authorities and Historic England (HE), is included in Section 4 in this chapter. |
| Paragraph 132 notes that when considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be. | The relative importance of the historic environment assets assessed in this chapter is discussed in Section 4 in this chapter. |
| Paragraph 135 notes that the effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non-designated heritage assets, a balanced judgement would be required having regard to the scale of any harm or loss and the significance of the heritage asset. | The un-designated heritage assets considered in this chapter are described in detail in Volume 6, Appendix 7.1: Historic Environment Desk-Based Assessment. An assessment of the potential impact of Thurrock Flexible Generation Plant on undesignated heritage assets is laid out in Section 4 in this chapter. |
| National Planning Practice Guidance | |
| On 6 March 2014 DCLG launched the National Planning Practice Guidance as a web-based resource. The guidance includes 'Conserving and enhancing the historic environment' (April 2014) which provides advice on several areas of historic environment practice, including on the assessment of the settings of heritage assets. | How the National Planning Practice Guidance has been used to inform the assessment of setting is outlined in Section 2.4 in this chapter |
| Infrastructure Planning (Decisions) Regulations 2010 | |
| It is noted that: “(1) When deciding an application which affects a listed building or its setting, the decision maker (a) must have regard to the desirability of preserving the listed building or its setting or any features of special architectural or historic interest which it possesses. (2) When deciding an application relating to a Conservation Area, the decision-maker must have regard to the desirability of preserving or enhancing the character or appearance of that area. (3) When deciding an application for development consent which affects or is likely to affect a scheduled monument or its setting, the decision-maker must have regard to the desirability of preserving the scheduled monument or its setting.” (paragraph 3) | The potential impacts of Thurrock Flexible Generation Plant on Conservation Areas, listed buildings, SMs, and their settings are considered in Section 4 in this chapter. |

1.2.6 The development plan for the proposal site comprises policies from the Thurrock Local Development Framework, adopted in 2011. Relevant policies are as follows:

“CSTP24: Heritage Assets and the Historic Environment

1. Protecting and Enhancing Heritage Assets

I. The Council will preserve or enhance the historic environment by:

i. Promoting the importance of the heritage assets, including their fabric and their settings;

ii. Encouraging the appropriate use of heritage assets and their settings;

iii. Supporting increased public access to historic assets, including military and industrial heritage;

iv. Reviewing the designation of local heritage assets, including considering the designation of new Conservation Areas;

v. Retaining non-designated heritage assets which are considered locally important as well as those with statutory protection; and

vi. Encouraging proposals that include enhancement of surrounding landscapes and integration between priority heritage assets and the Greengrid.

2. Proposed Development

I. All development proposals will be required to consider and appraise development options and demonstrate that the final proposal is the most appropriate for the heritage asset and its setting, in accordance with:

i. The objectives in part 1 above;

ii. The requirements of PMD 4 Historic Environment;

iii. Conservation Area Character Appraisals and Management Proposals as appropriate; and

iv. Relevant national and regional guidance.

3. Priorities for Heritage Regeneration and Enhancement

I. The Council will work collaboratively with owners and partners to encourage the appropriate regeneration and use of priority heritage assets to secure their long-term future. The Council will identify priority heritage assets from:

i. English Heritage’s national Heritage at Risk Register;

ii. The Thurrock Heritage at Risk Register, which will be reviewed annually;

iii. The Conservation Area Management Proposals, which will be reviewed at least every five years, and

iv. A local list of heritage assets once produced.

v. The Historic Environment Record

II. Of priority heritage assets already identified, the Council will:

i. Ensure that the setting of Tilbury Fort, including views of it from the river, are appropriately protected and enhanced, and that encroachment on the open land around it is not permitted.

ii. Ensure that the setting of Coalhouse Fort is appropriately protected from development and that its fabric is conserved.

iii. Resist development that undermines an understanding of the role the river Thames has played in the historic development of Thurrock.

iv. Promote public access between Tilbury Fort and Coalhouse Fort through riverside links.

v. Ensure that any new development close to, or within, Bata Village or the Bata Factory complex is well designed and contributes positively to their settings.

vi. Ensure that Thurrock’s historic landscapes, and the contribution made to them by ancient woodland, hedgerows and trees, are appropriately considered in all development proposals.

Policy HC1 PMD4: Historic Environment

The Council will ensure that the fabric and setting of heritage assets, including Listed Buildings, Conservation Areas, Scheduled Ancient Monuments and other important archaeological sites, and historic landscape features are appropriately protected and enhanced.

1. The Council will also require new development to take all reasonable steps to retain and incorporate non-statutorily protected heritage assets contributing to the quality of Thurrock’s broader historic environment.

2. Applications must demonstrate that they contribute positively to the special qualities and local distinctiveness of Thurrock, through compliance with local heritage guidance including:

i. Conservation Area Character Appraisals;

ii. Conservation Area Management Proposals;

iii. Other relevant Thurrock-based studies, including the Landscape Capacity Study (2005), the Thurrock Urban Character Study (2007) and the Thurrock Unitary Historic Environment Characterisation Project (2009).

iv. Further local guidance as it is developed.

3. The Council will follow the approach set out in 'PPS 5: Planning for the Historic Environment' in the determination of applications affecting

Thurrock's built or archaeological heritage assets. This will include consideration of alterations, extensions or demolition of Listed Buildings or the demolition of unlisted buildings within Conservation Areas, and requirements for pre-determination archaeological evaluations and for preservation of archaeology in situ or by recording."

1.3 Legislation

1.3.1 Listed buildings are protected under the designation regime set out in the Planning (Listed Buildings and Conservation Areas) Act (1990) which empowers the Secretary of State for the Department of Digital, Culture, Media and Sport (DCMS) to maintain a list of built structures of historic or architectural significance.

1.3.2 Scheduled monuments (SMs) are protected through the Ancient Monuments and Archaeological Areas Act (1979), which had been updated in the National Heritage Act (1983). SMs are maintained on a list held by the Secretary of State for DCMS. Any alterations or works to a SM (including archaeological investigation) requires SM consent (SMC).

1.4 Consultation

1.4.1 Key issues raised during scoping and consultation to date specific to the historic environment are listed in Table 1.4, together with how details of how these issues have been considered in the production of this PEIR and cross-references to where this information may be found.

Table 1.4: Key points raised during scoping and consultation to date.

| Date | Consultee and type of response | Points raised | How and where addressed |
|----------------|--------------------------------|---|--|
| September 2018 | PINs - Scoping Opinion | <p>Paragraph 8.23 of the Scoping Report identifies the principal heritage assets which may be impacted by the Proposed Development. In addition to these, the Inspectorate considers that the ES should assess any likely significant effects on the settings of heritage assets on the southern side of the Thames, including Cliffe, Shornemead and New Tavern Forts.</p> <p>The assessment should consider the potential for cumulative impacts on cultural heritage assets, particularly in terms of the impacts to the settings of the military forts and the loss of archaeological resource. The cumulative assessment should include Tilbury2, Tilbury Energy Centre and the Lower Thames Crossing. Other projects to be considered in the cumulative assessment should be discussed and agreed with the relevant consultation bodies.</p> | <p>An assessment of the significance of the impact on heritage assets affected by Thurrock Flexible Generation Plant, including their setting, is given in Section 4 in this chapter.</p> <p>The cumulative assessment includes Tilbury2, Tilbury Energy Centre and the Lower Thames Crossing (see Section 5. of this chapter, in particular paragraph 5.3.1 et seq).</p> |
| September 2018 | PINs - Scoping Opinion | <p>Whilst no Conservation Areas have been identified within the application site boundary, the Inspectorate notes that the proposed access route is located immediately adjacent to the West Tilbury Conservation Area. Any likely significant effects on the setting of the Conservation Area (particularly in terms of impacts from noise and traffic) should be assessed in the ES.</p> | <p>An assessment of the significance of the impact on heritage assets affected by Thurrock Flexible Generation Plant, including their setting, is given in Section 4 in this chapter. The West Tilbury Conservation area is assessed in paragraphs 4.1.114 – 4.1.128 of this chapter.</p> |
| September 2018 | PINs - Scoping Opinion | <p>The Inspectorate notes that the geophysical survey undertaken in 2017 and provided in Appendix B of the Scoping Report does not extend to the entirety of the Proposed Development area.</p> <p>The Applicant should ensure that the information used to inform the assessment is robust and allows suitable identification of assets likely to be impacted by the Proposed Development. The Applicant should make effort to agree the need for intrusive investigations (paragraph 8.26 of the Scoping Report indicates that intrusive investigations may be carried out) with relevant consultation bodies. Where necessary intrusive investigations should be completed prior to submission of the DCO application.</p> <p>The Applicant should ensure that their approach to defining the archaeological baseline is sufficient to identify potential archaeological remains within alluvial deposits.</p> | <p>Consultation with Historic England has been sought between July and September 2018 inclusive but has not been possible.</p> <p>Section 2.3 confirms that the desk-based and survey data is considered sufficient for a robust impact assessment of potential impacts.</p> <p>Paragraphs 4.1.12 and 4.1.13 set out further targeted survey and monitoring to be undertaken prior to and during construction.</p> |
| September 2018 | PINs - Scoping Opinion | <p>The Inspectorate notes the potential for impacts to buried archaeology, as well as impacts to marine archaeological remains if the water cooling pipeline option is pursued. Cumulative impacts with other developments should also be assessed.</p> <p>The ES should set out the proposals for the recording of archaeology which would be permanently lost as a result of the Proposed Development and make effort to agree the approach with relevant consultation bodies. The ES assessment of impacts to buried archaeology should take into account the guidance contained in Historic England's guidance document 'Preserving Archaeological Remains' (Preserving Archaeological Remains: Decision taking for sites under development (Historic England, 2016).</p> | <p>The water cooling pipeline is not being pursued and no impacts on marine archaeology would occur.</p> <p>Paragraphs 4.1.12 and 4.1.13 set out further targeted survey and monitoring to be undertaken prior to and during construction.</p> |
| September 2018 | PINs - Scoping Opinion | <p>The Inspectorate notes (paragraph 8.31 of the Scoping Report) that the assessment of impacts to setting will follow the staged approach set out in Historic England's 'The Setting of Heritage Assets: Good Practice Advice in Planning Note 3' (The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition) (Historic England, 2017)).</p> <p>Appropriate viewpoints and photomontages should be used to illustrate how the Proposed Development would be seen in views from key heritage assets, both alone and together with other developments including Tilbury2, Tilbury Energy Centre and the Lower Thames Crossing.</p> <p>The Applicant should make effort to discuss and agree the location of viewpoints and the need for photomontages with relevant consultation bodies including Historic England.</p> | <p>Consultation with Historic England has been sought between July and September 2018 inclusive but has not been possible.</p> <p>Viewpoints and wirelines are shown in Volume 3, Chapter 6: Landscape and Visual Resources and the impact on key heritage assets, taking into account that information, is assessed in this chapter.</p> |

| Date | Consultee and type of response | Points raised | How and where addressed |
|----------------|------------------------------------|--|---|
| September 2018 | PINs - Scoping Opinion | <p>Paragraph 8.34 of the Scoping Report describes how it is proposed to determine significance of effect, using a matrix-based approach.</p> <p>The ES should ensure that the methodology used is applicable to address the context of the receiving environment and issues relevant to the Proposed Development. Where professional judgement is used to reach conclusions on levels of harm and significance of effect this should be explained. The Inspectorate notes Historic England's comments in this regard (see section 3.4 of their scoping consultation response, Appendix 2 of this Opinion) and advises the Applicant to make effort to agree a specific methodology with relevant consultation bodies.</p> | <p>Consultation with Historic England has been sought between July and September 2018 inclusive but has not been possible.</p> <p>Section 2.4 describes in detail the methodology used to assess the significance of impacts and how professional judgement is applied where necessary.</p> |
| September 2018 | Historic England - Scoping Opinion | <p>There are no designated heritage assets which would be directly affected by the proposed development. The principal designated heritage assets which may be impacted indirectly by the proposed development are: the scheduled monuments at Tilbury Fort, Earthworks near West Tilbury Church, WWII anti-aircraft battery at Bowaters Farm, East Tilbury Battery and Coalhouse Fort. Separately listed buildings at Grade I include St Katharine's Church and those at Grade II* include the riverside station at Tilbury Cruise Terminal and the Church of St James. Seven grade II listed buildings also fall within the study area.</p> | <p>An assessment of the significance of the impact on heritage assets affected by Thurrock Flexible Generation Plant, including their setting, is given in Section 4 in this chapter, which includes all of the assets referred to.</p> |
| September 2018 | Historic England - Scoping Opinion | <p>We advise that the impact of the proposed development on the setting and significance of designated and non-designated heritage assets to be fully assessed in accordance with legislation, policy and guidance. In particular, we recommend the analysis follows the staged approach to assessment set out the Good Practice Advice in Planning 3: The Setting of Heritage Assets. The ES document would need to provide sufficient visual information to illustrate how the proposed infrastructure would be seen in views from key designated heritage assets and would be pleased to provide more detailed advice on proposed viewpoints for photomontages once an initial list has been drawn up.</p> | <p>An assessment of the significance of the impact on heritage assets affected by Thurrock Flexible Generation Plant, including their setting, is given in Section 4 in this chapter. As recommended assessment of setting has been undertaken in accordance with Good Practice Advice in Planning 3: The Setting of Heritage Assets.</p> |
| September 2018 | Historic England - Scoping Opinion | <p>We would recommend a single Historic Environment chapter for the ES. However, the historic environment sections would also need to be integrated, and cross referenced to other relevant chapters. This is most relevant to the Landscape and Visual Assessment where we consider that it would be important to use historic environment receptors in to the assessment process. We consider that photomontages and/or wirescape images from heritage specific viewpoints would be essential particularly from key designated heritage assets. Wider landscape views are also needed, including any images that would seek to illustrate cumulative impacts in view of the quantum of development proposals in the vicinity. The assessment of 'setting' likewise should not be solely restricted to visual impact, and would need to consider the impact from other environmental factors such as noise, traffic and lighting.</p> | <p>An assessment of the significance of the impact on heritage assets affected by Thurrock Flexible Generation Plant, including their setting, is given in Section 4 in this chapter. An integrated approach to baseline information gathering and assessment has been undertaken, with particular reference to the locations of landscape viewpoints for visualisations. Viewpoints and wirelines are shown in Volume 3, Chapter 6: Landscape and Visual Resources. In addition, the results of the noise, traffic and lighting assessments have been considered as appropriate.</p> |
| September 2018 | Historic England - Scoping Opinion | <p>Historic England has in the past raised concerns about the use of matrices and tables to determine significance, magnitude of impacts and receptor sensitivity. This is in reference to the Design Manual for Roads and Bridges (DMRB) which is commonly used for the Environmental Impact Assessment (EIA) process for infrastructure projects. Whilst the standardised EIA matrices are a useful tool, the analysis of impact, harm, significance and setting is a matter of qualitative and expert judgment which cannot be achieved solely by the use of systematic matrices and the use of tables should be seen primarily as supporting material. We recommend that the applicant seek to deliver a clearly expressed, iterative and non-technical narrative for significance and harm, which is tailored to this specific environment.</p> | <p>An assessment of the significance of the impact on heritage assets affected by Thurrock Flexible Generation Plant, including their setting, is given in Section 4 in this chapter. Assessment of impact, harm, significance, and setting has been undertaken through a combination of matrices allied to a significant degree of professional judgement.</p> |
| September 2018 | Historic England - Scoping Opinion | <p>There is geophysical data which suggests potential for undesignated buried archaeological remains within the development area. If the water cooling option were to be adopted there would be potential impacts on marine archaeological remains. It is thus likely that there will be direct and indirect impacts on the terrestrial and marine historic environments that will need to be taken into account.</p> | <p>An assessment of the significance of the impact on heritage assets affected by Thurrock Flexible Generation Plant, including their setting, is given in Section 4 in this chapter. Impacts on un-designated buried archaeological remains are considered in paragraphs 4.1.3 – 4.1.14 of this chapter.</p> |

| Date | Consultee and type of response | Points raised | How and where addressed |
|----------------|--|---|---|
| September 2018 | Historic England - Scoping Opinion | <p><i>A geophysical survey (magnetometry) has been carried out across the development area [see Wessex Archaeology 2017, incorporated as Volume 6, Appendix 7.2], which has identified some anomalies, but it is important to note that this approach will not identify some remains of archaeological interest. This includes organic remains, such as wooden structures or boats, or deposits such as peat that may be of archaeological and palaeoenvironmental interest. A number of studies carried out in and around Tilbury Fort have identified important Holocene period alluvial and peat sequences indicative of periods of marine and regression and transgression. It is noted in Section 8.164 that the geological maps and BGS borehole records indicate that the main development site is underlain by Alluvium, suggesting that similar sequences Holocene sequences may be preserved here as well. The previous studies have demonstrated that the accumulation of peat was diachronous, highlighting the potential of the different sequences sampled to provide information about site specific landscape evolution over time and the mosaic of environments that existed on the floodplain in the past. Further work will therefore need to be carried out to determine the potential of the alluvial deposits identified at the site and the potential that these deposits to address archaeological questions.</i></p> | <p>An assessment of the significance of the impact on heritage assets affected by Thurrock Flexible Generation Plant, including their setting, is given in Section 4 in this chapter. This includes an assessment of the significance of and impact upon, deeply buried remains of potential archaeological and/ or palaeoenvironmental interest.</p> <p>Paragraphs 4.1.12 and 4.1.13 set out further targeted survey and monitoring to be undertaken prior to and during construction.</p> |
| September 2018 | Historic England - Scoping Opinion | <p><i>We would recommend in the first instance that the existing sequences/deposit models produced for nearby sites are investigated as part of the desk-based assessment phase of works. This may provide useful information about the proposed development area as well as highlight gaps in the understanding that could be targeted for further study. We would also recommend a joined-up approach is used when investigations are considered for the development area, whether this is to address engineering questions, the presence of contamination or for archaeological purposes. Communication and collaboration between the various specialists could reduce the duplication of effort and maximise the potential of each sample to address the questions that need to be investigated as part of the application process</i></p> | <p>Paragraphs 4.1.12 and 4.1.13 set out further targeted survey and monitoring to be undertaken prior to and during construction.</p> <p>Consultation with Historic England and Thurrock Borough Council heritage officer has been sought between July and September 2018 inclusive but has not been possible.</p> |
| September 2018 | Essex County Council Archaeology - Scoping Opinion | <p><i>It should be noted that the proposed development area is situated in a sensitive area of heritage assets situated between two scheduled coastal forts.</i></p> <p><i>It is recommended that considering the impacts likely to be caused by this development to both the heritage assets and their settings including listed buildings, scheduled monument, conservation areas and archaeological deposits, the applicant should organise joint early discussions between Historic England, conservation officer and archaeological advisors in advance of their EIA assessment to ensure the work is being undertaken appropriately and covers all aspects that will be required to be assessed.</i></p> <p><i>Considerable recent work has occurred within the area and all of this data will require reviewing and adding to the existing data held on the HER.</i></p> <p><i>A field assessment is likely to be needed to understand potential land fill within the area and how this has impacted on the historic ground surface. Even if this has occurred then the historic creeks and field boundaries that survive are likely to contain surviving archaeological deposits</i></p> | <p>An assessment of the significance of the impact on heritage assets affected by Thurrock Flexible Generation Plant, including their setting, is given in Section 4 in this chapter.</p> <p>Consultation with Historic England and Thurrock Borough Council heritage officer has been sought between July and September 2018 inclusive but has not been possible.</p> <p>As detailed in Volume 3, Chapter 16: Geology, Hydrogeology and Ground Conditions, land-fills in the area lie outside the application boundary for Thurrock Flexible Generation Plant.</p> |
| September 2018 | Marine Management Organisation - Scoping Opinion | <p><i>The MMO welcomes the methodology for informing the Cultural Heritage Assessment which can be found in section 8.27 of the scoping report, but would defer to Historic England and their formal response to the PINS on this matter.</i></p> <p><i>The MMO note that there are a number of heritage features within the vicinity of the proposed project area. The MMO is content that these have been considered in section 8.23 of the scoping report, and as per section 7.2 of this report, welcome the methodology for assessing potential impacts.</i></p> | <p>Noted.</p> |

2. Assessment Approach

2.1 Baseline studies

2.1.1 Information on the historic environment within the application site and the surrounding area was collected through a detailed desktop review of existing studies and datasets. These are summarised in Table 2.1 below.

Table 2.1: Summary of key desktop sources.

| Title | Source | Year | Author |
|---|---|------|----------------------|
| Historic Environment Record | Essex County Council | 2018 | Essex County Council |
| Records of the National Mapping Programme | Essex County Council | 2018 | HE |
| Records held by the National Record of the Historic Environment | HE | 2018 | HE |
| Historic Ordnance Survey (OS) mapping | Groundsure and the National Library of Scotland | 2018 | OS |
| Historic mapping (including tithe and enclosure maps) | Essex Record Office | 2018 | Various |
| 1:50,000 scale geological mapping | British Geological Survey (BGS) | 2018 | BGS |
| Borehole records for locations in the historic environment study area | BGS | 2018 | BGS |

Site specific surveys

2.1.2 In order to inform the EIA, the site-specific surveys listed in in

2.1.3 Table 2.2 have been undertaken.

Table 2.2: Summary of site-specific surveys undertaken.

| Title | Extent of survey | Overview of survey | Survey provider | Year | Reference to further information |
|---|--|--|--------------------|------|---|
| Thurrock Flexible Generation Plant Geophysical Survey | Survey centred on NGR 566194 176616. The Site comprises arable fields located to the east of Tilbury with a designated survey area covering approximately 17.3 ha. | A detailed gradiometer survey was conducted over land adjacent to Tilbury Substation, Tilbury. The detailed gradiometer survey has demonstrated the presence of several strong rectilinear anomalies that could be archaeological in origin. | Wessex Archaeology | 2017 | Annex A of Volume 6, Appendix 7.2: Geophysical Survey Report |
| Walkover survey | | A walkover survey of the entirety of the site was undertaken by the principal author, Dan Slatcher, in September 2018 | RPS | 2018 | Results incorporated within the Desk Based Assessment which forms Appendix 7.1 of this PEIR |

2.2 Study area

2.2.1 The study area is based upon recent experience of similar developments, the site visit and consideration of the landscape study, including the zone of theoretical visibility (ZTV) that has been defined in Volume 3, Chapter 6: Landscape and Visual Resources. This assessment, for the purpose of buried archaeology, focuses on a study area of 1km around the application site. For the purpose of the settings of heritage assets, the assessment focuses on a study area of 5 km around Zone A as described and illustrated in Chapter 2: Project Description while taking into consideration evidence from a wider area if appropriate, for example assets outside the study area characterise the baseline or if it appeared likely that there would be a significant effect on a heritage asset outside the study area.

2.2.2 With respect to the settings of heritage assets, only those assets which lie within the ZTV are assessed, using the guidance prepared by HE in their document “The Setting of Heritage Assets” (HE 2018) along with “Conservation Principles” (English Heritage 2008). The ZTV is derived from the built element of the proposed development, the Main Development Site where the gas fired facility, battery storage facility and customer substation will be located (Zone A as described and illustrated in Chapter 2: Project Description). No impacts on the settings of heritage assets leading to significant effects on them are likely to be caused by any other part of the proposed development and it is therefore from this area that the 5km study area is derived.

2.3 Uncertainties and/or data limitations

2.3.1 A comprehensive desk assessment has been undertaken using all available relevant sources. In addition, a geophysical survey of parts of the proposed development, including the area zoned for built development, has been undertaken.

2.3.2 On this basis there are no major data limitations that would compromise the robustness of the assessment.

2.4 Impact assessment criteria

2.4.1 The significance of an effect is determined based on the magnitude of an impact and the sensitivity of the receptor affected by the impact of that magnitude. This section describes the criteria applied in this chapter to characterise the magnitude of potential impacts and sensitivity of receptors. The terms used to define magnitude and sensitivity are based on those used in the DMRB methodology, which is described in further detail in Volume 2, Chapter 4: Environmental Impact Assessment Methodology.

Assessment criteria and impact assessment methodology

2.4.2 The significance of predicted impacts likely to occur during construction, operation and decommissioning of the proposed development has been determined by consideration of the importance of assets that may be affected and the magnitude of the predicted impact.

Asset significance and importance

2.4.3 In order to reach an understanding of the likely effect that a project may have on a heritage asset, it is necessary to understand the significance and importance of that asset.

2.4.4 Establishing the importance of a heritage asset is principally a means of identifying the extent to which the asset should be valued. For example, whether it is important at a national level or at a local level.

2.4.5 Significance can primarily be understood through examination of why a structure, site or area should be considered as a heritage asset. In the NPPF the significance of an asset is defined as:

‘The value of a heritage asset to this and future generations because of its heritage interest. The interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset’s physical presence, but also from its setting.’ (DCLG 2018, Annex 2 and cross-referenced in National Policy Statement EN-1).

2.4.6 These levels of interest broadly tie in with previous guidance from English Heritage expressed in the document Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (English Heritage, 2008). This provides guidance on understanding heritage values and also included a section (Section 6) advising on how to assess heritage significance.

2.4.7 According to the guidance published by English Heritage (2008), heritage values fall into four inter-related groups:

- Evidential value – the potential of a place to yield evidence about past human activity;
- Historical value – this derives from the ways in which past people, events and aspects of life can be connected through a place to the present. This value tends to be illustrative (providing insights into past communities and their activities) or associative (association with a notable family, person, event or movement);
- Aesthetic value – this derives from the ways in which people draw sensory and intellectual stimulation from a place; and
- Communal value – this derives from the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory.

Assessment of asset importance – archaeological assets

- 2.4.8 There are no national government guidelines for evaluating the importance of heritage assets. For archaeological assets, the DCMS has adopted a series of recommended (i.e. non-statutory) criteria for use in the determination of national importance when scheduling ancient monuments. These are expressed in the document Scheduled Monuments - Identifying, Protecting, Conserving and Investigating Nationally Important Archaeological Sites under the Ancient Monuments and Archaeological Areas Act 1979 (DCMS 2010). The criteria include period, rarity, documentation, group value, survival/condition, fragility/vulnerability, diversity and potential, and can be used as a basis for the assessment of the importance of historic remains and archaeological sites. However, the document also states that these criteria 'should not be regarded as definitive; but as indicators which contribute to a wider judgement based on the individual circumstances of a case.'
- 2.4.9 The criteria described above may also be used as a basis for the assessment of the importance of archaeological assets of less than national importance. However, the categories of regional and district/local importance are less clearly established than that of national and implicitly relate to local, district and regional priorities, which themselves vary within and between regions. Where available, local, district and regional research agenda, and local or structure plans may assist in this process.
- 2.4.10 It is noted that a high degree of professional judgement is required in the identification of importance for archaeological assets and this approach has been applied to this assessment, guided by acknowledged standards, designations and priorities. It is also important to recognise that buried archaeological remains may not always be well-understood at the time of assessment and can therefore be of uncertain importance.
- 2.4.11 The most recent guidance from any national agency regarding cultural heritage and EIA is from the Highways Agency and is expressed in Guidance Note 208/07 (August 2007) that now forms part of the Design Manual for Roads and Bridges, Volume 11, Section 3, Part 2 (HA 208/7) (Highways Agency et al., 2011).
- 2.4.12 The following table (Table 2.3) is primarily based on HA 208/07 and has been used to inform the assessment.

Table 2.3: Example Definitions of Sensitivity or Value (Archaeological Assets).

| Sensitivity | Typical Descriptor |
|------------------------------------|--|
| Assets of the highest significance | World Heritage Sites. Assets of acknowledged international importance. Assets that can contribute significantly to acknowledged international research objectives. SMs. Undesignated assets of schedulable quality and importance. |
| High | Assets that can contribute significantly to acknowledged national research objectives. |
| Medium | Designated or undesignated heritage assets that contribute to regional research objectives. |
| Low | Undesignated heritage assets of local importance. Assets compromised by poor preservation and/or poor survival of contextual associations. Assets of limited value, but with potential to contribute to local research objectives. |
| Negligible | Assets with very little or no surviving archaeological interest. |
| Unknown | The importance of the resource cannot be ascertained. |

Assessment of asset importance – historic buildings

- 2.4.13 For historic buildings, assessment of importance is usually based on the designations used in the Listed Building process. Where historic buildings are not listed, or where the listing grade may be in need of updating, professional judgement has been used.
- 2.4.14 The criteria used in establishing the importance of historic buildings within the Listed Building process include architectural interest, historic interest, close historic association (with nationally important people or events) and group value. Age and rarity are also taken into account. In general (where surviving in original or near-original condition), all buildings of pre-1700 date are listed, most of 1700 to 1840 date are listed, those of 1840 to 1914 date are more selectively listed, and thereafter even more selectively. Specific criteria have been developed for buildings of 20th century date. At a local level, buildings may be valued for their association with local events and people or for their role in the community.
- 2.4.15 HA 208/07 provides a basis for the following table (Table 2.4), as a guide for establishing the importance of historic buildings. This has been used to inform the current assessment.

Table 2.4: Example Definitions of Sensitivity or Value (Historic Buildings).

| Sensitivity | Typical Descriptor |
|------------------------------------|---|
| Assets of the highest significance | Standing buildings inscribed as of universal importance as World Heritage Sites. Other buildings of recognised international importance. SMs with standing remains. Grade I and II* listed buildings. Other listed buildings that can be shown to have exceptional qualities in their fabric or historical association not adequately reflected in the listing grade. Conservation Areas containing very important buildings. Undesignated structures of clear national importance. |
| High | Grade II listed buildings. Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical association. Conservation Areas containing important buildings. |
| Medium | Historic Townscape or built-up areas with historic integrity in their buildings, or built settings (e.g. including street furniture and other structures). |
| Low | 'Locally listed' buildings. Historic (unlisted) buildings of modest quality in their fabric or historical association. Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures). |
| Negligible | Buildings of no architectural or historic note; buildings of an intrusive character. |

Assessment of asset importance – historic landscapes

- 2.4.16 The sub-topic of Historic Landscape is recognised as having significant overlaps with other topics, such as landscape and townscape and therefore a multi-disciplinary approach to assessment has been adopted. This is to avoid double counting and duplication of effort. There are also significant overlaps with the other cultural heritage sub-topics of archaeological remains and historic buildings. The elements that are considered within those two sub-topics can make significant contributions to the historic landscape. This latter sub-topic has therefore concentrated on the overall Historic Landscape Character (HLC) and its value, rather than the individual elements within it.
- 2.4.17 All landscapes have some level of historic significance, as all of the present appearance of the urban and rural parts of England is the result of human or human-influenced activities overlain on the physical parameters of climate, geography and geology.

- 2.4.18 A number of designations can apply to historic landscapes, including World Heritage Sites (inscribed for their historic landscape value), Registered Parks and Gardens, Registered Battlefields and Conservation Areas. Some local plans include locally designated Historic Landscape Areas and Historic Parks and Gardens (or similar).
- 2.4.19 A model has been produced by the Council for British Archaeology (Rippon, 2004), whereby the historic landscape can be divided up into units that are scaled from smallest to largest, as follows:
- Elements - individual features such as earthworks, structures, hedges, woods etc.;
 - Parcels - elements combined to produce, for example farmsteads or fields;
 - Components - larger agglomerations of parcels, such as dispersed settlements or straight-sided field systems;
 - Types - distinctive and repeated combinations of components defining generic historic landscapes such as ancient woodlands or parliamentary enclosure;
 - Zones - characteristic combinations of types, such as Anciently Enclosed Land or Moorland and Rough Grazing;
 - Sub-regions - distinguished on the basis of their unique combination of interrelated components, types and zones; and
 - Regions - areas sharing an overall consistency over large geographical tracts.
- 2.4.20 The model described above can be used as the principal part of the overall HLC assessment. However, although HLC has been undertaken for much of England, there is no specific guidance or advice regarding the attribution of importance or significance to identified HLC types.
- 2.4.21 The following Table (Table 2.5) is based on the guidance provided in HA 208/07 with regard to evaluating the importance of historic landscape character units and has been used to inform the current assessment.

Table 2.5: Example Definitions of Sensitivity or Value (Historic Landscape Character).

| Sensitivity | Typical Descriptor |
|------------------------------------|--|
| Assets of the highest significance | World Heritage Sites inscribed for their historic landscape qualities. Historic landscape of international sensitivity, whether designated or not. Extremely well-preserved historic landscapes with exceptional coherence, time-depth, or other critical factor(s). |

| Sensitivity | Typical Descriptor |
|-------------|---|
| High | Designated historic landscapes of outstanding interest. Undesignated landscapes of outstanding interest. Undesignated landscapes of high quality and importance, and of demonstrable national sensitivity. Well-preserved historic landscapes exhibiting exceptional coherence, time-depth, or other critical factor(s). |
| Medium | Designated special historic landscapes. Undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional sensitivity. Averagely well preserved historic landscapes with reasonable coherence, time-depth, or other critical factor(s). |
| Low | Robust undesignated historic landscapes. Historic landscapes with specific and substantial importance to local interest groups, but with limited sensitivity. Historic landscapes whose sensitivity is limited by poor preservation and/or poor survival of contextual associations. |
| Negligible | Landscapes with little or no significant historical interest. |

Assessment of impact magnitude – archaeological assets

- 2.4.22 The magnitude of an impact is assessed without regard to the value of the heritage asset. In considering the magnitude of impact, the principle established in section 12 of the NPPF that preservation of the asset is preferred, and that total physical loss of the asset is least preferred, has been taken into account.
- 2.4.23 It is not always possible to assess the physical impact in terms of percentage loss and therefore it can be important in such cases to try to assess the capacity of the heritage asset to retain its character and significance following any impact. Similarly, impacts resulting from changes within the settings of buried archaeological assets may also be more difficult to assess as they do not involve physical loss of the resource and may be reversible.
- 2.4.24 The magnitude of the predicted impact is assessed using the criteria expressed in Table 2.6 below. These are primarily based on the guidance provided in HA 208/07.

Table 2.6: Example Definitions of Impact Magnitude (Archaeological Assets).

| Magnitude | Typical Descriptor |
|------------|--|
| High | Change to most or all key archaeological elements, such that the asset is totally altered and much of its significance is lost. Substantial change within the setting leading to considerable loss of significance of the asset. |
| Medium | Changes to many key archaeological elements, such that the asset is clearly modified and there is some loss of significance. Change within the setting leading to some loss of significance of the asset. |
| Low | Changes to key archaeological elements, such that the asset is slightly altered and there is a slight loss of significance. Slight change within the setting leading to a slight loss of significance of the asset. |
| Negligible | Very minor changes to key archaeological elements or within the setting that hardly affect the significance of the asset. |
| None | No substantive change to key archaeological elements or within the setting. |

Assessment of impact magnitude – historic buildings

- 2.4.25 As for archaeological assets, the magnitude of impact in relation to historic buildings is assessed without regard to the importance of the asset, so the total destruction of an insignificant historic building has the same degree of magnitude of impact as the total loss of a high value historic building. Determination of the magnitude of impact is based on the principle that preservation of the asset and its setting is preferred and that total physical loss of the asset and/or its setting is the least preferred.
- 2.4.26 Changes within the settings of historic buildings may result from vibration, noise and lighting issues as well as visual impacts, and may be reversible. Additional methodology regarding the assessment of effects resulting from changes within settings is provided below.
- 2.4.27 The magnitude of the predicted impact is assessed using the criteria expressed in Table 2.7 below. These are primarily based on the guidance provided in HA 208/07.

Table 2.7: Example Definitions of Impact Magnitude (Historic Buildings).

| Magnitude | Typical Descriptor |
|-----------|---|
| High | Change to key historic building elements, such that the asset is totally altered and much of its significance is lost. Substantial change within the setting of an historic building leading to considerable loss of significance of the asset. |

| Magnitude | Typical Descriptor |
|------------|---|
| Medium | Change to many key historic building elements, such that the asset is clearly modified and there is some loss of significance. Change within the setting of an historic building leading to some loss of significance of the asset. |
| Low | Changes to key historic building elements, such that the asset is slightly altered and there is some loss of significance. Change within the setting of an historic building leading to a slight loss of significance of the asset. |
| Negligible | Slight changes to historic building elements or within its setting that hardly affect the significance of the asset. |
| None | No substantive change to fabric or within the setting. |

Assessment of impact magnitude – historic landscapes

2.4.28 Historic landscapes cannot be destroyed or damaged but impacts on them can change their character. Impacts are assessed using evaluated HLC units, not the elements/parcels/components that contribute towards the character. There may be impacts resulting from changes within the settings of identified units, especially with regard to designated historic landscapes. Additional methodology regarding the assessment of effects resulting from changes within settings is provided at paragraph 2.4.30 *et seq* below.

2.4.29 The magnitude of the predicted impact is assessed using the criteria expressed in Table 2.8 below. These are primarily based on the guidance provided in HA 208/07.

Table 2.8: Example Definitions of Impact Magnitude (Historic Landscapes).

| Magnitude | Typical Descriptor |
|------------|---|
| High | Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to HLC unit and complete loss of significance. |
| Medium | Changes to many key historic landscape elements, parcels or components; visual change to many key aspects of the historic landscape; noticeable differences in noise or sound quality; considerable changes to use or access; resulting in moderate changes to HLC and some loss of significance. |
| Low | Changes to few key historic landscape elements, parcels or components; slight visual changes to few key aspects of historic landscape; limited changes to noise levels or sound quality; slight changes to use or access; resulting in limited changes to HLC and slight loss of significance. |
| Negligible | Very minor changes to key historic landscape elements, parcels or components; virtually unchanged visual effects; very slight changes in noise levels or sound quality; very slight changes to use or access; resulting in a very small change to HLC and very little loss of significance. |

| Magnitude | Typical Descriptor |
|-----------|--|
| None | No change to elements, parcels or components; no visual or audible changes; no changes arising from in amenity or community factors. |

Settings

2.4.30 In 2017, HE published the second edition of ‘Historic Environment Good Practice Advice’ in ‘Planning Note 3: The Settings of Heritage Assets’ (HE, 2017). This guidance provides further advice on the definition of setting and the general principles of setting in the context of strategic planning and development control.

2.4.31 Paragraph 2 of the HE advice document in particular deals with the issue of setting and development control. It advises applicants that the information required in support of applications for planning permission and listed building consents should be no more than is necessary to reach an informed decision, and those activities to conserve or invest need to be proportionate to the significance of the heritage assets affected and the impact on the significance of those heritage assets.

2.4.32 Paragraph 19 of the HE advice document provides the following broad approach to assessment, undertaken as a series of steps that apply proportionately to complex or more straightforward cases.

- Step 1: identify which heritage assets and their settings are affected;
- Step 2: assess the degree these settings make a contribution to the significance of the heritage asset(s) or allow significance to be appreciated;
- Step 3: assess the effects of the proposed development, whether beneficial or harmful, on that significance or the ability to appreciate it;
- Step 4: explore the way to maximise enhancement and avoid or minimise harm.
- Step 5: make and document the decision and monitor outcomes.

2.4.33 Although assessments of changes within the settings of heritage assets can involve non-visual issues such as noise (see for example HE 2017: paragraph 26), the advice notes that “*consideration of the contribution of setting to the significance of heritage assets, and how it can enable that significance to be appreciated, will almost always include the consideration of views*” (HE 2017: paragraph 5). To this end the ZTV is a useful tool in assessing in general terms the assets which are likely to be impacted by the proposed development likely level (HE 2017: paragraph 21).

2.4.34 An assessment of visual impacts on the heritage assets and their settings needs to take into account a wide variety of factors. These include the asset’s physical surroundings, the experience of the asset, the location, siting, form and appearance of the proposed development, its wider effects and its permanence. The assessment then needs to balance the impact of these various considerations on the basis of qualitative and expert judgment.

2.4.35 Assessment of the visual effects of the project has been undertaken in accordance with the procedures expressed in the Guidelines for Landscape and Visual Impact Assessment (The Landscape Institute and the Institute of Environmental Management and Assessment 2013). The findings of the landscape and visual assessment are presented in Chapter 6: Landscape and Visual Resources. These findings have been taken into account in considering the impact on settings in this chapter. Where there is the potential for changes within the setting of heritage assets due to noise or other impacts, these have been considered within this chapter using appropriate procedures.

2.4.36 Once the impact on the heritage asset has been examined, this has been related to the impact scales defined above for each type of heritage asset. The level of impact has been considered against the importance of the heritage asset in the matrix provided in Table 2.9, above to reach a conclusion regarding the overall significance of effect. The effects on heritage assets resulting from change within their settings may be adverse or beneficial.

Significance of effect matrix

2.4.37 The significance of the effect upon archaeology and cultural heritage is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The particular method employed for this assessment is presented in Table 2.9. Where a range of significance of effect is presented in Table 2.9, the final assessment for each effect is based upon expert judgement.

2.4.38 For the purpose of this assessment, any effects with a significance level of minor or less are considered to be **not significant** in EIA terms.

Table 2.9: Matrix used for the assessment of the significance of an effect.

| | Magnitude of impact | | | | | |
|-------------------------|---------------------|-----------|---------------------|---------------------|----------------------|----------------------|
| | | No change | Negligible | Minor | Moderate | Major |
| Sensitivity of receptor | Negligible | No change | Negligible | Negligible or minor | Negligible or minor | Minor |
| | Low | No change | Negligible or minor | Negligible or minor | Minor | Minor or moderate |
| | Medium | No change | Negligible or minor | Minor | Moderate | Moderate or major |
| | High | No change | Minor | Minor or moderate | Moderate or major | Major or substantial |
| | Very high | No change | Minor | Moderate or major | Major or substantial | Substantial |

2.4.39 Impacts can be either favourable or adverse; however, to avoid confusion; the default position of any effect recorded in this chapter is understood to be adverse unless stated otherwise.

2.4.40 Where the matrix provides a split in the level of effects, e.g. moderate/minor, the assessor has exercised professional judgement in determining which of the levels is more appropriate.

2.4.41 For the purposes of this assessment, any effect that is moderate, major or substantial is considered to be significant. Any effect that is minor or below is not significant.

2.4.42 The duration of the effect is indicated where known using the following terminology.

- Short term: a period of months, up to one year to cover the anticipated initial infrastructure delivery period and initial working;
- Medium term: a period of between one and 20 years to cover the whole of the anticipated construction period and anticipated restoration of the site; and
- Long term: a period of 20 years or more which accounts for the post-completion effects.

2.4.43 The significance of any effect on a heritage asset is clearly different from the significance of the asset itself.

2.5 Maximum design envelope parameters for assessment

- 2.5.1 The maximum design envelope parameters identified in Table 2.10 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These parameters have been identified based on the overview description of the development provided in Volume 2, Chapter 3: Project Description, including all potential development options where these are under consideration by the applicant.
- 2.5.2 Effects of greater adverse significance are not predicted to arise should any other development scenario within the project design envelope be taken forward in the final design scheme.

2.6 Impacts scoped out of the assessment

- 2.6.1 No impacts have been scoped out of the assessment.

Table 2.10: Maximum design envelope parameters assessed.

| Potential impact | Maximum design scenario | Justification |
|---|---|---|
| Construction | | |
| Construction of Thurrock Flexible Generation Plant (including any stripping required for storage, compounds and accesses) could result in permanent loss of or damage to, heritage assets comprising buried archaeological remains. | Main development site area 18 ha | Maximum size would have greatest potential for impact on below ground archaeology |
| | Main development site foundations extend to peat layer if present; continuous flight auger (CFA) piling method used | Potential foundation depth and piling method with greatest potential for impact on below ground archaeology |
| | Gas pipeline construction: 20 m wide working corridor and trench 4 m deep; pipeline crosses all fields of 'Zone D'; total length up to 3 km | Maximum size, depth and length crossing undeveloped land would have greatest potential for impact on below ground archaeology |
| | Access road(s) for construction: 20 m wide working corridor(s); route(s) not shared with gas pipe route | Maximum area of construction would have greatest potential for impact on below ground archaeology |
| | NTS connection above-ground installation: 50 m x 50 m compound | Maximum size would have greatest potential for impact on below ground archaeology |
| Construction works at Thurrock Flexible Generation Plant could potentially result in temporary impacts on the settings of heritage assets including SMs, listed buildings, Conservation Areas and Registered Parks and Gardens. | Tower cranes used at any time in zone A or zone I during phases 1 and 2 of construction period | Greatest potential for visual impact on setting of Tilbury Fort |
| Construction works at Thurrock Flexible Generation Plant could result in temporary impacts on the overall historic landscape. | Main development site area 18 ha | Maximum size would have greatest potential for impact on overall historic landscape |
| Operation and maintenance | | |
| The operation and maintenance of Thurrock Flexible Generation Plant could result in long-term reversible impacts on the settings of heritage assets including SMs, listed buildings, Conservation Areas and Registered Parks and Gardens. | Main development site buildings and gas engine stacks' height and location visibility as defined in design envelope parameters in Volume 3, Chapter 6: Landscape and Visual Resources | Maximum visibility would have greatest impact on settings of heritage assets |
| | National Transmission System (NTS) connection above-ground installation buildings and equipment 6 m high. Located at point within zone E most visible to Coalhouse Fort. | Maximum visibility would have greatest impact on settings of heritage assets |
| The operation and maintenance of Thurrock Flexible Generation Plant could result in long-term reversible impacts on the overall historic landscape. | Main development site area 18 ha | Maximum size would have greatest potential for impact on overall historic landscape |
| Decommissioning | | |
| Decommissioning works at Thurrock Flexible Generation Plant could result in temporary impacts on the settings of heritage assets including SMs, listed buildings, Conservation Areas and Registered Parks and Gardens. | Ongoing operation of all or part of flexible generation plant after 35 years | Greatest long-term impact on settings of heritage assets |
| Decommissioning works at Thurrock Flexible Generation Plant could result in temporary impacts on the overall historic landscape. | Main development site area 18 ha | Maximum size would have greatest potential for impact on overall historic landscape |

2.7 Measures adopted as part of Thurrock Flexible Generation Plant

2.7.1 A number of measures have been designed in to the Flexible Generation Plant to reduce the potential for impacts on the historic environment. These are listed in Table 2.11.

Table 2.11: Designed-in measures.

| Measures adopted as part of Thurrock Flexible Generation Plant | Justification |
|--|---|
| Construction Phase | |
| Cables will be buried rather than above ground. | This reduces or nullifies any long-term effect on the settings of heritage assets. |
| A programme of advance archaeological investigation following consent will focus on identified sites that will be adversely affected by Thurrock Flexible Generation Plant. This programme will be agreed with the relevant authorities prior to commencement of the work. | To offset any loss of, or damage to, buried archaeological assets. |
| Investigation of unexpected archaeological sites encountered during construction will be undertaken in line with procedures (e.g. a chance find procedure) agreed in advance with the relevant authorities (see outline Code of Construction Practice (CoCP) at Volume 5, Appendix 2.2). | To offset any loss of, or damage to, buried archaeological assets. |
| Implementation of a Landscape Management Scheme. | This reduces any long-term effects on the settings of heritage assets and the historic landscape. |
| Operation and Maintenance Phase | |
| Implementation of a Landscape Management Scheme. | To potentially ameliorate impacts on settings of heritage assets caused by the built element of Thurrock Flexible Generation Plant. |
| Decommissioning Phase | |
| None. | Effects during the decommissioning phase would be limited to those resulting from changes to the settings of heritage assets. Such effects will be short-term and fully reversible. |

3. Baseline environment

3.1 Current baseline

3.1.1 Figure 8.1 shows HER data for a radius of 1 km around the application site, while Figure 8.2 shows data on designated assets within the Sturdy Area. Figure 8.3 shows HLC within the study area.

3.1.2 Recorded archaeological remains in the wider area range in date from the prehistoric to the post medieval period.

Prehistoric and Roman

3.1.3 There is evidence for prehistoric and Roman activity in the wider area, mainly in the form of sites and finds.

3.1.4 The geology of the proposal site and surrounding area is of deep clayey soils overlain by lighter river alluvium, while the local settlements occupy a raised gravel spur that tapers to a point towards the riverside. An ancient ridgeway running between Chelmsford and Horndon on the Hill in Essex and Higham in Kent is presumed to have crossed the Thames at East Tilbury, to the east of the proposed development (Smith 2008: 5).

3.1.5 An isolated piece of worked flint of possible Palaeolithic date was found during the early 20th century at Tilbury Dock, (HER number 1784 TQ652753). A hand-axe was found within the built development of Tilbury (HER Number 1730 TQ646767). A find of implements apparently of Palaeolithic date at Tilbury, the precise provenance of which is unknown, but in a generic location is recorded in the HER (1669 TQ6576). To the east of the proposed development, a Lower Palaeolithic, Acheulian hand-axe was found in 1969 in a ploughed field 'Marsh Level' and presumably derives from the gravels (HER number 1744 - MEX6286).

3.1.6 From the beginning of the Holocene, the River Thames underwent a gradual transition from a braided river system to a single meandering channel and the chalk and gravel was progressively buried under deep alluvial deposits as a result of relative sea rise. In some areas where deep gravel deposits have been recorded, peat accumulation dating to the Mesolithic period has been identified underlying the alluvial sedimentation. During the course of the Holocene, further periods of stabilisation of the valley floor and changes in sea level are indicated in the Tilbury area by peat horizons. The peat deposits have been shown to provide significant palaeoenvironmental information considered to be of a national or international importance providing detail of environmental and landscape change during the prehistoric periods (Quest 2013). Although evidence of prehistoric archaeology is limited in the Lower Thames Valley, the paleoenvironmental record indicates woodland clearance, cultivation and animal husbandry was taking place which suggests the presence of prehistoric farming settlements close-by.

3.1.7 There is evidence of occupation during the prehistoric period, although the main focus of settlement seems to have been the higher ground nearby at Mucking (Smith 2008: 5).

3.1.8 A Neolithic flint axe of Neolithic date was found in West Tilbury Marsh (HER number 1808 TQ652760).

3.1.9 A possible Neolithic burial was apparently found at East Tilbury in 1982 according to the HER (HER number 1667 - MEX6006). An early Neolithic, small chipped flint axe or chisel, was dredged from the Thames off Tilbury and is now in Colchester Museum (HER number 1671 - MEX6022). A perforated whetstone probably of Bronze Age date is recorded in the HER as being found at East Tilbury (HER number 1673 - MEX6028).

3.1.10 During work in the 1970s at an early 20th century gravel quarry located on the north side of Coalhouse Fort, deep stratification was revealed with large quantities of Late Iron Age and Roman pottery; a coin; an early amphora fragment, apparently a Late Iron Age import and fired clay fragments relating to salt manufacture. The remains extend into the field to the east of the quarry (HER numbers 1743 - MEX6279 and 9006 - MEX28721).

3.1.11 The wider area would have been heavily Romanised and it is likely that extraction of gravel, chalk and clay, as well as salt production at 'Red Hill' sites began during the Roman period (Smith 2008: 5).

- 3.1.12 The line of a Roman road, presumably a successor of the Ridgway referred to at paragraph 3.1.4, is recorded by the HER as running inland along the line of Princess Margaret Road to the northwest from the ford or ferry at East Tilbury. A corresponding road apparently approached the north Kent coast at Higham, where burial evidence has been found. (HER number 1803 - MEX6549). Numerous finds of Roman pottery have been made from the wider area including the Thames foreshore (HER numbers 1688 - MEX6091, 1689 - MEX6092, 1690 - MEX6093, 9004 - MEX28716).
- 3.1.13 The HER records one or more 'red hills' (remains of salt making activity of prehistoric and/ or Roman date) at East Tilbury (HER number 1691 - MEX6094). Geophysical survey revealed the locations of two possible salterns on the margins of Mucking Marsh, although the interpretation is tentative (HER number 48575 - MEX10490).
- 3.1.14 A substantial Roman building would appear to have existed in the area of St Katherine's Church, East Tilbury where the walls reportedly contain some Roman and later bricks (HER number 1740 - MEX6275). The HER notes that it was reported in the 18th century that gravel-digging near the church often uncovered tessellated pavement (HER number 1762 - MEX6391).
- 3.1.15 Roman burials with associated grave goods were found in West Tilbury, although their precise location is unknown (HER number 1672 TQ6677). It seems likely that these were found on the gravel terraces further north of the recorded point.
- 3.1.16 The remains of a Roman settlement have been recorded some 700m east of the south east of the study site (HER number 1694 TQ672756). The settlement comprised a number of hut circles, a trackway and an oven, with large quantities of pottery sherds including Samian ware. The site may represent a landing-place for traffic from Kent or elsewhere. Further east, a salt extraction site was identified based on evidence of waste briquetage and Roman pottery.
- 3.1.17 Roman pottery sherds recorded along the Thames foreshore (HER numbers 1828 TQ665754 and 1734 TQ666755), may be associated with this settlement.
- 3.1.18 Roman remains have also been recorded at Tilbury Fort. Finds include including Samian ware and fibulae (HER numbers 1783 TQ64727510 and 1785 TQ650751). Further east a large quantity of Roman pottery was found along the foreshore, suggesting a reasonably dense population locally during the Roman period (1735 TQ667756).
- 3.1.19 There are no recorded remains of confirmed prehistoric or Roman date within or in the immediate vicinity of the proposal site. However, it can be assumed that the area was exploited during both the prehistoric and Roman periods.

Medieval

- 3.1.20 The wider area contains an extensive Anglo Saxon settlement, excavated at Mucking, during the mid-1960s to late 1970s. The evidence indicates that the site was settled from the first half of the 5th century until the beginning of the 8th (Hamerow 1993: 6-7).
- 3.1.21 Closer to the proposal site, a number of early Saxon sceattas (silver coins) have been found through metal detecting in field located on the west side of Princess Margaret Road, immediately west of St Katherine's Church, East Tilbury. The HER notes that the finds may represent an early Saxon settlement and / or religious site as it lies on the ancient highway from the East Tilbury ferry to Mucking and beyond (HER numbers 9001 - MEX28712, 9002 - MEX28713, 9003 - MEX28714).
- 3.1.22 Bede notes one of the churches founded in c. 653AD by Bishop Cedd was located at 'Tilaburg' on the banks of the Thames. The location of this place-name has not been determined. It may be in either East or West Tilbury (Smith 2008: 5).
- 3.1.23 Several of the local place-names, including Orsett and Tilbury are recorded in the Domesday Book of 1086 and represent pre-existing occupation (Williams and Martin 1992).
- 3.1.24 To the south of the river the place-name 'Gravesend' is first recorded in the Domesday Book of 1086 and is derived from the Old English meaning 'at the groves end' (Glover 1976: 83). Glover notes that the park to the east of Gravesend may be the original grove at the end of which the settlement developed.
- 3.1.25 Northfleet is first mentioned in 975 AD, and is from the Old English meaning the 'north creek', presumably to distinguish it from Southfleet (Glover 1976: 136).

- 3.1.26 A group of earthworks are located some 760 m north of the main development site at West Tilbury and lie south and west of the church and the hall. The earthworks are obscured by gravel workings and farm buildings. The earthworks lie at the edge of the escarpment overlooking the levels towards the River Thames and cover the neck of a promontory. The churchyard, located adjacent to the earthworks and to their east is located on a slight mound. The HER indicates that this is suggestive of the site of an early camp. In addition the HER notes that site is reputed to be the location of Bishop Cedda's palace, Cedda being a Saxon monk who is alleged to have built a cell here in 623 AD and also Elizabeth I's camp for her review of the troops in 1588. Six features were identified within the foundation trenches of an extension for a conservatory. A pit or ditch contained a single sherd of late Romano-British pottery, three flint-and-chalk footings which could not be dated but were probably earlier than the seventeenth century and two postholes or pits which were probably post-medieval in date. The site is a SM (list entry number 1002199, HER number 6031).
- 3.1.27 Medieval Gravesend was an important and wealthy town, derived from its position on the Thames (KCC 2004: 5). There was a landing place from the river at Gravesend by the time of the Domesday Book. The town contained a church (St Mary's, apparently first mentioned in the Domesday Book of 1086), with a manor house, probably located next to it (KCC 2004: 6).
- 3.1.28 A hospital dedicated to St Mary was founded in Tilbury in c. 1213. The hospital was latterly used as a chapel and last mentioned 1456 (HER number 1652 - MEX5948). The Victoria County History notes that at the end of the fourteenth century the hospital was better known as the chapel of St. Margaret and the patronage belonged to the earls of Ormond. It is said to have been a free chapel time out of mind and to own land in East and West Tilbury, Aveley and Mucking (Page and Round 1907).
- 3.1.29 The Church of St Margaret, now St Katherine, East Tilbury is located some 2.35 km east of the main development site. The building dates from the 12th century and was altered during the 13th and 17th centuries. The structure is of flint, and rubble with some Roman and medieval brickwork, and Reigate dressings. The roofs are tiled. The nave has a late 12th century north arcade with a blocked early 12th century window. The building is listed at Grade I (list entry number 1337129, HER number 1742 - MEX6278).
- 3.1.30 During the medieval period the settlement at East Tilbury appears to have been modestly prosperous, apparently through both the river crossing and marshland grazing (Smith 2008: 5).
- 3.1.31 The evidence of later mapping indicates that the proposed development itself was probably uninhabited coastal salt marshland and used for common pasture during the later medieval period. A length of the medieval sea wall is thought to survive (HER number 1827 TQ66557575). There is no evidence for medieval settlement activity within or adjacent to the proposed development.
- Post-medieval and modern**
- 3.1.32 The picture of settlement and activity in the wider area during the early post medieval period was presumably similar to that of the later medieval period. The wider area was significant in the defence of the River Thames from at least the reign of Henry VIII onwards.
- 3.1.33 A Henrican artillery battery, East Tilbury Blockhouse, was constructed at Coalhouse Point, some 2.3 km east of the main development site between 1539 and 1541. The fort was one of five blockhouses built along this stretch of the river Thames to defend the approach to London and the dockyards at Woolwich and Deptford. The blockhouse was disarmed in 1553. The site of Coalhouse Wharf and the Coastguard Lookout is thought to be the location of the 1540 blockhouse, a second blockhouse was built subsequently to the seaward side of the first. By 1735 this was described as 'inundated and ruined by the sea'. (HER number 45786 - MEX10376). It is possible that the remains of the blockhouse lie beneath the mud¹. Smith (1974: 142) notes that the East Tilbury Blockhouse is now under water due to coastal recession but that it remains were visible as late as 1735. The HER notes that it was hoped in 1984 that a trial trench would be able to locate it. There is no evidence that it did so, however (HER numbers 1756 - MEX6347, 1757 - MEX6352).
- 3.1.34 Tilbury Fort is located on low lying ground on the north bank of the River Thames, south east of the modern outskirts of Tilbury and some 1000 m south west of the built part of the proposed development at its nearest point. The fort includes the buried remains of a blockhouse constructed during the reign of Henry VIII in 1539. The blockhouse was superseded by the far larger and more complex fort and battery, pentagonal in plan, with arrowhead-shaped bastions projecting from four of the angles, allowing guns positioned behind the parapets to command wide areas and to be mutually supportive in close quarter defence. This was designed by the chief engineer to Charles I, Sir Bernard de Gomme, and succeeded the blockhouse in the late 17th century.

¹ http://www.pastscape.org.uk/hob.aspx?hob_id=1378614

- 3.1.35 The fort was partly modernised, with a number of new buildings, during the early 18th century and the officers barracks, a terrace of approximately 22 officers' houses within the fort, now seven houses and museum, were constructed in 1772, by the Board of Ordnance and altered during the early 19th century.
- 3.1.36 There were a number of late 19th and early 20th century alterations to the fort. During World War I anti-aircraft guns at the fort brought down a German airship. In the early stages of World War II the fort controlled the anti-aircraft defences of the Thames and Medway (North) Gun Zone. A small rectangular pillbox was added at this time. The elaborate outworks which surround the landward sides of the fort remain substantially unaltered.
- 3.1.37 The officers barracks are listed at Grade II* (list entry number 1375568) and the fort is a SM (list entry number 1021092).
- 3.1.38 The former site of Tilbury market place was sited close to the ferry crossing and the Worlds End Inn to the south west of Tilbury Fort (HER number 48401 TQ65167575).
- 3.1.39 The first detailed map of the area is the Chapman and André map of Essex of 1777. This shows the settlements and (presumably enclosed) agricultural land on the gravel ridge. West Tilbury Marsh, East Tilbury Marsh and Mucking Marsh are shown on the lower lying alluvium running from east to west on the north bank of the river. The Tilbury marshes contain several structures including Milk House and Ferry House in the west and Hill house in the north.
- 3.1.40 The OS surveyors plan of 1805 shows that a large part of the marshland had been enclosed by that time. The fort at Coalhouse Point is marked as 'Hope pt Battery'.
- 3.1.41 The Old Rectory, located within the village of East Tilbury, some 2.3 km east of the main development site is an early 19th century house of three storeys, in yellow stock brick, with a grey slate hipped roof. There is a central projection with a pediment over and a porch with columns. The building is listed at Grade II (List entry number 1111553, HER number 35318 - MEX1010725).
- 3.1.42 The East Tilbury tithe map of 1838 and award of 1839 shows the village of Tilbury, with Coalhouse Fort to its south and with two conjoined rectangular enclosures, formed by drainage ditches at Coalhouse Point. Within this are four small rectangular buildings and a fenced or walled yard area. The area is marked 'Coal Wharf'.
- 3.1.43 By 1854, the London Tilbury and Southend Railway had been constructed. The railway line divides the application site. This provided access to the landing stage at Tilbury for passenger liners, which was replaced in 1924 by the present structure.
- 3.1.44 The first edition OS six inch to the mile map of 1873 shows a similar disposition to that of the tithe map of some 35 years previously, but omits to show Tilbury and Coalhouse Forts, presumably for security reasons.
- 3.1.45 The River Thames, providing easy access to London became heavily defended during the post medieval period and later.
- 3.1.46 Gravesend Blockhouse located some 2.1 km southwest of the main development site, on the south bank of the River Thames, in Gravesend, was built in 1539 as part of a chain of coastal defences in response to the threat of invasion. It was one of five artillery blockhouses built along this stretch of the River Thames to defend the approach to London and the dockyards at Woolwich and Deptford. The other blockhouses were located at Tilbury, Higham, Milton and East Tilbury. The Gravesend Blockhouse crossed its fire with Tilbury Blockhouse on the north bank of the river and guarded the ferry crossing between Gravesend and Tilbury.
- 3.1.47 Repairs were carried out to the blockhouse in 1588 and 1667. By 1665 quarters for the Duke of York as Lord High Admiral had been provided behind the blockhouse. This subsequently became the Ordnance Storekeepers Quarters and, much later, the Clarendon Royal Hotel. By the late 17th century the blockhouse had been converted into a storage magazine for gun powder, although the eastern arm of the gun lines was still armed. The gun lines were remodelled in the 1780s before being levelled in 1834. The blockhouse was partially demolished in 1844. Gravesend Blockhouse is a SM (list entry number 1005120).
- 3.1.48 New Tavern Fort, located some 2.1 km south west of the main development site, on the south bank of the River Thames, in Gravesend, was built as a result of the 1778 survey of the defensive requirements of the Thames. The fort was built to provide cross fire with Tilbury Fort on the north side of the river. New Tavern Fort comprised a battery on two faces forming an angle towards the river with a strip of rampart joining it to a smaller, straight battery. The fort was constructed of unrevetted earth and was designed for an armament of heavy, smooth-bore cannon firing through embrasures. The initial construction took place between 1780 and c.1783, the armament of the fort being updated and increased at intervals throughout the 19th century.

- 3.1.49 By the end of the 19th century muzzle-loaded guns had become obsolete, and emphasis was placed on strengthening defences downstream from Gravesend. New Tavern Fort then lost some of its strategic importance. In 1905 concrete emplacements for two six-inch breech-loading guns were built, joined together by a walkway with a separate magazine underneath. Although the fort was garrisoned during World War I, its strategic importance continued to decline. In 1930 it was purchased by the Gravesend Corporation who laid it out as a pleasure garden for the public. During the Second World War the magazine built for the breech-loading guns was used for a time as an air raid shelter. Since then the site has again been cultivated as a public garden. The fort is a SM (list entry number 1013658).
- 3.1.50 Coalhouse Fort, located some 2.3 km east of the main development site is an artillery fort on a site used for defence since the late 16th century and built on the site of a D-shaped artillery castle constructed in 1539. The first phase of the present fort was begun in 1799 and replaced in 1847-55 by a more complex structure. Following recommendations made by the Royal Commission on the Defence of the UK in 1860 the fort of the 1850s was superseded by the present buildings between 1861-74. An 1895 return shows that 2 6-pounder quick-firing guns had been installed in an open battery on the river bank, upstream of the main work (HER number 1758 - MEX6355). In 1903 the fort was refortified with 5-6 feet of concrete placed on top of the 1860 battery roof. This structural strengthening was to support the weight of new guns. The fort was effectively obsolete during the First World War but was reoccupied during the invasion scare of 1940. By 1905, a small earthen battery with two searchlights had also been built about 300 yards to the south of the fort. This was later adapted to take three searchlights with generating equipment (HER number 1759 - MEX6359). Following the Second World War it was used as a store by Bata Shoes and then acquired by the district council (HE 2015a). The fortification is a SM (list entry number 1013943). The fort is not shown on the OS edition of 1873, where the area is shown as fields, but is marked, at least in part on the OS six-inch edition of 1923.
- 3.1.51 Cliffe Fort is located some 4 km east of the main development site, on the south east side of the Thames in Kent. The Fort was constructed during the 1860s as part of the River Thames' coastal defence system. The fort is of stone and brick and contained a moat and earthworks on the seaward side. Part of the fort was rebuilt in 1885 as a Brennan Torpedo Station. The fort was occupied during the First World War and disarmed sometime after 1927. During Second World War the fort was used as the base for the Royal Navy Auxiliary Service. Partial remains of the battery survive at the fort in poor condition (HE 2015b). The fort is a SM (List entry number 1003403).
- 3.1.52 East Tilbury battery, located on the east side of Princess Margaret Road, some 2.1 km east the main development site was constructed between 1889 and 1892 as a long-range emplacement to supplement Coalhouse Fort as part of the coastal defence system of the Thames. The battery was designed to blend into the landscape using a long sloping earth frontal area. The guns comprised two 10-inch and four 6-inch breech-loading weapons, mounted on 'disappearing carriages' which lay flat in deep emplacements for reloading and aiming but which were raised above the parapet for the few seconds of firing. The battery was decommissioned in 1907 and the guns removed (HE 2015c). The fortification is a SM (list entry number 1013880). The battery is marked as disused on the OS six-inch edition of 1923.
- 3.1.53 Shornmead Fort is located some 3.2 km south east of the main development site, on the south side of the Thames in Kent. A small battery of four guns had first occupied the site in 1796, but this was obliterated by a polygonal fort in 1847. This was in turn replaced by the present fort in the 1860s. The fort was intended to cross its fire with Coalhouse and Cliffe Forts. The structure comprises an arc of granite-faced casemates with iron shields and an open battery at the up-river end, in front of which is a deep ditch and caponiers. A defensible barracks closed the rear. The fort was armed with fourteen guns, removed before the First World War. During the Second World War the fort was reopened as an emergency battery. The formidable riverside display of bull nosed granite gun embrasures remained but behind these there was considerable destruction during the 1950s by the army school of demolition. By the late 1970s (at the latest) the barracks were in a derelict state (HE 2015d). Most of the structure has now been demolished, with only the casemates surviving (Newman 2012: 543). The fort is undesignated.
- 3.1.54 After the First World War passenger numbers through Tilbury increased significantly and it was realised that there were no central facilities for passengers. Given that liners were able to berth at this point in the River Thames, it was decided to make Tilbury the centre of passenger operations in London. A Bill was subsequently passed by Parliament to give powers to the Port of London Authority to build a passenger landing stage in 1922, and construction commenced two years later. The neo-Georgian structure includes the railway station and baggage hall, ticket office, and floating landing stage. The architect was Sir Edwin Cooper for the Port of London Authority.
- 3.1.55 By the late 1950s preference for air travel meant that travel by sea soon went into rapid decline. By the early 1980s British Rail ended through rail services, and in the 1990s the station was formally closed. The landing stage was re-opened in 1995 and was refurbished for leisure uses. Riverside Station, including floating landing stage is listed at Grade II* (list entry number 1111547).

- 3.1.56 At East Tilbury, some some 1.5 km northeast of the main development site, a purpose-built industrial village was developed between the 1930s and the 1960s for the British Bata Shoe Company Ltd as one of a number of satellites or colonies that the parent organisation, the Bata Shoe Company, based in Zlin, near what is now the eastern border of the Czech Republic, was constructing around the world in the 1930s. The East Tilbury Conservation area now covers the site and surroundings.
- 3.1.57 Both the layout and design of the pre-war factory, housing and community facilities were devised by the parent company and the settlement combines Garden City planning and Modernist architecture. Its character has subsequently been diluted by a large private residential development of the 1970s and piecemeal change to the company buildings (English Heritage (2007) East Tilbury, Thurrock, Essex, Historic Area Appraisal English Heritage Research Department Report Series 21/2007).
- 3.1.58 A number of defensive features of Second World War date have been recorded both within the application site and in its vicinity. The geophysical survey undertaken in connection with the proposed development has revealed a series of features largely confined to the southern part of the survey area. These anomalies are linear, rectilinear and curvilinear in form, and are interpreted as being related to anti glider ditches as well as associated infrastructure dating from the Second World War (Wessex Archaeology, 2017 incorporated as Volume 6, Appendix 7.2). They appear to relate to cropmarks recorded by the National Mapping Programme and provided by Essex HER.
- 3.1.59 Tilbury 'A' Power Station was constructed to the south of the application site between 1949 and 1957'. Tilbury 'B' was constructed adjacent to Tilbury 'A' during the 1960s. At this time the jetty was lengthened to the east and its original coal-handling cranes were replaced. By the 1970s works buildings and an electricity sub-station had been constructed and a number of overhead power lines crossed the wider area.
- 3.1.60 Tilbury 'A' was partly demolished in 1999, whilst Tilbury 'B' was converted to biomass in 2011. The jetty was enlarged in 2004. Following the closure of the Power Station, a programme of demolition has commenced across the remainder of 'A' and 'B' and relatively few structures now remain.

Designated Assets

- 3.1.61 A number of designated assets have been identified in the wider area. These are reported on below.

Scheduled Monuments

- 3.1.62 There is one SM located within 1 km of the main development site. This is Earthworks near church, West Tilbury (list entry number 1002199).

- 3.1.63 There are six SMs located between 1 km and 3 km of the main development site. These are Gravesend blockhouse (list entry number 1005120), Second World War anti-aircraft battery at Bowaters Farm (list entry number 1012185), New Tavern Fort, Gravesend, including Milton Chantry (list entry number 1013658), East Tilbury Battery (list entry number 1013880), Coalhouse Fort battery and artillery defences (list entry number 1013943), and Tilbury Fort (list entry number 1021092).
- 3.1.64 There are four SMs located between 3 km and 5 km of the main development site. These are Dene holes in Hangman's Wood (list entry number 1002156), Cliffe Fort (list entry number 1003403), Aspdin's kiln (list entry number 1004227), and Causewayed enclosure and Anglo-Saxon cemetery 500m ENE of Heath Place (list entry number 1009286).

Listed Buildings

- 3.1.65 There are five listed buildings located within 1 km of the main development site. Of these one the Church of St James (list entry number 1111541) is listed at Grade II* and the remainder at Grade II.
- 3.1.66 There are 125 listed buildings located between 1 km and 3 km of the main development site. Of these two the Church of St Mary and the Church of St Katherine (list entry numbers 1111576 and 1337129 respectively) are listed at Grade I, 11 are listed at Grade II* and the remainder at Grade II.
- 3.1.67 There are 83 listed buildings located between 3 km and 5 km of the main development site. Of these one, the Parish Church of St Botolph (list entry number 1054093) is listed at Grade I, seven are listed at Grade II* and the remainder at Grade II.

Conservation Areas

- 3.1.68 There is one conservation area located within 1 km of the main development site. This is West Tilbury.
- 3.1.69 There are seven conservation areas located between 1 km and 3 km of the main development site. These are East Tilbury, located to the east of the application site, with Upper Windmill Street, Gravesend, King Street, Gravesend, Harmer Street, Gravesend, Milton Place, Gravesend, Riverside, Gravesend, and High Street and Queen Street, Gravesend each located on the south side of the River Thames, within the built development of Gravesend.

3.1.70 There are also seven conservation areas located between 3 km and 5 km of the main development site. These are Queen's Farm, Shorne, The Hill, Northfleet, Windmill Hill, Gravesend, Overcliffe, Gravesend, Pelham Road and The Avenue, Gravesend, Darnley Road, Gravesend, and Lansdowne Square, Northfleet. Each of these conservation areas is located on the south side of the River Thames.

3.1.71 These conservation areas contain many of the listed buildings referred to above.

3.2 Future baseline

3.2.1 The main potential changes in the baseline for archaeology and cultural heritage would be on the settings of heritage assets from other development already ongoing, principally the completion of demolition at Tilbury Power Station. (The impacts of other developments that have not started or are not consented are assessed in the cumulative effects at Section 5).

Climate change

3.2.2 The Met Office UK Carbon Projections ('UKCP09') dataset² provides probabilistic projections of change in climatic parameters over time for 25 km grid squares across the UK. Projected changes during low, medium and high future global greenhouse gas emissions scenarios have been reviewed for the period from 2020 up to 2069, encompassing the potential six year construction and 35 year operational periods of the proposed development.

3.2.3 The likely ranges of change in climatic parameters including precipitation, temperature, wind speed, humidity and frequency of extreme weather are not considered to materially affect the future baseline described above for the historic environment or increase the sensitivity of receptors to impacts beyond that described in Section 4.

² CP09 is presently being updated to CP18, expected to be published in November 2018 (Met Office, 2018). CP09 remains the most up-to-date available data and remains an appropriate tool for adaptation planning (Met Office, 2017).

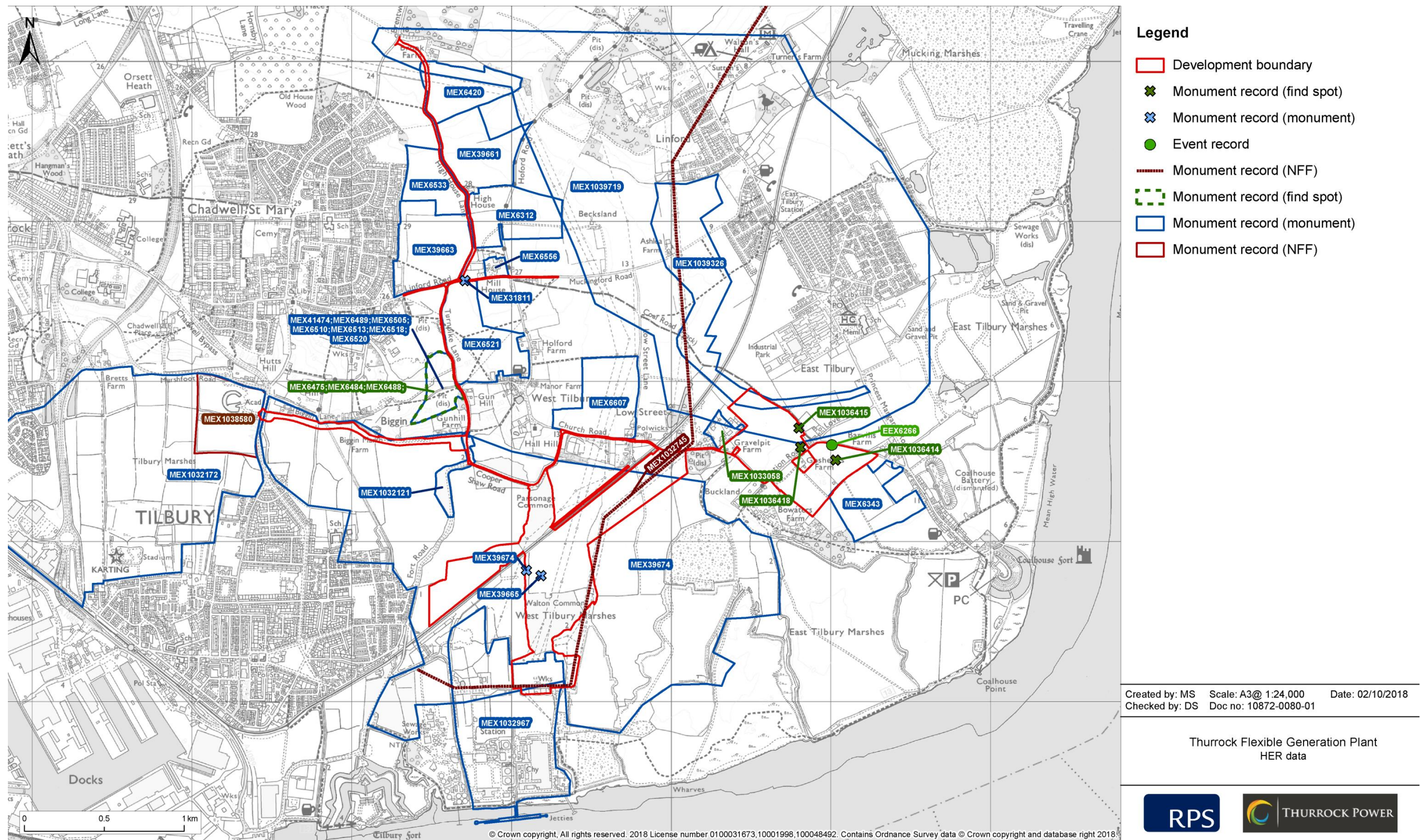


Figure 3.1: Thurrock Flexible Generation Plant HER Data.

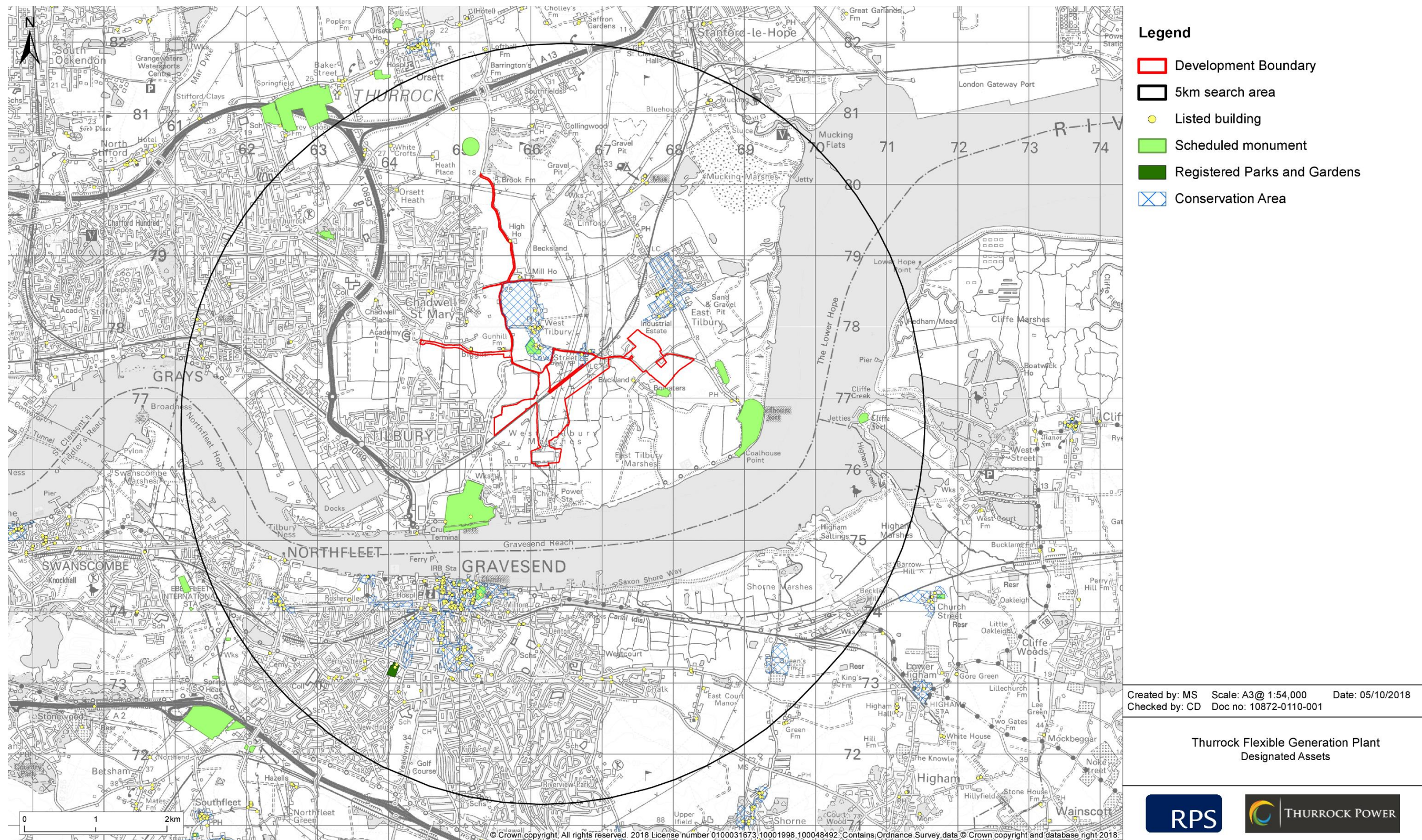


Figure 3.2: Thurrock Flexible Generation Plant Designated Assets.

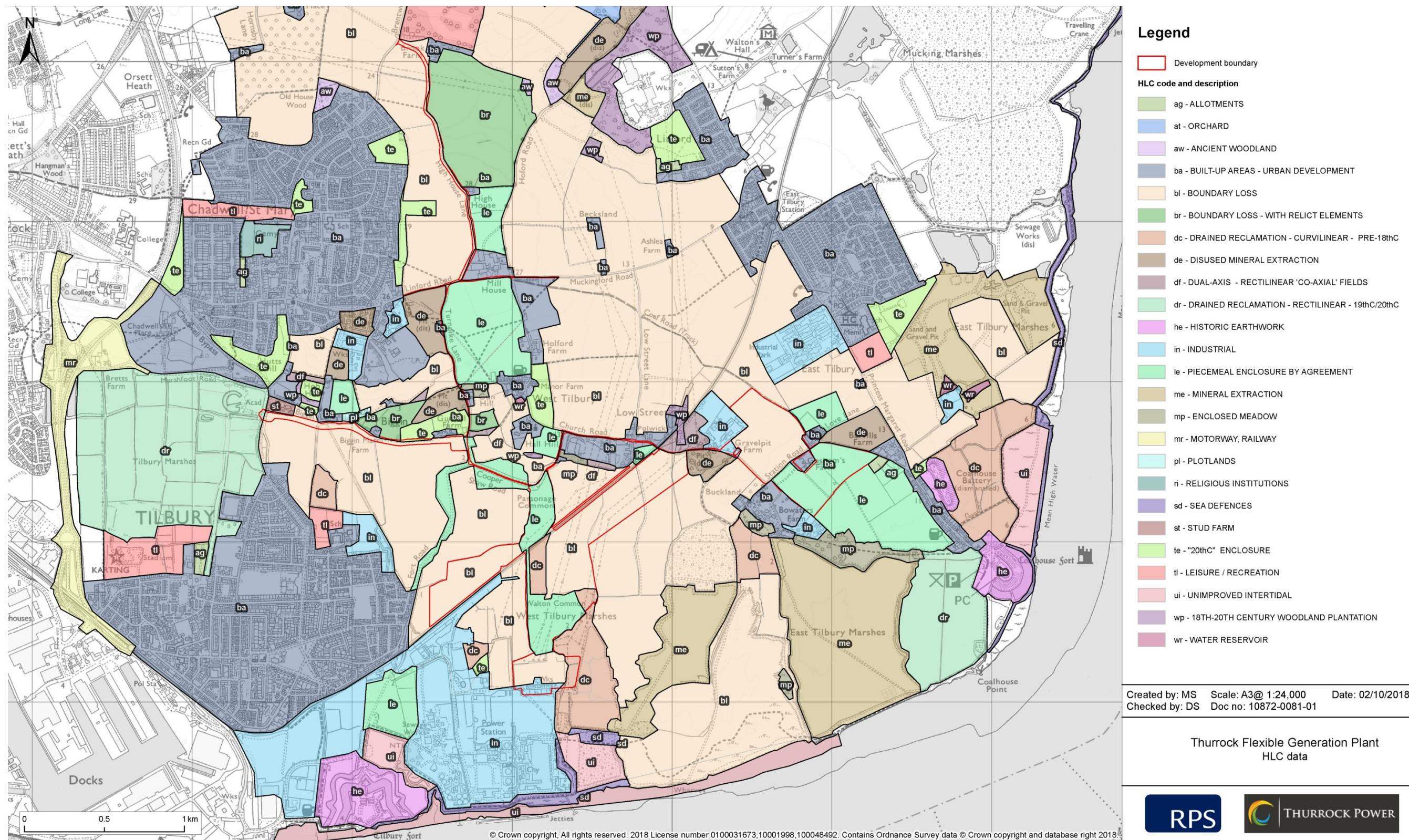


Figure 3.3: Thurrock Flexible Generation Plant HLC Data.

4. Assessment of Effects

4.1 Construction phase

4.1.1 The impacts of the construction of Thurrock Flexible Generation Plant on the historic environment have been assessed. The potential impacts arising from the construction of Thurrock Flexible Generation Plant are listed in Table 2.10 along with the maximum design scenario against which each construction phase impact has been assessed.

4.1.2 A description of the potential effect on historic environment receptors caused by each identified impact is given below.

Construction of Thurrock Flexible Generation Plant (including any stripping required for storage, compounds and accesses) could result in permanent loss of or damage to, heritage assets comprising buried archaeological remains.

4.1.3 There are a number of buried archaeological assets which have been identified through desk assessment and fieldwork. The approach to desk assessment and field evaluation means that other archaeological assets of medium or higher sensitivity are unlikely to be discovered during construction. Other assets of low/negligible sensitivity may be discovered during construction, though this risk will be controlled through the measures outlined in Table 2.11 (i.e. a chance find procedure).

4.1.4 In addition, there is the potential for more deeply buried palaeoenvironmental remains to survive within the application site. While the exact location of remains within the application site has not been determined, the likely nature and significance of such remains is understood from investigations nearby.

Magnitude of impact

4.1.5 Although the full extent of the near surface archaeological assets may have not always been determined, because site-specific surveys have taken place largely within the main development site, many of the assets can be seen to cover a relatively wide area and construction would only impact upon part of these assets.

4.1.6 In terms of the near surface archaeological assets there would be changes to many key archaeological elements, such that the assets are clearly modified and there is some loss of significance. Impacts are predicted to be of local spatial extent, of permanent duration, of continuous occurrence and not reversible. It is predicted that any impact may affect the receptors directly. With the implementation of the measures set out in Table 2.11 and those detailed measures set out at 4.1.11 *et seq*, the magnitude of impact is, therefore, considered to be minor.

4.1.7 In terms of more deeply buried remains with palaeoenvironmental potential, the remains cover a very wide area. Impacts on these remains would arise primarily from the built development and would lead to at most very minor changes to key archaeological elements that hardly affect the significance of the asset. Impacts are predicted to be of local spatial extent, of permanent duration, of continuous occurrence and not reversible. It is predicted that any impact may affect the receptors directly. With the implementation of the measures set out in Table 2.11 and those detailed measures set out at 4.1.11 *et seq*, the magnitude of impact is, therefore, considered to be negligible.

Sensitivity of receptor

4.1.8 The near surface archaeological assets may represent defensive and/or agricultural activity and detailed investigation is more likely to make a significant contribution to local rather than regional research objectives. These assets are of low to medium sensitivity.

4.1.9 More deeply buried remains of palaeoenvironmental potential are more likely to make a relatively minor contribution to regional and/ or national research objectives and these assets are of medium to high sensitivity.

Significance of the effect

4.1.10 Overall, the magnitude of impact on those assets which are of low to medium sensitivity is deemed to be minor. The magnitude of impact on those assets which are of medium to high sensitivity is deemed to be negligible. The effect will, therefore be of **minor adverse** significance, which is not significant in EIA terms.

Further mitigation or enhancement

4.1.11 Although no significant adverse effects have been predicted, the applicant proposes the following additional mitigation to minimise the effect of the proposed development on both near surface and more deeply buried archaeological remains.

4.1.12 Further geophysical survey in those areas of the proposed development to be subject to bulk earthmoving outside the main development site where that was already surveyed (see Volume 6, Appendix 7.2) will be undertaken and depending on results, a scheme of further investigation to include trial trenching and/or archaeological monitoring of soil stripping, to be followed by an appropriate level of recording and dissemination.

4.1.13 For more deeply buried remains of palaeoenvironmental potential archaeological monitoring and recording of ground investigation works would be undertaken, followed by an appropriate level of dissemination.

Residual effect

4.1.14 The residual effect following further mitigation/enhancement is predicted to be minor adverse, which is not significant in EIA terms.

Construction works at Thurrock Flexible Generation Plant could potentially result in temporary impacts on the settings of heritage assets including SMs, listed buildings, Conservation Areas and Registered Parks and Gardens.

4.1.15 In line with the maximum design scenario set out in Table 2.10, the tallest proposed structures at the main development site have been modelled within the ZTV.

Scheduled Monuments

4.1.16 There is one SM located within 1 km of the main development site. This is Earthworks near church, West Tilbury (list entry number 1002199). The SM is located within the West Tilbury Conservation Area and is assessed with that asset below.

4.1.17 There are six SMs located between 1 km and 3 km of the main development site. There are four SMs located between 3 km and 5 km of the main development site.

Gravesend Blockhouse (list entry number 1005120)

4.1.18 Gravesend blockhouse is located some 2.1 km south west of the main development site.

4.1.19 The SM comprises the standing and buried remains of a mid 16th century artillery blockhouse, part of a chain of coastal defences built along this stretch of the River Thames. The gun lines were remodelled in the 1780s before being levelled in 1834. The blockhouse was partially demolished in 1844.

Magnitude of impact

4.1.20 Thurrock Flexible Generation Plant would have no physical impact on the SM and therefore the potential impact is limited to an impact on its setting. The SM lies within the ZTV of the built part of Thurrock Flexible Generation Plant.

4.1.21 There is a wide ranging built and industrial landscape in the wider area. From the SM the built part of the proposed development would be seen in association with existing electricity infrastructure including pylons. There would be very minor changes to the setting of the designated asset through minor changes in views from the SM and the magnitude of impact of Thurrock Flexible Generation Plant on the SM is assessed as being negligible.

Sensitivity of receptor

4.1.22 The heritage values of this SM are as follows:

- Evidential and Historical – The evidential value derives primarily from the fabric of the designated asset and the potential for associated buried archaeological remains, or medieval and later date. The historical value is largely illustrative, although there are associations with a number of known persons and events, including both World Wars;
- Aesthetic – The value derives from the design value of the designated asset in terms of its expression of the architecture of fortification from the late 18th century onwards, as well as the ecclesiastical architecture of the medieval period; and
- Communal – The value of the designated asset derives from the symbolic value as part of the local and perhaps wider military history community.

4.1.23 Based on the above, the SM and listed buildings are deemed to be of high sensitivity. The setting of Gravesend Blockhouse, on the edge of the Thames, makes a significant contribution to its sensitivity.

4.1.24 The setting of the designated asset primarily comprises the River Thames, which it was designed to defend, built development of Gravesend and its relationship with Tilbury Fort, on the north bank of the Thames, with which it was intended to operate.

Significance of the effect

4.1.25 Overall, the sensitivity of the asset is considered to be high and the magnitude of impact is deemed to be negligible. The effect of Thurrock Flexible Generation Plant on the SM will therefore be of **minor adverse** significance, which is not significant in EIA terms.

Second World War anti-aircraft battery at Bowaters Farm (list entry number 1012185),

4.1.26 The Second World War anti-aircraft battery at Bowaters Farm is located some 1.3 km east of the main development site. Although nominally located partly within the ZTV, vegetation obscures views in the direction of the application site and the asset is not considered further.

New Tavern Fort, Gravesend, including Milton Chantry (list entry number 1013658),

4.1.27 New Tavern Fort, Gravesend, including Milton Chantry, is located some 2.1 km southwest of the main development site.

4.1.28 The SM comprises the remains of New Tavern Fort which includes within its grounds the earlier chapel or chantry associated with the Leper Hospital of St Mary the Virgin at Milton by Gravesend. The monument lies near Gravesend Pier and close to the River Thames. Both the fort and the chantry are also listed at Grade II* (list entry numbers 1261173 and 1089047 respectively). The chantry is located at the northwest side of the fort. New Tavern Fort was one of several forts built or improved during the later 18th and/ or earlier 19th century.

Magnitude of impact

4.1.29 Thurrock Flexible Generation Plant would have no physical impact on the SM and therefore the potential impact is limited to an impact on its setting. The SM lies within the ZTV of the built part of Thurrock Flexible Generation Plant.

4.1.30 There is a wide ranging built and industrial landscape in the wider area. From the SM the built part of the proposed development would be seen in association with existing electricity infrastructure including pylons. There would be very minor changes to the setting of the designated asset through minor changes in views from the SM and the magnitude of impact of Thurrock Flexible Generation Plant on the SM is assessed as being negligible.

Sensitivity of receptor

4.1.31 The heritage values of this SM are as follows:

- Evidential and Historical – The evidential value derives primarily from the fabric of the designated asset and the potential for associated buried archaeological remains, or medieval and later date. The historical value is largely illustrative, although there are associations with a number of known persons and events, including both World Wars;

- Aesthetic - The value derives from the design value of the designated asset in terms of its expression of the architecture of fortification from the late 18th century onwards, as well as the ecclesiastical architecture of the medieval period; and
- Communal – The value of the designated asset derives from the symbolic value as part of the local and perhaps wider military history community.

4.1.32 Based on the above, the SM and listed buildings are deemed to be of high sensitivity. The setting of New Tavern Fort, on the edge of the Thames makes a significant contribution to its sensitivity, while the location of the ecclesiastical remains is a reminder of their association with the medieval town.

4.1.33 The setting of the designated asset primarily comprises the River Thames, which it was designed to defend, built development of Gravesend and its relationship with Tilbury Fort, on the north bank of the Thames, with which it was specifically designed to operate.

Significance of the effect

4.1.34 Overall, the sensitivity of the asset is considered be high and the magnitude of impact is deemed to be negligible. The effect of Thurrock Flexible Generation Plant on the SM will therefore be of **minor adverse** significance, which is not significant in EIA terms.

East Tilbury Battery (list entry number 1013880)

4.1.35 East Tilbury Battery (list entry number 1013880) lies outside the ZTV of the proposed development and is not considered further.

Coalhouse Fort battery and artillery defences (list entry number 1013943),

4.1.36 Coalhouse Fort battery and artillery defences is located some 2.3 km east of the main development site.

4.1.37 The SM comprises a mid-19th century artillery fortification built as part of a complex of structures to defend the River Thames. Adjacent to the SM are two listed buildings, the Church of St Katherine, listed at Grade I (list entry number 1337129) and the Old Rectory, listed at Grade II (list entry number 1111553). These are considered here because of their proximity to Coalhouse Fort, which forms a significant part of their setting.

Magnitude of impact

- 4.1.38 Thurrock Flexible Generation Plant would have no physical impact on the SM and listed buildings; therefore the potential impact is limited to an impact on its setting. The SM lies within the ZTV of the built part of Thurrock Flexible Generation Plant, while the listed buildings lie at the edge of the ZTV.
- 4.1.39 Landscape Viewpoint 17 shows the existing view from a point to the south east of the fort, in an area now used as a public park. From this point there would be views of the built part of the proposed development, although from most of the scheduled area and the surrounding landscape, views would not be available due to intervening vegetation.
- 4.1.40 Given the separation distance and the wide ranging built and industrial landscape in the wider area, there would be very minor changes to the setting of the designated assets through minor changes in views from the SM and the magnitude of impact of Thurrock Flexible Generation Plant on the SM is assessed as being negligible.

Sensitivity of receptor

- 4.1.41 The heritage values of this SM are as follows:
- Evidential and Historical – The evidential value of the designated assets derives primarily from their fabric and the potential for associated buried archaeological remains. The historical value of Coalhouse Fort is largely illustrative, although there are associations with a number of known persons and events, including both World Wars. The historical value of St Katherine’s Church is similar.
 - Aesthetic - The value derives in terms of Coalhouse Fort from the design value of the designated asset in terms of its expression of the architecture of fortification from the 19th century onwards. In terms of St Katherine’s Church the value derives from its expression of ecclesiastical architecture from the medieval period onwards and the old Rectory adds to this small complex of ecclesiastically derived buildings.
 - Communal – The value of the designated assets derives from the symbolic value as part of the local and perhaps wider military history community.
- 4.1.42 Based on the above, the SM and St Katherine’s church are deemed to be of high sensitivity, while the Old Rectory is of medium sensitivity. The setting of Coalhouse Fort in particular, on the edge of the Thames makes a significant contribution to the sensitivity of the SM.

- 4.1.43 The setting of Coalhouse Fort primarily comprises the River Thames, which it was designed to defend, the village of East Tilbury and the surrounding fields and its relationship with Cliffe Fort, on the south bank of the Thames, a SM (list entry number 1003403), as well as the undesignated Shornmead Fort, also located on the south bank of the River Thames to the west of Cliffe Fort and to the south of Coalhouse Fort. The settings of the Church of St Katherine and the Old Rectory primarily comprise each other, Coalhouse Fort and the surrounding fields and built development of Tilbury.

Significance of the effect

- 4.1.44 Overall, the sensitivity of the asset is considered to be high and the magnitude of impact is deemed to be negligible. The effect of Thurrock Flexible Generation Plant on the designated assets will therefore be of **minor adverse** significance, which is not significant in EIA terms.

Tilbury Fort (list entry number 1021092) and Officers Barracks (listed at Grade II*, list entry number 1375568) and Worlds End Public House (listed at Grade II, list entry number 1111632)

- 4.1.45 Tilbury Fort is located some 1000 m south west of the main development site on low lying ground on the north bank of the River Thames.
- 4.1.46 The designated assets comprise the buried remains of a blockhouse constructed during the reign of Henry VIII in 1539, superseded and overlain by the far larger and more complex 17th century and later fort and battery, the whole containing structures and remains dating from the second quarter of the 16th century onwards. The adjacent Worlds End Inn, a late 17th or early 18th century timber framed house, altered in the 19th century and now used as a public house is located immediately adjacent to Tilbury Fort on its eastern side.

Magnitude of impact

- 4.1.47 Thurrock Flexible Generation Plant would have no physical impact on the SM and therefore the potential impact is limited to an impact on its setting. The SM lies within the ZTV of the built part of Thurrock Flexible Generation Plant.
- 4.1.48 Given the wide ranging built and industrial landscape in the wider area, there would be slight changes to the setting of the designated asset through minor changes in views from the SM and the magnitude of impact of Thurrock Flexible Generation Plant on the SM is assessed as being minor.

Sensitivity of receptor

- 4.1.49 The heritage values of this SM are as follows:

- Evidential and Historical – The evidential value of the SM derives from the fabric of the built structure and the likelihood of the survival of buried remains relating to the SM. The historical value is partly illustrative, although there are significant associations with named persons and events, including the two World Wars;
- Aesthetic - The value derives from the design value of the structure in terms of its expression of military architecture, in particular that of fortification during the 16th century and later; and
- Communal – The value derives from its symbolic value as part of the local and perhaps wider military history community.

4.1.50 Based on the above, the SM is deemed to be of high sensitivity. The setting of the SM, on the northern bank of the Thames makes a significant contribution to the sensitivity of the SM.

4.1.51 The most significant part of the setting of the SM comprises its relationship with the River Thames, which it was built to defend and that with the town of Gravesend on the south bank of the river and its defences at New Tavern Fort and Gravesend Blockhouse (each a SM (list entry numbers 1013658 and 1005120 respectively). The fields of fire for the artillery pieces mounted at Tilbury Fort in the past remain mostly unaffected by later development or alterations to the river to the south and west, although later development to the west may have compromised this aspect of the setting of Tilbury Fort slightly.

Significance of the effect

4.1.52 Overall, the sensitivity of the asset is considered be high and the magnitude of impact is deemed to be negligible. The effect of Thurrock Flexible Generation Plant on the SM will therefore be of **moderate adverse** significance (at the lower end of this scale), which is significant in EIA terms.

Dene Holes in Hangman's Wood (list entry number 1002156),

4.1.53 Dene Holes in Hangman's Wood lies outside the ZTV of the proposed development and is not considered further.

Cliffe Fort (list entry number 1003403)

4.1.54 Cliffe Fort is located some 4 km east of the main development site, on the south bank of the River Thames in Kent.

4.1.55 The SM comprises a fort constructed during the 1860s as part of the River Thames' coastal defence system.

Magnitude of impact

4.1.56 Thurrock Flexible Generation Plant would have no physical impact on the SM and therefore the potential impact is limited to an impact on its setting. The SM lies within the ZTV of the built part of Thurrock Flexible Generation Plant.

4.1.57 Landscape Viewpoint 26 shows the existing view from a point close to Cliffe Fort. From here Coalhouse fort can be seen low down on the north side of the River Thames. The main development site lies in front of existing built development, which is industrial in nature.

4.1.58 Given the separation distance and the wide ranging built and industrial landscape in the wider area, there would be very minor changes to the setting of the designated asset through minor changes in views from the SM and the magnitude of impact of Thurrock Flexible Generation Plant on the SM is assessed as being negligible.

Sensitivity of receptor

4.1.59 The heritage values of this SM are as follows:

- Evidential and Historical – The evidential value of the SM derives from the fabric of the built structure and the likelihood of the survival of buried remains relating to the SM. The historical value is partly illustrative, although there are significant associations with named persons and events, including the two World Wars;
- Aesthetic - The value derives from the design value of the structure in terms of its expression of military architecture, in particular that of fortification during the 19th century and later; and
- Communal – The value derives from its symbolic value as part of the local and perhaps wider military history community.

4.1.60 Based on the above, the SM is deemed to be of high sensitivity. The setting of the SM, on the edge of the Thames makes a significant contribution to the sensitivity of the SM.

4.1.61 The most significant part of the setting of the SM comprises its relationship with the River Thames, which it was built to defend and that with Coalhouse Fort (a SM, list entry number 1013943), on the north bank of the Thames. The fields of fire for the artillery pieces mounted here in the past remain largely unaffected by later development or alterations to the river. The surrounding open ground to the south and east has been much altered by quarrying and in this area the setting of the SM has been compromised. Similarly the addition of later jetties has detracted from the setting of the SM to some extent.

Significance of the effect

4.1.62 Overall, the sensitivity of the asset is considered to be high and the magnitude of impact is deemed to be negligible. The effect of Thurrock Flexible Generation Plant on the SM will therefore be of **minor adverse** significance, which is not significant in EIA terms.

Aspdin's kiln (list entry number 1004227),

4.1.63 Aspdin's kiln (list entry number 1004227), is located some 4.6 km south west of the main development site, lies outside the ZTV of the proposed development and is not considered further.

Causewayed enclosure and Anglo-Saxon cemetery 500m ENE of Heath Place (list entry number 1009286.

4.1.64 Causewayed enclosure and Anglo-Saxon cemetery 500m ENE of Heath Place is located some 3.7 km northwest of the main development site.

4.1.65 The SM comprises a Neolithic causewayed enclosure and an Anglo-Saxon round barrow cemetery situated on a natural platform on the Thames terraces. The land slopes gently away from the monument towards the south into the valley of a small tributary of the Thames. To the east and west it slopes into smaller dry valleys. The list entry notes that although there are no visible earthworks at ground level the monument survives as buried features which have been recognised as cropmarks from aerial photographs.

Magnitude of impact

4.1.66 Thurrock Flexible Generation Plant would have no physical impact on the SM and therefore the potential impact is limited to an impact on its setting. The SM lies within the ZTV of the built part of Thurrock Flexible Generation Plant.

4.1.67 Given the separation distance and the wide ranging built and industrial landscape in the wider area, there would be, at most, very minor changes to the setting of the designated asset through minor changes in views from the SM and the magnitude of impact of Thurrock Flexible Generation Plant on the SM is assessed as being negligible.

Sensitivity of receptor

4.1.68 The heritage values of this SM are as follows:

- Evidential and Historical – The evidential value of the SM derives from the likelihood of the survival of buried remains relating to the SM. The historical value is largely illustrative;

- Aesthetic – The remains of the SM are buried and there is little aesthetic value; and
- Communal – The value derives from its symbolic value as part of the local community.

4.1.69 Based on the above, the SM is deemed to be of high sensitivity. The setting of the SM, on the Thames Terraces makes a contribution to the sensitivity of the SM.

4.1.70 The setting of the SM largely comprises the surrounding ground, limited by orchards and the golf course to the east.

Significance of the effect

4.1.71 Overall, the sensitivity of the asset is considered to be high and the magnitude of impact is deemed to be negligible. The effect of Thurrock Flexible Generation Plant on the SM will therefore be of **minor adverse** significance, which is not significant in EIA terms.

Listed Buildings

4.1.72 There are five listed buildings located within 1 km of the main development site. Of these, the Church of St James (list entry number 1111541) is listed at Grade II* and the remainder at Grade II. All these listed buildings lie within the West Tilbury conservation area which is considered at 4.1.114 *et seq* below.

4.1.73 There are 125 listed buildings located between 1 km and 3 km of the main development site. Of these the Church of St Mary and the Church of St Katherine (list entry numbers 1111576 and 1337129 respectively) are listed at Grade I, 11 are listed at Grade II* and the remainder at Grade II.

4.1.74 Of the listed buildings located between 1 km and 3 km of the main development site, 90 lie within the built development of Gravesend, most within conservation areas. The built development of Gravesend and in many cases the conservation areas, forms the setting for these listed buildings. Given that the Thurrock Flexible Generation Plant lies outside this setting, they are not considered further.

4.1.75 West Tilbury conservation area contains some 13 listed buildings, which are considered with the conservation area at 4.1.114 *et seq* below.

4.1.76 East Tilbury conservation area and the adjacent built development contains 12 listed buildings, which are considered with the conservation area at 4.1.129 *et seq* below.

4.1.77 The Old Rectory and the church of St Katherine are located in the southern part of east Tilbury, near Coalhouse Fort and are assessed with that asset at 4.1.36, *et seq* above

Riverside Station, including floating landing stage listed at Grade II* (list entry number 1111547).

4.1.78 Riverside Station, including floating landing stage is located some 2.1 km south west of the main development site.

4.1.79 The designated asset comprises a terminal for passenger ships, built by the Port of London Authority in 1924. The neo-Georgian structure includes the railway station and baggage hall, ticket office, and floating landing stage. The architect was Sir Edwin Cooper for the Port of London Authority. The station was formally closed during the 1990s. The landing stage was re-opened in 1995 and was refurbished for leisure uses.

Magnitude of impact

4.1.80 Thurrock Flexible Generation Plant would have no physical impact on the designated asset and therefore the potential impact is limited to an impact on its setting. The listed building lies within the ZTV of the built part of Thurrock Flexible Generation Plant.

4.1.81 Given the wide ranging built and industrial landscape in the wider area, there would be minor changes to the setting of the designated asset through minor changes in views from the listed building and the magnitude of impact of Thurrock Flexible Generation Plant on the designated asset is assessed as being minor.

Sensitivity of receptor

4.1.82 The heritage values of this listed building are as follows:

- Evidential and Historical – The evidential value of the listed building derives from its fabric and the evidence which it may contain. The historical value is partly illustrative, although there are significant associations with named vessels and individuals, including for example the Empire Windrush, which docked here in 1948, bringing generally accepted to have been the first ship to bring a large group of migrants from the Caribbean, invited to the United Kingdom in response to labour shortages in the post-war years;
- Aesthetic - the Riverside Station, built in neo-Georgian style and completed in 1924, is the work of the notable architect Sir Edwin Cooper in his capacity as architect to the Port of London Authority; and
- Communal – The value derives from its symbolic value as part of the local community.

4.1.83 Based on the above, the listed building is deemed to be of high sensitivity. The setting of the listed building on the Thames Terraces makes a contribution to the sensitivity of the designated asset.

4.1.84 The setting of the listed building primarily comprises its relationship with the River Thames. The functional and visual relationship with the Town Pier in Gravesend on the south side of the River Thames (listed at Grade II*, list entry number 1089004) and indeed the ability to traverse the Thames by ferry, makes a significant contribution to the significance of the asset. To the north away from the river, the setting of the asset has been compromised by extensive industrial development.

Significance of the effect

4.1.85 Overall, the sensitivity of the asset is considered be high and the magnitude of impact is deemed to be minor. The effect of Thurrock Flexible Generation Plant on the listed building will therefore be of **moderate adverse** significance, albeit at the lower end of that scale, which is significant in EIA terms.

Church of St Mary listed at Grade I (list entry number 1111576), Chadwell House and Sleepers Farmhouse, each listed at Grade II (list entry numbers 1166282 and 1337061 respectively).

4.1.86 The Church of St Mary, Chadwell House and Sleepers Farmhouse are located some 2.3 km northwest of the main development site at the Centre of Chadwell St Mary at the junction of Linford Road and Chadwell Hill. The designated assets comprise the 12th century and later church of St Mary the 18th century red and black brick house, Chadwell House and the 15th century timber framed house, Sleepers Farmhouse.

Magnitude of impact

4.1.87 Thurrock Flexible Generation Plant would have no physical impact on the designated assets and therefore the potential impact is limited to an impact on their settings. The listed buildings lie at the edge of the ZTV of the built part of Thurrock Flexible Generation Plant.

4.1.88 Given the separation distance, the wide ranging built and industrial landscape in the wider area, and the location of the listed buildings within an area of built development at the edge of the ZTV, there would be, at most, very minor changes to the setting of the designated asset through minor changes in views from the listed buildings or their immediate environs and the magnitude of impact of Thurrock Flexible Generation Plant on the listed buildings is assessed as being negligible.

Sensitivity of receptor

4.1.89 The heritage values of this listed building are as follows:

- Evidential and Historical – The evidential value derives primarily from the fabric of the buildings, structures and the potential for associated buried archaeological remains. The historical value is largely illustrative;
 - Aesthetic - The value derives from the design value of the designated assets in terms of their expression of settlement and ecclesiastical architecture of the medieval period and later; and
 - Communal – The value of the listed buildings derives from their symbolic value as part of the local village and farming community.
- 4.1.90 Based on the above, the listed buildings are deemed to be of up to high sensitivity. The setting of the listed buildings makes a contribution to the sensitivity of the designated assets.
- 4.1.91 The setting of the listed buildings primarily comprises each other and their relationship with the mostly late village in which they are located. The built development of Chadwell St Mary provides a high degree of screening for the listed buildings located within it.
- Significance of the effect
- 4.1.92 Overall, the sensitivity of the asset is considered to be high and the magnitude of impact is deemed to be negligible. The effect of Thurrock Flexible Generation Plant on the listed buildings will therefore be of **minor adverse** significance, which is not significant in EIA terms.
- Other listed buildings
- 4.1.93 Of the seven remaining listed buildings, each listed at Grade II, located between 1 and 3 km of the main development site, Chadwell Place (list entry number 1111584) comprises a 16th or 17th century timber framed house with later alterations, Gunhill Farmhouse (list entry number 1146774) is an early 18th century farmhouse, Biggin Farmhouse (list entry number 1111645) comprises an 18th century brick and timber framed and plastered farmhouse, High House (list entry number 1337091) comprises an 18th century timber framed and plastered house. Mill House (list entry number 1111577) and Buckland (list entry number 1147796) each comprises early 19th century houses, while Sunspan (list entry number 1408508) comprises a steel framed Sunspan house, built to the designs of Wells Coates and David Pleydell-Bouverie between 1934-8.
- 4.1.94 Thurrock Flexible Generation Plant would have no physical impact on the designated assets and therefore the potential impact is limited to an impact on their settings. The listed buildings lie at the edge of the ZTV of the built part of Thurrock Flexible Generation Plant.
- 4.1.95 The setting of each of these listed buildings comprises the grounds in which they are located, in some cases with associated yards and buildings and the surrounding open land. The wider landscape has been industrialised for the past century, in the direction of the application site, the landscape has been dominated by Tilbury Power Station since the inter war period. On this basis any impacts on the settings would be very minor in nature and the assets are not considered further.
- 4.1.96 There are 83 listed buildings located between 3 km and 5 km of the main development site. Of these one, the Parish Church of St Botolph (list entry number 1054093) is listed at Grade I, seven are listed at Grade II* and the remainder at Grade II. Of these listed buildings, ten are located outside the ZTV of the proposed development.
- 4.1.97 Of the listed buildings located between 3 km and 5 km of the main development site 56 lie within the built development of Gravesend and Chalk to its east, many within conservation areas. The built development of Gravesend and Chalk forms the setting for these listed buildings. Given that the Thurrock Flexible Generation Plant lies outside this setting, they are not considered further.
- 4.1.98 Of the listed buildings located between 3 km and 5 km of the main development site, seven lie within the built development of Grays and the immediately adjacent area. The built development of Grays forms the setting for these listed buildings. Given that the Thurrock Flexible Generation Plant lies outside this setting, they are not considered further.
- 4.1.99 The Church of St Mary is located some 4.3 km south east of the main development site, to the east of Chalk, on the Kent side of the River Thames. The building is listed at Grade II* (list entry number 1089044). The building forms a group with several other listed buildings located in the countryside to the east of Chalk. These are Filborough Farmhouse (list entry number 1089020), East Court Farmhouse (list entry number 1089045), Granary at Little Filborough Farm (list entry number 1089062) and Barn to northwest of Little Filborough Farm (list entry number 1341481). The nearest of these listed buildings lies some 3.7 km south east of the main development site.
- 4.1.100 Thurrock Flexible Generation Plant would have no physical impact on the designated assets and therefore the potential impact is limited to an impact on their settings. The listed buildings lie at the edge of the ZTV of the built part of Thurrock Flexible Generation Plant.

- 4.1.101 The setting of each of these listed buildings comprises the grounds in which they are located, in the case of St Mary its churchyard, other buildings with associated yards and buildings and the surrounding open land, each other and the built development of Linford. The wider landscape to the north of the River Thames has been industrialised for the past century. In the direction of the application site, the landscape has been dominated by Tilbury Power Station since the inter war period. On this basis any impacts on the settings would be very minor in nature and the assets are not considered further.
- 4.1.102 Waltons Hall, Sutton's Farmhouse Turners Farm and Weatherboarded Barn at Waltons Hall, each listed at Grade II (list entry numbers 1111568, 1111569, 1307175 and 1337098 respectively) form a group of buildings located immediately east of the village of Linford, some 3km north east of the main development site at its nearest point.
- 4.1.103 Thurrock Flexible Generation Plant would have no physical impact on the designated assets and therefore the potential impact is limited to an impact on their settings. The listed buildings lie at the edge of the ZTV of the built part of Thurrock Flexible Generation Plant.
- 4.1.104 The setting of each of these listed buildings comprises the grounds in which they are located, in some cases with associated yards and buildings and the surrounding open land, each other and the built development of Linford. The wider landscape has been industrialised for the past century. In the direction of the application site, the landscape has been dominated by Tilbury Power Station since the inter war period. On this basis any impacts on the settings would be very minor in nature and the assets are not considered further.
- 4.1.105 Two further listed buildings, each listed at Grade II, are located to the north of the main development site. These are Weatherboarded Barn at Bareham's Boarding Kennels (list entry number 1308981) and Murrells Cottages (list entry number 1337096).
- 4.1.106 Thurrock Flexible Generation Plant would have no physical impact on the designated assets and therefore the potential impact is limited to an impact on their settings. The listed buildings lie at the edge of the ZTV of the built part of Thurrock Flexible Generation Plant.

- 4.1.107 The setting of each of these listed buildings comprises the grounds in which they are located, in the case of the Weatherboarded Barn at Bareham's Boarding Kennels with associated yards and buildings and the surrounding open land. In the case of Murrells Cottages the A13 dual carriageway road forms a major part of its setting. The wider landscape has been industrialised for the past century. In the direction of the application site, the landscape has been dominated by Tilbury Power Station since the inter war period. On this basis any impacts on the settings would be very minor in nature and the assets are not considered further.

Conservation Areas

- 4.1.108 There is one conservation area located within 1 km of the main development site. This is West Tilbury.
- 4.1.109 There are seven conservation areas located between 1 km and 3 km of the main development site. These are East Tilbury, located to the east of the application site, with Upper Windmill Street, Gravesend, King Street, Gravesend, Harmer Street, Gravesend, Milton Place, Gravesend, Riverside, Gravesend, and High Street and Queen Street, Gravesend each located on the south side of the River Thames, within the built development of Gravesend.
- 4.1.110 The built development of Gravesend forms the setting for those conservation areas located therein, whether or not they lie within the ZTV. Given that the Thurrock Flexible Generation Plant lies outside this setting, they are not considered further.
- 4.1.111 There are also seven conservation areas located between 3 km and 5 km of the main development site. These are Queen's Farm, Shorne, The Hill, Northfleet, Windmill Hill, Gravesend, Overcliffe, Gravesend, Pelham Road and The Avenue, Gravesend, Darnley Road, Gravesend, and Lansdowne Square, Northfleet, Each of these conservation areas is located on the south side of the River Thames.
- 4.1.112 The built development of Gravesend and Northfleet forms the setting for those conservation areas located therein, whether or not they lie within the ZTV. Given that the Thurrock Flexible Generation Plant lies outside this setting, they are not considered further.
- 4.1.113 These conservation areas contain many of the listed buildings referred to above.
- ### West Tilbury Conservation Area
- 4.1.114 West Tilbury Conservation Area is located some 650 m north of the main development site at West Tilbury.

- 4.1.115 The conservation area contains a SM, Earthworks near church, West Tilbury (list entry number 1002199), In addition there are three listed buildings located immediately adjacent to the SM. These are the Church of St James (listed at Grade II* (list entry number 1111541, West Tilbury Hall (list entry number 1111625) and Barn to North of West Tilbury Hall (list entry number 1308889), each listed at Grade II.
- 4.1.116 To the north of this area, the conservation area contains a number of further listed buildings. These are Marshall's Cottages (list entry number 1337058) listed at Grade II*, Kings Head Public House (list entry number 1111633), The Bakery (list entry number 1111634), Granary to northeast of Manor Farmhouse (list entry number 1146758), Post House (list entry number 1308454), Well House (list entry number 1308840), Manor Farmhouse (list entry number 1337089) and The Cottages (list entry number 1337090), each listed at Grade II. Marshalls Cottages are located in the northern part of the conservation area; the remainder of the buildings are located further to the south.
- 4.1.117 Two further listed buildings lie in a separate part of the conservation area to the east. These are Polwicks and Walnut Tree Cottage (list entry numbers 111623 and 111624 respectively), each listed at Grade II.
- 4.1.118 The SM comprises a group of earthworks The HER indicates that their morphology is suggestive of the site of an early cam and in addition that site is reputed to be the location of Bishop Cedda's palace, and also Elizabeth I's camp for her review of the troops in 1588.
- 4.1.119 A Conservation Area Appraisal has been undertaken (Thurrock Council u.d.a). This notes that the special interest includes that human activity has long been present in the vicinity and evidence has included cropmarks, rectilinear features, trackways and ring ditches. Roman pottery has also been found in the vicinity and it is thought that a Roman road passed nearby.
- 4.1.120 In the medieval period West Tilbury was a small settlement very closely related to agriculture. Much evidence of this past has been retained in the present landscape. This includes a complete example of a medieval 'open field' system in the area of The Great Common Field bounded by Rectory Road, Turnpike Lane, Blue Anchor Lane and Muckingford Road. Much medieval 'common land' upon which farmers had common rights to graze animals still remains in the vicinity of West Tilbury.
- 4.1.121 A distinguishing characteristic of West Tilbury is the fact that there has been very little physical change to the settlement. This has resulted in the evolution of a settlement that is sporadic in its character. The built form of West Tilbury is dominated by the adjoining and surrounding landscape.

Magnitude of impact

- 4.1.122 Thurrock Flexible Generation Plant would have no physical impact on the conservation area or designated assets which it contains and therefore the potential impact is limited to an impact on their settings. The conservation area lies party within the ZTV of the built part of Thurrock Flexible Generation Plant.
- 4.1.123 Given the wide ranging built and industrial landscape in the wider area, and the location of the listed buildings within an area of built development at the edge of the ZTV, there would be, at most, slight changes to the setting of the designated asset through minor changes in views from the listed buildings or their immediate environs and the magnitude of impact of Thurrock Flexible Generation Plant on the conservation area is assessed as being minor.

Sensitivity of receptor

- 4.1.124 The heritage values of the conservation area are as follows:
- Evidential and Historical – The evidential value derives primarily from the fabric of the buildings, structures, the street pattern, the layout of the greens and the potential for associated buried archaeological remains. The historical value is largely illustrative;
 - Aesthetic - The value derives from the design value of the designated and other assets contained within the conservation area in terms of their expression of settlement and ecclesiastical architecture of the medieval period and later; and
 - Communal – The value of the conservation area derives from its symbolic value as part of the local village and farming community.
- 4.1.125 Based on the above, the conservation area is deemed to be of up to high sensitivity. The setting of the conservation area makes a contribution to the sensitivity of the designated asset itself and those contained within it.
- 4.1.126 The setting of the conservation area comprises the surrounding fields. The conservation area appraisal notes that:
- “West Tilbury continues to be a rural settlement within a historic rural agricultural setting on an escarpment. There are wide views to and from the former marshes to the south and west and from the north and east across the agricultural land. The church tower and trees around the churchyard are an important silhouette and landmark from all directions.”*
- 4.1.127 The wider landscape has been industrialised for the past century. In the direction of the application site, the landscape has been dominated by Tilbury Power Station since the inter war period.

Significance of the effect

- 4.1.128 Overall, the sensitivity of the asset is considered to be high and the magnitude of impact is deemed to be minor adverse. The effect of Thurrock Flexible Generation Plant on the conservation area and designated assets within it will therefore be of **moderate adverse** significance, which is significant in EIA terms.

East Tilbury Conservation Area

- 4.1.129 East Tilbury conservation area is located some 1.5 km northeast of the main development site.
- 4.1.130 The conservation area comprises the former factory complex of the British Bata Shoe Company and a large housing development of some 352 houses in a 'garden village' setting. This planned settlement was designed by architects of international importance from Zlin, Moravia (now the Czech Republic). The conservation area contains a number of designated assets. These include 2, Bata Avenue (list entry number 1224054), 4 and 6, Bata Avenue (list entry number 1224055), 12 and 14, Bata Avenue (list entry number 1224058), 24 and 26, Bata Avenue (list entry number 1224059), 32 and 34, Bata Avenue (list entry number 1224061), 28 and 30, Bata Avenue (list entry number 1224101), Building 13, Bata Factory (list entry number 1224103), 8 and 10, Bata Avenue (list entry number 1266987), 16 and 18, Bata Avenue (list entry number 1266988), Bata Industrial Buildings Numbers 24 and 34, Victory House and Nelson House (list entry number 1393327), and Bata Industrial Building Number 12 (list entry number 1393328).
- 4.1.131 In addition, Smithy Cottage (list entry number 1111554) is located further north within the built development of East Tilbury, outside the conservation area.
- 4.1.132 A Conservation Area Appraisal has been undertaken (Thurrock Council u.d. b). This notes that

"The setting of the whole Conservation Area is enhanced by the central area of open spaces and the original 'garden village' layout can still be appreciated. The estate still has the very spacious feel of the original design, so evident in plan form. Although the swimming pool and tennis courts are now gone, the tennis courts remain open and the landscaping is still apparent, however flats have been built on the swimming pool site. Although some 'modern' improvements have occurred, these are mostly confined to the privately owned properties. The overall design and infrastructure is still very much in evidence.

Although there have been a number of alterations and extensions, the layout and street (or avenue) character, the regular plot and building line character and the block form of the houses have been retained"

Magnitude of impact

- 4.1.133 Thurrock Flexible Generation Plant would have no physical impact on the conservation area or designated assets which it contains and therefore the potential impact is limited to an impact on their settings. The conservation area lies partly within the ZTV of the built part of Thurrock Flexible Generation Plant.
- 4.1.134 Given the wide ranging built and industrial landscape in the wider area, and the location of the listed buildings within an area of built development at the edge of the ZTV, there would be, at most, slight changes to the setting of the designated asset through minor changes in views from the listed buildings or their immediate environs and the magnitude of impact of Thurrock Flexible Generation Plant on the conservation area is assessed as being minor.

Sensitivity of receptor

- 4.1.135 The heritage values of the conservation area are as follows:
- Evidential and Historical – The evidential value derives primarily from the fabric of the buildings, structures, the street pattern and the layout of the (small) green spaces. The potential for associated buried archaeological remains is low, although the buildings themselves are likely to contain evidence for previous uses. The historical value is partly illustrative, although clearly there are associations with past named individuals and the British Bata Shoe Company;
 - Aesthetic - The value derives from the design value of those designated and other assets contained within the conservation area in terms of their expression of planned industrial settlement architecture of the inter war period and later; and
 - Communal – The value of the conservation area derives from its symbolic value as part of the local community.
- 4.1.136 Based on the above, the conservation area is deemed to be of medium sensitivity. The setting of the conservation area itself makes a minor contribution to its sensitivity, although the conservation area provides the setting for the assets, designated and otherwise contained within it.
- 4.1.137 The setting of each of the conservation area is not wide ranging and comprises the surrounding fields. The wider landscape has been industrialised for the past century. In the direction of the application site, the landscape has been dominated by Tilbury Power Station since the inter war period.

Significance of the effect

4.1.138 Overall, the sensitivity of the asset is considered to be medium and the magnitude of impact is deemed to be minor adverse. The effect of Thurrock Flexible Generation Plant on the conservation area and designated assets within it will therefore be of **minor adverse** significance, which is not significant in EIA terms.

Queens Farm, Shorne Conservation Area

4.1.139 The Queens Farm, Shorne conservation area is located some 4.2 km south east of the main development site.

4.1.140 A Conservation Area Appraisal (Gravesham Borough Council, 2017). This notes that The following features are important in the wider setting of the conservation area:

- From the south and to east and west, a wide, gently rolling landscape of large modern fields, falling gradually north towards the farmstead site which is at the junction of marsh and arable;
- To the south a rising arable landscape culminating in wooded high land with the north running spur upon which Shorne windmill once stood out prominently;
- To the north a former view to and from the marsh is interrupted at close quarters by the east/west running embankment of the railway line with its bushes and trees; and
- To the west the visually intrusive bulk of the modern cattle sheds

4.1.141 On this basis the application site lies outside the setting of the conservation area and it is not considered further.

Further mitigation or enhancement

4.1.142 Other than those measures designed in to the Thurrock Flexible Generation Plant, no further mitigation is warranted or proposed.

Residual effect

4.1.143 The residual effect following designed in measures is predicted to be **minor to moderate adverse**, which is not significant in EIA terms.

Construction works at Thurrock Flexible Generation Plant could result in temporary impacts on the overall historic landscape.

Magnitude of impact

4.1.144 Given the wide-ranging nature of the historic landscape, the impact is predicted to be of local spatial extent, short term duration, continuous and reversible, and would affect the receptor directly. Elements of the existing landscape within Zone A, the area of land within which the principal built elements of the proposed development will be constructed, i.e. gas engines, batteries and substations, would be lost, but there would otherwise be little or no change to landscape elements. The magnitude of impact is therefore considered to be minor.

Sensitivity of receptor

4.1.145 The areas in which the Thurrock Flexible Generation Plant is located have seen field boundary removal since the 19th century, with industrial development within and adjacent to parts of it and the historic landscape is mildly degraded. On this basis, the historic landscape is considered to be of low sensitivity.

Significance of the effect

4.1.146 Overall, the sensitivity of the historic landscape is considered to be low and the magnitude of impact is deemed to be minor. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.

Further mitigation or enhancement

4.1.147 Other than those measures designed in to the Thurrock Flexible Generation Plant, no further mitigation is warranted or proposed.

Residual effect

4.1.148 The residual effect following designed in measures is predicted to be **minor adverse**, which is not significant in EIA terms.

Future monitoring

4.1.149 All mitigation will have been completed at the end of the construction phase and no further monitoring is warranted or proposed.

4.2 Operational and maintenance phase

The operation and maintenance of Thurrock Flexible Generation Plant could result in long-term reversible impacts on the settings of heritage assets including SMs, listed buildings, Conservation Areas and Registered Parks and Gardens

- 4.2.1 Impacts during the operation and maintenance phase of Thurrock Flexible Generation Plant may affect the setting of cultural heritage features. Such impacts and effects would be of a very similar nature to those described and assessed under construction effects although during operation the measures to be proposed within a Landscape Mitigation Strategy will be under way or have been completed (see paragraphs 4.1.1 to 4.1.146 and the summary in Table 6.1).
- 4.2.2 The effect of the operation and maintenance phase of Thurrock Flexible Generation Plant will therefore be of up to **moderate adverse** significance at Tilbury Fort and Riverside Station, which is significant in EIA terms, and no more than **minor adverse** (non-significant) at all other receptors.

The operation and maintenance of Thurrock Flexible Generation Plant could result in long-term impacts on the overall historic landscape

- 4.2.3 Impacts during the operation and maintenance phase of Thurrock Flexible Generation Plant may affect the character of the overall historic landscape. Such impacts and subsequent effects would be of a very similar nature to those described and assessed under construction effects, although during operation all proposed restoration of elements of the historic landscape backfilling of cable and gas trenches and the measures to be proposed within a Landscape Mitigation Strategy will be under way or have been completed (see summary in Table 6.1).
- 4.2.4 The effect of the operation and maintenance phase of Thurrock Flexible Generation Plant will therefore be of **minor adverse** significance, which is not significant in EIA terms.

Future monitoring

- 4.2.5 All mitigation will have been completed at the end of the construction phase and no further monitoring is warranted or proposed.

4.3 Decommissioning phase

- 4.3.1 The impacts of the onshore decommissioning of Thurrock Flexible Generation Plant have been assessed on the historic environment. The environmental effects arising from the decommissioning of Thurrock Flexible Generation Plant are listed in Table 2.10 along with the maximum design scenario against which each decommissioning phase impact has been assessed.
- 4.3.2 A description of the potential effect on historic environment receptors caused by each identified impact is given below.

Decommissioning works at Thurrock Flexible Generation Plant could result in temporary impacts on the settings of heritage assets including SMs, listed buildings, Conservation Areas and Registered Parks and Gardens.

- 4.3.3 Impacts during the decommissioning phase of Thurrock Flexible Generation Plant may affect the setting of heritage assets. Such impacts and effects would be of a very similar nature to those described and assessed under construction effects (see paragraphs 4.1.1 to 4.1.146 and the summary in Table 6.1) and would include the presence of plant and machinery during the decommissioning process.
- 4.3.4 The primary effects on heritage assets arising from Thurrock Flexible Generation Plant would derive from the permanent development in Zone A and therefore greater focus is placed on effects arising during construction, in particular at the end of that process when the structures are built. Therefore, the effect of the decommissioning phase of Thurrock Flexible Generation Plant will therefore, be of **negligible to minor adverse** significance, which is not significant in EIA terms.
- 4.3.5 In the event that Thurrock Flexible Generation Plant continues in operation rather than being decommissioned, the ongoing effect would be no greater than assessed above, i.e. **minor to moderate adverse** significance.

Decommissioning works at Thurrock Flexible Generation Plant could result in temporary impacts on the overall historic landscape.

- 4.3.6 Impacts during the decommissioning phase of Thurrock Flexible Generation Plant may affect the character of the overall historic landscape. Such impacts and subsequent effects would be of a very similar nature to those described and assessed under construction effects (see summary in Table 6.1) and would include the presence of plant and machinery during the decommissioning process.

4.3.7 The primary effects on heritage assets arising from Thurrock Flexible Generation Plant would derive from the permanent development in Zone A and therefore greater focus is placed on effects arising during construction, in particular at the end of that process when the structures are built. Therefore, the effect of the decommissioning phase of Thurrock Flexible Generation Plant will be of **negligible** significance, which is not significant in EIA terms.

4.3.8 In the event that Thurrock Flexible Generation Plant continues in operation rather than being decommissioned, the ongoing effect would be no greater than assessed above, i.e. **minor adverse** significance.

Future monitoring

4.3.9 All mitigation will have been completed at the end of the construction phase and no further monitoring is warranted or proposed.

4.4 Transboundary effects

4.4.1 A screening of transboundary impacts has been carried out and is presented in Volume 5, Appendix 4.2: Transboundary Impacts Screening Note. This screening exercise identified that there was no potential for significant transboundary effects with regard to the historic environment from Thurrock Flexible Generation Plant upon the interests of other EEA States.

4.5 Inter-related effects

4.5.1 Inter-relationships are considered to be the impacts and associated effects of different aspects of the construction, operation or decommissioning of Thurrock Flexible Generation Plant on the same receptor. The following assessments have been made and a description of the likely inter-related effects on the historic environment is provided in Volume 4, Chapter 17: Summary of Inter-Related Effects.

5. Cumulative Effects Assessment

5.1 Introduction

5.1.1 The process of identifying other consented or proposed developments and screening to create a shortlist of those having potential for cumulative effects with Thurrock Flexible Generation Plant is described in Volume 2, Chapter 4: Environmental Impact Assessment Methodology and Volume 5, Appendix 4.1: Cumulative Developments and Cumulative Effects Screening Matrix. Appendix 4.1 lists the shortlisted cumulative developments and the tier they have been assigned (guiding the weight that the decision-maker may place on each development's likelihood of being realised) in accordance with PINS Guidance Note 17.

5.1.2 Cumulative developments shortlisted are those that have potential to contribute impacts affecting receptors also affected by the proposed development (for example, contributing significant additional traffic to the same road links), or that introduce additional sensitive receptors (for example, new residences or schools closer to the proposed development than existing), or both.

5.1.3 The cumulative effects assessment for the historic environment has been undertaken in two stages, reported as follows. In the first stage, cumulative effects of the proposed development have been considered in an overall scenario where the land surrounding the proposed development could be largely transformed by three adjacent NSIP developments and the possible expansion of nearby residential and employment uses to the east. This is referred to as the 'max development' scenario.

5.1.4 In the second stage, cumulative effects with specific individual development projects have been assessed where these would affect a particular environmental pathway or receptor for the historic environment. Only shortlisted developments with potential cumulative effects specific to the historic environment are assessed in this chapter.

5.2 Cumulative effects in 'max development' scenario

5.2.1 Three NSIP developments are proposed on land adjacent to and in some cases overlapping with the Thurrock Flexible Generation Plant application boundary. The Tilbury2 port expansion adjacent to the west is at examination stage (Tier 1). The Tilbury Energy Centre (TEC) power station to the south and Lower Thames Crossing (LTC) motorway and link road to the east and north are both at EIA scoping stage (Tier 2).

5.2.2 Outline planning permission has been granted for several residential and mixed-use developments expanding Linford and East Tilbury in the direction of Thurrock Flexible Generation Plant (Tier 1).

5.2.3 Should all of these developments proceed, Thurrock Flexible Generation Plant's main development site would be closely surrounded on all sides by the temporary or permanent works areas of the NSIPs. Its gas connection point to Feeder 18 could be adjacent to the expanded outskirts of East Tilbury and also potentially to the TEC gas connection, and the pipeline route could cross land to be developed for the LTC.

5.2.4 The Thurrock Core Strategy (2015) allocates land for possible strategic employment provision and sustainable economic growth to the west of the proposed development and to the east where there is existing industry at East Tilbury. Thurrock Borough Council is drafting a new Local Plan to replace the Core Strategy. The Issues and Options (Stage 2) consultation document proposals map of July 2018 (withdrawn temporarily due to recent NPPF changes) suggested possible zones for residential and commercial/employment development in areas east of the proposed development, where this would be facilitated by the Lower Thames Crossing project. However, these Tier 3 development possibilities are afforded only limited weight due to the early stage of this local plan development process.

5.2.5 In the 'max development' scenario set out in paragraphs 5.2.1 to 5.2.3 above, the historic environment cumulative effects of Thurrock Flexible Generation Plant would be on buried archaeological remains, the settings of heritage assets and on the overall historic landscape.

5.2.6 In terms of effects on below ground archaeology, there would be no significant effects on near surface remains caused by Thurrock Flexible Generation Plant. Any significant effects would be derived from cumulative developments. Similarly, in terms of more deeply buried remains with palaeoenvironmental potential, there would be no significant effects on near surface remains caused by Thurrock Flexible Generation Plant and any significant effects would be derived from cumulative developments.

5.2.7 Given the wide ranging industrial landscape in this scenario, Thurrock Flexible Generation Plant would have a very minor cumulative impact on the settings of heritage assets and little effect over those of the cumulative schemes.

5.3 Cumulative effects with specific developments

5.3.1 The effects of specific cumulative schemes have been further considered together with Thurrock Flexible Generation Plant as follows.

5.3.2 The Environmental Statement (ES) for Tilbury2 assesses the effect of that proposal on below ground archaeology, including both near surface remains of human activity and more deeply buried remains of palaeo-environmental significance. The effect of Tilbury2 on buried remains is assessed as being minor to moderate adverse (Tilbury2 ES Table 12.11). In addition, the ES for Tilbury2 assesses the effect of that proposal on several designated assets. None lie within the boundary of that development and any impacts would be on their settings. The effect of Tilbury2 on Tilbury Fort and the listed building within it is assessed as being moderate to major adverse (Tilbury2 ES paragraph 12.182). The effect of Tilbury2 on Riverside Station is assessed as being minor to moderate adverse (Tilbury2 ES paragraph 12.184), while effect of Tilbury2 on Coalhouse, Cliffe and Shornmead Forts is assessed as being neutral to minor adverse (Tilbury2 ES paragraph 12.184).

5.3.3 The Tilbury Energy Centre and Lower Thames Crossing Scoping Reports provide some information about the initial development design and possible scope of impacts, but few further details. However, indicative wirelines of Tilbury Energy Centre have been presented in Volume 3, Chapter 6: Landscape and Visual Resources based on available information.

Construction phase

Magnitude of impact

5.3.4 These cumulative schemes are infrastructure schemes and Tilbury2 and Tilbury Energy Centre at least would be located largely within previously developed land. The immediate context of the Thurrock Flexible Generation Plant on the fringes of this industrialised landscape around Tilbury would be more intensively developed if the cumulative schemes are constructed. Less natural landscape, vacant land or previously used land would be present, this being replaced by infrastructure development.

5.3.5 The cumulative magnitude of impact is assessed as being moderate. This arises because of the impact of Tilbury2 on Tilbury Fort. Tilbury Energy Centre also comprises a number of large structures and it is considered likely to create impacts on the settings of designated assets.

5.3.6 Cumulative impacts arising from those cumulative schemes not explicitly referenced here are considered to be minor and are not considered further. Similarly, cumulative impacts on heritage assets not explicitly referenced here are considered to less than significant in EIA terms and are not assessed further.

Sensitivity of the receptor

5.3.7 The assets affected would be of negligible to high sensitivity.

Significance of effect

5.3.8 It is considered likely that there would be some significant effects on heritage assets from the cumulative developments, and as set out in Section 4, there would be some significant effects on heritage assets from Thurrock Flexible Generation Plant. In the context of the greater scale of the other developments, cumulative effects resulting from the combination with Thurrock Flexible Generation Plant are considered unlikely to be more significant than those created by the various other developments, which are already considered likely to be significant adverse.

5.3.9 The cumulative effect during the construction phase of Thurrock Flexible Generation Plant will therefore be of up to **moderate to major adverse** significance which is significant in EIA terms. This effect is created through the impact of Tilbury2 and, potentially, Tilbury Energy Centre on Tilbury Fort. The contribution of Thurrock Flexible Generation Plant to this significant adverse cumulative effect is, however, considered to be minor and would not increase the overall significance.

Further mitigation or enhancement

5.3.10 All mitigation will have been completed at the end of the construction phase and no further monitoring is warranted or proposed.

Residual effect

5.3.11 The residual effect following designed-in measures is predicted to be up to **moderate adverse** significance, which is significant in EIA terms. This is because the residual effect of Tilbury2 on Tilbury Fort reduces to moderate adverse.

Operational and maintenance phase

5.3.12 Once construction is complete there would be no further impacts on below ground archaeology. Cumulative impacts during the operation and maintenance phase of Thurrock Flexible Generation Plant and those cumulative schemes listed above may, however continue to affect the settings of heritage assets. Such impacts and effects would be of a very similar nature to those described and assessed under construction effects although during operation the measures to be proposed within a Landscape Management Strategy will be under way or have been completed.

5.3.13 The cumulative effect of the operation and maintenance phase of Thurrock Flexible Generation Plant will therefore be (as set out in Section 4) of up to **moderate adverse** significance at Tilbury Fort and Riverside Station, which is significant in EIA terms, and no more than **minor adverse** (non-significant) at all other receptors.

Decommissioning phase

- 5.3.14 Cumulative impacts during the decommissioning phase of Thurrock Flexible Generation Plant and considered with those cumulative schemes listed above may affect the character of the overall historic landscape. Such impacts and subsequent effects would be of a very similar nature to those described and assessed under construction effects and would include the presence of plant and machinery during the decommissioning process.
- 5.3.15 The primary cumulative effects on heritage assets arising from Thurrock Flexible Generation Plant would derive from the permanent development in Zone A and therefore greater focus is placed on effects arising during construction, in particular at the end of that process when the structures are built. Therefore, the cumulative effect of the decommissioning phase of Thurrock Flexible Generation Plant will be of **negligible** significance, which is not significant in EIA terms.
- 5.3.16 In the event that Thurrock Flexible Generation Plant continues in operation rather than being decommissioned, the ongoing effect would be no greater than assessed above, i.e. **minor adverse** significance.

Future monitoring

- 5.3.17 All mitigation will have been completed at the end of the construction phase and no further monitoring is warranted or proposed.

6. Conclusion and summary

- 6.1.1 This chapter of the PEIR has presented the results of the EIA for the potential impacts on the historic environment which may arise as a result of Thurrock Flexible Generation Plant.
- 6.1.2 A series of desk based and field surveys of the application site were undertaken through 2017 and 2018. This information has been collated to create an accurate picture of baseline conditions, from which the assessment of impacts and effects can be made.
- 6.1.3 The methods used to assess the magnitude of impact of the proposed change and significance of effects on the historic environment have had regard to national and local standards and guidance.
- 6.1.4 The significance of the effects of Thurrock Flexible Generation Plant on heritage assets during the construction phase varies from negligible to moderate adverse. The significance of effects during the operation and maintenance phase of Thurrock Flexible Generation Plant would range from negligible to moderate adverse. Decommissioning effects would be similar to those during construction, albeit providing at least a partial reversal towards the current baseline for the settings of heritage assets, as the above ground infrastructure associated with Thurrock Flexible Generation Plant would be removed from the landscape.
- 6.1.5 Cumulative impacts from projects screened into the assessment have been assessed using a tiered approach. Any significant cumulative effect on buried archaeological remains during the construction phase would arise from other cumulative developments and no additional significant cumulative effect with Thurrock Flexible Generation Plant is predicted. Potential significant adverse effects on the settings of heritage assets are predicted for other cumulative developments. Thurrock Flexible Generation Plant would make a limited contribution to the significant adverse effects, and is not predicted to increase the significance of the adverse effects occurring in a cumulative development scenario.
- 6.1.6 A summary of the findings of the historic environment assessment is presented in Table 6.1, below.

6.2 Next Steps

- 6.2.1 The next/final steps in producing the final ES chapter will involve further consultation with the various stakeholders on the PEIR, followed by updates and amendments as appropriate.

Table 6.1: Summary of potential environment effects, mitigation and monitoring.

| Description of impact | Measures adopted as part of the project | Magnitude of impact | Sensitivity of receptor | Significance of effect | Additional measures | Residual effect | Proposed monitoring |
|--|---|---------------------|-------------------------|---|---|---|---------------------|
| Construction | | | | | | | |
| Construction of Thurrock Flexible Generation Plant (including any stripping required for storage, compounds and accesses) could result in permanent loss of or damage to, heritage assets comprising buried archaeological remains | Programme of fieldwork, recording and reporting | Minor to negligible | Medium to high | Minor adverse (not significant in EIA terms) | Further geophysical survey will be undertaken and depending on results, a scheme of further investigation | Minor adverse (not significant in EIA terms) | None |
| Construction works at Thurrock Flexible Generation Plant could potentially result in temporary impacts on the settings of heritage assets including Scheduled Monuments (SMs), listed buildings, Conservation Areas and Registered Parks and Gardens | Designed in measures | Negligible to minor | Medium to high | Minor to moderate adverse (not significant to significant in EIA terms) | None | Minor to moderate adverse (not significant to significant in EIA terms) | None |
| Construction works at Thurrock Flexible Generation Plant could result in temporary impacts on the overall historic landscape | Designed in measures | Minor | Low | Minor adverse (not significant in EIA terms) | None | Minor adverse (not significant in EIA terms) | None |
| Operation and maintenance | | | | | | | |
| The operation and maintenance of Thurrock Flexible Generation Plant could result in long-term reversible impacts on the settings of heritage assets including SMs, listed buildings, Conservation Areas and Registered Parks and Gardens | Designed in measures | Negligible to minor | Medium to high | Minor to moderate adverse (not significant to significant in EIA terms) | None | Minor to moderate adverse (not significant to significant in EIA terms) | None |
| The operation and maintenance of Thurrock Flexible Generation Plant could result in long-term reversible impacts on the overall historic landscape | Designed in measures | Minor | Low | Minor adverse (not significant in EIA terms) | None | Minor adverse (not significant in EIA terms) | None |

| Description of impact | Measures adopted as part of the project | Magnitude of impact | Sensitivity of receptor | Significance of effect | Additional measures | Residual effect | Proposed monitoring |
|---|---|---------------------|-------------------------|--|---------------------|--|---------------------|
| Decommissioning | | | | | | | |
| Decommissioning works at Thurrock Flexible Generation Plant could result in temporary impacts on the settings of heritage assets including SMs, listed buildings, Conservation Areas and Registered Parks and Gardens | Designed in measures | Negligible to minor | Medium to high | Negligible to moderate adverse (not significant to significant in EIA terms) | None | Negligible to moderate adverse (not significant to significant in EIA terms) | None |
| Decommissioning works at Thurrock Flexible Generation Plant could result in temporary impacts on the overall historic landscape | Designed in measures | Minor | Low | Negligible to minor adverse (not significant in EIA terms) | None | Negligible to minor adverse (not significant in EIA terms) | None |

7. References

Department for Communities and Local Government (2014) Conserving and enhancing the historic environment.

Department of Energy and Climate Change (2011a) Overarching National Policy Statement for Energy (EN-1). London, The Stationery Office.

Department of Energy and Climate Change (2011b) Overarching National Policy Statement for Energy (EN-2). London, The Stationery Office.

Drury, P. and McPherson, A. (2008). Conservation Principles. London: English Heritage.

Glover, J. (1976) The place names of Kent. Batsford, London

Hamerow, H. (1993) Excavations at Mucking: Volume 2: The Anglo-Saxon settlement English Heritage

Highways Agency (2011) Design Manual for Roads and Bridges. *Volume 11. Section 3. Part2: Noise and Vibration*. November 2011.

Highways Agency (2017) Environmental Impact Assessment Lower Thames Crossing Scoping Report

Historic England (2015a) PastScape: Coalhouse Fort. [Online] Available at: http://www.pastscape.org.uk/hob.aspx?hob_id=413479 [Accessed 09/2018]

Historic England (2015b) PastScape: Cliffe Fort. [Online] Available at: http://www.pastscape.org.uk/hob.aspx?hob_id=416701 [Accessed 09/2018]

Historic England (2015c) PastScape: East Tilbury Battery. [Online] Available at: http://www.pastscape.org.uk/hob.aspx?hob_id=413501 [Accessed 09/2018]

Historic England (2015d) PastScape: Shornmead Fort. [Online] Available at: http://www.pastscape.org.uk/hob.aspx?hob_id=413733 [Accessed 09/2018]

Historic England (2018) Planning Note 3: The Settings of Heritage Assets. London, Historic England.

KCC (2004) Kent Historic Towns Survey. Gravesend. Archaeological Assessment Document. Kent County Council (<http://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-459-1/dissemination/pdf/Gravesend.pdf>)

Landscape Institute and Institute for Environmental Management and Assessment (2013) Guidelines for landscape and visual impact assessment. 3rd ed. London, Routledge/Taylor & Francis Group.

Newman, J (2012) The Buildings of England: Kent: West and the Weald London YUP

Page, W and Round, J.H eds (1907), Hospitals: East Tilbury'. A History of the County of Essex: Volume 2, p. 191. British History Online <http://www.britishhistory.ac.uk/vch/essex/vol2/p191> [accessed 8 August 2018].

Port of Tilbury London (2017) Proposed Port Terminal at Former Tilbury Power Station Tilbury 2 Environmental Statement and Appendices

Rippon, S. (2004) Historic landscape analysis. York, Council for British Archaeology.

Smith, J (2008) East Tilbury, Thurrock, Essex. Historic Area Appraisal. English Heritage Research Department Report Series 21/2007

Thurrock District Council (2011) Local Development Framework

Thurrock District Council (u.d. a) West Tilbury Conservation Area Character Appraisal

Thurrock District Council (u.d. b) East Tilbury Conservation Area Character Appraisal

Williams, A. and Martin, G.H. (eds) (1992) Domesday Book. London, Penguin.