

Riverside Energy Park

Preliminary Environmental Information Report

CHAPTER:

10

PLANNING INSPECTORATE REFERENCE NUMBER:
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HISTORIC ENVIRONMENT

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10 Historic Environment

10.1 Introduction

10.1.1 This chapter presents the preliminary findings of the assessment of likely significant effects of the construction and decommissioning, and operational phases of the Proposed Development in terms of the historic environment. It incorporates the results of an archaeological desk-based assessment (DBA) contained within **Appendix F.2**, a desk-based geoarchaeological deposit model (**Appendix F.3**) and a watching brief on intrusive geotechnical works. The method statement for the watching brief and on-going geoarchaeological assessment is contained in **Appendix F.4**.

10.1.2 The historic environment includes a wide range of features resulting from human intervention in the landscape, varying in scope from buried archaeological remains, to late 20th century industrial and military structures. It can be divided into the following two categories:

- Archaeology - which comprises Scheduled Monument (SMs) and non-designated archaeological heritage assets; and
- Built Heritage - which comprises listed buildings (all grades), non-designated buildings of heritage interest, registered parks and gardens (all grades), conservation areas, historic battlefields and World Heritage Sites (WHS).

10.1.3 This chapter describes the following:

- legislative and policy framework;
- assessment methodology and significance criteria used;
- summary of consultation and responses;
- a description of the topic specific reasonable worst case scenario for assessment;
- the baseline conditions and receptors at the Riverside Energy Park (REP) site and surroundings;
- an assessment of the likely significant environmental effects;
- the mitigation measures required to prevent, reduce or offset any significant adverse effects; and
- cumulative and in combination effects; and the likely residual effects after these measures have been employed.

10.1.4 This chapter has been prepared by Orion Heritage Ltd. In accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the Infrastructure EIA Regulations 2017), a statement outlining the relevant expertise and qualifications of competent experts appointed to prepare this Preliminary Environmental Information Report (PEIR) is provided in **Appendix A.3**.

10.2 Policy Context, Legislation, Guidance and Standards

10.2.1 Where any development may have a direct or indirect effect on designated heritage assets, there is a legislative framework to ensure the proposals are considered with due regard for their impact on the historic environment. This section outlines the legislative framework, local and regional planning policy and policy guidance.

- 10.2.2 As outlined in **Chapter 2**, the relevant National Policy Statements provide the primary basis for decisions by the Secretary of State on nationally significant infrastructure projects.

National Planning Policy

Overarching National Policy Statement for Energy (NPS EN-1)

- 10.2.3 The construction, operation and decommissioning of energy infrastructure has the potential to result in adverse impacts on the historic environment.
- 10.2.4 NPS EN-1 states that *“The historic environment includes all aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, landscaped and planted or managed flora. Those elements of the historic environment that hold value to this and future generations because of their historic, archaeological, architectural or artistic interest are called “heritage assets”. A heritage asset may be any building, monument, site, place, area or landscape, or any combination of these. The sum of the heritage interests that a heritage asset holds is referred to as its significance”* (Department of Energy and Climate Change 2011a, para. 5.8.2).
- 10.2.5 NPS EN-1 states that designated heritage assets (i.e. a World Heritage Site; Scheduled Monument; Protected Wreck Site; Protected Military Remains, Listed Building; Registered Park and Garden; Registered Battlefield; Conservation Area; and non-designated heritage assets) which are demonstrably of equivalent significance should be considered subject to the same policy considerations. As such the Overarching National Policy Statement for Energy recognises that *“There are heritage assets with archaeological interest that are not currently designated as scheduled monuments, but which are demonstrably of equivalent significance”* (Department of Energy and Climate Change 2011a, para. 5.8.4).
- 10.2.6 Potential impacts on other non-designated heritage of lesser value than designated heritage should also be considered by the Secretary of State, on the basis of *“clear evidence that the assets have a heritage significance that merits consideration in its decisions”* (Department of Energy and Climate Change 2011a, para 5.8.6).
- 10.2.7 Impacts on heritage assets specific to types of infrastructure are included in the technology-specific NPSs. The technology specific NPSs of relevance to REP are NPS EN-3 and NPS EN-5. These NPSs are part of a suite of energy infrastructure NPSs. They should be read in conjunction with NPS EN-1.

Overarching National Policy Statement for Energy (NPS EN-3)

- 10.2.8 NPS EN-3 outlines the impact assessment principles relevant to biomass/waste combustion plant applications. In relation to significant adverse effects to nationally recognised designations, consent for renewable energy projects should only be granted, *“Where it can be demonstrated that the objectives of designation of the area will not be compromised by the development, and any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by the environmental, social and economic benefits”* (Department of Energy and Climate Change 2011b, para. 2.5.33).
- 10.2.9 In considering the impact on the historic environment the decision maker should take into account the, *“positive role that large-scale renewable projects play in the mitigation of climate change, the delivery of energy security and the urgency of meeting the national targets for renewable energy supply and emissions reductions”* when determining whether the substantial public benefits of the proposed development outweighs any loss or harm to the significance of a designated heritage asset (Department of Energy and Climate Change 2011b, para. 2.5.34).

Overarching National Policy Statement for Electricity Networks Infrastructure (NPS EN-5)

10.2.10 NPS EN-5 has no relevance in this assessment.

National Planning Policy Framework (2012)

10.2.11 Other relevant national policy in relation to the historic environment is outlined in Section 12 of the National Planning Policy Framework (NPPF), entitled Conserving and Enhancing the Historic Environment. This provides guidance for planning authorities, property owners, developers and others on the conservation and investigation of heritage assets. Overall, the objectives of Section 12 of the NPPF can be summarised as seeking the:

- Delivery of sustainable development making a positive contribution to local character and distinctiveness;
- Understanding the wider social, cultural, economic and environmental benefits brought by the conservation of the historic environment;
- Sustaining and enhancing England's heritage assets in a manner appropriate to their significance; and
- Recognition of the contribution that heritage assets make to our knowledge, character of the place and understanding of the past.

10.2.12 Section 12 of the NPPF recognises that intelligently managed change may sometimes be necessary if heritage assets are to be maintained for the long term.

10.2.13 Paragraph 128 states that planning decisions should be based on the significance of the heritage asset and that the level of detail supplied by an applicant should be, "*Proportionate to the importance of the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance*" (NPPF 2012, 30).

10.2.14 Heritage Assets are defined in Annex 2 of the NPPF 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*" (NPPF 2012, 52). The heritage assets definition includes designated heritage assets and assets identified by the local planning authority (including local listing).

10.2.15 Archaeological Interest is defined as a "*heritage asset if it holds or potentially may hold evidence of past human activity worthy of expert investigation at some point*" (NPPF 2012, 50). Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them.

10.2.16 Heritage Significance is defined as:

"The value of a heritage asset to this and future generations because of its heritage interest. This interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting." (NPPF 2012, Annex 2)

10.2.17 Setting is defined as:

"The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral." (NPPF 2012, Annex 2)

10.2.18 Paragraph 134 of the NPPF outlines that where a proposed development results in less than substantial harm to the significance of a heritage asset, the harm arising should be weighed

against the public benefits accruing from the proposed development. Planning Practice Guidance (PPG)

10.2.19 The NPPF is supported by the PPG. In relation to the historic environment, Paragraph: 001 Reference ID: 18a-001-20140306 states that:

“Protecting and enhancing the historic environment is an important component of the National Planning Policy Framework’s drive to achieve sustainable development (as defined in Paragraphs 6-10). The appropriate conservation of heritage assets forms one of the ‘Core Planning Principles’.”

10.2.20 Paragraph: 002 Reference ID: 18a-002-20140306 makes a clear statement that any decisions relating to listed buildings and their settings, and conservation areas, must address the statutory considerations of the Planning (Listed Buildings and Conservation Areas) Act 1990 as well as satisfying the relevant policies within the National Planning Policy Framework and the Local Plan.

10.2.21 Paragraph: 013 Reference ID: 18a-013-20140306 outlines that the assessment of the impact of a proposed development on the setting of a heritage asset needs to take into account and be proportionate to the significance of the asset being considered and the degree to which the proposed development enhances or detracts from the significance of the asset and the ability to appreciate the significance.

10.2.22 The NPPG outlines that although the extent and importance of setting is often expressed in visual considerations, it can also be influenced by other factors such as noise, dust and vibration. Historic relationships between places can also be an important factor stressing ties between places that may have limited or no intervisibility with each other. This may be historic as well as aesthetic connections that contribute or enhance the significance of one or more of the heritage assets.

10.2.23 Paragraph: 013 Reference ID: 18a-013-20140306 concludes:

“The contribution that setting makes to the significance of the heritage asset does not depend on there being public rights or an ability to access or experience that setting. This will vary over time and according to circumstance. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may need to consider the implications of cumulative change. They may also need to consider the fact that developments which materially detract from the asset’s significance may also damage its economic viability now, or in the future, thereby threatening its on-going conservation.”

10.2.24 The key test in NPPF paragraphs 132-134 is whether a proposed development will result in substantial harm or less than substantial harm. However, substantial harm is not defined in the NPPF. Paragraph: 017 Reference ID: 18a-017-20140306 of the PPG provides additional guidance on substantial harm. It states:

“What matters in assessing if a proposal causes substantial harm is the impact on the significance of the heritage asset. As the National Planning Policy Framework makes clear, significance derives not only from a heritage asset’s physical presence, but also from its setting. Whether a proposal causes substantial harm will be a judgment for the decision taker, having regard to the circumstances of the case and the policy in the National Planning Policy Framework. In general terms, substantial harm is a high test, so it may not arise in many cases. For example, in determining whether works to a listed building constitute substantial harm, an important consideration would be whether the adverse impact seriously affects a key element of its special architectural or historic interest. It is the degree of harm to the asset’s significance rather than the scale of the development that is to be assessed.”

10.2.25 Paragraph: 020 Reference ID: 18a-020-20140306 of the NPPG outlines what is meant by public benefits:

“Public benefits may follow from many developments and could be anything that delivers economic, social or environmental progress as described in the National Planning Policy Framework (Paragraph 7). Public benefits should flow from the proposed development. They should be of a nature or scale to be of benefit to the public at large and should not just be a private benefit. However, benefits do not always have to be visible or accessible to the public in order to be genuine public benefits.”

Emerging National Planning Policy

Draft revised National Planning Policy Framework (2018)

10.2.26 The Ministry of Housing Communities and Local Government (MHCLG) published a draft revised version of the NPPF for consultation between 5 March and 10 May 2018. The revisions aim to implement planning reforms proposed in the Housing White Paper, the Planning for the right homes in the right places consultation and the Autumn Budget announcements. MHCLG aim to publish a final version of the NPPF by Summer 2018.

10.2.27 The new document covers conserving and enhancing the historic environment in chapter 16. The policy is largely similar to the existing policy and retains the same policy tests. A slight change is noted in respect to the weight given to a heritage asset’s conservation during decision making, irrespective of the degree of potential harm to its significance (NPPF 2018 para. 189).

Regional Planning Policy

London Plan 2016

10.2.28 The London Plan includes the Further Alterations London Plan (FALP) which was adopted in March 2015 and includes the Revised Early Minor Alterations to the London Plan (REMA), which were published in October 2013. Policy 7.8 in the London Plan covers the historic environment and landscapes:

- Policy 7.8 Heritage Assets and Archaeology

“Strategic

A London’s heritage assets and historic environment, including listed buildings, registered historic parks and gardens and other natural and historic landscapes, conservation areas, World Heritage Sites, registered battlefields, scheduled monuments, archaeological remains and memorials should be identified, so that the desirability of sustaining and enhancing their significance and of utilising their positive role in place shaping can be taken into account.

B Development should incorporate measures that identify, record, interpret, protect and, where appropriate, present the site’s archaeology.

Planning decisions

C Development should identify, value, conserve, restore, re-use and incorporate heritage assets, where appropriate.

D Development affecting heritage assets and their settings should conserve their significance, by being sympathetic to their form, scale, materials and architectural detail.

E New development should make provision for the protection of archaeological resources, landscapes and significant memorials. The physical assets should, where possible, be made available to the public on-site. Where the archaeological asset or memorial cannot be preserved or managed on-site, provision must be made for the investigation, understanding, recording, dissemination and archiving of that asset.

Local Development Framework (LDF) preparation

F Boroughs should, in LDF policies, seek to maintain and enhance the contribution of built, landscaped and buried heritage to London's environmental quality, cultural identity and economy as part of managing London's ability to accommodate change and regeneration.

G Boroughs, in consultation with English Heritage, Natural England and other relevant statutory organisations, should include appropriate policies in their LDFs for identifying, protecting, enhancing and improving access to the historic environment and heritage assets and their settings where appropriate, and to archaeological assets, memorials and historic and natural landscape character within their area."

Relevant Mayoral strategy and planning guidance documents

10.2.29 The current list of supplementary planning guidance (SPG's) includes guidance on *Character and Context* (June 2014) and *London World Heritage Sites* (March 2012). As no World Heritage Sites will be impacted by the proposals this guidance is not relevant to this chapter.

Emerging Regional Planning Policy

Draft London Plan 2017

10.2.30 The Mayor published the Draft London Plan 2017 for consultation between 1 December 2017 and 2 March 2018. According to the published Greater London Authority (GLA) timetable, the draft plan will be examined in Winter 2018 and the final plan published by Winter 2019. The following draft policies relate to heritage:

■ *Policy HC1 Heritage conservation and growth*

"A Boroughs should, in consultation with Historic England and other relevant statutory organisations, develop evidence that demonstrates a clear understanding of London's historic environment. This evidence should be used for identifying, understanding, conserving, and enhancing the historic environment and heritage assets, and improving access to the heritage assets, landscapes and archaeology within their area.

B Development Plans and strategies should demonstrate a clear understanding of the historic environment and the heritage values of sites or areas and their relationship with their surroundings. This knowledge should be used to inform the effective integration of London's heritage in regenerative change by:

- 1) Setting out a clear vision that recognises and embeds the role of heritage in place-making.*
- 2) Utilising the heritage significance of a site or area in the planning and design process.*
- 3) Integrating the conservation and enhancement of heritage assets and their settings with innovative and creative contextual architectural responses that contribute to their significance and sense of place.*
- 4) Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing.*

C Development proposals affecting heritage assets, and their settings, should conserve their significance, by being sympathetic to the assets' significance and appreciation within their surroundings. The cumulative impacts of incremental change from development on heritage assets and their settings, should also be actively managed. Development

proposals should seek to avoid harm and identify enhancement opportunities by integrating heritage considerations early on in the design process.

D Development proposals should identify assets of archaeological significance and use this information to avoid harm or minimise it through design and appropriate mitigation. Where applicable, development should make provision for the protection of significant archaeological assets and landscapes. The protection of undesignated heritage assets of archaeological interest equivalent to a scheduled monument should be given equivalent weight to designated heritage assets.

E Where heritage assets have been identified as being At Risk, boroughs should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use.”

10.2.31 The Draft London Plan also has policies regarding World Heritage Sites (Policy HC2) and Strategic and Local Views (Policy HC3). These are not relevant to the Project and are therefore not repeated.

Kent Minerals and Waste Local Plan 2013-30

10.2.32 The Kent Minerals and Waste Local Plan 2013-30 (KMWLP) was adopted in July 2016 and sets out the vision and strategy for waste management and mineral provision up until the year 2030. The following policies within the Kent Minerals and Waste Local Plan refer to heritage:

- **Policy DM 5 Heritage Assets**

Proposals for minerals and waste developments will be required to ensure that Kent's heritage assets and their settings, including locally listed heritage assets, registered historic parks and gardens, Listed Buildings, conservation areas, World Heritage Sites, Scheduled Ancient Monuments, archaeological sites and features and defined heritage coastline,⁽¹¹⁰⁾ are conserved in a manner appropriate to their significance. Proposals should result in no significant adverse impact on Kent's historic environment and, wherever possible, opportunities must be sought to maintain or enhance historic assets affected by the proposals. Minerals and/or waste proposals that would have an impact on a heritage asset will not be granted planning permission unless it can be demonstrated that there is an overriding need for development and any impacts can be mitigated or compensated for, such that there is a net planning benefit.

- **Policy DM 6 Historic Environment Assessment**

Proposals for minerals and waste development that are likely to affect important heritage assets will only be granted planning permission following:

1. *preliminary historic environment assessment, including field archaeological investigation where appropriate, to determine the nature and significance of the heritage assets;*

2. *appropriate provision has been secured for preservation in situ, and/or archaeological excavation and recording and/or other historic environment recording as appropriate, including post-excavation analysis and reporting, archive deposition and access, and interpretation of the results for the local community, in accordance with the significance of the finds; and*

3. *agreement of mitigation of the impacts on the significance of the heritage assets, including their fabric, their setting, their amenity value and arrangements for reinstatement.*

Local Planning Policy

London Borough of Bexley Local Development Plan 2012

10.2.33 The London Borough of Bexley Local Development Plan contains the following Core Strategy and Development Control policies relating to the historic environment:

Policy CS19 - Heritage and archaeology

“The Council will manage its heritage and archaeological assets, whilst seeking opportunities to make the most of these assets, including adapting to and mitigating the effects of climate change. This will enhance the local sense of place and underpin the revitalisation and development of the borough, including promoting the visitor economy. This will be achieved by:

- a. promoting the borough’s heritage assets, such as Danson Mansion, Hall Place and Gardens, Crossness Beam Engine House and Red House;*
- b. reviewing the status of existing and identifying new heritage and archaeological assets;*
- c. conserving and enhancing the significance of heritage assets, their setting, and the wider historic environment, including statutorily listed buildings; locally listed buildings of architectural or historic interest, conservation areas, registered parks and gardens, and archaeological sites;*
- d. protecting heritage assets from development that is likely to adversely impact on the significance, integrity, character or appearance of an asset or its setting;*
- e. supporting historic restoration schemes through partnership working and seeking funding to enhance heritage and archaeological assets in an appropriate and sympathetic manner; and*
- f. retaining, in situ, archaeological evidence within sites, wherever possible.*

Where archaeological evidence cannot be retained, the appropriate levels of archaeological investigation and recording should be undertaken prior to the redevelopment of the site.”

Dartford Borough Council Development Policies Plan (Dartford Borough Council 2017)

10.2.34 The Dartford Borough Council Development Policies Plan contains the following policies relating to the historic environment:

Policy DP12: Historic Environment Strategy

- “1. Development should contribute to the conservation and enjoyment of the Borough’s historic environment. The Local Planning Authority will work with developers on strategies to realise this in the context of site heritage opportunities and constraints.*
- 2. Where heritage may be at risk, landowners will be expected to work proactively with the Local Planning Authority in bringing forward proposals to preserve or enhance these assets, to facilitate their successful rehabilitation and seek their viable reuse consistent with their heritage value and special interest.*
- 3. Development proposals which may affect the significance of heritage assets (both designated and non-designated) or their setting should demonstrate how these assets will be protected, conserved or enhanced as appropriate. Proposals should aim to reflect and interpret the historic character of a site and conserve its most significant historical and/or architectural aspects.*

4. *A heritage statement should accompany all planning applications affecting heritage assets. On archaeological sites, a desk-based assessment will be required as a minimum. Applications affecting designated heritage assets will be assessed under Policy DP13. Applications affecting non-designated assets will be assessed against the criteria below.*

Non-Designated Heritage Assets

5. *The Borough's non-designated heritage assets include:*
 - a) *Archaeological sites, including sites holding an interest as defined in the NPPF;*
 - b) *Applicable sites within Areas of Special Character, as defined on the Policies Map;*
 - c) *Sites with significant industrial heritage;*
 - d) *Land with historic landscape character; and*
 - e) *Historic open space, parks and gardens.*
6. *Development proposals affecting non-designated heritage assets should establish the asset's significance. Development should conserve or enhance those aspects that have been identified as significant and, where possible, should seek to better reveal an asset's significance.*
7. *In determining planning applications affecting non-designated assets, the effect of the proposal on the asset's significance will be taken into account. A balanced judgement will be taken having regard to the significance of the heritage asset and the scale of any harm or loss of significance. Development resulting in a total loss of significance will not normally be permitted".*

Policy DP13: Designated Heritage Assets

- “1. *Designated heritage assets are an irreplaceable resource and should be conserved in a manner appropriate to their significance. A heritage statement should establish the significance of the heritage asset in order to enable the assessment the impact of a development proposal. Any harm or loss will require clear and convincing justification.*
2. *In determining planning applications, the Local Planning Authority will pay close regard to:*
 - a) *the significance of the heritage asset;*
 - b) *the desirability of maintaining and, where possible, enhancing significance; and*
 - c) *the desirability of ensuring viable uses are found for heritage assets, consistent with their conservation.*
3. *Where a proposal will lead to substantial harm or total loss of significance, permission will be refused unless it can be clearly demonstrated that the development is necessary for substantial public benefits to be achieved that will outweigh the harm or loss.*
4. *Where a proposal will lead to less than substantial harm, this will be weighed against the public benefits of the proposal.*

Listed Buildings

5. *Development proposals affecting statutorily listed buildings should have special regard to the desirability of preserving the building or its setting. Loss of or harm to a statutorily listed building or its setting will only be permitted in exceptional circumstances in line with clauses 3 and 4 above.*

Conservation Areas

6. *Development proposals affecting a conservation area should pay special attention to the desirability of preserving or enhancing the character or appearance of that area. Proposals that would result in harm or loss of significance will be determined in line with clauses 3 and 4 above.*
7. *The demolition of any building in a conservation area will only be permitted where it is clear that it will not adversely affect the character and appearance of the area.*
8. *Development proposals affecting Scheduled Monuments will only be permitted where they clearly conserve the asset or enhance its significance. Proposals resulting in loss or harm will only be permitted on a wholly exceptional basis and in line with clauses 3 and 4 above.”*

London Borough of Bexley: Bexley Growth Strategy (2017)

10.2.35 Bexley’s heritage and culture and the benefit to the residents and visitors of Bexley is recognised in the Growth Strategy of Bexley: *“As Bexley’s population grows, it will be more important than ever to ensure that built heritage and cultural assets are preserved and enhanced to contribute to the quality of life for existing and new residents as well as promoting economic development and acting as a catalyst for regeneration and renewal, thus ensuring that the character of Bexley’s neighbourhoods retain their authenticity.”* (London Borough of Bexley 2017 para. 2.4.12)

10.2.36 Particular note is made of Bexley’s industrial heritage.

10.2.37 The borough’s cultural heritage is recognised as a key aim within social infrastructure, *“To value, support, protect and promote the borough’s heritage assets and make the most of them in adding value for growing communities and other visitors”.* (London Borough of Bexley 2017, p.133)

Emerging Local Planning Policy

Draft Bexley Local Plan

10.2.38 The current and next steps for producing the Local Plan are shown below:

- November 2017 to August 2018: Preparations of Local Plan preferred approach policies
- August 2018 - Consultation on preferred approach to Local Plan policies

10.2.39 The Local Development Scheme has been published, however there is no specific guidance relating to heritage.

Draft Dartford Borough Council Local Plan

10.2.40 The Local Development Scheme for a new Local Plan is in preparation. No timetable for the production of the new Local Plan has, to date, been published.

Guidance and Standards

Historic Environment Good Practice Advice in Planning Note Managing Significance in Decision-Taking in the Historic Environment (Historic England 2015)

10.2.41 The purpose of this document is to provide information to assist local authorities, planning and other consultants, owners, applicants and other interested parties in implementing historic environment policy in the NPPF and PPG. It includes a six-stage process as outlined below to approach the assembly and analysis of relevant information relating to heritage assets potentially affected by a proposed development:

- *“Understand the significance of the affected assets;*
- *Understand the impact of the proposal on that significance;*
- *Avoid, minimise and mitigate impact in a way that meets the objectives of the NPPF;*
- *Look for opportunities to better reveal or enhance significance;*
- *Justify any harmful impacts in terms of the sustainable development objective of conserving significance and the need for change; and*
- *Offset negative impacts on aspects of significance by enhancing others through recording, disseminating and archiving archaeological and historical interest of the important elements of the heritage assets affected.”*

Historic Environment Good Practice Advice in Planning Note 3 (Second Edition). The Setting of Heritage Assets (Historic England 2017)

10.2.42 Historic England’s (HistE) Historic Environment Good Practice Advice in Planning Note 3 was updated in 2017 and provides guidance on the management of change within the setting of heritage assets.

10.2.43 The document restates the definition of setting as outlined in Annex 2 of the NPPF. The distinction between setting and curtilage, character and context is discussed. While it is largely a visual term, setting, and thus the way in which an asset is experienced, can also be affected by noise, vibration, odour and other factors. The document makes it clear that setting is not a heritage asset, nor is it a heritage designation, though land within a setting may itself be designated. Its importance lies in what the setting contributes to the significance of a heritage asset.

10.2.44 The Good Practice Advice Note sets out a five-staged process for assessing the implications of proposed developments on setting:

- *“Step 1: Identify which heritage assets and their settings are affected*
- *Step 2: Assess the degree to which 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 on the ability to appreciate it*
- *Step 4: Explore ways to maximise enhancement and avoid or minimise harm*
- *Step 5: Make and document the decision and monitor outcomes”*

Crossness Conservation Area: Area Appraisal and Management Plan, 2009

10.2.45 This document outlines the special architectural and historic interest of the Crossness Conservation Area and identifies opportunities for enhancement.

10.2.46 The special architectural or historic interest that justifies designation of Crossness Conservation Area derives from the following features:

- *“This mid-Victorian example of public health engineering is a unique industrial complex set within a landscape/location selected by the then level of engineering technology. It is South East London’s most important site for industrial archaeology.*
- *The key elements that characterise the Conservation Area are: the Grade I Listed Crossness Pumping Station comprising the Beam Engine House, Boiler House and Triple Expansion House; the Grade II Listed workshops; and brick vaulted subterranean reservoir.*
- *Other significant buildings include the storm water pumping station/centrifugal engine house and the precipitation engine house/boiler house group.*
- *Use of the complex for over 140 years has resulted in layers of industrial development that represent the evolution of the site.*
- *The buildings present important engineering development, in terms of landmark building design and surviving machinery.*
- *Spaces within the site, including the River Thames location and the surrounding remnants of the original rural landscape recall the importance of the location.*
- *The site includes open spaces that have remained undisturbed for long periods, including mature trees, which contribute towards the biodiversity of the area.” (The London Borough of Bexley 2009, para. 3.1)*

10.3 Consultation

10.3.1 Formal scoping responses from HistE (Historic Environment Planning Adviser) and the Environmental Services Team at Kent County Council were included in the Scoping Opinion received from the Planning Inspectorate in January 2018. The following table details consultation undertaken and summarises the relevant points made, along with the way in which these have been responded to.

Table 10.1: Summary of issues raised during consultation

Reference	Comment	Response
SoS Scoping Opinion		
Section 4.5 – ID 1	The Scoping Report states that effects on these heritage assets are likely to be low or non-existent, given the nature of these designated remains, the nature of their setting, and the existing developments in the vicinity of the application site. It is unclear whether the Applicant is proposing to scope out an assessment of impacts to these assets from the ES.	Setting assessment of designated assets was undertaken. This included Crossness Conservation Area, associated listed buildings, and Lesnes Abbey Scheduled Monument. The preliminary findings of the assessment are provided within this PEIR and will be finalised in the ES.

Reference	Comment	Response
	<p>The Inspectorate does not consider that sufficient justification has been provided to justify there would be no likely significant effects. Therefore, the Inspectorate does not agree to scope out an assessment on these receptors from the ES. Historic England in their scoping consultation response, has also recommended an assessment that gives particular consideration to impacts on Crossness Conservation Area, associated listed buildings, and Lesnes Abbey Scheduled Monument.</p>	<p>A full detailed assessment of the likely effects of the proposed development on the setting of nearby designated assets has been undertaken as part of this PEIR.</p>
Section 4.5 – ID 2	<p>The Scoping Report states that during operation, the underground electricity connection would not affect the setting of heritage assets and therefore will not be assessed within the ES. The Inspectorate agrees significant effects during operation associated with the electrical connection are unlikely and agrees that this matter can be scoped out.</p>	<p>Effects on setting of heritage assets during operation of the Electrical Connection are scoped out.</p>
Section 4.5 – ID 3	<p>The Scoping Report does not identify a study area for this aspect. The study area should be described and justified within the ES.</p> <p>The Inspectorate notes that a 1 kilometre (km) search area surrounding the site has been applied to identify a number of heritage assets and archaeological remains.</p> <p>The Environmental Statement (ES) should provide a robust justification of why the study area and 1 km search area is appropriate and sufficient to capture all heritage assets which</p>	<p>The justification of the study area is provided in Section 10.5. Assessment of the ZTV was undertaken as part of the setting assessment. The preliminary findings of the assessment are provided within this PEIR and will be finalised in the ES.</p>

Reference	Comment	Response
	<p>could experience impacts on their setting.</p> <p>To support this justification, the Applicant is advised to refer to the Zone of Theoretical Visibility (ZTV) developed for the Townscape and Visual Impact Assessment (TVIA).</p>	
Section 4.5 – ID 4	The ES should clearly state who has been consulted to inform the assessment. The Inspectorate advises that the local authority historic environment advisers and local studies library are consulted. This has also been requested by Historic England and Kent County Council in their responses.	Consultation was undertaken with the historic environment advisor to London Borough of Bexley and Dartford Borough Council (see relevant sections below). Local studies libraries were consulted as part of the assessment as set out in Section 10.5.8 .
Section 4.5 – ID 5	<p>Previous geo-archaeological works and data used within the assessment should be clearly referenced within the ES.</p> <p>The Scoping Report does not propose any archaeological field surveys and evaluations, however the Inspectorate notes Historic England’s consultation response which identifies the need for archaeological field surveys and evaluations, should they prove necessary. The Inspectorate recommends that the need (and if necessary, the scope) for such work is agreed with Historic England and Kent County Council.</p>	<p>Consultation regarding the scope of geoarchaeological assessment and further works has been undertaken with Historic England as part of this PEIR and will be finalised in the ES.</p> <p>As part of this PEIR a Written Scheme of Investigation (WSI) has been produced to cover potential geoarchaeological works required. This has been produced following consultation with the Historic England archaeological advisor to Bexley Borough Council. To date this includes the production of a draft geoarchaeological deposit model of the REP site and a watching brief of intrusive geotechnical works to update the deposit model. The requirement and scope of further works will be undertaken following completion of the deposit model during the Environmental Statement.</p>

Reference	Comment	Response
Section 4.5 – ID 6	The ES should clearly explain how the significance of effect has been determined. It should be clear how professional judgement has been applied.	Definition and justification of significance of effect included in Methodology Section 10.5 .
Section 4.5 – ID 7	<p>The Scoping Report states that for non-designated archaeological assets, the Secretary of State’s non-statutory criteria would be utilised. The Inspectorate is not clear what criteria this is referring to; this should be clarified within the ES.</p> <p>All guidance that has informed the assessment of effects should be identified within the ES and should be sufficient to identify and assess the likely significant effects from the Proposed Development.</p>	Clarification and referencing is supplied within Table 10.2 within this PEIR.
Section 4.5 – ID 8	<p>The Scoping Report states that archaeological resources are susceptible to a range of impacts during site preparation as well as construction related activities.</p> <p>The ES should clearly set out where the assessment of site preparation activities has been included within the assessment of the construction phase of the Proposed Development.</p>	The preliminary findings of the assessment are provided within this PEIR and will be finalised in the ES.
Section 4.5 – ID 9	This chapter of the Scoping Report has focussed primarily on land-based archaeology. The ES should also assess the potential for effects to archaeology within the marine environment.	As a result of design evolution, temporary works within the marine environment are no longer required. Consideration of potential effects upon the marine environment has therefore been scoped out of the ES.
Historic England		

Reference	Comment	Response
<p>Historic England Historic Environment Planning Adviser - Scoping Response Letter (December 2017)</p>	<p>The assessment should address the potential effects on the setting of the following:</p> <ul style="list-style-type: none"> • Crossness Conservation Area and associated listed buildings • Lesnes Abbey <p>Reference to archaeological field surveys and evaluation may prove necessary and should therefore be referenced with the methodology section.</p> <p>Local Studies Library should be consulted.</p> <p>Include attenuation ponds as a possible ground impact work to be included.</p> <p>Suggested change to table 7.6.2, to refer to significance of heritage assets in relation to direct and indirect impacts</p>	<p>The preliminary findings of the assessment are provided within this PEIR and will be finalised in the ES.</p> <p>Recommendations regarding methodology statement all included within Section 10.5</p> <p>Local studies libraries consulted as part of the assessment provided in Section 10.5.8.</p> <p>Attenuation ponds included as a possible impact within methodology statement.</p> <p>Direct and indirect impacts on heritage assets included.</p> <p>Change to Table 10.3 within PEIR made.</p>
<p>Historic England Archaeological Advisor to Bexley Borough Council – Pre-application advice email (January 2017)</p>	<p>The production of a deposit model is required.</p> <p>In respect of the portion of the Proposed Development that falls within Bexley borough, a 500 metre (m) buffer to the REP site would be needed to provide sufficient material from which a workable deposit model could be produced.</p>	<p>A draft deposit model using historic borehole logs has been produced using a 500 m buffer (Appendix F.3) and informs this PEIR.</p> <p>The final deposit model will be available for the ES following integration of new borehole data.</p>
<p>Historic England Archaeological Advisor to Bexley Borough Council and Historic England Historic Environment Planning Adviser – Pre-application meeting 27th February 2018</p>	<p>The methodology, study area and geoarchaeological works were discussed with Historic England. No requests to change the methodology outlined.</p>	<p>Submission of desk based heritage assessment and deposit model once completed. Discussion of mitigation works, if required, to follow.</p>
<p>Historic England Archaeological Advisor to Bexley Borough Council – Pre-application advice email (4th April 2018)</p>	<p>In response to the monitoring of geotechnical boreholes in April 2018 Historic England requested a framework document outlining the staged approach to the assessment of the geoarchaeological resource.</p>	<p>A Written Scheme of Investigation (WSI) has been submitted to Historic England and is included in Appendix F.4. This outlines the assessment strategy for the geoarchaeological resource rather than the final assessment.</p>

Reference	Comment	Response
Kent County Council		
<p>Director for Environment, Planning and Enforcement</p> <p>Kent County Council - Scoping Response Letter (December 2017)</p>	<p>Review of Kent Historic Environment Record (HER)</p> <p>Heritage assessment should include review of early OS maps, documentary accounts, Light Detection and Radar (LiDAR), aerial photography and any other geophysical surveys nearby.</p> <p>Geo-archaeological DBA / deposit model may be required in addition to archaeological DBA.</p> <p>Inclusion of a Historic Landscape Assessment.</p>	<p>The DBA covers the entire Indicative Application Boundary and includes a review of the Kent HER, historic mapping, documentary and archaeological research.</p> <p>In light of the electrical connection predominantly following existing roads and connecting to an existing sub-station, LiDAR, aerial photography, Historic Landscape Assessment and geo-archaeological deposit models have been scoped out of the assessment. Response from Kent County Council pending.</p> <p>No relevant geophysical surveys were identified.</p>
London Borough of Bexley		
<p>Senior Planner – Conservation and Design</p> <p>Pre-application advice email (January 2017)</p>	<p>Confirmation that the relevant heritage assets in the local area have been identified for assessment.</p>	<p>No requests to change the methodology outlined.</p> <p>Confirmation that the relevant heritage assets in the local area have been identified for assessment. Further discussion following submission of the DBA.</p>

10.4 Parameters Used for Assessment

- 10.4.1 In respect of the historic environment, the reasonable worst case scenario from within the Proposed Development parameters assumes a maximum stack height of up to 113 m Above Ordnance Datum (AOD).
- 10.4.2 The reason that this represents the reasonable worst case for REP in relation to the historic environment is that a larger stack height will increase the magnitude of visual (and therefore setting) effects as REP would be more prominent and would be visible over a larger geographical area.
- 10.4.3 The reasonable worst case depth for the electrical connection trench is c. 900 mm, except where there is potential for a directional drill, or localised deeper trench, to be required to pass below a specific constraint.

10.5 Assessment Methodology and Significance Criteria

Study Area

- 10.5.1 In order to inform the preparation of this chapter, a heritage DBA of the REP site was undertaken (**Appendix F.2**). The DBA located designated and non-designated heritage assets and assessed the potential for previously unrecorded finds or features. This baseline data was recovered for an area within a radius of 1 km from the REP site. This is to ensure that the potential for previously unrecorded archaeological remains is properly understood and non-designated and designated assets which might have settings sensitive to change by REP are identified. There are no strict parameters for the setting of study areas, however 1 km within a Greater London context is sufficient based on experience of other sites and outline consultation with HistE.
- 10.5.2 The following study areas have been chosen for the archaeological impact assessment. There are no strict parameters for the setting of study areas. This has been defined based on professional judgement and experience of potential significant direct and indirect effects likely to arise from the Proposed Development:
- Archaeological study area: a radius of 1 km from the Indicative Application Boundary has been used to identify designated or non-designated archaeological assets which might be directly or indirectly impacted by the Proposed Development and inform the potential for previously unrecorded archaeological remains. This includes the various Electrical Connection route options.
 - Geoarchaeological study area: a radius of 500 m from the boundary of the permanent works in the area adjacent / around Riverside Resource Facility (RRRF) north of Norman Road to assess the geoarchaeological potential of the REP site. The Electrical Connection route, Temporary Construction Compounds and Littlebrook substation are currently anticipated to only involve groundworks less than 0.9 m in depth (except where there is potential for a directional drill, or localised deeper trench, to be required to pass below a specific constraint) through made ground deposits associated with the existing roads, footways or verges and as such are not likely to impact the buried Holocene sequence and are not included in the geoarchaeological assessment area.
 - Since the publication of the Scoping Opinion further work has been conducted which has resulted in the removal of impacts to the marine environment and therefore impacts to marine archaeology are scoped out (see **Table 10.1**).
- 10.5.3 The study area for the settings assessment is centred on the permanent works at the REP site rather than the entirety of the Application Site. In light of the Electrical Connection route being underground, significant effects during operation associated with the Electrical Connection are unlikely and were scoped out. The Inspectorate agreed with this exclusion through the Scoping Opinion (January 2018). The appearance / form of the Electrical Connection Point was not available during the production of the initial Scoping Report. It will utilise an existing sub-station at Littlebrook, near Dartford. Since this will result in no change to the mass and appearance of the sub-station, no significant effects to built heritage assets in the vicinity will result and no further assessment is considered necessary.
- 10.5.4 There are no fixed parameters for study areas for settings assessment. The following study areas were defined based on professional judgement and experience of potential likely significant indirect effects likely to arise from the Proposed Development. This followed an initial desk-based appraisal of all designated assets within 5 km of the boundary of the permanent works in the area adjacent / around RRRF north of Norman Road. This assessment was based on consideration of significance, urban positioning, topography and type of asset (for example domestic, civic, military, religious, funerary monument) and utilised GIS analysis. This resulted in no designated assets beyond 2.5 km and no grade II listed buildings beyond 1 km identified as being sensitive to change from the Proposed Development.

10.5.5 The justification for using differing study areas in relation to the various grades of listed buildings is as follows: the significance of Grade II listed buildings generally resides within their architectural interest (i.e. their form and fabric) and the positive contribution of their settings to their significance is generally limited to their immediate vicinity. For the purpose of this assessment consideration of Grade II listed buildings, where setting is generally a less sensitive part of their significance, setting has been limited to 1 km. Beyond this distance, given the nature of the surrounding townscape, it is not considered that the presence of the Proposed Development would affect the significance of these buildings.

10.5.6 The following study areas are used in the settings assessment:

- The inner study area - A radius of 1 km from the boundary of the permanent works in the area adjacent / around RRRF north of Norman Road which has been used for assessing indirect effects on all non-designated and designated heritage assets. It is considered that it is within this area that REP has the highest potential to impact upon the significance of designated and non-designated heritage assets; and
- The wider study area - A radius of 2.5 km from the boundary of the permanent works in the area adjacent / around RRRF north of Norman Road, which has been used for assessing indirect (primarily visual) effects on Scheduled Monuments, Grade I and Grade II* Listed Buildings, Conservation Areas and Registered Parks and Gardens. A review of designated assets between 2.5 km and 5 km from the boundary of permanent works identified no heritage assets considered sensitive to change by the Proposed Development. This wider settings assessment utilises Zone of Theoretical Visibility (ZTV) mapping to screen out designated assets beyond the 1 km study area that have no intervisibility with the Proposed Development.

10.5.7 The study area was discussed in a pre-application meeting with HistE and no issues were raised.

Baseline Data Collection

10.5.8 In order to inform the preparation of this chapter, a heritage DBA of the Application Site was undertaken (**Appendix F.2**). The following data sources have been used in the compilation of baseline data:

- Greater London Historic Environmental Record (GLHER);
- The National Heritage List for England (NHLE);
- Areas of importance identified in local planning policy (conservation areas, archaeological priority areas);
- Heritage planning policy from London Borough of Bexley and Dartford Borough Council;
- London Borough of Bexley Archives and local history (BA);
- The Dartford Town Archive (DTA);
- The National Archives (TNA);
- The British Library (BL);
- Published/unpublished sources; and
- Site inspection and map regression exercise.

Assessment

10.5.9 Assessment of likely significant effects on cultural heritage resources of the Application Site has been conducted in line with the latest and most comprehensive guidance provided. These documents do not provide a prescriptive approach to assessment but identify principles and good practice that have been applied in the methodology for this assessment.

- Scheduled Monuments – Identifying, protecting, conserving and investigating nationally important archaeological sites under the Ancient Monuments and Archaeological Areas Act 1979 (DCMS 2010);
- Scheduled Monuments & nationally important but non-scheduled monuments (DCMS 2013);
- Principles of Selection for Listing Buildings (DCMS 2010);
- Conservation Principles – Policies and Guidance for the Sustainable Management of the Historic Environment (English Heritage 2008);
- Design Manual for Roads and Bridges Volume 11; Section 3; Part 2 ‘Cultural Heritage’ (DMRB) (Highways Agency 2007);
- Historic Environment Good Practice Advice in Planning Note Managing Significance in Decision-Taking in the Historic Environment (Historic England, 2015);
- Historic Environment Good Practice Advice in Planning Note 3 The Setting of Heritage Assets (Historic England 2017);
- Seeing the History in the View – A Method for Assessing Heritage Significance in Views (English Heritage 2011); and
- Standard and Guidance for Historic Environment Desk-based Assessments (Institute for Archaeologists 2014) (updated in January 2017).

Non-Designated Heritage Assets

10.5.10 In terms of non-designated assets, PPG states that there are two categories of non-designated sites of archaeological interest:

“(1) Those that are demonstrably of equivalent significance to scheduled monuments and are therefore considered subject to the same policies as those for designated heritage assets...

(2) Other non-designated heritage assets of archaeological interest” (Department of Communities and Local Government, 2014, Paragraph: 040 Reference ID: 18a-040-20140306).

10.5.11 The value / significance of a non-designated heritage asset may change following assessment and evaluation prior to a planning decision and move from the second to the first category.

10.5.12 PPG states that applicants should, if required, submit an appropriate desk-based assessment and, where necessary, a field evaluation.

10.5.13 Non-designated heritage assets comprise all finds or features identified on the Greater London Historic Environment Record (GLHER) and Kent Historic Environment Record (KHER), locally listed buildings identified in local planning policy, and previously unrecorded finds or features identified through an appraisal of sources (see **paragraph 10.5.8**).

10.5.14 Assessment of cultural value, sensitivity and magnitude of impact of non-designated assets follows the same methodology outlined for designated heritage assets.

Designated Heritage Assets

- 10.5.15 Heritage assets and potential impacts have been assessed using best practice, including that set out in HistE’s Good Practice Advice Note 3, The Setting of Heritage Assets (Historic England 2017). The heritage assets which require assessment have been selected with reference to the National Heritage List for England (NHLE) database held by HistE, as well as information held by the Local Planning Authority (LPA) on Conservation Areas.
- 10.5.16 Not all designated heritage assets within the 2.5 km radius will require full assessment for impacts on an individual basis. Where a designated heritage asset has been excluded, a clear justification will be provided, for example if the asset is sufficiently far away, and well screened from the study area. Also, not all assets will require the same level of assessment. As set out in paragraph 128 of the NPPF, the level of detail will be sufficient to inform the nature and degree of effect of development within the study area on the significance of the heritage asset in question.

Assessing Heritage Significance

- 10.5.17 The significance of a heritage asset is defined in the NPPF as, “*The value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset’s physical presence, but also from its setting.*” In the case of many heritage assets their importance has already been established through the designation (i.e. scheduling, listing and register) processes applied by HistE.
- 10.5.18 In order to assess the heritage significance of previously unrecorded or non-designated heritage assets, the criteria used by the Department of Culture, Media, and Sports publication, Principles for Selection of Listed Buildings (DCMS 2010), and the Scheduled Monuments Policy Statements published by the same body (DCMS 2013), are used. The criteria for establishing significance of heritage assets within this assessment is presented in **Table 10.2** below.

Table 10.2: Determining the heritage significance of a Heritage Asset

Importance	Description
International	<ul style="list-style-type: none"> Archaeological sites or monuments of international importance, including World Heritage Sites. Structures and buildings inscribed as of universal importance as World Heritage Sites. Other buildings or structures of recognised international importance.
National	<ul style="list-style-type: none"> Ancient monuments scheduled under the Ancient Monuments and Archaeological Areas Act 1979, or archaeological sites and remains of comparable quality, assessed with reference to the DCMS’s principles of selection for scheduled monuments (DCMS 2013). Listed Buildings. Non-designated built assets of national importance, assessed with reference to the Secretary of State’s published Principles of Selection for Listing Buildings (DCMS 2010).

Regional/ County	<ul style="list-style-type: none"> Archaeological sites and remains which, while not of national importance, score well against most of the DCMS's principles of selection for scheduled monuments (DCMS 2013). Conservation Areas.
Local	<ul style="list-style-type: none"> Archaeological sites that score less well against the DCMS's principles of selection for scheduled monuments (DCMS 2013). Historic buildings on a 'local list'. Non-designated built assets of local significance.
None	<ul style="list-style-type: none"> Areas in which investigative techniques have produced negligible or only minimal evidence for archaeological remains, or where previous large-scale disturbance or removal of deposits can be demonstrated.

Assessing Magnitude of Impact

10.5.19 This Historic Environment chapter presents the preliminary findings of the assessment of the likely impacts of the Proposed Development. The nature and likelihood of the impacts of the Proposed Development is assessed in both the long and short term, on archaeological and heritage features against clearly defined criteria.

10.5.20 Significance will be assigned to effects relative to the heritage significance, its sensitivity to change and the magnitude of impact in accordance with best practice.

10.5.21 It is widely recognised that the heritage significance of an asset is not the same as its sensitivity to changes to its setting (Historic England 2017, p. 9; Lambrick 2008). Thus, in determining effects upon the setting of assets by a proposed development, both importance and sensitivity to changes to setting need to be considered. Factors considered when assessing sensitivity to change include, but are not limited to, heritage significance (**Table 10.2**), condition, type and period of asset and landscape positioning.

10.5.22 Archaeological and built heritage resources are susceptible to a range of direct impacts during site preparation as well as construction related activities, including:

- Site clearance / site preparation activities that disturb archaeological remains;
- Demolition or alteration of designated and non-designated built cultural heritage assets;
- Excavation that extends into archaeological sequences, for example deep foundations, basements or re-landscaping (for example attenuation ponds) resulting in the removal of the resource;
- Piling activities resulting in disturbance and fragmentation of the archaeological resource; and
- Dewatering activities resulting in desiccation of waterlogged remains and deposits.

10.5.23 Any such impacts will be discussed, and significance criteria applied. The significance of effects assessed using the significance criteria set out in **Table 10.4**.

10.5.24 In terms of indirect impacts on heritage, the impacts of the development include the impact on the setting of a Listed Building / Conservation Areas / Scheduled Ancient Monument / non-designated heritage asset.

10.5.25 The magnitude of the impact is a product of the extent of development impact on an asset. Impacts are rated as High, Medium, Low and Negligible/Neutral. Impacts can be direct or indirect, adverse or beneficial. The criteria for assessing the magnitude of impact are set out in **Table 10.3**.

Table 10.3 Magnitude of Impact

Magnitude	Direct Impacts	Indirect Impacts
High Adverse	Demolition of built heritage assets or demolition within a Conservation Area. Complete removal of an archaeological site.	Radical transformation of the setting of an archaeological monument. Substantially harmful change to the significance of a built heritage asset or Conservation Area due to a change in setting.
Medium Adverse	Harmful alteration (but not demolition) of a built heritage asset or alterations to a building in a Conservation Area. Removal of a major part of an archaeological site and loss of research potential / significance.	Less than substantial harm to the significance of a built heritage asset or Conservation Area due to a change in setting. Partial transformation of the significance of an archaeological site e.g. the introduction of significant noise or vibration levels to an archaeological monument leading to changes to amenity use, accessibility or appreciation of an archaeological site.
Low Adverse	Alterations to a built heritage asset or Conservation Area resulting in minor harm. Removal of an archaeological site where a minor part of its total area is removed but the site retains significant future research potential.	Minor harm to the significance of an archaeological monument or built heritage asset or Conservation Area due to a change in setting.
Negligible/ Neutral	Negligible impact from changes in use, amenity or access. Negligible direct impact to the built heritage asset or Conservation Area.	Negligible perceptible change to the significance of a building, archaeological site or Conservation Area due to a change in setting.

Magnitude	Direct Impacts	Indirect Impacts
Low Beneficial	Alterations to a built heritage asset or Conservation Area resulting in minor beneficial impacts. Land use change resulting in improved conditions for the protection of archaeological remains.	Minor enhancement to the setting of a built heritage asset or Conservation Area. Decrease in visual or noise intrusion on the setting of a building, archaeological site or monument.
Medium Beneficial	Alterations to a built heritage asset or Conservation Area resulting in moderate beneficial impacts. Land use change resulting in improved conditions for the protection of archaeological remains plus interpretation measures (heritage trails, etc.)	Significant reduction or removal of visual or noise intrusion on the setting of a building, archaeological site or monument. Improvement of the wider landscape setting of a built heritage asset, Conservation Area, archaeological site or monument. Improvement of the cultural heritage amenity, access or use of a built heritage asset, archaeological site or monument. Moderate enhancement to the setting of the built heritage asset and Conservation Area.
High Beneficial	Arrest of physical damage or decay to a built heritage asset or structure. Alteration to a built heritage asset or Conservation Area resulting in significant beneficial impact.	Significant enhancement to the setting of a built heritage asset. Conservation Area or archaeological site, its cultural heritage amenity and access or use.

10.5.26 It is acknowledged that **Table 10.3** above primarily deals with visual factors affecting setting. Whilst the importance of visual elements of settings, e.g. views, intervisibility, prominence etc., are clear, it is also acknowledged that there are other non-visual factors which could potentially result in setting effects. Such factors could be other sensory factors, e.g. noise or odour, or could be associative. In coming to a conclusion about magnitude of change upon setting, this assessment makes reference to traffic, noise, air quality, and landscape and visual assessments, undertaken for this PEIR, as appropriate.

Significance of Impact

10.5.27 The significance of the impact of the Proposed Development on archaeological and heritage assets is determined by the heritage significance of the asset and the magnitude of impact to the asset. **Table 10.4** below presents a matrix that demonstrates how the significance of effect is established:

Table 10.4: Evaluation of Significance of Effect

		Magnitude of Impact			
		High	Medium	Low	Negligible / Neutral
Heritage significance / Importance of asset	International Importance	Substantial/ Major	Major	Major	Negligible
	National Importance	Major	Major/ Moderate	Moderate	Negligible
	Regional/County Importance	Major/ Moderate	Moderate/ Minor	Minor	Negligible
	Local Importance	Minor	Minor	Negligible	Negligible
	Negligible Importance	Negligible	Negligible	Negligible	Negligible
'Substantial', 'Major' and 'Moderate' levels of effect are 'significant' in the context of the EIA Regulations. 'Minor' and 'Negligible' are not significant in the context of the EIA Regulations.					
The levels of effect could potentially be positive, neutral or negative.					

10.5.28 Effects of moderate or above are considered significant in terms of the Infrastructure EIA Regulations 2017 unless otherwise stated. However, professional judgement is also used in considering the significance of effects.

10.5.29 The judgement of the significance of effects takes into consideration the impact on the heritage asset's heritage significance (as defined in Appendix 2 of the NPPF). As part of this assessment, the impact on the contribution that the setting of a heritage asset makes to its significance is also considered. The nature of the contribution that the setting of an asset makes to its heritage significance varies from asset to asset (i.e. the setting of some assets have a greater contribution to the significance and vice versa). Consequently, where there are effects from a development on the setting of an asset that has only a limited contribution to the significance of that asset, the effect on the significance of the asset itself may be very limited or even potentially non-existent. Where a heritage asset has a setting that has a large contribution to the significance of that asset, effects on the significance of the asset itself will be greater.

10.5.30 Timescales used in this report are as follows:

Prehistoric

- Palaeolithic: 450,000 – 12,000 BC
- Mesolithic: 12,000 – 4,000 BC
- Neolithic: 4,000 – 1,800 BC
- Bronze Age: 1,800 – 600 BC

- Iron Age: 600 BC – AD 43

Historic

- Roman – AD 43 - 410
- Saxon / Early Medieval – AD 410 - 1066
- Medieval – 1066 - 1485
- Post-Medieval – 1486 - 1799
- Modern – 1800 – Present

10.5.31 The means by which impacts can be avoided through design will be explored as a priority. If impacts cannot be avoided through design, then alternative strategies, which may include site investigation and recording, will be proposed. Possible mitigation measures will be elaborated within the ES. The residual effects following the implementation of these measures will then be defined and significance criteria applied.

10.5.32 The following timescales are to be referenced within the assessment:

- Less than 1 year: Short term
- 1 – 5 years: Medium term
- 5+ years: Long term

Limitations

10.5.33 This assessment is based upon data obtained from publicly accessible archives as described in paragraph 10.5.8. Data was received from Greater London and Kent HER and downloaded from the HistE website in January 2018. The assessment does not contain records added after this date.

10.5.34 The setting assessment was conducted in March 2018 – the strategy for assessing heritage assets on private property involved establishing a view point from the closest public footpath or road.

10.6 Baseline Conditions and Receptors

10.6.1 The locations of archaeological assets and archaeological priority areas considered in the assessment are presented in **Figure 10.1, Appendix F.1**. The locations of designated and built heritage assets within the study areas are presented in **Figure 10.2, Appendix F.1**. The baseline of the Electrical Connection is provided in **Appendix F.2**.

Non-designated assets

10.6.2 The REP site and Main Temporary Construction Compounds are located within an area of historic marshland on the southern bank of the River Thames. The Erith Marshes formed part of the alluvial floodplain of the River Thames which would have influenced archaeological and historic settlement patterns. Mesolithic, Neolithic and Bronze Age occupation has been found associated with localised high areas of gravels, with environmental data sealed in wetland deposits. The REP site and Main Temporary Construction Compounds form part of the Archaeological Priority Area for Thameside (GLHER DLO36895), designated due to the rich prehistoric occupation evidence.

- 10.6.3 Documentary sources indicate that from the end of the 12th century Lesnes Abbey was responsible for draining areas of the marshland through the construction and maintenance of stretches of river wall. This led to the creation of agricultural lands, although it is unlikely to have been 'stable' enough for permanent habitation and as such significant archaeological evidence from this period is not considered likely. Subsequent phases of repairs and reclamation work are recorded by Elizabeth I in 1561 and William Burrel in 1606, however the area remained largely absent of large scale development until the 1950's. The exception to this is a number of industrial sites which are recorded on 19th century mapping: Manure Works, Thames Fish, Guano & Oil Works and the 20th century Borax Works.
- 10.6.4 The site is underlain by geoarchaeological deposits which are considered non-designated heritage assets. This is based on the results of a draft deposit model using historic boreholes (**Appendix F.3**). An updated deposit model will be produced following integration of newly excavated boreholes, available for the subsequent ES.
- 10.6.5 The results of the deposit modelling to date indicate that the sediments recorded at the REP site are similar to those recorded elsewhere in the Lower Thames Valley, with Late Devensian Shepperton Gravel overlain by a tripartite sequence of Holocene Lower Alluvium, Peat and Upper Alluvium, buried beneath modern Made Ground. On the basis of the likely depth of the sediments and findings from nearby sites, the archaeological potential of the site is considered low, although this cannot be confirmed until a complete deposit model is produced. However, even in the absence of archaeological remains, the sediments have the potential to contain further information on the past landscape, through the assessment/analysis of palaeoenvironmental remains (e.g. pollen, plant macrofossils and insects) and radiocarbon dating. The underlying geoarchaeological sequence is considered of local significance; geoarchaeological deposits of significance to warrant preservation in situ are not expected.
- 10.6.6 The potential for previously unrecorded archaeological remains within the REP site and Main Temporary Construction Compounds is considered as follows:
- Historical sources indicate the location of the river embankment of possible medieval or post-medieval date parallel to the River Thames foreshore. No evidence of buried medieval embankments were recorded during the 2008 evaluation to support the planning application / consent of RRRF (PCA 2008), or other archaeological investigations in the area. In light of this and groundworks associated with the modern development of the site, there is considered low potential for such features to survive within the REP site.
 - Low Potential for previously unrecorded *significant* activity (e.g. *in-situ* settlement, occupation, industrial etc.) dating to the Roman, early medieval, medieval or post medieval periods within the REP development and Main Temporary Construction Compounds. These areas lie within the Erith Marshes which was not reclaimed until the mid-20th century. There is no evidence that significant occupation was possible prior to this; should evidence survive it is considered likely to be fragmentary and of local significance. There is potential for foundations and footings to survive that are associated with 19th / 20th century industrial development of the REP site. Such features were identified in the 2008 evaluation, however, were highly contaminated and not investigated further.
 - The majority of the Electrical Connection is located along the line of existing road surfaces. Taking into consideration the utilisation of existing road routes and existing infrastructure at the existing sites at Norman Road and Littlebrook the following localised areas of potential are identified: medieval masonry is known to have been left in situ near the West School Site (RPS 1997) and the medieval settlement at Littlebrook, Pond Farm.

Designated and Built Heritage Assets

- 10.6.7 A review of the National Heritage List for England confirmed that there are no designated heritage assets within the REP site and the Main Temporary Construction Compounds. As such no designated assets will be directly impacted by development in those areas. No listed

buildings or scheduled monuments are located within the proposed route of the Electrical Connection options, however a number of Conservation Areas are located along its route.

- 10.6.8 In light of the Electrical Connection route being below ground and utilising an existing sub-station building at Littlebrook, there are no anticipated effects to the setting of designated and non-designated built heritage assets.
- 10.6.9 In terms of identifying designated assets that might be sensitive to indirect impact through changes to their setting, **Section 10.5** outlines the parameters used in this assessment. **Table 10.5** lists the designated and built heritage assets within the wider study area. All designated heritage assets are considered to be of high heritage significance, although their settings may not necessarily be as sensitive to change (i.e. direct physical change) as the assets themselves.
- 10.6.10 Of the designated and built heritage assets in the wider study area there is one scheduled monument (Lesnes Abbey (NHLE 1002025) located c.1.5 km west of the Indicative Application Boundary); one Conservation Area (Crossness Conservation Area is located c.650 m west of the Application Site); two grade I listed buildings (Crossness Pumping Station (NHLE 1064216) c.800 m to the west and Church of St Helen and St Giles (NHLE 1358505), c. 2.5 km north-east of the Application Site; five grade II* listed buildings (Parish Church of St John the Baptist (NHLE 1188560), c. 1.7 km south-west of the site; Rainham Hall (NHLE 1358506), c. 2.5 km north-east of the site; Forecourt Railings, gates and piers walls and vases at Rainham Hall (NHLE 1079922), c. 2.5 km north-east of the site; Lodge at Rainham Hall (NHLE 1079923), c. 2.5 km north-east of the site; and Rainham Hall (NHLE 1183554), c. 2.5 km north-east of the site); and four locally listed 20th century concrete Police Boxes (GLHER MLO103263), c. 400 – 750 m west of the study. These are mapped on **Figure 10.2, Appendix F.1** and listed in **Table 10.5**.

Table 10.5: Designated and built heritage assets within study area

ID	Name	Grade	Distance from closest point of Indicative Application Boundary	Reason scoped out
N/A	Crossness Conservation Area	Conservation Area	c.650 m	Not scoped out
NHLE 1064241	Crossness Pumping Station	Grade I listed	c.800 m	Not scoped out
NHLE 1064216	Workshops at Crossness Pumping Station	Grade II listed	c. 900 m	Not scoped out
NHLE, 1250557	Workshop at Crossness Pumping Station	Grade II listed	c. 1 km	Not scoped out
NHLE 1002025	Lesnes Abbey	Scheduled	c. 1.5 km	Not scoped out
GLHER MLO103261	Engine house at Crossness Sewage Treatment Work	Locally listed	c. 800 m	Not scoped out
NHLE 1391706	Jetty at Dagenham Docks	Grade II listed	c. 600 m	Not scoped out

ID	Name	Grade	Distance from closest point of Indicative Application Boundary	Reason scoped out
GLHER MLO103263	Four locally listed 20 th century concrete Police Boxes	Locally listed	c. 400 – 750 m	Scale and context
NHLE 1358505	Church of St Helen and St Giles	Grade I listed	c. 2.5 km	Not visible on ZTV
NHLE 1188560	Parish Church of St John the Baptist	Grade II* listed	c. 1.7 km	Not visible on ZTV
NHLE 1183554	Rainham Hall	Grade II* listed	c. 2.5 km	Not visible on ZTV
NHLE 1079923	Lodge at Rainham Hall	Grade II* listed	c. 2.5 km	Not visible on ZTV
NHLE 1079922	Forecourt Railings, gates and piers walls and vases at Rainham Hall	Grade II* listed	c. 2.5 km	Not visible on ZTV
NHLE 1358506	Rainham Hall	Grade II* listed	c. 2.5 km	Not visible on ZTV

Designated / Listed Building Assets that do not require detailed assessment

10.6.11 The following heritage assets are outside the ZTV, as such the Proposed Development will have no effect upon them, and therefore effects on the following assets are not assessed in this Chapter: the grade I Church of St Helen and St Giles (NHLE 1358505), the grade II* listed buildings Parish Church of St John the Baptist (NHLE 1188560), grade II* Rainham Hall (NHLE 1358506), grade II* listed Forecourt Railings, gates and piers walls and vases at Rainham Hall (NHLE 1079922), grade II* listed Lodge at Rainham Hall (NHLE 1079923), and grade II* listed Rainham Hall (NHLE 1183554).

10.6.12 In line with the methodology statement (paragraph 10.5.21) it is widely recognised that the heritage significance of an asset is not the same as its sensitivity to changes to its setting (Historic England 2017, 9; Lambrick 2008). Based on the type and function of the four locally listed 20th century concrete Police Boxes (GLHER MLO103263), c. 400 – 750 m west of the REP site, it is clear that no harm to their significance would result from the Proposed Development. No further assessment is recommended.

10.6.13 The following provides a summary of the assessment of the significance and setting of the identified assets. Further discussion is presented in the desk-based assessment (**Appendix F.2**).

- The Crossness Conservation Area is located c.650 m west of the nearest REP site boundary - the REP site makes a **minor** contribution to the setting or significance of the Conservation Area: it forms part of the wider skyline of the area when viewing the Conservation Area from the west;
- Grade I listed Crossness Pumping Station (NHLE 1064216) c.800 m to the west of the study site - the REP site makes a **minor** contribution to the setting or significance of these

assets: it forms part of the wider skyline of the area when viewing the building complex from the west;

- Two grade II listed workshops at Crossness Pumping Station (NHLE 1064216, 1250557), c. 900 m – 1 km to the west of the study site - the REP site makes a **minor** contribution to the setting or significance of these assets: it forms part of the wider skyline of the area when viewing the building complex from the west;
- A locally listed engine house at Crossness Sewage Treatment Work (GLHER MLO103261), c. 800m west of the REP site - the REP site makes a negligible contribution to the setting or significance of these assets: it forms part of the wider skyline of the area when viewing the building complex from the west;
- The grade II listed jetty at Dagenham Docks (NHLE 1391706) 600 m to the north-west of the study site, on the northern bank of the Thames - the REP site makes a **minor** contribution to the setting or significance of these assets: it forms part of the wider skyline of the jetty when located on the view or viewing the jetty from Dagenham; and
- The scheduled and grade II listed Lesnes Abbey (NHLE 1002025, 1359415), c. 1.5 km south-west of the REP site. The monument includes the 12th century Augustinian Abbey of St Thomas the Martyr, now known as Lesnes Abbey, surviving as upstanding stone remains and archaeological remains. It is situated on low-lying ground at the northern edge of Lesnes Abbey Woods. The principal setting of the monument comprises the associated open and wooded spaces at Lesnes Abbey Wood which is defined topographically and by the sub-urban development around its edges. RRRF is visible in the distant skyline, which is similarly punctuated by high rise development, industrial structures and urban development. As such the REP site makes a **minor** contribution to the setting or significance of these scheduled and listed remains.

Baseline Evolution

10.6.14 In general terms, changes in the baseline may result from the scheduling or listing of heritage assets within the study area or the discovery of new sites within or adjacent to the Application Site. The assessment has not identified any sites which are likely to be designated within the study area. Geo-archaeological intrusive works may occur prior to the construction of REP. These works are very unlikely to alter the heritage baseline.

10.6.15 In a 'no development' scenario the baseline conditions will remain as they are.

10.7 Embedded Mitigation

10.7.1 No design responses or embedded mitigation are required. A method statement for the assessment and possible mitigation of the geoarchaeological resource is included in **Appendix F.4**.

10.8 Assessment of Likely Effects

The REP Site and the Main Temporary Construction Compounds

Construction and Decommissioning

10.8.1 REP is underlain by geoarchaeological deposits which are considered a non-designated heritage asset of Local significance: the sediments have the potential to contain further information on the past landscape, through the assessment/analysis of palaeoenvironmental remains (e.g. pollen, plant macrofossils and insects) and radiocarbon dating. This is based on the results of a draft deposit model using historic boreholes (**Appendix F.3**). An updated deposit model will be produced following integration of newly excavated boreholes, available for the subsequent ES.

- 10.8.2 The geoarchaeological deposits survive at depth and comprise a tripartite sequence of Holocene Lower Alluvium, Peat and Upper Alluvium, buried beneath modern Made Ground. The proposed groundworks associated with REP will result in the partial removal of these geoarchaeological deposits. The ES will have a more detailed appraisal of the level of physical impacts of piling and ground reduction in relation to the Holocene sequence and its significance (not available at the time of writing). However, based on current knowledge and the partial removal of these deposits this is considered a Low Adverse Magnitude of Impact based on the criteria set out in **Table 10.3**. The significance of this effect is considered permanent **Negligible** in line with the criteria set out in **Table 10.4** and not significant in EIA terms.
- 10.8.3 The impacts of the construction / decommissioning of REP on built heritage assets will be of a comparable nature to those occurring at the operational stage, albeit of a much shorter duration. That is, there will be the temporary presence of tall structures such as cranes both during construction and during decommissioning. Therefore, the predicted effects of construction activities are broadly similar to those assessed in operational impacts (see below) and have not been repeated here.
- 10.8.4 It is assumed for the purposes of this assessment that the REP generating equipment would be removed once the plant had ceased operations permanently. Any decommissioning phase is assumed to be of a similar or shorter duration to construction, and therefore environmental effects are considered to be of a similar level to those during the construction phase.

Operation

- 10.8.5 There will be no operational and maintenance impacts on buried archaeological assets.
- 10.8.6 The operation of REP would potentially have indirect impacts on the setting of designated assets of national importance within the wider study area. That is, the stack may be experienced visually within the settings of designated assets and consequently may have an effect on the contribution that the settings have to the heritage significance of those assets. The assets are listed in paragraph 10.6.13.
- 10.8.7 REP would form part of the wider setting of these designated and built heritage assets. However, REP is considered to make a negligible to minor contribution to the significance of these monuments. The construction of REP, and the up to 113 m AOD stack, would result in a change in skyline behind the conservation area, scheduled monument and listed / locally listed assets. However, these assets are located in a highly industrialised landscape which includes other stacks in the immediate vicinity and wind turbines to the north of the River Thames. Also, Crossness Power Station itself had, until the 1950's, a chimney stack of 63 m (207 ft). Taking these factors into consideration the insertion of an additional chimney stack is considered to form a slight change in the wider skyline of these assets. In terms of the loss of significance of these assets, the magnitude of impact is considered negligible to low adverse. The indirect effect is considered **Negligible to Minor** on these designated and built heritage assets and not considered to be significant in EIA terms. The timescale for this effect is long term, the life span of the Proposed Development. The reason for this is that in each case the core of the heritage significance of the assets is unaffected.
- 10.8.8 The ES will cross reference photomontages provided to support the Townscape and Visual Impact Assessment and the conclusions of the Air Quality and Noise chapters in relation to effects to designated and built heritage assets in relation to noise. Given the densely packed semi-industrial urban landscape, significant adverse effects on settings with regards to noise are not expected.

The Electrical Connection and the Cable Route Temporary Construction Compounds

Construction and Decommissioning

- 10.8.9 At the time of writing there are four Electrical Connection route options to connect REP and the Littlebrook substation near Dartford, Kent, the baseline conditions for each are outlined in the desk-based assessment (**Appendix F.2**).
- 10.8.10 As outlined in **Chapter 3**, the cable trench is ordinarily expected to be c. 450 mm wide and c. 900 mm deep on footways and carriageways. The Electrical Connection route includes two substations, one at the REP site and the other at Littlebrook, connected by a trefoil of cables (3 cables laid together). The REP Electrical Interface Point is currently assumed to occur within the onsite substation on the high voltage side. The Electrical Connection Point at Littlebrook is proposed at the Littlebrook substation to the north-east of Rennie Drive.
- 10.8.11 The four Electrical Connection route options have been assessed. Excavation of the anticipated cable trench, c. 450 mm wide and c. 900 mm deep, is likely to principally disturb modern made ground associated with the existing road routes. The potential for fragmentary pre-modern deposits and residual material culture cannot be ruled out entirely, however buried remains of significance that would preclude development are not expected. There is a section of Electrical Connection route 2B (between where it leaves Electrical Connection route 1 to chainage 0.5 km – see **Figure 5.2, Appendix A.1**) which is located on a gravel path rather than public highways; horizontal truncation for this stretch is likely to be more superficial.
- 10.8.12 Subject to the final design, the excavation of the cable trench may result in the fragmentary removal of pre-modern deposits and residual material culture of local heritage significance. This is considered a negligible magnitude of impact and **Negligible** effect; not significant in EIA terms. Localised areas of watching brief may be warranted depending on the final design and localised need to excavate or directional drill deeper than 900 mm at discrete constraints.
- 10.8.13 The impacts of the construction of the Electrical Connection on built heritage assets will result in the temporary presence of construction teams and associated noise along the line of the route. The predicted effects of construction activities are considered temporary and **Negligible** and not significant in EIA terms. No effects to designated and built heritage assets in relation to odour and noise are anticipated.
- 10.8.14 At the end of its operational life, it is currently anticipated that the Electrical Connection ducting will be left in situ (although the cables may be removed), such that there would be limited decommissioning works and therefore no effects upon historic receptors.

Operation

- 10.8.15 There would be no operational and maintenance impacts on buried archaeological assets.
- 10.8.16 No statutory designations (Listed Buildings, Conservation Areas, Scheduled Ancient Monuments or World Heritage Sites) are located within the study site boundary. No locally listed or non-designated built heritage assets are recorded within the study site boundary.
- 10.8.17 In light of the Electrical Connection route being below ground and utilising an existing substation at Littlebrook, there are no anticipated effects to the setting of designated and non-designated built heritage assets, through effects to their settings. The operation of the Electrical Connection is therefore not anticipated to give rise to significant adverse effects to the environment.

Summary of Assessment

Construction and Decommissioning

10.8.18 The overall effect of the Proposed Development during construction and decommissioning on the historic environment is considered **Negligible** in line with the criteria set out in **Table 10.4** and not significant in EIA terms. This is based on the partial removal of geoarchaeological deposits associated with the construction of REP. Depending on the final Electrical Connection design there is potential for the removal of non-designated heritage assets of local significance within the Electrical Connection route. The timescale of these effects would be permanent.

Operation

10.8.19 The overall indirect effect during operation on the historic environment is considered **Negligible** to **Minor** and not considered to be significant in EIA terms. This is based on the slight change to the wider setting of a number of outlying designated and built heritage assets: in each case the core of the heritage significance of the assets is unaffected. The timescale of this effect is long term.

10.9 Cumulative Assessment

Construction/Decommissioning

10.9.1 Construction and decommissioning of REP could occur simultaneously with other projects located in the vicinity of the Application Site. The 'other developments' with the most potential for simultaneous construction effects are identified in **Chapter 4**. Construction phase mitigation measures will be employed during the construction of REP, as such significant adverse cumulative construction effects are not anticipated to be likely. However, this assessment is subject to further detailed assessment work, the results of which will be provided within the ES.

10.9.2 It is assumed for the purposes of this assessment that the REP generating equipment would be removed once the plant had ceased operations permanently. Any decommissioning phase is assumed to be of a similar or shorter duration to construction, and therefore environmental effects are considered to be of a similar level to those during the construction phase.

Operation

10.9.3 The operation of REP could occur simultaneously with other projects located in the vicinity of the Application Site. The 'other developments' with the most potential for simultaneous operational effects are identified in **Chapter 4**. Significant adverse cumulative operational effects are not anticipated to be likely. However, this assessment is subject to further detailed assessment work, the results of which will be provided within the ES.

10.10 Further Mitigation and Enhancement

10.10.1 In accordance with national, regional and local planning policies, any potential direct and indirect effects upon heritage assets have been considered from the outset of the Proposed Development.

Construction and Decommissioning

10.10.2 The site is underlain by geoarchaeological deposits which are considered non-designated heritage assets of local significance. The proposed groundworks associated with the construction of REP and the preparation of Main Temporary Construction Compounds would result in the partial removal of these deposits, constituting a low magnitude of impact.

10.10.3 At the time of writing the geoarchaeological desk-based work has not been finalised; the final deposit model will form part of the ES. The following provides an indication of reasonable worst case mitigation, should it be required subject to the results of the deposit model and following consultation with HistE: the collection of up to two geoarchaeological specific boreholes, followed by assessment, analysis and publication, secured through the production of a written scheme of investigation (WSI) once the DCO has been made.

10.10.4 The excavation of the cable trench may result in the fragmentary removal of pre-modern deposits and residual material culture of local heritage significance. A localised watching brief during construction may be required subject to the final design.

Operation

10.10.5 Due to the lack of impacts and effects on designated and built heritage assets, no mitigation measures are proposed.

10.11 Residual Effects and Monitoring

10.11.1 The following table sets out a summary of the significant effects arising from the Proposed Development during construction, decommissioning and operation. The assessment of the significant effects has used the significance criteria matrices set out in **Tables 10.2-10.4**. The table considers the overall significance of the REP DCO and takes into account possible mitigation and enhancement measures outlined in paragraph 10.10.3, in comparison to a no development scenario.

10.12 Summary of Residual Effects

	Receptor name and description	Potential mitigation	Assessment of Residual Effects
The REP DCO			
Construction	Non-designated heritage assets – geoarchaeological deposits of local significance within the permanent works in the area adjacent / around REP site	At the time of writing the geoarchaeological desk-based work has not been finalised. The following provides an indication of reasonable worst case mitigation, should it be required subject to the results of the deposit model and following consultation with HistE: the collection of up to two geoarchaeological specific boreholes, followed by assessment, analysis and publication, secured through the production of a written scheme of investigation (WSI) once the DCO has been made.	Negligible – not significant

	Receptor name and description	Potential mitigation	Assessment of Residual Effects
Construction	Non-designated heritage assets – depending on the final Electrical Connection design there is potential for the removal of non-designated heritage assets of local significance within the Electrical Connection.	Localised watching brief may be required.	Negligible – not significant
Operation	Designated and built heritage assets – effect on setting of identified receptors (see Table 10.5)	None	Negligible – Minor - not significant
Decommissioning	None	None	None

10.13 Preliminary Conclusion and Further Assessment

10.13.1 The potential construction, operational, maintenance and decommissioning impacts of the Proposed Development on archaeology and cultural heritage have been assessed.

10.13.2 This PEIR has been informed by a Heritage DBA (**Appendix F.2**) and a geo-archaeological deposit model using historic borehole data (**Appendix F.3**). During the production of the PEIR intrusive geotechnical works have been undertaken within the REP site. Strategic attendance by a geo-archaeologist was completed during these works and the data will be incorporated into an updated deposit model, the results of which will inform the ES. An overarching method statement for the geoarchaeological works has been completed (**Appendix F.4**).

10.13.3 The construction of REP has the potential to impact on non-designated geo-archaeological heritage assets. These remains are considered to be of local significance. The assessment of the geo-archaeological resource is on-going (to be completed as part of the ES). Based on current knowledge, groundworks at the REP site would result in the partial removal of geoarchaeological deposits which is considered a Low Adverse Magnitude of Impact (based on the criteria set out in **Table 10.3**). The significance of this effect is considered permanent **Negligible** in line with the criteria set out in **Table 10.4** and not significant in EIA terms. The

following provides an indication of reasonable worst case mitigation, should it be required subject to the results of the deposit model and following consultation with HistE: the collection of up to two geoarchaeological specific boreholes, followed by assessment, analysis and publication, secured through the production of a written scheme of investigation (WSI) once the DCO has been made.

- 10.13.4 The construction of the Electrical Connection has, subject to the final design, the potential to impact on potential non-designated heritage assets of local significance. Based on current knowledge the partial removal of potential fragmentary deposits is considered a negligible Adverse Magnitude of Impact based on the criteria set out in **Table 10.3**. The significance of this effect is considered permanent **Negligible** in line with the criteria set out in **Table 10.4** and not significant in EIA terms.
- 10.13.5 The assessment has shown that the construction and operational stages of the Proposed Development will result in no more than a minor adverse impact on the significance of designated and built heritage assets within the study areas. Mitigation measures to reduce this impact, such as landscaping and tree planting are not feasible as a way of reducing the impact of REP's stack. Taking into consideration the presence of a significant number of tall industrial structures in proximity to the REP site, the potential effects will be experienced within a context where industrial structures are already present in the same area. The decommissioning of the REP site will remove any slight adverse effects that will have been introduced during its operation.
- 10.13.6 Construction phase mitigation measures will be employed during the construction of REP; as such significant adverse cumulative construction effects are not anticipated to be likely. However, this assessment is subject to further detailed assessment work, the results of which will be provided within the ES.

10.14 References

Department of Communities and Local Government (DCMS). 2010. Principles of Selection for Listing Buildings General principles applied by the Secretary of State when deciding whether a building is of special architectural or historic interest and should be added to the list of buildings compiled under the Planning (Listed Buildings and Conservation Areas) Act 1990.

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Lambrick G 2008 Setting Standards: A Review prepared on behalf of the IFA.

Orion Heritage 2018 Riverside Energy Park, London Borough of Bexley and associated Electrical Connection Route, Dartford, Kent: Heritage Desk Based Assessment

QUEST 2018 Riverside Energy Park London Borough of Bexley: Desk-Based Deposit Modelling Report (draft)

QUEST 2018 Riverside Energy Park London Borough of Bexley: Written Scheme of Investigation

Appendix F.1 Figures (Figure 10.1 Location of Archaeological Assets and Archaeological Priority Areas; Figure 10.2 Location of designated and built heritage assets in settings assessment)

Appendix F.2 Orion Heritage 2018 Riverside Energy Park, London Borough of Bexley and associated Electrical Connection Route, Dartford, Kent: Heritage Desk Based Assessment

Appendix F.3 QUEST 2018 Riverside Energy Park London Borough of Bexley: Desk-Based Deposit Modelling Report (draft)

Appendix F.4 QUEST 2018 Riverside Energy Park London Borough of Bexley: Written Scheme of Investigation