



Thurrock Flexible Generation Plant

**Environmental Statement Volume 5
Chapter 33: Summary of Further Mitigation, Residual Effects and Monitoring**

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Environmental Impact Assessment

Environmental Statement

Volume 5

Chapter 33

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Thurrock Power Ltd

1st Floor

145 Kensington Church Street

London W8 7LP

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Prepared by: David Gabb and Senuri Mahamithawa

Checked by: Tom Dearing and Clare Russell

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Summary

This document summarises the environmental effects, proposed mitigation and monitoring, and residual effects predicted in the EIA process undertaken for Thurrock Flexible Generation Plant. Full details can be found in the individual topic chapters (Volume 3, Chapters 6 to 17) of this Environmental Statement.

Qualifications

This document has been prepared by Senuri Mahamithawa, BSc in Biological Sciences and MSc in Environmental Technology, who has two years' experience.

This document has been checked by Tom Dearing, a Chartered Environmentalist and full Member of the Institute of Environmental Management and Assessment, who has nine years' experience of environmental impact assessment.

1. Introduction

1.1 Purpose of this chapter

- 1.1.1 This chapter of the Environmental Statement (ES) presents the summary of environmental effects, proposed mitigation and monitoring, and residual effects following the findings of Environmental Impact Assessment (EIA) work undertaken concerning potential impacts and significant effects of Thurrock Flexible Generation Plant.
- 1.1.2 Full details of the environmental assessment can be found in the individual topic chapters (Volume 3, Chapters 6 to 17) of this ES. A further summary of mitigation measures, detailing how each will be secured, is provided in Volume 6, Appendix 2.1.

Table 1.1: Summary of Further Mitigation, Residual Effects and Monitoring

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Chapter 6: Landscape and Visual Resources							
Construction							
Direct and indirect impacts on landscape resources and receptors	None at the construction phase	Minor to moderate	Medium	Minor to moderate adverse (not significant in EIA terms)	None	Minor to moderate adverse (not significant in EIA terms)	None
Direct impact on visual resources and receptors	None at the construction phase	No change to major	Low to high	Negligible to major adverse (not significant to significant in EIA terms)	None	None to major adverse (not significant to significant in EIA terms)	None
Operation and maintenance							
Direct and indirect impacts on landscape resources and receptors	Built in landscape mitigation measures will form part of the proposed development (see Table 2.8 in Volume 3 Chapter 6)	Negligible to moderate	Low to medium	Negligible to moderate adverse (not significant in EIA terms)	None	Negligible to moderate adverse (not significant in EIA terms)	Five-year defects liability period
Direct impact on visual resources and receptors	Built in landscape mitigation measures will form part of the proposed development (see Table 2.8 in Volume 3 Chapter 6)	No change to major	Low to high	Negligible to major adverse (not significant to significant in EIA terms)	None	Negligible to major adverse (not significant to significant in EIA terms)	Five-year defects liability period
Decommissioning							
Direct and indirect impacts on landscape resources and receptors	None at the decommissioning phase	Negligible to moderate	Medium	Negligible to moderate adverse (not significant in EIA terms)	None	Negligible to moderate adverse (not significant in EIA terms)	None
Direct impact on visual resources and receptors	None at the decommissioning phase	Negligible to moderate	Low to high	Negligible to moderate to major (not significant to significant in EIA terms)	None	Negligible to moderate to major adverse (not significant to significant in EIA terms)	None
Chapter 7: Historic Environment							
Construction							
Construction of Thurrock Flexible Generation Plant (including any stripping required for storage, compounds and accesses) could result in permanent loss of or damage to, heritage assets comprising buried archaeological remains	As set out in the Outline Written Scheme of Investigation	Major (where present)	Medium to high	Moderate to major adverse (significant in EIA terms)	As set out in the Outline Written Scheme of Investigation Possibility of refined design solutions (e.g. micro-siting or 'no dig' solutions for some aspects of the scheme)	Minor adverse (not significant in EIA terms)	Monitoring during construction as set out in the Outline Written Scheme of Investigation

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Temporary change within the setting of West Tilbury Earthworks Scheduled Monument	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Tilbury Fort Scheduled Monument	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Gravesend Blockhouse Scheduled Monument	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of New Tavern Fort Scheduled Monument	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Coalhouse Fort Scheduled Monument	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Bowaters Farm Battery Scheduled Monument	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Cliffe Fort Scheduled Monument	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of West Tilbury Conservation Area and designated assets therein	n/a	Minor	High	Moderate adverse (significant in EIA terms)	None	Moderate adverse (significant in EIA terms)	None
Temporary change within the setting of East Tilbury Conservation Area	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Grade II* Riverside Station as a result of noise and/or visual impact	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Grade I St Mary's Church, and Grade II Chadwell House and Sleepers Farmhouse	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Grade II Buckland	n/a	Minor	Medium	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Construction works at Thurrock Flexible Generation Plant could result in change within the overall historic landscape	n/a	Minor	Medium	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Operation and maintenance							
Loss of or damage to, heritage assets comprising buried archaeological remains	n/a	No change	Medium	No change	None	No change	None
Long-term change within the settings of scheduled earthworks at West Tilbury	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Long-term change within the setting of Tilbury Fort Scheduled Monument	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Moderate adverse (significant in EIA terms)	None
Long-term change within the setting of Gravesend Blockhouse Scheduled Monument	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Long-term change within the setting of New Tavern Fort Scheduled Monument	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Long-term change within the setting of Coalhouse Fort Scheduled Monument	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Long-term change within the setting of Bowaters Farm Battery Scheduled Monument	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Long-term change within the setting of Cliffe Fort Scheduled Monument	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Long-term change within the setting of West Tilbury Conservation Area and designated assets therein	n/a	Minor	High	Moderate adverse (significant in EIA terms)	None	Moderate adverse (significant in EIA terms)	None
Long-term change within the setting of East Tilbury Conservation Area	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Long-term change within the setting of Grade II* Riverside Station as a result of noise and/or visual impact	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Long-term change within the setting of Grade I St Mary's Church, and Grade II Chadwell House and Sleepers Farmhouse	n/a	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Long-term change within the setting of Grade II Buckland	n/a	Minor	Medium	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
The operation and maintenance of Thurrock Flexible Generation Plant could result in long-term change within the overall historic landscape	Landscape planting including the gapping up of hedgerows	Minor	Medium	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Decommissioning							
Temporary change within the setting of West Tilbury Earthworks Scheduled Monument	To be defined in decommissioning plan	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Tilbury Fort Scheduled Monument	To be defined in decommissioning plan	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Gravesend Blockhouse Scheduled Monument	To be defined in decommissioning plan	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Temporary change within the setting of New Tavern Fort Scheduled Monument	To be defined in decommissioning plan	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Coalhouse Fort Scheduled Monument	To be defined in decommissioning plan	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Bowaters Farm Battery Scheduled Monument	To be defined in decommissioning plan	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Cliffe Fort Scheduled Monument	To be defined in decommissioning plan	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of West Tilbury Conservation Area and designated assets therein	To be defined in decommissioning plan	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of East Tilbury Conservation Area	To be defined in decommissioning plan	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Grade II* Riverside Station as a result of noise and/or visual impact	To be defined in decommissioning plan	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Grade I St Mary's Church, and Grade II Chadwell House and Sleepers Farmhouse	To be defined in decommissioning plan	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary change within the setting of Grade II Buckland	To be defined in decommissioning plan	Negligible	Medium	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Decommissioning works at Thurrock Flexible Generation Plant could result in temporary change within the overall historic landscape	To be defined in decommissioning plan	Negligible	Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Chapter 8: Land Use, Agriculture and Socio-economics							
Construction							
Agriculture							
Impact on ALC including permanent loss of agricultural land	None	Major	Medium to high	Moderate adverse (not significant in EIA terms)	None	Moderate adverse (not significant in EIA terms)	None
Impact on farm holdings	None	Negligible	Medium	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Other land uses							
Permanent loss of Access Land (registered common land)	Provision of replacement land and new permissive route for pedestrians	Minor	Medium	Minor beneficial (not significant in EIA terms)	None	Minor beneficial (not significant in EIA terms)	None
Temporary disruption to Access Land (registered common land)							

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Temporary disruption to public rights of way	Provision of temporary diversions/traffic management measures	Minor	Thames Estuary Path (Medium) FP200 (low)	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary disruption to national cycle network route 13 (NCR13)	Provision of traffic management measures	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Socio-economics							
Direct creation of jobs	None	Minor	Low to medium	Minor to moderate beneficial (not significant in EIA terms)	None	Minor to moderate beneficial (not significant in EIA terms)	None
Indirect creation of jobs	None	Minor	Low to medium	Minor to moderate beneficial (not significant in EIA terms)	None	Minor to moderate beneficial (not significant in EIA terms)	None
Operation and maintenance							
Agriculture							
Impact on ALC	None	Moderate	Medium	Moderate adverse (not significant in EIA terms)	None	Moderate adverse (not significant in EIA terms)	None
Impact on farm holdings	None	Negligible	Medium	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Decommissioning							
Socio-economics							
Creation of jobs	None	Minor	Medium	Minor to moderate beneficial (not significant in EIA terms)	None	Minor to moderate beneficial (not significant in EIA terms)	None
Chapter 9: Ecology							
Construction							
Permanent loss of grassland	Minimising grassland loss where practicable	Major	Medium	Moderate adverse (significant in EIA terms)	Grassland creation in Zones E and F to provide greater area than permanently lost	Moderate beneficial (significant in EIA terms)	Vegetation monitoring to assess success of habitat creation
Permanent loss of ditches	Retention of ditches where practicable e.g. Zone A boundaries	Major	Low	Minor adverse (not significant in EIA terms)	Ditch creation in Zone F to provide net gain of ditches	Minor beneficial (not significant in EIA terms)	Vegetation monitoring to assess success of habitat creation
Permanent loss of invertebrate habitat	Minimising grassland loss where practicable	Minor	Medium	Minor adverse (not significant in EIA terms)	Invertebrate habitat creation in Zone F to provide greater area than permanently lost	Minor beneficial (not significant in EIA terms)	Habitat condition monitoring to assess success of habitat creation

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Permanent loss of GCN habitat	If practicable, works could be timed to avoid the active GCN season, but if not a GCN licence may need to be applied for to include temporary fencing to exclude GCN from the works area within the vicinity of GCN ponds.	Minor	Medium	Minor adverse (not significant in EIA terms)	Fencing to exclude GCN from temporary works areas	No change	Monitoring of GCN ponds if required by licence application
Permanent loss of reptile habitat	Minimising habitat loss where practicable	Major	Medium	Moderate adverse (significant in EIA terms)	Reptile habitat creation in Zone F to provide greater area than permanently lost, translocation from works area	Minor beneficial (not significant in EIA terms)	Reptile population monitoring
Permanent loss of breeding bird habitat	Minimising habitat loss where practicable	Minor	Low	Minor adverse (not significant in EIA terms)	Habitat creation in Zone F to provide greater area than permanently lost, particularly for Cetti's warbler	Minor beneficial (not significant in EIA terms)	Bird population monitoring
Permanent loss of intertidal wintering bird habitat	Minimising habitat loss where practicable	Negligible	Medium	Negligible adverse (not significant in EIA terms)		Negligible adverse (not significant in EIA terms)	
Permanent loss of water vole habitat	Minimising habitat loss where practicable	Major	Medium	Moderate adverse (significant in EIA terms)	Water vole habitat creation in Zone F to provide net gain ditch habitat, enhancement of retained ditches and translocation from works area (if required)	Minor beneficial (not significant in EIA terms)	Water vole population monitoring
Permanent loss of bat foraging habitat	Minimising habitat loss where practicable	Minor	Low	Minor adverse (not significant in EIA terms)	Habitat creation in Zones E and F to provide greater area than permanently lost	Minor beneficial (not significant in EIA terms)	n/a
Permanent loss of badger habitat	Minimising habitat loss where practicable	Minor	Low	Negligible adverse (not significant in EIA terms)	Habitat creation in Zones E and F to provide greater area than permanently lost	Minor beneficial (not significant in EIA terms)	n/a
Temporary loss of grassland	Minimising habitat loss where practicable	Minor	Low	Negligible adverse (not significant in EIA terms)	Grassland creation in Zone F to provide overall net gain in area	Minor beneficial (not significant in EIA terms)	Habitat condition monitoring to assess success of habitat creation
Temporary loss of ditches	Minimising habitat loss where practicable	Minor	Low	Minor adverse (not significant in EIA terms)	Restoration of ditch habitat	No change	Habitat condition monitoring to assess success of habitat creation

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Temporary loss of hedgerows	Retention of hedgerows where practicable	Minor	Low	Minor adverse (not significant in EIA terms)	Provision of replacement planting	No change	Habitat condition monitoring to assess success of habitat creation
Temporary loss of reptile habitat	Minimising habitat loss where practicable	Minor	Medium	Minor adverse (not significant in EIA terms)	Translocation of reptiles and habitat restoration	No change	Reptile population monitoring
Temporary loss of intertidal wintering bird habitat	Minimising habitat loss where practicable	Negligible	Medium	Negligible adverse (not significant in EIA terms)	n/a	Negligible adverse (not significant in EIA terms)	Monitoring of wintering birds during causeway use if barge deliveries overlap with wintering bird season
Temporary loss of water vole habitat	Minimising habitat loss where practicable	Minor	Medium	Minor adverse (not significant in EIA terms)	Habitat restoration post-construction	No change	Water vole population monitoring
Temporary loss of bat habitat	Minimising habitat loss where practicable	Minor	Low	Minor adverse (not significant in EIA terms)	Replacement planting of hedgerows and installation of artificial hedgerows to close gaps while replacement planting matures	No change	n/a
Airborne pollutant effects on designated sites	Measures to reduce dust generation and other emissions during construction as set out in CoCP	Negligible	Medium	Negligible adverse (not significant in EIA terms)	n/a	Negligible adverse (not significant in EIA terms)	n/a
Airborne pollutant effects on habitat sites	Measures to reduce dust generation and other emissions during construction as set out in CoCP	Negligible	Medium	Negligible adverse (not significant in EIA terms)	n/a	Negligible adverse (not significant in EIA terms)	n/a
Runoff pollutant effects on designated sites	Measures to manage discharges to surface water as set out in CoCP	Negligible	High	Minor adverse (not significant in EIA terms)	n/a	Minor adverse (not significant in EIA terms)	n/a
Runoff pollutant effects on habitats	Measures to manage discharges to surface water as set out in CoCP	Negligible	Medium	Negligible adverse (not significant in EIA terms)	n/a	Negligible adverse (not significant in EIA terms)	n/a
Noise, lighting and visual disturbance effects on breeding and wintering birds from construction in terrestrial zones	Measures to minimise noise and lighting as set out in CoCP	Minor	Medium	Minor adverse (not significant in EIA terms)	n/a	Minor adverse (not significant in EIA terms)	n/a
Noise, lighting and visual disturbance effects on wintering intertidal birds from construction and use of the Zone G causeway in the intertidal zone	Measures to minimise noise and lighting as set out in CoCP	Minor	Medium	Minor adverse (not significant in EIA terms)	n/a	Minor adverse (not significant in EIA terms)	Monitoring of wintering birds during causeway use if barge deliveries overlap with wintering bird season

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Lighting effects on foraging bats	Measures to minimise lighting as set out in CoCP	Negligible	Medium	Negligible adverse (not significant in EIA terms)	n/a	Negligible adverse (not significant in EIA terms)	n/a
Permanent loss of grassland	Minimising grassland loss where practicable	Major	Medium	Moderate adverse (significant in EIA terms)	Grassland creation in Zones E and F to provide greater area than permanently lost	Moderate beneficial (significant in EIA terms)	Vegetation monitoring to assess success of habitat creation
Operation and maintenance							
Aerial emissions on designated sites during operation	Refer to Volume 3, Chapter 12: Air quality	Negligible	Medium – Very high	Negligible – Minor adverse (not significant in EIA terms)	n/a	Negligible – Minor adverse (not significant in EIA terms)	n/a
Surface water effects on designated sites and habitats during operation	Refer to Volume 3, Chapter 15: Hydrology and flood risk	No change	High	No change	n/a	No change	n/a
Noise and lighting effects on breeding birds during operation	Access road unlit. Use of directional security lighting to minimise light spillage.	Negligible	Medium	Negligible adverse (not significant in EIA terms)	n/a	Negligible adverse (not significant in EIA terms)	n/a
Noise and lighting effects on wintering birds during operation	Access road unlit. Use of directional security lighting to minimise light spillage.	No change	Medium (intertidal birds)	No change	n/a	No change	n/a
Lighting effects on bats during operation	Access road unlit. Use of directional security lighting to minimise light spillage.	Negligible	Medium	Negligible adverse (not significant in EIA terms)	n/a	Negligible adverse (not significant in EIA terms)	n/a
Decommissioning							
Impacts on designated sites	To be provided in Decommissioning Plan	Negligible	Medium	Negligible adverse (not significant in EIA terms)	n/a	Negligible adverse (not significant in EIA terms)	n/a
Impacts on habitats	To be provided in Decommissioning Plan	Negligible	Medium	Negligible adverse (not significant in EIA terms)	n/a	Negligible adverse (not significant in EIA terms)	Monitoring requirement for habitats to be determined at decommissioning stage
Impacts on species	To be provided in Decommissioning Plan	Minor	Medium	Minor adverse (not significant in EIA terms)	n/a	Minor adverse (not significant in EIA terms)	Monitoring requirement for species to be determined at decommissioning stage
Chapter 10: Traffic and Transport							
Construction							
Driver Delay	An Outline Construction Traffic Management	Negligible	Negligible / Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Severance	Plan (CTMP) and Outline Construction Worker Travel Plan (CWTP) have been developed to minimise the impacts of construction vehicle movements and to manage those movements in a manner that road safety is maintained.	Negligible	Negligible / Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Pedestrian Delay		Negligible	Negligible / Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Pedestrian Amenity		Negligible (moderate on Station Road East Tilbury, during gas compound works only)	Negligible / Low	Negligible (minor adverse on Station Road East Tilbury) (not significant in EIA terms)	None	Negligible (minor adverse on Station Road East Tilbury) (not significant in EIA terms)	None
Accidents and Road Safety		Negligible	Negligible / Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Chapter 11: Noise and Vibration							
Construction							
Noise from construction activity	Application of Best Practicable Means; noise management measures detailed within the CoCP; and carrying out the majority of construction activities between the hours of 08:00-18:00 Monday to Friday and Saturday 08:00-13:00.	Negligible	Medium	Negligible to minor adverse (not significant in EIA terms)	None	Negligible to minor adverse (not significant in EIA terms)	None
Construction traffic noise	n/a	Minor	Medium	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Operation and maintenance							
Operation of the proposed development	Noise mitigation measures to be incorporated into the detailed design, typical examples of which include enclosures surrounding the gas engines; high specification exhaust silencers; acoustically lagged external exhaust ductwork; enhanced air inlet/outlet silencers; and low noise air conditioning units.	Minor to moderate	Medium	Minor to moderate adverse (determined not be significant in EIA terms)	None	Minor to moderate adverse (determined not be significant in EIA terms)	Noise monitoring following commissioning to ensure compliance with the levels reported in this ES
Decommissioning							

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Noise from decommissioning activity	Measures adopted would remain similar to the construction phase	Negligible	Medium	Negligible to minor adverse (not significant in EIA terms)	None	Negligible to minor adverse (not significant in EIA terms)	None
Chapter 12: Air Quality							
Construction							
Increase in suspended particulate matter concentrations and deposited dust.	Best practice measures for a medium risk site as recommended in the IAQM dust guidance. The measures are listed in Table 2.20 in Volume 3 Chapter 12.	Large for construction, earthworks and trackout	All low, medium and high sensitivity receptors within 350 m of the site boundary were considered. The sensitivity of the area was low or medium.	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	Listed in Table 2.20 in Volume 3 Chapter 12, and includes visual checks of dust, monitoring of dust complaints and potentially quantitative monitoring of dust.
Increase in traffic-related emissions	None	Negligible	Specific to each receptor	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Operation and maintenance							
Increase in NO ₂ concentrations	None	Negligible to moderate	Specific to each receptor	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	As required by Environmental Permit. No additional monitoring proposed.
Decommissioning							
If plant is deconstructed - Increase in suspended particulate matter concentrations and deposited dust.	Assumed to be the same as for the construction phase	Large for construction, earthworks and trackout (assumed to be the same as for the construction phase)	All low, medium and high sensitivity receptors within 350 m of the site boundary were considered.	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
If operation of plant is ongoing - Increase in NO ₂ concentrations	None	Negligible to moderate	Specific to each receptor	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	As required by Environmental Permit. No additional monitoring proposed.
Chapter 13: Human Health							
Construction							
Human health effects from changes to air quality	As per Chapter 12: Air Quality	Negligible	High	Minor adverse (not significant in EIA terms)	As per Chapter 12: Air Quality	Minor adverse (not significant in EIA terms)	As per Chapter 12: Air Quality
Human health effects from changes in noise exposure	As per Chapter 11: Noise and Vibration	Negligible	High	Minor adverse (not significant in EIA terms)	As per Chapter 11: Noise and Vibration	Minor adverse (not significant in EIA terms)	As per Chapter 11: Noise and Vibration
Human health effects from changes to transport nature and flow rate	As per Chapter 10: Traffic and Transport	Negligible	High	Minor adverse (not significant in EIA terms)	As per Chapter 10: Traffic and Transport	Minor adverse (not significant in EIA terms)	As per Chapter 10: Traffic and Transport
Human health effects from changes from income and employment generation	As per Chapter 8: Land Use, Agriculture and Socio-Economics	Negligible	High	Minor beneficial (not significant in EIA terms)	As per Chapter 8: Land Use, Agriculture and Socio-Economics	Minor beneficial (not significant in EIA terms)	As per Chapter 8: Land Use, Agriculture and Socio-Economics

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Human health effects from changes in access to and use of open space for recreation and physical activity	As per Chapter 8: Land Use, Agriculture and Socio-Economics	Negligible	High	Minor adverse (not significant in EIA terms)	As per Chapter 8: Land Use, Agriculture and Socio-Economics	Minor adverse (not significant in EIA terms)	As per Chapter 8: Land Use, Agriculture and Socio-Economics
Operation and maintenance							
Human health effects from changes to air quality	As per Chapter 12: Air Quality	Negligible	High	Minor adverse (not significant in EIA terms)	As per Chapter 12: Air Quality	Minor adverse (not significant in EIA terms)	As per Chapter 12: Air Quality
Human health effects from changes in noise exposure	As per Chapter 11: Noise and Vibration	Negligible	High	Minor adverse (not significant in EIA terms)	As per Chapter 11: Noise and Vibration	Minor adverse (not significant in EIA terms)	As per Chapter 11: Noise and Vibration
Decommissioning							
Human health effects from changes to air quality	As per Chapter 12: Air Quality	Negligible	High	Minor adverse (not significant in EIA terms)	As per Chapter 12: Air Quality	Minor adverse (not significant in EIA terms)	As per Chapter 12: Air Quality
Human health effects from changes in noise exposure	As per Chapter 11: Noise and Vibration	Negligible	High	Minor adverse (not significant in EIA terms)	As per Chapter 11: Noise and Vibration	Minor adverse (not significant in EIA terms)	As per Chapter 11: Noise and Vibration
Human health effects from changes from income and employment generation	As per Chapter 8: Land Use, Agriculture and Socio-Economics	Negligible	High	Minor beneficial (not significant in EIA terms)	As per Chapter 8: Land Use, Agriculture and Socio-Economics	Minor beneficial (not significant in EIA terms)	As per Chapter 8: Land Use, Agriculture and Socio-Economics
Chapter 14: Climate Change							
Construction							
Direct and indirect emission of greenhouse gases	Measures in CoCP to reduce emissions from construction plant and embodied carbon in materials	Negligible	High	Negligible (not significant in EIA terms)	Good practice goals to seek a lean design and minimise embodied carbon	Negligible (not significant in EIA terms)	None
Operation and maintenance							
Direct and indirect emission of greenhouse gases	CCR land Exhaust gas energy recovery system	-13 MtCO ₂ e to -17 MtCO ₂ e (net)	High	Beneficial (significant in EIA terms)	Possible future use of CCS or hydrogen/ ammonia supply	Beneficial (significant in EIA terms)	Required by GHG Emissions Permit or equivalent to be determined following Brexit transition period
Decommissioning							
Direct and indirect emission of greenhouse gases if operation continues	n/a	Up to 1.2 MtCO ₂ e/annum	High	Adverse (significant in EIA terms)	GHG emission abatement would be required for compatibility with legislated target for national GHG emissions	Negligible (not significant in EIA terms)	As required by regulatory regime at the time

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Climate change risks if operation continues	n/a	Low	Low	Negligible (not significant in EIA terms)	Consideration to higher average and peak temperatures is given when sizing the cooling systems for normal operation	Negligible (not significant in EIA terms)	None
Chapter 15: Hydrology and Flood Risk							
Construction							
The construction of permanent assets may lead to increased flood risk	Construction measures, surface water drainage scheme, best practice measures (see Table 2.6 in Volume 3 Chapter 15)	Negligible	Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Temporary construction may lead to increased flood risk	Construction measures, surface water drainage scheme, best practice measures (see Table 2.6 in Volume 3 Chapter 15)	Negligible	Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Construction may cause risk of leaks and spills to surface watercourses	Construction measures (see Table 2.6 in Volume 3 Chapter 15).	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
The impacts of trenchless construction techniques may affect major surface watercourses	Surface water drainage scheme, pollution prevention measures, best practice measures (see Table 2.6 in Volume 3 Chapter 15).	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
The impacts of open cut, temporary bridging and culverts may affect surface watercourses	Surface water drainage scheme, pollution prevention measures, best practice measures (see Table 2.6 in Volume 3 Chapter 15)	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
The construction of permanent assets may affect field drainage and irrigation	Surface water drainage scheme, pollution prevention measures, best practice measures (see Table 2.6 in Volume 3 Chapter 15)	Minor	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Temporary construction may affect field drainage and irrigation	Surface water drainage scheme, pollution prevention measures, best practice measures (see Table 2.6 in Volume 3 Chapter 15).	Minor	Medium	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Operation and maintenance							
The impacts of operation and maintenance may lead to increased flood risk.	Operational measures to reduce flood risk (see Table 2.6 in Volume 3 Chapter 15)	Negligible	Low to Medium	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
The impact of flexible generation plant operation and maintenance may affect main or ordinary surface watercourses	Surface water drainage scheme, pollution prevention measures, best practice measures (see Table 2.6 in Volume 3 Chapter 15)	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
The impact of pipeline maintenance may affect main or ordinary surface watercourses	Surface water drainage scheme, pollution prevention measures, best practice measures (see Table 2.6 in Volume 3 Chapter 15)	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Decommissioning							
The impacts of decommissioning may affect temporary flood risk.	Decommissioning measures (see Table 2.6 in Volume 3 Chapter 15)	Minor	Low	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
The impacts of decommissioning may affect main surface watercourses.	Decommissioning measures (see Table 2.6 in Volume 3 Chapter 15)	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
The impacts of decommissioning may affect ordinary watercourses.	Decommissioning measures (see Table 2.6 in Volume 3 Chapter 15)	Negligible	High	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Chapter 16: Geology, Hydrogeology and Ground Conditions							
Construction							
Potential for earthworks to mobilise unexpected ground contamination or create preferential pathways to groundwater	Adherence to good environmental practices. Implementation of a discovery strategy which will form part of the remediation strategy (see Table 2.6 in Volume 3 Chapter 16). Piling to be undertaken in accordance with recommendations of a Piling Risk Assessment.	Minor	Low to very high	Negligible to moderate adverse (not significant in EIA terms)	None	Negligible to moderate adverse (not significant in EIA terms)	Groundwater and ground gas monitoring (during further investigation prior to construction)

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Potential for construction activity to cause soil or groundwater contamination	Adherence to good environmental practices (see Table 2.6 in Volume 3 Chapter 16)	Negligible	Low to very high	Negligible to minor adverse (not significant in EIA terms)	None	Negligible to minor adverse (not significant in EIA terms)	None
Operation and maintenance							
Pollution of soils and/or Controlled Waters	The development will be operated in accordance with an Environmental Permit and will have a managed surface drainage system with oil interceptors, bunding and spill kits in case of accidents	Negligible	Low to very high	Negligible to minor adverse (not significant in EIA terms)	None	Negligible to minor adverse (not significant in EIA terms)	None
Decommissioning							
Impacts of decommission may cause contamination of Secondary Aquifers, the Principal Aquifer and drainage ditches	Adherence to good environmental practices (see Table 2.6 in Volume 3 Chapter 16)	Negligible	Low to very high	Negligible to minor adverse (not significant in EIA terms)	None	Negligible to minor adverse (not significant in EIA terms)	None
Chapter 17: Marine Environment							
Construction							
Changes in flow conditions through the construction, presence and operation of the causeway may have effects on seabed sediments and maritime infrastructure	n/a	Minor	Negligible	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Changes in sediment transport processes through the construction, presence and operation of the causeway may have effects on seabed sediments and maritime infrastructure	n/a	Negligible (Gravesend Reach); Locally moderate	Low	Negligible (Gravesend Reach) or locally minor adverse (not significant in EIA terms)	None	Negligible and locally minor adverse (not significant in EIA terms)	None
Temporary habitat loss/disturbance during construction activities may have effects on marine ecology receptors	n/a	Minor	Low	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Increases in SSC and associated deposition during construction activities (including dredging) may have effects on water quality and marine ecology receptors	n/a	Negligible	Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Release of sediment bound contaminants during dredging operations may have effects on water quality and marine ecology receptors	n/a	Minor	Low	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Underwater noise during construction (e.g. dredging activities) may have effects on marine ecology receptors	n/a	Negligible	Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Accidental release of pollution (e.g. due to spillage) may have effects on water quality and marine ecology receptors	Measures relating to pollution prevention (see Table 2.10 in Volume 3 Chapter 17)	Minor	Low	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None
Operation and maintenance							
Long term/permanent habitat loss due to presence of causeway	n/a	Minor	High	Minor to moderate adverse (significant in EIA terms) for loss under causeway footprint Negligible to minor (not significant in EIA terms) for change to mudflat to saltmarsh	None	Minor to moderate (significant in EIA terms) for loss under causeway footprint Negligible to minor (not significant in EIA terms) for change to mudflat to saltmarsh	Post construction monitoring of saltmarsh habitats
Changes in flow conditions through the presence of the causeway	n/a	Negligible	Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Changes in sediment transport processes through the presence of the causeway	n/a	Negligible	Negligible	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Decommissioning							
Permanent loss of hard substrates and intertidal habitat changes due to removal of the causeway	n/a	Minor	Low to high	Minor adverse (not significant in EIA terms) Negligible to minor (not significant in EIA terms) for change to mudflat to saltmarsh	None	Minor adverse (not significant in EIA terms) Negligible to minor (not significant in EIA terms) for change to mudflat to saltmarsh	Potential for monitoring to be confirmed in Causeway Decommissioning Plan
Accidental release of pollution (e.g. due to spillage) and effects on water quality and marine ecology receptors	Measures relating to pollution prevention (see Table 2.10 in Volume 3 Chapter 17)	Minor	Low	Minor adverse (not significant in EIA terms)	None	Minor adverse (not significant in EIA terms)	None