The London Resort Development Consent Order

BC080001

Environmental Statement
Volume 2: Appendices

Appendix 3.2 – Outline Construction and Environemtnal Management Plan (CEMP)

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Revision: 00

December 2020

Planning Act 2008
The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
Regulation 5(2)(a)
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
Regulation 12(1)

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Revisions

Revision	Description	Issued by	Date	Approved by
00	Outline Construction Environmental Management Plan	MA/HC	24/12/20	BUR/LRCH

Buro Happold Ltd
Camden Mill
230 Lower Bristol Road
Bath
BA2 3DQ

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Executive Summary

The outline Construction Environmental Management Plan (CEMP) has been compiled to support the Development Consent Order (DCO) application by London Resort Company Holdings Limited (LRCH or the Applicant) for the London Resort. This outline CEMP report explains how environmental mitigation and safeguards identified in the Environmental Statement (ES - document reference 6.1) would be implemented and enforced. It has regard to the outline Construction Method Statement (document reference 6.2.3.1) which provides a description of the general methods by which the London Resort would be built.

This outline CEMP includes explanations of the roles and responsibilities of those involved and the training measures required to adhere to this document.

Once appointed, the Principal Contractor will be responsible for updating the outline CEMP and developing the document to a full CEMP. It will remain a live document until the end of construction. Requirement 5 in Schedule 2 Part 1 of the draft DCO (document reference 3.1) obliges the Applicant to produce and submit a draft final version of the outline CEMP for each phase of the authorised development to the relevant planning authority for approval prior to the commencement of that phase.

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Contents

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Glossary

Term	Definition
ArcMS	Archaeological Method Statement
CCP	Code of Construction Practice
CDE	Construction, demolition and excavation
CEMP	Construction Environmental Management Plan
CLP	Community Liaison Plan
CLS	Contaminated Land Strategy
CMS	Construction Method Statement
CoCP	Code of Construction Practice
CTMP	Construction Traffic Management Plan
CWAS	Construction Worker Accommodation Strategy
OCWMP	Outline Construction Waste Management Plan
DCO	Development Consent Order
ECoW	Ecological Clerk of Works
ES	Environmental Statement
HSE	Health, Safety and Environment Plan
HSSE	Health, Safety, Security and Environment
INNS	Invasive Non-Native Species
LEMP	Outline Landscape & Ecological Management Plan
LRCH	London Resort Company Holdings Limited
OEMP	Operational Environmental Management Plan
RPC	Remediation Processing Compound
STP	Site Training Plan

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Chapter One ◆ Introduction

1.1 London Resort Company Holdings Limited (LRCH), has developed this outline Construction Environmental Management Plan (CEMP) to support a Development Consent Order (DCO) application by LRCH for the London Resort. The Proposed Development is a Nationally Significant Infrastructure Project under the Planning Act 2008 (the 2008 Act).

1.2 This outline CEMP is based on the findings included in the Environmental Statement (ES) (document reference 6.1.22), in which the environmental effects of the London Resort are assessed and mitigation measures that are to be taken into account during construction of the development are specified. The outline CEMP has also been prepared with regards to the outline Construction Method Statement (document reference 6.2.3.1), which provides a description of the general methods by which the London Resort would be built.

1.3 The CEMP is intended to be a live document, which will be developed further as the scheme of work progresses and once a Principal Contractor has been appointed. It is anticipated that the Principal Contractor working on the London Resort will update and take ownership of this CEMP throughout the works as necessary.

1.4 The CEMP will be implemented by the Applicant and secured through the requirements of the DCO. The Applicant will ensure that the Principal Contractor complies with the CEMP via contractual arrangements.

1.5 In addition to the CEMP, construction activities at London Resort will be conducted in compliance with a Code of Construction Practice (CoCP), and other management documents identified in Section 1.4 of this outline CEMP.

1.6 Whilst the CoCP is intended to set the standards and procedures to which the Principal Contractor must adhere in order to manage the potential environmental impacts of construction works whilst the CEMP is intended to be more specific and operative, focussed on the environmental management of the construction activities and facilitating the implementation of environmental mitigation measures. For this reason, this outline CEMP provides a list of mitigation measures (see Table 5-1), identified in the ES, together with other factors considered during their implementation.

Project Description

1.7 London Resort will be a nationally significant visitor attraction and leisure resort, built largely on brownfield land at Swanscombe Peninsula in Kent on the south bank of the River Thames and with supporting transport and visitor reception facilities on the northern side of the river in Essex.

1.8 A detailed description of the Proposed Development is provided in chapter three of the Project ES. The focus of the Resort will be a 'Leisure Core' containing a range of events spaces, themed rides and attractions, entertainment venues, theatres and cinemas, developed in landscaped settings in two phases known as Gate One and Gate Two ('the Gates'). Outside the Gates will be a range of ancillary retail, dining and entertainment facilities in an area known as the Market.

1.9 The Resort will also include hotels, a water park connected to one of the hotels, a conference and convention centre known as a 'conferention centre', a Coliseum (capable of hosting e-Sports events), creative spaces, a transport interchange including car parking, 'back of house' service buildings, an energy centre, a wastewater treatment works and utilities required to operate the Resort. Related housing is also proposed to accommodate some of the Resort's employees.

1.10 Substantial improvements are proposed to transport infrastructure. This will include a new direct road connection from the A2(T) and a dedicated transport link between Ebbsfleet International Station, the Resort and a passenger ferry terminal beyond. The ferry terminal would serve visitors arriving by ferry on the River Thames from central London and Tilbury. A coach station is also proposed. On the northern side of the Thames to the east of the Port of Tilbury, additional coach and car parking and a passenger ferry terminal are proposed to serve the Resort.

1.11 The Proposed Development would involve an extensive restoration of land used in the past for mineral extraction, waste disposal and industrial activities including cement and paper production, with a comprehensive landscape strategy proposed incorporating the retention and enhancement of wildlife habitats. Figure 1-1 shows the proposed DCO Order Limits of the London Resort.

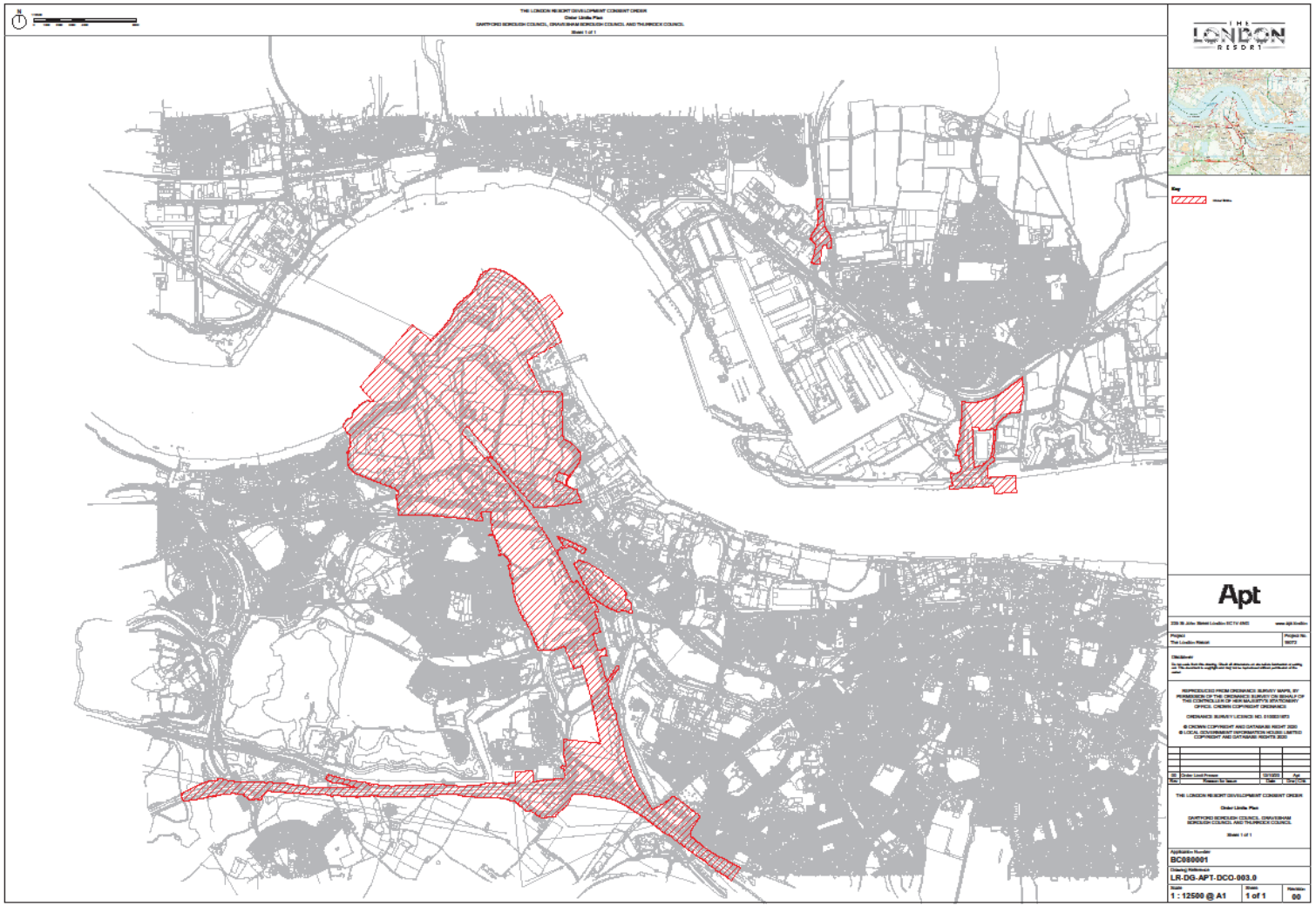

Figure 1-1 DCO Order Limits of the London Resort

Objectives of the CEMP

1.12 The overall aim of the CEMP is to reduce the risk of significant adverse effects arising from the construction of the Proposed Development on sensitive environmental resources and local amenity.

1.13 The objectives of the CEMP are as follows:

- To ensure that the delivery of environmental measures, as identified in the ES are secured, and to avoid, reduce or compensate for environmental and social effects;
- To ensure the construction of the Proposed Development is in accordance with industry best practice standards, legal requirements and contract specifications;
- To provide a framework for compliance, auditing and inspection for environmental aims, and maintaining communication to relevant parties; and
- To ensure prompt response to any non-compliance with legislation and contract specifications.

Relationship with other construction control documents

1.14 The CEMP is a document that describes the measures proposed to protect the environment and local amenity during demolition and construction. It has a relationship to many other construction control documents which establish the framework for the construction activities associated with the Proposed Development. The additional documents relevant to the Outline CEMP are identified in Table 1-1.

Table 1-1 : Other project implementation documents presented in draft or proposed by LRCH

Document	Purpose
Archaeological Method Statement	The ArcMS sets out how archaeological survey and investigation will be integrated with the construction programme.
Community Engagement Plan (CEP)	The CEP explains how dialogue with the local communities who may be affected by the construction activities of the London Resort and procedures for managing and responding to complaints will work.

Document	Purpose
Contaminated Land Management Strategy (CLMS – document reference 6.2.18.9)	The CLMS describes the specialist measures that will be employed for works affecting contaminated land and landfill sites.
Construction Transport Management Plan (CTMP – document reference 6.2.10.1)	The CTMP will establish the indicative principles to be adopted with regards to managing construction traffic, both via road and river.
Outline Construction Waste Management Plan (OCWMP – document reference 6.2.19.2)	The OCWMP will identify the principles of waste handling across the Project Site.
Landscape and Ecology Management Plan (LEMP– document reference 6.2.11.8)	The LEMP identifies management considerations in respect of flora and fauna species and habitat protection, relocation, recovery and enhancement during the construction process. It also considers arboriculture measures.
Construction Workforce Accommodation Strategy (CWAS – document reference 6.2.7.9)	The CWAS will identify how the temporary workforce associated with the Project Site will be accommodated.

Structure, content and purpose of the CEMP

1.15 The remainder of the outline CEMP is split into five chapters, as follows:

Chapter 2: Project team includes:

- Roles and responsibilities of those on-site; and
- Information training and awareness for those on-site.

Chapter 3: Design and construction describes the Proposed Development construction works, including:

- Environmental pre-construction surveys;

- Anticipated construction schedule; and
- Working hours.

Chapter 4 General procedures explains the procedures, inspections and principles that will be adopted on site, including:

- Inspections;
- Communication;
- Incident procedure;
- Complaints procedure;
- Health and safety and risk assessment;
- Security; and
- Requirements and consents.

Chapter 5 Environmental management and control measures is presented in a tabular format and describes the environmental measures and mitigation that will be adopted during construction of the Proposed Development in accordance with the ES (document reference 6.1). These measures reflect construction-stage mitigation identified in the assessment of the following topics on the ES:

- Land use and socio-economic effects;
- Human health;
- Land transport;
- River transport;
- Landscape and visual effects;
- Terrestrial and freshwater ecology and biodiversity;
- Marine ecology and biodiversity;
- Cultural heritage and archaeology;
- Noise and vibration;

- Air quality;
- Water resources and flood risk;
- Soils, hydrogeology and ground conditions;
- Waste and materials; and
- Greenhouse gases and climate change.

Chapter 6 Monitoring describes the monitoring and review process to ensure works are compliant with the guidelines set out in the CEMP, it will include the following subsection:

- Monitoring and review.

1.16 This document's role is to provide a consistent approach to the control of construction activities for the Proposed Development. It will do this in line with the findings in the ES.

Chapter Two ◆ Project Team

Roles and responsibilities

2.1 Establishing clear roles and responsibilities on-site prior to construction works is important to ensure the CEMP is adhered to and the success of the Proposed Development's construction. This chapter defines the roles and responsibilities of the personnel on-site. The Principal Contractor will have overall responsibility for adherence and ensuring the CEMP is kept up to date as a live document.

2.2 LRCH recognises the importance of effective management and control of the construction phase and will proceed with early contractor engagement to ensure that safety, security, and construction logistics and general local amenity impacts are responsibly addressed. The Principal Contractor for the Project will control construction activities involving more than one contractor. The Principal Contractor will have an important role in managing health and safety risks during the construction phase. In accordance with the Health and Safety Executive's Construction (Design and Management) Regulations 2015 it will be the responsibility of Principal Contractor to:

- Plan, manage, monitor and coordinate the entire construction phase;
- Take account of the health and safety risks to everyone affected by the work (including members of the public), in planning and managing the measures needed to control them;
- Liaise with the client and principal designer for the duration of the project to ensure that all risks are effectively managed;
- Prepare a written construction phase plan before the construction phase begins, implement, and then regularly review and revise it to make sure it remains fit for purpose;
- Have ongoing arrangements in place for managing health and safety throughout the construction phase;
- Consult and engage with workers about their health, safety and welfare;
- Ensure suitable welfare facilities are provided from the start and maintained throughout the construction phase;

- Check that anyone they appoint has the skills, knowledge, experience and, where relevant, the organisational capability to carry out their work safely and without risk to health;
- Ensure all workers have site-specific inductions, and any further information and training they need;
- Take steps to prevent unauthorised access to the site;
- Liaise with the principal designer to share any information relevant to the planning, management, monitoring and coordination of the pre-construction phase.

2.3 Acting under the direction of the Principal Contractor, the specific responsibilities of key personnel during construction in respect of the CEMP specifically are outlined in Table 2-1.

Table 2-1 Roles and responsibilities of on-site personnel (illustration only)

Roles	Responsibilities
Principal Contractor	The Principal Contractor would be responsible for the overall execution of the construction phase for the Proposed Development and its compliance with the CEMP and other management documents. They will also be required to update and manage the CEMP as it will be a live document.
Project Manager/Director	The Project Manager/Director would be responsible for monitoring the performance of the Proposed Development and delivery of the CEMP against statutory requirements and the agreed objectives and targets. This will include review and approve the CEMP, prepared by the Principal Contractor, and specialist procedures and identify any areas for improvement, checking that the Principal Contractor has allocated sufficient resources to allow delivery of the CEMP, participating in communication with stakeholders as required and arranging for the periodic review and update of the CEMP.
Environmental Manager	The Environmental Manager would be responsible for the maintenance of all environmental plans and registers including ensuring that the environmental measures and mitigations are implemented on-site

Roles	Responsibilities
	and recorded within the CEMP. They would also develop good working relationships with key stakeholders such as the Environment Agency, Natural England and the local authorities.
Environmental Advisor	The Environmental Advisor would be responsible for ensuring work is carried out in accordance with legislation and consents, environmental statement, objectives, targets and the CEMP with regards to any environmental activities on-site. They would also be responsible for monitoring and reporting environmental issues.
Environmental Clerk of Works	The Environmental Clerk of Works would be responsible for monitoring and ensuring that the Proposed Development proceeds in accordance with all relevant environmental DCO requirements and adhere to the required mitigation measures. They would be supported by appropriate specialists as necessary.
Site Waste Manager	The Site Waste Manager would be responsible for day to day waste management and maintaining site waste registers/documentation.
Design Engineer	The Design Engineer would be responsible for the incorporation of environmental design criteria and method statements within the detailed design of the pipeline in consultation with the Environmental Manager.
Construction Manager	The Construction Manager would be responsible for organising and implementing the provision and maintenance of a working environment and systems of work that are, as far as is reasonably practicable, safe and without risk to human health or the environment. They would also be responsible for ensuring that adequate monitoring and supervision arrangements are maintained and clearly defined areas of responsibility for Contractors are established and implemented.
Senior (Health, Safety, Security and Environment (HSSE) Lead	The Senior HSSE Lead would be responsible for all Health and Safety processes and procedures for the Proposed Development.

Roles	Responsibilities
Public Liaison Officer	The Public Liaison Officer would be responsible for acting as the first point of contact for members of the public and ensure all local residents and stakeholders are kept informed of progress and key issues. They would also be responsible for establishing and maintaining relationships with key stakeholders, the dissemination of the construction programme to all interested parties, and dealing with queries, responding to complaints and resolving concerns.
Site Health and Safety Advisor	The Site Health and Safety Advisor would be responsible for the development and implementation of the HSE Management System during the Proposed Development. They would also be responsible for the update the present CEMP, integrating each of the mitigation measures in the corresponding procedure part of the HSE Management System of the Principal Contractor, and preparation of applicable specific plans.
Ecological Clerk of Works (ECoW)	The ECoW would be responsible for monitoring and ensuring construction works are undertaken in accordance with legislation, best practice and ecological protocols. They would also be responsible for providing advice about ecological issues during the construction of the Proposed Development.
Environmental Specialists	The Environmental Specialists would be responsible for each technical topics' environmental performance and the impact that they have on the Proposed Development's environmental performance and will be expected to undertake all activities in accordance with the agreed procedures. They will conduct pre-construction surveys and monitor environmental criteria throughout the construction phase.

Information training and awareness

2.4 The Principal Contractor will identify the training needs of all on-site personnel and sub-contractors to ensure implementation of the requirements for the CEMP through site inductions, briefings, and Toolbox Talks. Toolbox talks are brief informal discussions to promote health and safety and will also be used to reinforce training and awareness and potential issues that have arisen on-site.

2.5 The training is required to be specialised and aligned with the demolition and construction work expected to be carried. The Principal Contractor is responsible for ensuring the competency of all staff and ensuring that training requirements are adequately fulfilled. The training will be logged for evidence of the employees' competency. The Principal Contractor will provide a training programme for construction workers that will include coverage of:

- Dust management;
- Flood risk response actions;
- Noise reduction measures;
- Adherence to environmental zones;
- Locations and protections of sensitive environmental features;
- Agreed access points and traffic routes
- Contaminated materials; and
- Health and safety.

2.6 All employees will be required to be aware of their environmental management responsibilities and undertake specific environmental awareness training aligned with the work being undertaken. Environmental awareness will be further reinforced on-site through environmental alerts located on the notice board and environmental/sustainability performance indicator reports.

2.7 A Site Training Plan (STP) will be written and owned by the appointed Principal Contractor for the operational works. The STP will incorporate all of the mitigation measures outlined in Table 5-1 (from the ES (document reference 6.1), such as dust mitigation on-site, looking out for contamination and water management on-site.

2.8 The Health, Safety and Environment Plan (HSEP) will be written and owned by the appointed Principal Contractor for the construction works. The HSEP will also follow the best practice guidelines and management and will incorporate all of the mitigation measures outlined in Table 5-1.

Chapter Three ◆Design and Construction

Environmental pre-construction surveys

3.1 Pre-construction surveys have been undertaken and are reported in the ES, to inform the assessment of the current site baseline. The findings from the surveys will result in a number of control measures being implemented to minimise the construction's adverse effect to the environment. These are surveys that form part of the environmental impact assessment and information on the pre-construction surveys that have taken place can be found within the technical chapters of the ES (document reference 6.1).

Anticipated construction schedule

3.2 The main construction phases of the Proposed Development are divided into three main phases:

- Phase I: site preparation and clearance (SPC) works including enabling works and land remediation:
- Phase II: main construction works; and
- Phase III: dismantling of temporary structures and landscape restoration works.

3.3 The main activities anticipated during each proposed phase are summarised in the following sections. These are taken from the Construction Method Statement (document reference 6.2.3.1) for the Proposed Development, submitted as part of the DCO.

Phase I: site preparation and clearance works

3.4 During phase I, works are proposed to consist of the following activities:

- Contractor mobilisation, including the establishment of contractors' compounds, induction training and security checks for the workforce, erection of temporary buildings providing office space and workforce welfare facilities, the creation of a site compound and satellite temporary construction facilities;
- Site access and security, including the establishment of a secure construction site with security controls for people, equipment and materials entering and leaving the site;

- Site establishment, including demolition, enabling works, temporary construction site compound and car parking, security buildings, control room, access egress and gatehouse, material storage areas, temporary construction fencing around the perimeter of the site, security fencing for the SPC works site compound and satellite compound, and fencing to protect features of landscape and ecological interest;

- Management of roads and access - including management of footpath users to ensure their safety near site works; temporary closures of roads to enable boundary wall/fence removal, plant and traffic crossing arrangements and access roads and haul routes to the construction sites;

- Vegetation clearance and excavations - including targeted removal of most above-ground vegetation to ground level. This work will be subject to mitigation and controls proposed in the outline CEMP and the Landscape and Ecology Management Plan (LEMP) (document reference 6.2.11.8);

- Clearance of other features - including targeted removal of above ground features e.g. gates and poles and demolition of walls and building to ground level; and

- Remediation and land management - including the establishment of a remediation processing compound (RPC) for contaminated land remediation, the installation of temporary haul routes for dedicated access between contaminated sites; remediation of land that is known to be contaminated, waste management and material storage/management, management of vegetation including eradiation/removal of identified invasive non-native species (INNS) and INNS impacted soils, and the protection or translocation of flora and fauna of ecological value.

Phase II: main construction works

3.5 Main construction works are expected to include the following activities:

- Earthworks, including topsoil and subsoil stripping and storage, bulk earthworks and deep excavations;
- Marine works, including shore protection works, drainage outfalls, navigation aids, a temporary access ramp, temporary outfalls and a temporary barge berth;
- Establishment of a site campus, comprising modular type accommodation blocks and associated buildings and services, including changing rooms, showers, briefing rooms and canteens;

- Erection of the principal buildings, inside and outside the leisure core, including the conferention centre, eSports building, hotels, events spaces, retail, commercial, dining and entertainment facilities;
- Erection of rides and attractions, including themed rides, attractions, entertainment venues and support features;
- Ancillary buildings, structures and features, structures and features, including office buildings, waste and recycling facilities (conventional waste storage compound), site infrastructure (roads, parking, fencing and lighting) and advance landscape and planting works. Some elements would be permanent, whilst others would only be provided during construction; and
- Utilities provision - including temporary and permanent water, drainage, electricity, gas and telecoms infrastructure.

Phase III: dismantling of temporary structures and landscape retention works

3.6 The anticipated works during this phase are as follows:

- Dismantling of temporary structures and the removal of infrastructure used for construction; and
- Completion of landscape and planting works and ecological habitat restoration following the removal of the temporary construction facilities.

3.7 The phasing of the main construction works is shown in Table 3-1. The main period for construction works is anticipated to extend over approximately seven years, with Gate 1 of the London Resort becoming operational approximately 30 months after the DCO is made, and Gate 2 becoming operational approximately seven years after the start date. Additional information on the indicative construction programme can be found in the Construction Method Statement (document reference 6.2.3.1).

Table 3-1 Outline of construction phasing for the London Resort

Month	Construction Phase/Stage
-9/-1	Pre-contract planning
-5/-1	Licences
1	Enabling works
1	Start on-site – Gate 1
3/6	Demolition – Site Grading – Remediation
6/9	Utilities – Internal road network
9/12	Construction of Buildings Structures

Month	Construction Phase/Stage
12/15	Construction of Buildings Structures
15/18	Start on-site – Gate 1
18/21	Construction ongoing Structures – Gate 1
21/24	Gate 1 – construction ongoing and building structures progressing
24-27	Final fitting out and commissioning to all buildings
27-30	Completion of all buildings and landscaping and external works
30	Gate 1 and complex open
	Start on-site – Gate 2
	Gate 2 – Complete and operational

Working hours

3.8 The anticipated working hours for the construction of the Proposed Development are shown in Table 3-2. There is a potential that work may be required to commence outside of these hours for a variety of reasons, including seasonal variation and type of works being undertaken. Work outside of these hours will need to be formally agreed prior with the local planning authorities.

Table 3-2 Anticipated working schedule for the main construction works

Anticipated working days	Anticipated working hours
Monday to Friday	08:00 to 18:00
Saturday	08:00 to 13:00
Sunday and Bank Holidays	No work is planned

Site workers

3.9 The CEMP describes the measures proposed to protect the environment and local amenity during construction, covering both land based and marine operations. The final CEMP will include measures reflecting best practice in DCOs, such as the following:

- Workers will be required to attend project induction sessions
- Workers will be required to conform to the Worker Code of Conduct (the Code), which sets out clear expectations for the behaviour of workers both on-

site and when in the local community. The Code will be aligned with the project principles and values. The expectations may cover, but may not be limited to:

  - No antisocial behaviour, discriminatory behaviour or harassment;
  - No offensive, abusive or derogatory language either in person or over media such as email or text;
  - No property damage of any kind;
  - Respect for local community facilities.

- The consequence for violating the Code may include intervening actions for minor offences or job termination for persistent or large offences. This will be made clear to the workers, and by signing up to the Code, the workers acknowledge these consequences.
- Supply chain partners and contractors will be required to comply with the Code. These bodies will be consulted in the development of the Code so that all agree on the scope and are aligned with behaviour expectation and are willing to enforce the Code with their workforce.
- The Code is intended to supplement, but not replace, existing law and order provisions in place to protect members of the community and which all individuals are responsible for abiding by.
- The Code will be made publicly available so that the community are aware of the standards of behaviour expected, the consequences for violation, and the channels through which to engage with the project over workforce behaviour.

3.10 Overall, the high standards of behaviour and strict enforcement measures are expected to minimise crime impacts. These will be enforced throughout the construction phase for both Gates One and Two.

Chapter Four ◆ General procedures

Inspections

4.1 Inspections on-site shall occur to ensure compliance with the CEMP, which will remain a live document. All incidents or break of agreements shall be reported to the relevant body. This will minimise the risk of adverse effects to the environment.

4.2 The appointed Principal Contractor will be responsible to undertake the inspections daily, which shall include monitoring compliance to the CEMP. Within the daily inspections, the Principal Contractor shall measure the environmental performance against relevant legislation, the CEMP and the relevant environmental standards. The CEMP will be agreed with the planning authority (under requirement 5 of the DCO) and act as the enforcement mechanism for environmental performance.

4.3 The Principal Contractor will be responsible for investigating and addressing all instances of non-conformity that are raised during the inspections. These will be dealt with promptly, within an agreed timeframe and ensure it is communicated to all on-site workers. It will also be their responsibility to ensure corrective and preventative measures have been fully implemented.

4.4 Specialists will be assigned by the Principal Contractor to undertake inspections that require suitably qualified persons with technical knowledge; this includes the ECoW undertaking checks that ecological mitigation measures are being adhered to.

4.5 An environmental log will be kept which will be a live file that documents any breeches to the agreed upon terms or any incidents that occur. This document will be available to be viewed by the relevant local authorities when requested. The log will record all comments and complaints, as well as the response timeframe and actions that followed, record the site inspections that take place and the results, and record environmental monitoring.

4.6 The Principal Contractor will also perform checks on equipment to minimise the risk of incidents occurring, this shall include, but not limited to, inspecting the following equipment:

- Fencing;
- Waste storage facilities;
- Chemical storage facilities;
- Spill response materials;
- Foul water storage facilities;
- Storage vessels;
- Equipment with the potential to leak;
- Silt traps;
- Drainage ditches and watercourses;
- Oil separators;
- Soil management; and
- Bund integrity.

4.7 The HSSE lead will ensure the daily inspections undertaken by the Principal Contractor are being undertaken sufficiently. The HSSE lead will also be undertaking daily inspections that will include, but not limited to:

- Reviewing daily risk assessment forms;
- Ensuring all faults are identified, communicated to relevant employees and rectified promptly; and
- Providing regular data on performance and monitoring. This data will be collected and stored in accordance with the Health and Safety Plan, see Section 4.5.

4.8 The frequency of inspections would be increased appropriately from daily inspections using professional judgement when there is a high potential of risk or nuisance due to the works being carried out.

Communication

4.9 This section outlines the on-site communication and the external communication. This will be updated further by the Principal Contractor once appointed and additional information is available.

Internal communication

4.10 Internal communication includes on-site communication on environmental issues discussed within the project team. This will be on-going communications following environmental training for all on-site personnel. This will include but not limited to:

- Induction training;
- Risk assessment briefings;
- Toolbox talks;
- Environmental briefings;
- Project specific information; and
- Job specific training.

4.11 The Principal Contractor once appointed shall specify the frequency and attendance of these communications.

4.12 The Principal Contractor will be responsible to communicate to all on-site personnel the details of any audits or inspection that are undertaken, details of environmental incidents and near misses, details of enforcement action in respect to environmental incidents that have occurred, and any other additional environmental information identified.

4.13 Communication on environmental matters including sensitive areas, as described in the ES technical chapters, will be conducted through meetings ensuring all workers are aware of environmental issues at the earliest opportunity.

4.14 Environmental issues, such as environmental incidents and risks, that are identified by on-site personnel will be communicated to the relevant personnel as soon as practical to ensure all required actions are implemented.

4.15 Records will be kept of attendances to meetings where issues are communicated.

External communication

4.16 External communication covers communication with LRCH, statutory authorities and other stakeholders. The Principal Contractor will be responsible to detail the frequencies of these communications and provide details on how the communications will be carried out.

4.17 The appointed Public Liaison Officer will facilitate an appropriate communication process between the development and the local community that may be affected by activities on-site. The Public Liaison Officer is therefore the most visible member of the project team, regarding the local community, being their main point of contact. Any communication must be conducted in compliance with the Community Liaison Plan.

4.18 The Community Liaison Plan will be developed by the appointed Principal Contractor to identify how communication with stakeholders will be managed and programmed throughout the construction period. It will indicate an outline of communications, including newsletters, letter drops and meetings with stakeholders potentially affected by the works. The appointed Public Liaison Officer will be responsible in the implementation of the communications.

4.19 All external communications will be recorded in a log, including the method of communication, who the communications addressed and the communications message. It will be the Public Liaison Officers responsibility to maintain the log.

4.20 As per Section 4.4, a complaints procedure will be in place and contact details will be made available to the public.

Incident procedure

4.21 This section describes the protocols for pollution incident control, incident response and incident response training. Including the measures, information and procedures that will be implemented.

4.22 The Principal Contractor will include the definitions of environmental incidents, including oil spills, water pollution, heritage damage, waste and noise. All reported environmental incidents and occurrences of non-conformance with the CEMP will be investigated.

4.23 In the event of an incident occurring on-site, associated with the Proposed Development, the following should occur:

4.24 All works associated with the reported incident will cease immediately;

4.25 All relevant personnel to be contacted and informed;

4.26 The magnitude of the incident will be assessed as to whether it can be controlled by staff on site in accordance with the pollution incident plan to be prepared by the Principal Contractor, or if emergency assistance is required;

4.27 Appropriate enforcing authorities shall be contacted including, but not limited to:

- The Environment Agency;
- Local sewage and water suppliers; and
- Relevant local authority Environmental Health Departments.
    - An investigation shall commence into the occurrence of the incident and all findings shall be reported to the appropriate enforcing agency; and
    - An action plan report shall be prepared determining why the incident occurred and the changes to working practices that shall occur to prevent the incident reoccurring. The CEMP will be reviewed and if necessary updated to reflect the actions required from the report. The action plan report shall be prepared within a reasonable amount of time as agreed with the planning authorities and will described by the Principal Contractor in the pollution incident plan.

4.28 The action plan will be used as a tool to monitor the implantation of the changes required. This document will be required to be reviewed by the ECoW or Environmental Advisor, as appropriate, to ensure the environmental risk is minimised.

4.29 The Principal Contractor will be responsible to develop and implement a Pollution Incident Control Plan which will include details on their response in the case of a pollution incident. This will include:

- Description of the procedure that will be applied;
- The procedure in notifying the appropriate emergency response services, on-site personnel, local authorities, relevant statutory bodies, environmental regulators and local water and sewer providers;
- Maps of the location of local emergency service facilities including medical, fire, police facilities and the Environment Agency. This should also include the addresses and contact details;
- Contact details of the personnel on-site responsible for pollution incidents, in this case the Senior HSSE Lead;
- Contact details of a competent emergency spill response company whom can be contacted at short notice for an immediate response;
- Access to Site Drainage Strategies and Emergency Flood Response Plans that are kept up to date; and
- Ensuring staff competence and awareness in implementing plans and using the pollution response kits.

4.30 Further information on the incident response procedure will be developed by the appointed Principal Contractor.

Complaints procedure

4.31 The complaints procedure will be development and will ensure all complaints are addressed adequately and in a timely manner. All complaints will be required to be recorded, together with the responses and outcomes. The timeframe for complaints to be addressed will be agreed with the relevant local authorities.

4.32 To ensure all complaints can be submitted, the name and contact details for the London Resort will be displayed on the outside walls and all entrances/exits of the site on noticeboards. Noticeboards will be maintained and clearly visible to the community. This will include the name of the London Resort, contact details of the Principal Contractor and the Public Liaison Officer. The timeframes for complaints to be acknowledged will also be included on the noticeboards.

4.33 The Public Liaison Officer will be the first point of contact for complaints, if the complaint is felt not to be adequately addressed the community will be advised to contact the Principal Contractor. The Public Liaison Officer will be responsible to resolve concerns and inform the Project Manager when complaints are received.

4.34 Emergency details will also be listed on the noticeboard as well as an out of hours number. Any complaints regarding environmental issues would be discussed with the Environmental Manager.

4.35 All complaints will be logged within the complaints log, including the timeframe to resolve and the outcomes. The contact details to issue complaints will be given to the community prior to works commencing.

4.36 The complaints procedure will be developed further and included within the CEMP by the Public Liaison Officer once they have been appointed.

Health and safety and risk assessment

4.37 All staff must have regard to the Health and Safety at Work Act 1974, which requires all persons to take reasonable care for the health and safety of themselves and other persons. In accordance with the Management of Health and Safety at Work Regulations 1999, the Principal Contractor will prepare a health and safety plan prior to construction works. The plan will be written and owned by the appointed Principal Contractor of the construction works. The plan will be prepared to ensure facilities are in place to include:

- The safety of all employees on-site;
- The safety of all peoples visiting the site;
- Compliance with health and safety legislation, codes of construction practice and industry best practice;
- Define and adoption of emergency procedures; and
- Appropriate training and awareness being provided to personnel.

Security

4.38 Construction activities will be controlled in accordance with the statutory duty (Health and Safety at Work Act 1974) to prevent unauthorised access to the Project Site, thus minimising a number of risks and vulnerabilities ranging from accidents to criminal damage, theft and arson. Site-specific assessments of the security and trespass risk will be undertaken at the Project Site and appropriate control measures implemented. The control measures are likely to include:

- Consultation with Kent and Essex Police on security proposals for the Project Site with regular liaison to review security effectiveness and response to incidents. Further detail is contained in the Security Planning Report (document reference 7.8);
- Physical and technological perimeter protection to establish clear boundary demarcation, deter unauthorised access, and to provide warnings of security breaches to enable a prompt response;
- Immobilisation of plant outside operational hours, removing or securing hazardous materials and fuel storage containers and high value or desirable equipment/assets; and

- Implementing an effective access control policy with minimal Project Site entry points and the utilisation of electronic access control technologies with auditing capabilities. This will be applied to both pedestrian and vehicle access points, with automatic number plate recognition in place to monitor incoming and outgoing vehicular traffic.

4.39 The design and layout of the construction on-site will reduce adverse impacts arising from temporary physical security measures and lighting, as described in the security statement. The Principal Contractor will liaise with local authorities to implement additional traffic management of other measures to minimise disruption and congestion, such as screening of compounds and the provision of security.

4.40 Both the Applicant and appointed Principal Contractor will take reasonable steps to ensure site security measures are in place to prevent illegal disposal of waste at the Project Site.

Requirements and consents

4.41 Requirement 5 in Schedule 2 Part 1 of the draft DCO (document reference 3.1) obliges the Applicant to produce and submit a draft final version of the outline CEMP for each phase of the authorised development to the relevant planning authority for approval prior to the commencement of that phase.

- The construction works must be in accordance with the approved CEMP. The CEMP will reflect the mitigation measures set out in the mitigation commitments in Chapter 22 of the environmental statement, (application document 6.1.22) and will include plans for the management of:

- site waste (document reference 6.2.19.2);

- noise and vibration (document reference 6.1.15);

- construction traffic (document reference 6.1.9);

- air quality (document reference 6.1.16);

- ecology and biosecurity (document reference 6.1.12);

- contaminated land (document reference 6.1.18); and

- pollution prevention.

4.42 Other requirements, consents and licences that will be applied for by LRCH to enable the Proposed Development to proceed can be found in the Other Consents and Licences document (document reference 5.3), submitted as part of the DCO application.

4.43 Other management plans will be included by the appointed Principal Contractor in this section when they are made available. A description of the plan, who would be responsible for its implementation and the method to ensure compliance will also be defined.

Chapter Five ◆ Environmental management and control measures

5.1 This section outlines the environmental management and control measures for each technical discipline during construction, as described in the corresponding ES chapters. The effects and control measures for each technical discipline can be seen in Table 5-1. This table includes all the mitigation measures stated in the ES, together with the following additional information, aiming to facilitate their implementation by the appointed Principal Contractor:

- Topic: specific technical assessment (organised by different environmental elements) in the ES where the mitigation measure was stated;
- Effect: adverse impact on the environment being avoided, mitigated or compensated by the implementation of the mitigation measure;
- Mitigation measure: action required to be implemented in order to avoid, mitigate or compensate the effect;
- Timeframe: period when the mitigation measure is to be implemented;
- Responsibility: roles involved in the implementation of the mitigation measure;
- Specific plan: additional plans to the CEMP required to facilitate the implementation of the mitigation measure;
- Monitoring: way of supervising the implementation of the mitigation measure; and
- Indicator: criteria to measure the implementation of the mitigation measure.

Table 5-1 Construction mitigation measures stated in the London Resort Environmental Statement (Document Reference 6.1).

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
Land Use and Socio-Economics						
Potential temporary effect of the construction workforce on crime levels	Mitigation In the CMS	During the demolition and construction activities	Principal Contractor	CMS	Document review	Availability of appropriate CMS
Potential temporary effect of employment on the labour market, skills and training	Enhancement through the Outline Employment and Skills Strategy	During the demolition and construction activities	Principal Contractor	Outline Employment and Skills Strategy	Document review	Availability of appropriate Employment and Skills Strategy
Human Health						
Potential effect of displacement or change in the demand for health services	Emergency services working group	During all on-site activities	The Applicant	Emergency services working group	Site audit Records of staff training	Availability of emergency services working group Emergency services working group training log and certificates
Potential health effects from changes in crime	Security strategy	During demolition and	Principal Contractor	Security strategy	Document review	Availability of appropriate

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
and community safety (including fear of crime)		construction activities				Security Strategy
Land and River Transport						
Impact of construction traffic on the highway network and transport network users	Provide a framework for the requirements for the management of transport impacts associated with the construction phases of the Proposed Development. This will include construction vehicle routeing; proposed programme and duration; number of construction personnel including travel arrangements and mitigation; number of construction and delivery vehicles using the public highway; and traffic management.	Before and during demolition and construction activities	Construction Manager	CTMP	Document review	Availability of appropriate CTMP

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Adhering to the Demand Management Plan (i.e. a travel Plan for construction staff).	During demolition and construction	Construction Manager	Demand Management Plan and CTMP	Document review Monitoring staff mode of travel	Availability of appropriate Demand Management Plan and CTMP Audit findings on staff modes of travel
	Minimising the number of vehicular trips required for the movement of material and people and ensuring construction traffic trips and routes used are planned to be safe, efficient and timely.	During demolition and construction	Construction Manager	CTMP	Document review Monitoring traffic trips and routes	Availability of appropriate CTMP Audit findings on traffic trips and routes
	Encouraging greater use of sustainable freight modes, such as river barge and encouraging the most efficient use of	During demolition and construction	Construction Manager	CTMP	Document review Monitoring staff mode of travel	Availability of appropriate CTMP

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	construction freight vehicles.					Audit findings on staff modes of travel
	Ensuring the impact to nearby residents, local sensitive receptors and the travelling public are minimised.	During demolition and construction	Public Liaison Officer	CTMP	Document review Feedback from local sensitive receptors	Availability of appropriate CTMP Feedback from local sensitive receptors
Landscape and Visual						
The landscape character and fabric within the Kent Project Site	The LEMP, provides the strategy for delivering landscape management, maintenance and monitoring within the site wide landscape, to ensure that the ecological habitats retained, created or enhanced provide long term benefits to wildlife throughout the operational period	Before demolition and construction	ECoW	LEMP	Document review	Availability of appropriate LEMP

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	of the Proposed Development;					
	An Arboricultural Method Statement (AMS) incorporating best practice guidance set out in British Standard 5837: '2012 Trees in Relation to Design, Demolition and Construction' which will ensure retained trees and other vegetation is not adversely affected during the construction process. Further guidance pertaining to arboricultural matters is contained within the Arboricultural Impact Assessment	During demolition and construction	ECoW	AMS	Document review	Availability of appropriate AMS

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
Residential areas of Swanscombe, Northfleet, Grays, Ingress Park, Greenhithe and Castle Hill	The adoption of an approved topsoil and earthworks management plan (Soil Management Plan) including dust control measures	During demolition and construction	Construction Manager	Soil Management Plan	Document review Environmental audit	Availability of appropriate Soil Management Plan Audit findings on dust control measures and topsoil and earthworks
	The use of visual screening, such as hoardings for more sensitive visual receptors in proximity to the Application Site, including residential receptors that have the greatest potential to be affected by the Proposed Development	During demolition and construction	Construction Manager	CMS	Environmental audit	Audit findings on the use of visual screening
Existing residents that live adjacent to the Project Site	Mitigation measures for construction lighting include	During demolition	Construction Manager	Lighting Statement	Document review	Availability of appropriate

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
(particularly those close to the Kent Project Site and the areas near the Swanscombe Peninsula) would be more sensitive to construction lighting due to the proximity, direction and type of receptor.	directional fittings and restricted hours of operation as referred to in the Lighting Statement (LR-DC-BUR-REP-818.0)	and construction			Environmental audit	Lighting Statement Audit findings on site lighting
PRoW crossings in the Kent Project Site	Access along the PRoWs should be protected using Heras fencing or similar. Construction works which create dust should be kept to a minimum within proximity to the PRoWs, and dust prevention measures, such as damping, should be undertaken to	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on access along PRoWs

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	reduce the impact on users of the PRoW network. For reasons of public safety, any informal use of the site for dog walking, etc., should be established, and where evident, would need to be prevented during the construction phase of the development. This would be achieved using protective fencing.					
Terrestrial and Freshwater Ecology and Biodiversity						
Damage to habitats within designated area used by cited bird species from changes to water and/or sediment quality (either from surface or	Prevention of hydrological impacts through adherence to an appropriate Surface Water Management Strategy	During demolition and construction	ECoW	Surface Water Management Plan	Document review Environmental audit	Availability of appropriate Surface Water Management Plan Audit findings on surface

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
groundwater discharges from the Project Site including construction waste and pollutants; or from disruption of contaminated Thames sediments), with potential associated knock-on risk of bioaccumulation						water discharges
Damage to habitats within the designated area used by cited bird species from changes in air quality, including from dust, construction waste and pollutants, and exhaust emissions	Clean Air Strategy	During demolition and construction	Construction Manager	Clean Air Strategy	Document review	Availability of appropriate Clean Air Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
Direct loss of/ damage to functionally linked land on the Kent Project Site, potentially used by cited bird species, totalling a net loss of 15.49ha, including 14.55ha of coastal and floodplain grazing marsh (Botany Marsh West) and 0.94ha of reedbeds (Black Duck Marsh)	Landscape Strategy - enhancement of retained wetland habitat on Swanscombe Peninsula and creation of new saltmarsh, wetland and reedbed habitats, managed via the Ecological Mitigation and Management Framework (EMMF) (Document Reference 6.2: Appendix 12.3)	During demolition and site clearance works	ECoW	Landscape Strategy	Document review	Availability of appropriate Landscape Strategy
Damage to functionally linked habitats potentially used by cited bird species from introduction or proliferation of Invasive Non-Native Species (INNS)	Non-native Invasive Plant Species Mitigation Strategy included within EMMF (Document Reference 6.2: Appendix 12.3) – including details on control/ eradication of existing	During demolition and site clearance	ECoW	Non-native Invasive Plant Species Mitigation Strategy	Document review	Availability of appropriate Non-native Invasive Plant Species Mitigation Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	populations of non-native species.					
Disturbance (from shipping/ ferry movements) giving rise to displacement, behavioural changes or physiological stress to cited bird species potentially using functionally linked habitats	Bird Monitoring Response Strategy (BMRS) - monitoring of bird use on the intertidal habitats and other functionally linked land – if the numbers of birds within the monitored area fall below a certain threshold in response to obvious construction activities then those disturbance activities will be temporally ceased. Off-site Ecological Mitigation – delivered in accordance with the	During demolition and construction	ECoW	BMRS	Document review	Availability of appropriate BMRS

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	'General Principles for Offsite Ecological Mitigation' (Document Reference 6.2, Appendix 12.10), to offset any residual effects					
Disturbance (noise and lighting) associated with construction activities, giving rise to displacement, behavioural changes or physiological stress to cited bird species potentially using functionally linked habitats	Restricted working hours and sensitive design and location of new lighting to minimise impacts on nocturnal/ crepuscular wildlife; Sensitive timing of works causing in excess of 55dB of noise at the estuary, to take place in summer months, where possible, as detailed in the Bird Mitigation Strategy;	During demolition and construction	Construction Manager and ECoW	Sensitive Lighting Strategy	Document review Environmental audit	Availability of appropriate Sensitive Lighting Strategy Audit findings on lighting and working hours

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Monitor bird activity and inform the development of further control/ mitigation measures as required.					
Disturbance (human movement or activity), to cited bird species potentially using functionally linked habitats, as a result of increased human presence on the Project Site during construction	Use of site screening/ hoarding; sensitive timing of works within 300m of the estuary or functionally linked habitat and visible from that habitat to take place in summer months, where possible; and access by construction workers to estuary front restricted within 500m of visible wetland habitats, where possible; as detailed	During demolition and construction	Construction Manager	Bird Mitigation Strategy	Document review Environmental audit	Availability of appropriate Bird Mitigation Strategy Audit findings on use of screening and hoarding

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	in the Bird Mitigation Strategy					
Damage to habitats from adjacent construction works and deposition of construction materials	Detailing sensitive construction methodology, including set up and maintenance of Ecological Protection Zones (EPZs) where no construction vehicles/ works are permitted and where no materials or site facilities may be situated.	Before construction works	ECoW	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on EPZs
Direct loss of/ damage to habitat	Retention of site wide open mosaic of habitats within retained parts of Swanscombe Peninsula, and creation of new constructed wetland, new ponds and ditches, and water vole receptor site.	Before and during construction works	ECoW	Landscape Strategy	Document review	Availability of appropriate Landscape Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
Direct loss of individual plants, and part of plant meta-population through loss of habitat	Rare Plant Mitigation Strategy enclosed within the EMMF – providing details for the translocation of nationally scarce plants/ seed bank occurring on the Kent Project Site	Before and during demolition and site clearance	ECoW	Rare Plant Mitigation Strategy	Document review	Availability of appropriate Rare Plant Mitigation Strategy
Direct loss of habitat	Enhancement of retained scrub habitats and commencement of rotational management to avoid excessive encroachment and to maintain varied structure and open mosaic habitat and create new opportunities for the development of species-rich wildflower grassland	Before and during demolition and site clearance	ECoW	Landscape Strategy	Document review	Availability of appropriate Landscape Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Enhancement of existing retained open mosaic habitat (OMH) through introduction of greater variety and complexity, maintaining a range of microhabitats, foodplants and nectar sources. Measures include creation of bare ground scrapes, creation of shallow pools of varying depth, creation of piles/mounds of mixed crushed and coarse concrete rubble, and creation of chalk mounds and low bunds. Furthermore, creation of brown roof habitat on new buildings using	Before and during demolition and site clearance	ECoW	Landscape Strategy	Document review	Availability of appropriate Landscape Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	substrate (crushed concrete and chalk) originating from the Proposed Development footprint					
Habitat fragmentation, loss of flight paths and dispersal routes	Maintenance of connectivity across the Peninsula through the inclusion of a chain of watercourses and wetland areas wrapping around the side of the Proposed Development footprint, and maintenance of unrestricted flight path from River Thames into Black Duck Marsh via retaining and managing low-growing vegetation	During demolition and construction	ECoW	Landscape Strategy	Document review	Availability of appropriate Landscape Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	at northern edge of marsh. Creation of new wetland and saltmarsh habitats on Swanscombe Peninsula					
Direct habitat loss	Landscape Strategy and Breeding and Winter Bird Mitigation Strategy included within EMMF - enhancement of retained scrub habitat through rotational management to create age class and structural diversity, and maintenance of site wide open mosaic habitats to provide variety of foraging resources, managed via the EMMF	During demolition and construction	ECoW	Landscape Strategy and Breeding and Winter Bird Mitigation Strategy	Document review Environmental audit	Availability of appropriate Strategy and Breeding and Winter Bird Mitigation Strategy Audit findings on landscape enhancements

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
Disturbance (from shipping/ ferry movements)	Monitoring of bird use on the intertidal habitats and other functionally linked land – if the numbers of birds within the monitored area fall below a certain threshold in response to obvious construction activities then those disturbance activities will be temporally ceased.	During demolition and construction	ECoW	Bird Monitoring Response Strategy	Document review Environmental audit	Availability of appropriate Bird Monitoring Response Strategy Audit findings on bird numbers
Habitat fragmentation, loss of flight paths and dispersal routes	Maintenance of connectivity across the Peninsula through the inclusion of a chain of watercourses and wetland areas wrapping around the side of the Proposed	During site clearance and demolition	ECoW	Landscape Strategy	Document review	Availability of appropriate Landscape Strategy Audit findings on flight paths and wet land habitats

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Development footprint, and maintenance of unrestricted flight path from River Thames into Black Duck Marsh via retaining and managing low-growing vegetation at northern edge of marsh. Creation of new wetland habitats and waterbodies on Swanscombe Peninsula					
Direct killing, injury or harm to individuals – during demolition of buildings with bat roost potential and trees with bat roost potential	Including pre-commencement surveys of structures/trees to be demolished/ felled, and receipt of European Protected Species Mitigation Licence (EPSML), or site registration	During demolition	ECoW	Bat Mitigation Strategy	Document review	Availability of appropriate Bat Mitigation Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	under the Bat Mitigation Class Licensing (BMCL) scheme, prior to works commencing, with precautionary method of working (as prescribed by the license), strictly adhered to. Establishment of EPZs to protect retained habitats. Creation of new bat roosting habitat, including bat boxes incorporated into new buildings, and into the two new bird watching towers.					
	Including pre-commencement surveys of suitable dormouse habitat,	During demolition and site clearance	ECoW	Dormouse Mitigation Strategy	Document review	Availability of appropriate Dormouse

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	and receipt of European Protected Species Mitigation Licence (EPSML) prior to habitat clearance commencing, with dormouse displacement methodologies and precautionary method of working (as prescribed by the license), strictly adhered to. Establishment of EPZs to protect retained habitats. Enhancement of existing scrub habitats to ensure habitats remain suitable for dormice, through rotational scrub management to improve					Mitigation Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	structural and age class diversity and maintain variety of food sources throughout the dormouse active season.					
	Harvest Mouse Mitigation Strategy included within EMMF (Document Reference 6.2: Appendix 12.3) – including pre-commencement check of suitable habitat, and precautionary method of working strictly adhered to. Establishment of EPZs to protect retained habitats; Maintenance of site wide open mosaic	During demolition and site clearance	ECoW	Harvest Mouse Mitigation Strategy	Document review	Availability of appropriate Harvest Mouse Mitigation Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	habitat including a range of habitats of value to harvest mice including rough, tussocky grassland, tall riparian/ marginal/ reedbed habitat with adjacent scrub to provide refuge, foraging and breeding opportunities.					
Direct killing, injury or harm to individuals – during vegetation clearance	Translocation of amphibians in tandem with reptile translocation, precautionary methods of working including sensitive drain down of any waterbodies to be removed, timing of works, and establishment of EPZs to protect retained habitats.	Vegetation clearance	ECoW	Amphibian Mitigation Strategy	Document review	Availability of appropriate Amphibian Mitigation Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Creation of new wetlands, ditches, ponds and waterbodies on Swanscombe Peninsula, as described above in relation to water voles and otters, will also mitigate habitat loss impacts to amphibians.					
	Establishment of suitable receptor site and subsequent translocation of reptiles from construction footprint prior to vegetation clearance commencing, and precautionary methods of working. Establishment of	Vegetation clearance	ECoW	Reptile Mitigation Strategy	Document review	Availability of appropriate Reptile Mitigation Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	EPZs to protect retained habitats. Maintenance of site wide open mosaic habitats on Swanscombe Peninsula to maintain a variety of foraging resources, breeding, basking, sheltering and hibernation habitats. Management of grassland areas to encourage development of structurally complex grassland sward with substantial 'litter layer' and areas of bare ground. Creation of log/brash piles and hibernaculum to provide sheltering and hibernating					

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	habitats, and grass snake breeding sites from piling arisings from grass cutting.					
Direct habitat loss	Enhancement of existing retained open mosaic habitat (OMH) to better quality and creation of new brown roofs as described previously. Furthermore, enhancement of retained wetland habitat within Botany Marsh East and Black Duck Marsh through reduction of scrub encroachment, selective ditch re-profiling, and creation of additional scrapes and deep areas in	During demolition and construction	ECoW	Invertebrate Mitigation Strategy	Document review	Availability of appropriate Invertebrate Mitigation Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Black Duck Marsh. Creation of additional saltmarsh habitat on the north eastern edge of Swanscombe Peninsula through 'retiring' the flood defence. Creation of a number of habitats of value to invertebrates within the amenity spaces within the resort itself, including native tree and shrub planting, wildflower strips, green roofs and walls and 'bug hotels'.					
Marine Ecology and Biodiversity						
Loss of saltmarsh habitat	Creation of saltmarsh habitat. See above in 'Terrestrial ecology'	During demolition and site	ECoW	Landscape Strategy	Document review	Availability of appropriate Landscape Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	mitigation for more details.	clearance works				
Erosion of intertidal habitats	Booms or other equivalent infrastructure will be included within the designs for the ferry terminal and jetties to reduce the potential for erosion caused by boat wash.	During construction ald operation	Construction manager	CMS	Document review Environmental audit	Availability of appropriate CMS
Potential pollution	Surface drainage will pass via settlement and oil interception facilities, where required, and discharge arrangements will be agreed with the utility provider	During demolition and construction	Construction manager	Surface Water Drainage Strategy	Document review Environmental audit	Availability of appropriate Surface Water Drainage Strategy Audit findings on surface drainage
	Stockpiling of contaminated materials will be avoided, wherever	During demolition and construction	Construction manager	CMS	Document review	Availability of appropriate CMS

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	possible. Stockpiles will be located on areas of hard standing or on plastic sheeting to prevent mobile contaminants infiltrating into the underlying ground				Environmental audit	Audit findings on stockpiling
	Potentially hazardous liquids on the Site such as fuels and chemicals will be managed and stored in accordance with best practice guidance, such as that published by the Environment Agency. Storage tank and container facilities will be appropriately bunded within designated areas and located away from surface water	During demolition and construction	Construction manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on stockpiling

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	drains, docks and the tidal River Thames					
	Strict protocols will be put in place to minimise risks associated with oil spillages from the ferries and other vessels utilising Tilbury Ferry Terminal, the new passenger pier and the new Ro-Ro facilities.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on spillages
	Provision of on-site equipment for containing spillages, such as emergency booms and chemicals to soak up spillages. Any pollution incidents will be reported immediately to the Applicant and	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on spillages

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	regulatory bodies such as the Environment Agency.					
Effects of Underwater Noise and Vibration	Planning pile driving works, so they are not conducted at the same time at the Kent and Essex Project Sites	During piling activities	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on piling works
	Using a quieter installation method e.g. vibropiling or rotary auger drilling	During piling activities	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on piling works
	Using smaller piles which will require less force to install and reducing noise and vibration levels generated;	During piling activities	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on piling works
	Piling at low tide when intertidal areas will be exposed to the air	During piling activities	Construction Manager	CMS	Document review	Availability of appropriate CMS

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	and noise will not propagate as far through the water column				Environmental audit	Audit findings on piling works
	Employ 'soft start' procedures to piling to provide mobile receptors an opportunity to move away from the sound source	During piling activities	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on piling works
	Develop construction programme that avoids piling at sensitive times of the year including fish migration and spawning periods in the tidal River Thames.	During piling activities	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on piling works
Effects of Introducing or Spreading Non-Native Species	Management of vehicles and vessels during construction to prevent the	During demolition and construction	Construction Manager	Biosecurity Plan	Document review	Availability of appropriate Biosecurity Plan

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	introduction or spread of non-native species including: • Biofouling; • Ballast water; • Movement of slow or stationary vehicles; and • Use of small vessels.				Environmental audit	and Biosecurity Risk Assessment Audit findings on vessel movements
	Adherence to legislative guidance for specific port and harbour authorities.	During demolition and construction	Construction Manager	Biosecurity Plan	Document review Environmental audit	Availability of appropriate Biosecurity Plan and Biosecurity Risk Assessment
	Follow best practice guidance, apply Best Available Technology (BAT).	During demolition and construction	Construction Manager	Biosecurity Plan	Document review Environmental audit	Availability of appropriate Biosecurity Plan and Biosecurity Risk Assessment Audit vessels

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Follow best practice guidance as set out in the Natural England and Natural Resources Wales Biosecurity Planning guidance (Cook *et al*. 2015).	During demolition and construction	Construction Manager	Biosecurity Plan	Document review Environmental audit	Availability of appropriate Biosecurity Plan and Biosecurity Risk Assessment
Effects of Dredging (Option C only)	Phasing of dredging works to avoid sensitive seasons for marine species e.g. fish spawning or migration periods.	During demolition and construction	Construction Manager	Construction Programme	Document review Environmental audit	
Effect of trampling on sensitive habitats including saltmarsh	Access by personnel and construction plant restricted to clearly delineated routes.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS
Effect of artificial lighting	Task and area lighting will be hooded or otherwise shielded to reduce light 'spill' into the surrounding area and will be	During demolition and construction	Construction Manager	CMS Lighting Statement	Document review Environmental audit	Availability of appropriate CMS and Lighting Statement

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	positioned to avoid light spill into the tidal Thames Estuary					
Cultural Heritage and Archaeology						
Loss of archaeological remains	Preservation using the in-situ method of construction that will minimise below ground impacts following the framework in the Historic Environment Framework. This will include a watching brief involving the monitoring of ground works during construction in areas where the archaeological potential is considered to be low	During demolition and site clearance works	Construction manager	Historic Environment Framework	Document review Training log	Availability of appropriate Historic Environment Framework Log of staff training record for the briefing
Noise and Vibration						
Demolition and construction noise	Selecting quieter plant and equipment for the Earthworks,	Before and during demolition	Construction manager	CLP	Documents review	Availability of appropriate CLP

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Piling, Paving, General Construction activities	and construction activities	Senior HSSE		Noise monitoring on site	Levels of noise measured while piling
	Turning equipment off when they are not in use (general construction)	During construction and demolition activities	Construction manager	CLP	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about idling equipment
	Providing enclosures around fixed plant like power generators or using mains power (General Construction);;	During construction and demolition activities	Construction manager	CLP	Documents Review Periodical site environmental audit	Availability of appropriate CLP Audit findings about appropriate shielding on site
	Ensuring that all plant and equipment is well maintained;	During construction and demolition activities	Construction manager Senior HSSE	CLP Site health and safety plan	Document review Periodical site environmental audit	Availability of appropriate CLP and site health and safety plan Audit findings

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Keep internal haul routes well maintained and avoid steep gradients (Earthworks, Paving);	During construction and demolition activities	Construction manager	CLP	Document review	Availability of appropriate CLP
	Use rubber linings in chutes and dumpers to reduce impact noise (Earthworks, Paving)	During construction and demolition activities	Construction manager	CLP	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about appropriate chutes and dumpers on-site
	Minimise drop heights of materials (Paving);	During construction and demolition activities	Construction manager Senior HSSE	CLP Site health and safety plan	Documents review Periodical site environmental audit	Availability of appropriate CLP and site health and safety plan Audit findings
	Start plant up sequentially rather than simultaneously	During construction and	Construction manager	CLP	Document review	Availability of appropriate CLP

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	(General Construction)	demolition activities			Periodical site environmental audit	Audit findings about plant start up
	Move fixed plant away from identified noise sensitive receptors (General Construction);;	During construction and demolition activities	Construction manager Senior HSSE	CLP Health and safety plan	Document review Periodical site environmental audit	Availability of appropriate CLP and site health and safety plan Audit findings about fixed plant positioning
	Modify existing plant with noise attenuation packages such as acoustic enclosures and attenuators	During construction and demolition activities	Construction manager	CLP	Document review Periodical site environmental audit	Availability of appropriate CLP Audit findings About noise attenuation packages
	For impact driven piling, a non-metallic dolly between the hammer and the driving helmet	Limited to piling activities	Senior HSSE	CLP	Documents review Noise monitoring on	Availability of appropriate CLP Levels of noise

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	should be used (Piling)				site	measured while piling
	Introducing an acoustic shroud for impact driven piles (Piling)	Limited to piling activities	Construction manager	CLP	Documents review Noise monitoring on site	Availability of appropriate CLP Levels of noise measured while piling
	Choose a quieter piling method (Piling)	Limited to piling activities	Construction manager	CLP	Documents review Noise monitoring on site	Availability of appropriate CLP Levels of noise measured while piling
Demolition and construction vibration	Substitute plant and/or methods with less obtrusive plant and/or methods (General Construction);	During construction and demolition activities	Construction manager	CLP	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about use of obtrusive plant /methods
	Where reasonably practical, move vibrating equipment away from identified	During construction and demolition	Construction manager	CLP	Documents review Periodical site	Availability of appropriate CLP

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	NSRs (General Construction);	activities			environmental audit	Audit findings about distances between vibrating equipment and NSRs
	Vibration isolation of stationary plant (General Construction	During construction and demolition activities	Construction manager	CLP	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about isolation of stationary plant
	Selecting less intrusive methods of piling (Piling)	Limited to piling activities	Construction manager	CLP	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about methods of piling
	Employ cut-off trenches which are analogous to noise barriers (Piling)	Limited to piling activities	Construction manager	CLP	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about use of cut-off trenches

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Pre-auguring before installing the piles (Piling)	Limited to piling activities	Construction manager	CLP	Documents review Periodical site environmental audit	Availability of appropriate CLP Audit findings about pre-auguring
Air Quality						
Air quality and dust effects on local receptors	Develop and implement a stakeholder communications plan that includes community engagement before work commences at the Project Site. Display the name and contact details of person(s) accountable for air quality and dust issues on the Project Site boundary. Display the head or regional office contact information in the interest of	Before work commences and during work	Public Liaison Officer	Stakeholder communication plan	Document review	Availability of appropriate communication plan

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	transparency and as a point of contact in the event complaints or queries arise.					
	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the relevant local authorities and stakeholders. The level of detail will depend on the risk and should include, at minimum, the measures detailed in the IAQM construction guidance document. The DMP should include monitoring of dust deposition,	Before work commences and during work	Construction Manager	DMP	Document review	Availability of appropriate DMP

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	dust flux, real time PM10 continuous monitoring and/or visual inspections.					
	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. Make the complaints log available to the local authority when asked	During demolition and construction	Public Liaisons Officer	DMP	Document review	Availability of appropriate DMP Availability of complaints record
	Record any exceptional incidents that cause dust and air quality pollutant emissions, either on or off the Project Site, and ensure that the action taken to	During demolition and construction	Public Liaisons Officer	DMP	Document review	Availability of appropriate DMP Availability of incidents record

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	resolve the situation is recorded in the logbook.					
	Hold regular liaison meetings with other high-risk construction sites within 500m of the Project Site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport deliveries which might be using the same strategic road network routes.	Before and during demolition and construction	Public Liaisons Officer	DMP	Document review	Availability of appropriate DMP Availability of minutes from meetings
	Undertake daily on-site and off-site inspection, where	During demolition	Construction Manager	DMP	Document review	Availability of appropriate DMP

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.	and construction			Environmental audit	Availability of dust log
	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the	During demolition and construction	Construction Manager	DMP	Document review Environmental audit	Availability of appropriate DMP Availability of compliance log

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	relevant local authorities if asked.					
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on the Project Site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.	During demolition and construction	Construction Manager	DMP	Document review Environmental audit	Availability of appropriate DMP Availability of compliance log
	Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the local authority. Baseline monitoring should commence at least three months before	During demolition and construction	Construction Manager	DMP	Document review Environmental audit	Availability of appropriate DMP Availability air quality monitoring data

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	work commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.					
	Plan the Project Site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on layout of dust causing activities
	Erect solid screens or barriers around areas where activities likely to generate dust will take place and material stockpiles. Ensure these barriers are at least as high as any stockpiles on site.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on solid screens or barriers

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Fully enclose areas or specific operations where there is a high potential for dust production and the Project Site is active for an extensive period.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings high dust activities
	Avoid site runoff of water or mud.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on runoff
	Keep site fencing, barriers and scaffolding clean using wet methods.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on site fencing
	Remove materials that have a potential to produce dust from the Project Site as soon as possible,	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	unless being re-used on the Project Site. If they are being re-used on-site cover as described below.					Audit findings on material removal on-site
	Cover, seed or fence stockpiles to prevent wind whipping.	During construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on stockpiles
	Ensure all vehicles switch off engines when stationary - no idling vehicles.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on idling vehicles
	Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on powered generators

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on speed limits on-site
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	Before demolition and construction	Construction Manager	CMS/CLP	Document review	Availability of appropriate CMS and CLP

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Implement a Travel Plan that supports and encourages sustainable travel for construction workers (public transport, cycling, walking, and car-sharing).	During demolition and construction	Principal Contractor	CMS/Travel Plan	Document review Environmental audit	Availability of appropriate CMS and Travel Plan Audit findings on sustainable travel for workers
Dust arising from on-site works	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on dust suppression equipment
	Ensure an adequate water supply on the Project Site for effective dust/particulate matter	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on dust

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	suppression/mitigation, using non-potable water where possible and appropriate.					suppression equipment
	Use enclosed chutes and conveyors and covered skips.	During demolition and construction	Construction Manager	CMS	Document review	Availability of appropriate CMS
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on dust suppression
	Ensure equipment is readily available on the Project Site to clean any dry spillages and clean up spillages as soon	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	as reasonably practicable after the event using wet cleaning methods.					Audit findings on wet cleaning methods
Emissions arising from on-site activities	No bonfires or any burning of waste materials.	During demolition and construction	Construction Manager	CMS	Document review	Availability of appropriate CMS
Dust and emissions arising from on-site works	Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust.	During demolition	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on demolition processes
	Ensure effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be	During demolition	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on demolition processes

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.					
	Avoid explosive blasting, using appropriate manual or mechanical alternatives.	During demolition	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on blasting
	Bag and remove any biological debris or damp down such material before demolition.	During demolition	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on demolition processes

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	During earthworks	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on earthwork activities
	Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. Only remove the cover in small areas during work and not all at once.	During earthworks	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on earthwork activities
	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure	During construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on bunding areas

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	that appropriate additional control measures are in place.					
	Avoid scabbling (roughening of concrete surfaces) if possible.	During construction	Construction Manager	CMS	Document review	Availability of appropriate CMS
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.	During construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on delivery tankers for cement and other fine powder materials
	For smaller supplies of fine powder materials ensure bags are sealed after use and stored	During construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on storage of

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	appropriately to prevent dust.					fine powder materials
	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the Project Site. This may require the sweeper being continuously in use. Avoid dry sweeping of large areas.	During trackout	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on dust sweepers
	Ensure vehicles entering and leaving the Project Site are covered to prevent escape of materials during transport.	During trackout	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on vehicle coverage
	Record all inspections of haul routes and any subsequent action in a site logbook.	During trackout	Construction Manager	CMS	Document review Inspections	Availability of appropriate CMS Availability of inspection log

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	During trackout	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on wheel washing systems
Water Resources and Flood Risk						
Increased sediment loads	Do not locate stockpiles within 10m of water bodies or drainage lines. Wheel wash facilities should be provided at all entry and exits points. Run-off and dewatering will be settled in temporary lagoons before discharge. Apply dust management procedures which	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on sediment loads

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	are typically implemented for air quality management issues. Implement good site practice, perimeter fences and tight control of materials and waste to minimise the risk of debris entering water bodies Use of floating equipment where possible to reduce impact to marine bed.					
Hydrocarbons and oils	Incorporate interceptors into the site drainage system at high risk areas. Use of drip trays under equipment such as generators and wheel washing facilities.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on site drainage system

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
Accidental leaks of hazardous materials	Provide storage facilities and tanks and conduct refuelling of machinery within bunded areas away from water bodies and drainage lines. Mixing of construction materials will be conducted in designated areas located away from water bodies and drainage lines.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on storage facilities and leaks
Dust and debris	Apply dust management procedures which are typically implemented for air quality management issues, such as damping down to suppress the creation of dust.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on dust and debris

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
Leak and breakage of the temporary sewerage system	Provide and maintain temporary septic tank, cesspit and/or sewerage connection. Any temporary toilet facilities will be positioned at least 10 m away from the banks of water bodies / on-site culverts.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on leaks and breakages
Dewatering of excavations	Capture run off from site in perimeter cut off ditches, settlement lagoons and/or settlement tanks where possible. Any dewatering required from site excavations should be pumped into a settlement tank or lagoon and not discharge direct to a water body or the	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on dewatering of excavations

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	on-site surface water sewerage network. Sediment should be removed from water pumped water during any extractions required. Sediment should be removed prior to discharges to the surface water network through the use of a baffle tank system or equivalent. If there is a requirement for discharge to the combined sewer, this should be throttled to a flow rate that is agreed with the sewerage undertaker prior to commencement of work.					

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
Increased water demand	All relevant contractors should investigate opportunities to minimise and reduce the use of water, such as: selection and specification of equipment; implementation of staff-based initiatives such as turning off taps, plant and equipment when not in use both onsite and within site offices; use of recycling water systems such as wheel washes, site toilets handwash; and use of a rainwater harvesting system for use in equipment and vehicle washing.	During demolition and construction	Construction Manager/Principle Contractor	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on water demand

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
Flood risk to demolition/construction workers and construction plant	Contractor to prepare a flood emergency and contingency plan including arrangements to make safe any static plant, move any mobile plant, and to evacuate site operatives in a flood risk emergency. Construction workers should be made aware of risks associated with excess surface water caused by overland flows and standing water.	During demolition and construction	Construction Manager/Principle Contractor	CMS/Flood Emergency Plan	Document review	Availability of appropriate CMS and Flood Emergency Plan
Soils, Hydrogeology and Ground Conditions						
Direct contact, inhalation or ingestion	Appropriate health, safety and welfare provision relevant to below ground works. Including;	During demolition and construction phase	Senior HSSE	Site training plan and CoCP	Documents review Periodical site environmental	Audit findings on ground investigations

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	induction, awareness training, PPE and provision for unforeseen contamination (including Unexploded Ordnance, UXO). Ground investigations to include sampling / testing for acute risks and monitoring of groundwater and ground gas / vapour.				audit	Availability of an appropriate CoCP site training plan and training certificates
Dust emissions, migration of gas / vapour	Dust suppression measures such as dampening, and wheel washing. Ground investigations to include sampling / testing for acute and chronic risks and monitoring of groundwater and ground gas / vapour.	During demolition and construction phase	Construction manager	Dust management plan	Periodical site environmental audit	Availability of appropriate dust management plan Audit findings on dust suppression measures

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
Infiltration, leaching and migration, run- off	Measures to limit un-sealed surfaces and contain / manage infiltration and surface water run-off. Ground investigations to include monitoring of groundwater and risk assessment. Foundation Works Risk Assessment (undertaken as part of detailed design) to inform foundation solution and ensure mitigation of risk. Remediation Strategy (to be prepared in general accordance with the Contaminated Land Management Strategy, Appendix	During demolition and construction phase	Senior HSSE	Foundation Works Risk Assessment and Remediation Strategy	Periodical site environmental audit	Adequate Foundation Works Risk Assessment and Remediation Strategy Audit findings on infiltration, leaching and migration, run-off

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	18.9) to include removal / treatment of any gross contamination. Control of groundwater during excavation.					
Impeded health and growth of plants and animals	Particular measures for the protection of flora and fauna, as set out in Chapter 12 (Terrestrial and freshwater ecology and biodiversity of the ES.	Before and during demolition and construction phase	ECoW	Outline Landscape & Ecological Management Plan	Periodical site environmental audit	Adequate Outline Landscape & Ecological Management Plan Audit findings on growth of plants and animals
Potential effects on groundwater	A piling risk assessment in accordance with EA guidance will be undertaken as the design progresses. Piling techniques deemed appropriate to identify and	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on spillages

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	manage potential risks as a result of creating pathways to groundwater will be used.					
Potential effects on groundwater	Working methods during earthworks and ground stabilisation works to appropriately manage groundwater and surface water, ensuring that there is no uncontrolled runoff from the works, material / waste stockpiles, and storage containers into the aquifer, in accordance with Pollution Prevention Guideline (PPG) 6: Working at	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on spillages

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Construction and Demolition Sites					
Potential effects on groundwater	Working methods during earthworks and ground stabilisation works to appropriately manage exposed areas, to minimise infiltration and to ensure that there is no uncontrolled runoff from the works, in accordance with Pollution Prevention Guideline (PPG) 6: Working at Construction and Demolition Sites.	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on spillages
	The Kent and Essex Project Sites will be operated in accordance with the relevant regulations	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	and best practice guidance in applying Best Available Techniques and pollution prevention					Audit findings on spillages
Potential effects on groundwater	An appropriate pollution incident control will be implemented on the Kent and Essex Project Sites and any leaks / spills will be identified as soon as possible and dealt with appropriately to prevent aquifer contamination	During demolition and construction	Construction Manager	CMS	Document review Environmental audit	Availability of appropriate CMS Audit findings on spillages
Potential effects on groundwater	The drainage system will be designed so that any unplanned spillages can be contained and will not enter the aquifer underlying the Kent	During demolition and construction	Construction manager	Surface Water Drainage Strategy	Document review Environmental audit	Availability of appropriate Surface Water Drainage Strategy

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	and Essex Project Sites.					Audit findings on surface drainage
Waste and Materials						
Pressure on local waste management infrastructure to collect and manage construction, demolition and excavation (CDE) waste arisings throughout construction phase.	All waste generated will be stored in designated areas that are isolated from surface drainage. Waste containers will be covered to prevent dust and litter being blown out and rainwater accumulating. Containers will be inspected regularly and replaced when full.	During demolition and construction phase	Site Waste Manager	OCWMP	Documents review Periodical site environmental audit.	Availability of appropriate OCWMP Audit findings on waste storage areas and inspections.
	Provision of clearly marked segregated bins/skips for construction materials to avoid cross-contamination	Before construction and maintained for the duration of works	Site Waste Manager	OCWMP	Document review. Periodical site environmental audit.	Availability of appropriate OCWMP and audit findings on bin segregation.

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	and to facilitate recycling.					
	A specific area should be allocated and labelled to facilitate the segregation of waste materials for potential re-use, recycling and recovery.	Allocated before construction and segregation during the construction phase	Site Waste Manager	OCWMP	Document review Monitoring waste segregation.	Availability of appropriate OCWMP and waste monitoring findings.
	Hazardous waste will be stored separately from non-hazardous waste to avoid contamination in line with the Hazardous Waste Regulations , 2005.	During demolition and construction activities	Site Waste Manager	OCWMP	Document review Environmental audit.	Availability of appropriate OCWMP Audit findings on hazardous and non-hazardous waste storage.
	Efforts should be made to recover and recycle packaging waste in accordance with packaging legislation.	During demolition and construction activities	Site Waste Manager	OCWMP	Document review Environmental audit.	Availability of appropriate OCWMP and audit findings on waste

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
						recovery and recycling.
	Recycling and waste skips will be kept clean and clearly marked to reduce contamination of materials. The labelling shall use 'Waste Stream Colour Codes'.	During all construction activities	Site Waste Manager	OCWMP	Document review Environmental audit.	Availability of appropriate OCWMP and audit findings on skip contamination.
	Training will be provided for all site personnel, informing them of the correct disposal routes for materials.	Before construction commences and when training / retraining is required	Site Waste Manager	OCWMP and Site Training Plan	Document review.	Availability of appropriate OCWMP and Site Training Plan Availability of staff training certificates and records in the training log.
	A site waste champion will be appointed to oversee correct segregation /	Before construction and during	Site Waste Manager	OCWMP	Document review.	Availability of appropriate OCWMP and review of record of all resources

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	disposal and keep a record of all resources generated on-site.					generated on-site.
	Recycled materials should be sourced where possible to reduce the demand for virgin materials.	Prior to construction and during	Principal Contractor	OCWMP	Document review Environmental audit.	Availability of appropriate OCWMP and audit findings on material sources.
	Further development and implementation of the OCWMP. The OCWMP includes measures aimed at reducing CDE waste at design stages and will provide actions and guidelines on waste segregation on-site.	Prior to and during construction phase	Principal Contractor to develop and implement and to be signed off by the client	OCWMP	Document review.	Availability of appropriate OCWMP
	A system will be established so that the correct quantities of	Prior to construction	Principal Contractor	OCWMP	Document review	Availability of appropriate OCWMP and audit findings

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	materials are ordered. This will reduce the volume of unused materials going to landfill.				Environmental audit.	on material wastes.
	Dedicated areas will be created that allow for the correct storage of new building materials. This will reduce the risk of contamination/spoiling including timely ordering of materials will reduce the time that materials are stored on-site. This will also reduce the risk of spoiling.	Prior to and during construction	Site Waste Manager	OCWMP	Document review Environmental audit.	Availability of appropriate OCWMP and audit findings on material storage.
Pressure on regional waste management infrastructure to collect and manage CDE waste arisings from the	An OCWMP has been developed as part of the ES to be implemented during construction to increase recycling and reduce waste. In	Prior to and during construction phase	Principal Contractor to develop and implement and to be signed off by the client	OCWMP	Document review.	Availability of appropriate OCWMP

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
construction of the Proposed Development throughout the construction phase	addition, as part of the design, measures to design out waste have been considered.					
	A system will be established so that the correct quantities of materials are ordered. This will reduce the volume of unused materials going to landfill.	Prior to construction	Principal Contractor	OCWMP	Document review Environmental audit.	Availability of appropriate OCWMP and audit findings on material wastes.
	Dedicated areas will be created that allow for the correct storage of new building materials. This will reduce the risk of contamination / spoiling including timely ordering of materials will reduce the time that	Prior to and during construction	Site Waste Manager	OCWMP	Document review Environmental audit.	Availability of appropriate OCWMP and audit findings on material storage.

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	materials are stored on-site. This will also reduce the risk of spoiling.					
Greenhouse gases and climate change						
Construction stage embodied carbon	A whole life carbon assessment will be undertaken for each building to identify opportunities to reduce embodied carbon through design, material specification and construction processes. As per the Outline Sustainability Strategy (Document Reference LR-DC-BUR-REP-808.0)	Detailed Design Stage	Design team and Principal Contractor.	Include in design team brief and Principal Contractor tender requirements.	Document review Environmental site audit.	Availability of appropriate life carbon assessment and audit findings about site design.
	Appropriate KPIs will be developed to measure and report on material efficiency and circularity. As per	Detailed Design Stage	Design team and Principal Contractor.	Include in design team brief and Principal Contractor tender	Document review Periodical site environmental audit	Availability of appropriate KPIs and report on material efficiency

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	the Outline Sustainability Strategy (Document Reference LR-DC-BUR-REP-808.0)			requirements.		
	Materials used for hard landscaping and street furniture will explore opportunities for high recycled content and bio-based materials. As per the Outline Sustainability Strategy (Document Reference LR-DC-BUR-REP-808.0)	Detailed Design Stage	Design team and Principal Contractor.	Include in design team brief and Principal Contractor tender requirements.	Periodical site environmental audit	Availability design team brief and audit findings about site design.
	Innovations in materials will form part of the designer's brief for any rides and attractions. As per the Outline Sustainability	Design Stage	Design team and Principal Contractor.	Include in design team brief and Principal Contractor tender requirements.	Periodical site environmental audit	Availability design team brief and audit findings about site design.

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Strategy (Document Reference LR-DC-BUR-REP-808.0)					
	Movement of construction materials and waste via the River Thames, rather than via road. As per the Outline Construction Method Statement (Document Reference LR-DC-SAV-REP-819.0)	Construction Stage	Principal Contractor.	Include contractor tender requirements.	Document review	Availability of appropriate CMS and audit findings.
	On-site soil washing to be utilised to allow reuse of material from the site, rather than importing soil from elsewhere. As per the Outline Construction Method Statement (Document Reference LR-DC-SAV-REP-819.0).	Detailed Design and Construction Stage	Design Team and Principal Contractor tender requirements.	Include in design team brief and contractor tender requirements.	Document review	Availability of appropriate CMS and audit findings.

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
Life cycle embodied carbon	A Circular Economy Statement will be developed for each building typology to identify opportunities to minimise new virgin material demand during construction, minimise resource demand during the operational life arising from repair, refurbishment and replacement, and maximise material recovery at the end of life. As per the Outline Sustainability Strategy (Document Reference 7.7)	Detailed Design Stage	Design team and Principal Contractor.	Include in design team brief and Principal Contractor tender requirements and Circular Economy Statement.	Document review Periodical site environmental audit	Audit findings about site design and availability of appropriate Circular Economy Statement.
	Buildings will be designed to be flexible and adaptable to stay	Detailed Design Stage	Design team and Principal Contractor.	Include in design team brief and Principal	Periodical site environmental audit	Audit findings about site design.

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	relevant and in-use for their full design life.			Contractor tender requirements.	Design team brief review.	
	A sustainable procurement policy will be developed to actively encourage ongoing elimination of waste at source, for example packaging and food waste. As per the Outline Sustainability Strategy (Document Reference 7.7)	Use Stage	LRCH	Procurement policy.	Periodical site environmental audit Document review.	Audit findings about waste elimination and availability of adequate sustainable procurement policy.
	Circular economy principles have been included in the SWMP for the Proposed Development.	Detailed Design Stage	Design team and Principal Contractor	Include in design team brief and Principal Contractor tender requirements. SWMP	Periodical site environmental audit Document review.	Audit findings about site waste and availability of adequate SWMP.

Effect	Mitigation measure	Timeframe	Responsibility	Specific Plan	Monitoring	Indicator
	Circular economy principles have been included in the Operational Waste Management Plan (OWMP) for the Proposed Development.	Use Stage	LRCH	OWMP	Environmental site audit Document review.	Audit findings about circular economy principles and availability of adequate OWMP.

Chapter Six ◆ Monitoring

Monitoring and review

6.1 The CEMP will remain a live document and will continue to be applied and when necessary updated until all construction work, as described in the CMS, on London Resort is complete. The current draft is an outline CEMP and will become responsibility of the Principal Contractor once appointed, to develop into a CEMP.

6.2 Mitigation measures to be implemented in the London Resort construction phase will require an audit system to monitor their implementation. This audit system can be limited to a documentation review or can also involve a site environmental audit. The audit system will be part of the HSE Plan and the Senior HSSE lead will be responsible for its coordination.

6.3 An adequate audit system, including reporting of the documentation review and environmental site audits, will facilitate the following:

- Identification of non-conformities with the CEMP;
- Identification of correction measures, including the update of the CEMP; and
- All together will result in a continuous improvement of the HSE plan, including the compliance with the CEMP.

References

Health and Safety at Work Act 1974.

Section 60, Control of noise on construction sites, Control of Pollution Act 1974.

Section 61, Prior consent for work on construction sites, Control of Pollution Act 1974.

The Hazardous Waste (England and Wales) Regulations, 2005.

The Management of Health and Safety at Work Regulations 1999.