

# Outline Construction Environmental Management Plan



**Lea Bridge Gas Works,  
Clementina Road,  
Leyton,  
E10 7PB**

**April 2020**

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### **1.0 Introduction**

The purpose of this Outline Construction Environmental Management Plan (CEMP) is to outline the overarching details and principles in order to minimise, manage and/or mitigate the environmental effects of the works associated with the redevelopment proposals of approximately 2.64 hectares of land which encompasses part of the former Lea Bridge Gas Works.

The CEMP details the environmental management, controls and safety procedures that will need to be adopted during the development of the site, thereby providing a tool to ensure the successful management of the likely environmental effects as a result of the construction activities. The CEMP seeks to ensure that all enabling, demolition and construction works cause the minimum disruption to the local residents and members of the public. More specifically, the CEMP aims to:

- Ensure the relevant mitigation measures set out in the Environmental Statement (ES) submitted as part of the planning application are implemented during all enabling, demolition and construction activities; and
- Ensure the relevant legislation, government and industry standards, and construction industry codes of practice and good practice standards are implemented.

This CEMP has been prepared to enable the London Borough of Waltham Forest (LBWF) and third parties to understand the nature of the standard environmental management and control measures that will be implemented during the development of the site.

Once appointed the principal contractor will refine the CEMP to ensure that the document is specific to the works and processes that are to be employed by contractors during all enabling, demolition and construction activities, thereby creating a site-specific CEMP for the development of the site. The site specific CEMP may be subject to approval by LBWF which may be subject to and secured by planning condition.

The CEMP demonstrates the commitment of the applicant to undertaking the development of the site in such a way as to avoid or minimise environmental effects and disruption to neighbours (commercial and residential), and provides a mechanism for the implementation of recommended mitigation measures and monitoring throughout the works.

This CEMP includes the following:

- Site information: including description of the site, surrounding environment and proposed development, as well as environmental management structure, roles and responsibilities;
  - Enabling, demolition and construction information: a description of the anticipated enabling demolition and construction works based on the information available to date,
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anticipated programme and phasing, working hours, details of haulage routes, equipment to be used, etc;

- Environmental management and control measures: potential environmental issues related to the enabling, demolition and construction works, details of the site inspection and audit programme, methods for managing environmental risks and reducing impacts, emergency procedures, waste and hazardous materials storage procedures, liaison with the local community, and specific project environmental procedures relating to waste and materials management, dust and air quality, noise and vibration, vehicle management, protection of water quality; and
- Monitoring: procedures for recording and reporting monitoring results and taking remedial action in the event of any non-compliance.

## 2.0 Site Location and Description of Development

### 2.1 Site and Surrounding Area

The site is located approximately 1.6km to the south west of Lea Bridge town centre, east London within the administrative boundary of the London Borough of Waltham Forest ('LBWF'). The proposed development (the 'Development') would provide up to 50,497.7 m<sup>2</sup> Gross External Area (GEA) of residential accommodation, together with up to 323.5 m<sup>2</sup> GEA of community/leisure uses. Public realms works and landscaping, an energy centre, pedestrian routes, vehicular access from the south, circulation space, cycle parking and low levels of car parking would also be provided.

Figure 1 illustrates the location of the development site. Figure 2 shows the planning application boundary.

Figure 1 – Wider Location

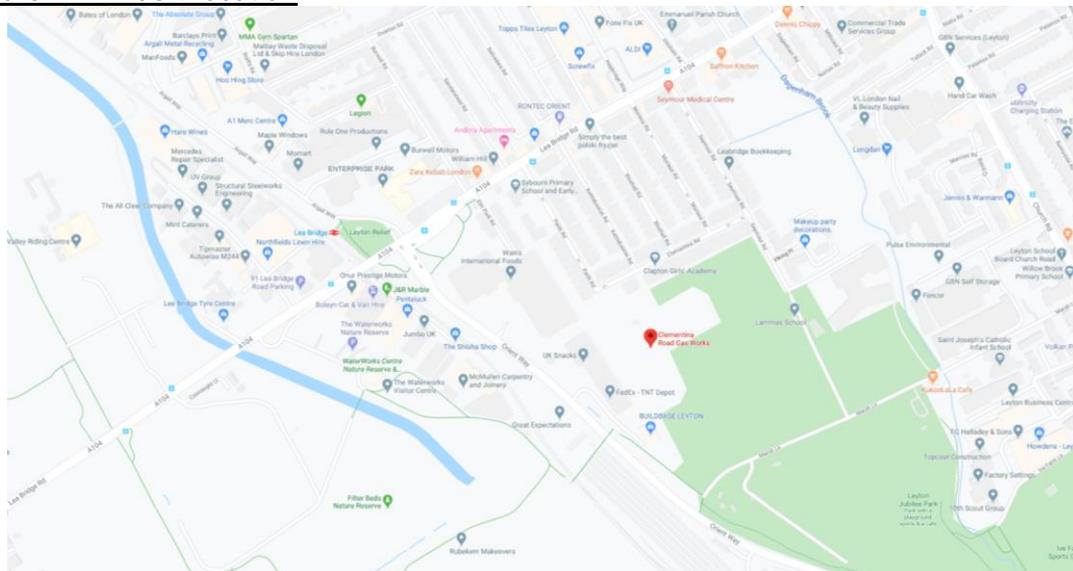


Figure 2 – Red line boundary



The site is bound by Clementina Road to the north which connects via Perth Road (and others) to the A104 (Lea Bridge Road), Orient Way is to the south west of the site beyond the industrial units that adjoin the site. Greater Anglia Mainline railway runs along the south west of the site on the opposite side of Orient Way and the Leyton Jubilee Park borders the site to the south and east (as well as the Lammas School Playing fields to the eastern boundary).

The site covers an area of approximately 2.64 hectares.

The site was formerly occupied by three gas holders, two of which were above ground and one below ground. All above ground elements of the gas holders have been demolished and a PRS is adjacent to southern boundary of the eastern portion of the site. The PRS is above ground and is approximately 0.42 acres. A telemetry building remains on site in the centre which is currently serving the PRS. This structure is due to be demolished and the services will be reconfigured below ground to maintain the connections to the PRS.

The site is now dominated by three gas holder pits – one to the east, one to the south and one in the centre. All of the gas holder pits are empty with the east and south ones currently approx. 2.1-2.5m bgl (below ground level) and the central one approx. 8.5m bgl.

An international food distributor, builders merchant and FedEx depot are currently located within the warehouse units known as the Golden Business Park to the west of the site.

An electrical substation is present to the northern site boundary adjoining one of the homes on Clementina Road which comprises a single storey brick build structure and a separate GRP enclosure directly to the west of to the brick structure.

The general topography of the site is relatively flat land, rising slightly to the South East. Land at the north of the site lies at a minimum of 6.3m Above Ordinance Datum (AOD) rising to a maximum of 7m AOD at the South East of the site.

The site is not located within or adjacent to any conservation areas and does not contain statutory listed or non-statutory locally listed buildings. With respect to potential archaeological resources, the site is located within any Archaeological Priority Area (APA) and however early SI work has identified the site is of minimal archaeological interest.

A river culvert crosses the site to the south from the Golden Business Park to Leyton Jubilee Park. The culvert is situated approximately 2.8m bgl and is approximately 1.2-1.5m in diameter.

The site is located within a former industrial and residential area, with current surrounding uses comprising a mix of light industrial, residential, commercial, education, transport and leisure.

## 2.2 The Proposed Development

This application is a detailed application for the whole site.

The use and amount of built development proposed by the application is set out as follows:

Type	Proposed Area (GEA)/Unit
Residential (Use Class C)	573 Units Total: 50,497.7m <sup>2</sup> (GEA)
Nursery (Use Class D1) and Gym (Use Class D2)	323.5m <sup>2</sup> (GEA)
Main Energy Centre	132.1 m <sup>2</sup> (NIA)
Parking	
Residential Car Parking	10 (8 family unit spaces and 2 car club spaces)
Disabled Car Parking	40
Cycle Parking	1021 (1003 residential + 18 visitor/commercial)

The application comprises ten buildings (A – J) with a summary of uses and building heights provided below:

Building	Use	Building Height (AOD)
A	Residential + Concierge	23.573m
B	Residential + Gym	30.863m
C	Residential	38.205m
D	Residential	68.875m
E	Residential	65.650m
F	Residential	44.605m
G	Residential + Nursery	38.155m
H	Residential	23.162m
I	Residential	38.455m
J	Residential	38.455m

### 3.0 Construction Programme

#### 3.1 Introduction

The anticipated construction programme and description of works outlined within this section mirrors the information supplied within the ES. As discussed in section one of this CEMP, once appointed, the principal contractor will update this section to make it specific to the works and construction methods they have been appointed to undertake.

#### 3.2 Construction Period

The indicative delivery programme for the development is approximately 5 years with construction works commencing in 2021 and indicative completion anticipated in 2025.

#### 3.3 Programme of Works

The anticipated programme of works is summarised in Table 1. A phasing programme has been prepared (Figure 3) which shows works for multiple buildings within defined phases, with overlapping activities (e.g. ground works for a building occurring at the same time as superstructure works for another building).

Figure 3 – Indicative phasing programme



**Table 1 – Indicative Construction Programme**

Phase / Stage of works	Approximate Duration (months)
<b>Phase 1 (Buildings J, I, H and A)</b>	
Site Setup and Enabling Works	8 months
Substructure	4 months
Superstructure	6 months
Façade	10 months
Fit Out	14 months
Landscaping	3 months
Total Construction Period for phase	27 months
<b>Phase 2 (Buildings B and C)</b>	
Substructure	6 months
Superstructure	10 months
Façade	14 months
Fit Out	20 months
Landscaping	6 months
Total Construction Period for phase	25 months
<b>Phase 3 (Buildings G and F)</b>	
Substructure	7 months
Superstructure	9 months
Façade	15 months
Fit Out	20 months
Landscaping	6 months
Total Construction Period for phase	22 months
<b>Phase 4 (Building D)</b>	
Substructure	4 months
Superstructure	10 months
Façade	17 months
Fit Out	23 months
Landscaping	3 months
Total Construction Period for phase	31 months
<b>Phase 5 (Building E)</b>	
Substructure	4 months
Superstructure	10 months
Façade	16 months
Fit Out	22 months
Landscaping	3 months
Total Construction Period for phase	32 months

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Note: Construction activities will overlap for both work activities within a phase i.e. superstructure and façade construction activities, as well as activities overlapping between different phases.

### 3.4 Description of Works

The following works will be undertaken during the enabling works, remediation, engineering groundwork, infrastructure and services stage for all five phases:

1. Hoarding will be erected around the boundary of the construction site area, and fencing around all trees to be retained including around root protection zones of trees outside the boundaries.
2. All relevant enabling works to utilities will be carried out and this will involve capping off or removal of redundant utilities, diversions, new supplies and connections as agreed with the statutory undertakers;
3. Any remaining hardstanding (concrete /asphalt parking areas, concrete floor slabs and foundations) within the construction area will be broken up. The concrete bases to gas holders 6 and 7 will be broken up and removed.
4. Remediation activities will be undertaken, as required, across the site as outlined within the outline remediation strategy.
5. To achieve the required site levels there will be some general civil engineering groundwork activities involving excavation, grading and preparation of surfaces, and the placement / compaction of fill undertaken. Aggregate material, i.e. concrete, asphalt, brick, sub-base material, engineering fill, aggregate, from hardstanding removal will be used where suitable and incorporated into the sub-base for roads, foundations and to bring up site levels in existing depressions.
6. During engineering groundwork activities for the site, infrastructure and service's required by each phase, including (but not limited to) electrical, telecommunications, potable water and drainage infrastructure, will be installed; and
7. Following the completion of enabling, engineering groundwork activities, infrastructure and services, construction will commence on the building structures, as outlined below.

#### Phased rolling construction programme (Phases 1-5)

Figure 3 shows the likely extent of construction phases. Phase 1 incorporates the majority of the affordable housing element of the site, the concierge and the energy centre for the site. Phase's 2-5 incorporate the remainder of the site working from north to south.

Construction activities to be undertaken across the rolling construction programme for the five phases are outlined as follows:

1. Foundations – the structural loads generated by the proposed buildings would necessitate the use of piled foundations. The specific type of piles would be determined as part of the detailed design stage. Nonetheless it is likely that both Continuous Flight Auger (CFA) or rotary bored piles would be used in groups of 450mm diameter piles, extending to depths of 24m. A piling mat will be prepared for the piling rig, following which piled foundations to support each building will be installed.
2. Substructure – construction of the sub-structure would comprise reinforced concrete pile caps for cores and columns, with reinforced concrete ground beams interconnecting the pile caps, where needed. Some drainage runs would also be required under the ground or beneath the ground floor slabs. It has also been assumed that the ground floor slab would be of suspended construction and comprise as a minimum of 250mm thick reinforced concrete slab with waterproofing and a gas membrane.

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3. Substructure (phase 1 only) – the construction of the sub structure for phase one would require the installation of a retaining wall around the ground floor areas to the blocks located to the east of the site.
  4. Superstructure – construction will progress vertically up each of the buildings. It is expected that once the construction on the buildings reach the second floor that material hoists, towers and cranes will be used to transport materials to various levels.
  5. Façade – upon completion of each buildings superstructure, the façade of the buildings will be installed / constructed. Upon completion of each floors façade, interior fit out will commence.
  6. Public realm (including landscaping) – landscaping will be completed around each building up to the hoarding line in accordance with the landscaping strategy submitted as part of the design and access statement to enhance the area during each phase while enabling the other building's to continue to be constructed.

## **4.0 Responsibilities and Management Structure**

### **4.1 Roles and Responsibilities**

The Construction (Design and Management) regulations 2015 (CDM regulations) came into force on 6<sup>th</sup> April 2015, replacing CDM 2007. As per the requirements of the CDM regulations, the applicant must appoint a principal designer and principal contractor prior to the commencement of works on site. Should the applicant fail to appoint either a principal designer or principal contractor, the applicant must carry out their duties in respect of the CDM regulations.

The roles and responsibilities of the applicant, principal designer and principal contractor, as required by the CDM regulations, are outlined within this CEMP and will be confirmed in writing upon the appointment of the principal designer and principal contractor by the applicant.

### **4.2 Management Structure**

Responsibility for all environmental issues relating to the redevelopment of the site rests with the applicant, the principal designer and principal contractor appointed for the development; individual responsibilities will be divulged throughout the management team relating to the coordination of inspection, monitoring or reporting. Such individual responsibilities are outlined below.

The principal contractor will have the central role in managing safety, health, environment and quality (SHEQ) issues during enabling, demolition and construction activities. The principal contractor and all sub-contractors will have to implement the environmental management and control measures set out within the CEMP.

All works are to be carried out in compliance with the Construction (Design and Management) regulations 2015, current legislation and guidance, and the applicant's requirements.

A full contact list containing names, job titles and contact number of the project team members, shall be produced and maintained. This should include the applicant's environmental representatives.

### **4.3 Individual Requirements**

The duties of the principal designer, principal manager, construction manager, works manager, environmental manager / representative and other personnel are detailed below.

Principal Designer (can be the applicant /or nominated party)

- Review and approve the site specific CEMP
- Submit site specific CEMP for LBWF approval
- Assign appropriate resources to construction activities; and
- Undertake regular site inspections which will include compliance with environmental requirements.

Project Manager (can also be Principal Designer)

- Allocate appropriate project resources to deal with environmental issues;
- Ensure the CEMP is effectively established and implement throughout the project;
- Review and approve environmental action plans; and
- Designate representative responsible for environmental issues.

Works Manager (part of the principal contractor team)

- Understand the major environmental constraints and implications for the project;
- Ensure that the need for compliance with environmental issues is communicated to the rest of the project team and sub-contractors;
- Act on findings of internal and external audits;
- Ensure complaints are being addressed and responded to;
- Ensure appropriate pollution response provision is made;
- Report to senior management (principal designer/project manager) on any environmental breaches; and,
- Implement and maintain the operation of the CEMP.

On-site Environmental Manager / Representative (part of the principal contractor team)

- Implement and maintain the CEMP;
- Understand the environmental issues associated with the project;
- Maintain and review the environmental risk register;
- Co-ordinate and maintain consultation with the LBWF, local residents/business, and other interested parties on environmental issues including complaints process;
- Maintain the complaints log;
- Comply with the CEMP;
- Ensure environmental audits are carried out and pursue any correction actions;
- Report on environmental incident's to senior management and environmental regulators as required;
- Co-ordinate with the project manager, regular reviews of the CEMP during the project to ensure its continued effectiveness throughout construction activities; and
- Co-ordinate environmental awareness training and ensure relevant responsibilities are included within site induction.

Health and Safety Advisor

- Undertake regular site inspections;
  - Carry out audits at regular intervals defined within the CEMP; and
  - Provide advice and support to project management team.
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### Environmental Specialists

- Relevant specialists will be employed if necessary during the project to undertake specialist monitoring, undertake surveys and advise the construction staff.

### Collective responsibilities

Project management team (outlined above, including works manager, sub agents, quantity surveyors, site engineers, section foremen) and sub-contractors

- Comply with the CEMP;
- Maintain CEMP document control system;
- Implement the requirements of the CEMP and its supporting documents on-site;
- Report immediately to environmental representative / manager on any environmental incidents;
- Ensure site personnel are aware of their environmental obligations and have undergone site environmental awareness training;
- Implement the action necessary to resolve non-compliance issues; and
- All subcontractors should comply with the CEMP, its operational control and procedures while on site.

### All personnel – to be communicated during induction training

- Comply with all operational controls and working procedures implemented by this CEMP;
- Undergo environmental awareness training;
- Report to supervisor immediately on any environmental incidents; and
- Suggest potential modifications and improvements to CEMP.

## **5.0 Training and Site Rules**

Contractual arrangements will require all contractors to provide suitably qualified staff to manage and execute works for which they are responsible. The principal contractor will require that all employees demonstrate an appropriate awareness of local sensitivities (e.g. location of residents/businesses), expected code of conduct, working knowledge of the legislation, codes of practice, and guidance relevant to the activities in which they are engaged.

A training regime shall be implemented to ensure that all staff members, including sub-contractors personnel, receive focused environmental training to ensure their competence in carrying out their duties on the project.

### 5.1 Site Induction

The principal contractor will operate induction schemes for all personnel to ensure that they are aware of their individual responsibility to comply with the CEMP. The principal contractor will be responsible for identifying the training needs of his/her personnel and will ensure that appropriate training is provided. Training will include information on local considerations and the applicant's expectations on site behaviours, "toolbox talks" for site operatives to maintain an appropriate level of awareness on safety. Health and environmental topics and to advise employees of changing circumstances as work progresses. Records will be kept of attendance.

A general site induction shall be developed to introduce all site personnel to the environmental issues connected with the development, important environmental controls

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associated with the day to day operation e.g. boundary control, housekeeping, waste management, and the emergency procedures. A full register of induction attendance shall be maintained on site.

- Responsibility: environmental manager / representative.
- Action: develop general site induction to include environmental issues and ensure induction records are maintained.

### 5.2 Toolbox Talks and Method Statement Briefings

Toolbox talks and method statement briefings will be given as the work proceeds and will cover the environmental management and control measures related to specific activities undertaken during the works, for example, refuelling, hazardous waste removal, spill response etc. A full register of toolbox talks and method statement briefing attendance shall be maintained on site.

- Responsibility: environmental manager / representative
- Action: regularly assess site activities and ensure relevant training requirements are met develop and deliver specialised toolbox talks as required to ensure site activities are carried out in accordance with CEMP.

### 5.3 Training Records

All training records will be maintained and filed on-site. The records shall include the content of the courses (induction and toolbox training), record of attendance and schedule of review.

### 5.4 Emergency Procedures and Incident Reports

Procedures will be implemented to respond to any emergency incidents which may occur on site. In order to ensure compliance with the requirements of the relevant legislation and to avoid or mitigate against any significant environmental impacts, an emergency preparedness plan (EPP) will be developed by the principal contractor.

All staff will be trained and made aware of the EPP set in place. In the event of any incident, the principal contractor's environmental health and safety team will be notified as well as the applicant. Additionally, the LBWF Environmental Health Office (EHO) and any other interested bodies will be notified as required.

### 5.5 Site Rules

The site rules shall be developed to include environmental controls wherever applicable. Site rules should be displayed in all on-site offices, and welfare facilities. A list of 'site rules' to be implemented on site is provided below:

- All personnel visiting or working on-site must complete induction training prior to accessing the site;
  - All plant/equipment used during the construction activities must be compliant with the Provision and Use of Work Equipment Regulations 1998 (PUWER), maintenance and relevant certificates must be retained on-site;
  - All substances to be used or handled on-site must have the Control of Substances Hazardous to Health (COSHH) assessment available on-site for staff members to consult;
  - At the end of each working day all means of access, e.g. steps, ladders left in position must be secured/removed to prevent unauthorised persons accessing hazardous areas;
  - Smoking is prohibited on site, except in designated areas, and the possession or use of alcohol or drugs is prohibited;
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- Staff members must maintain the site welfare facilities for the duration of the works;
  - A qualified first aider/emergency first aider to be present on site at all times;
  - Standard personal protective equipment (PPE) is required on site at all times, as well as additional protective equipment as required for specific works;
  - Use of audio equipment is not permitted on site, except in designated areas;
  - All staff members must work to their safety method statements and abide by all safety signs at all times;
  - The principal contractor and all subcontractors on site must cooperate in the interest of health and safety;
  - All principal contractor and subcontractor staff members must conduct themselves and perform their duties on site in a safe manner;
  - All work areas must have clear, well maintained signage;
  - Appropriate firefighting equipment to be maintained on-site;
  - No fires are permitted on site;
  - All waste materials must be collected and removed from site at regular intervals; and
  - Acts of threat or violence will not be tolerated and any offender will be removed and permanently excluded from the site.

## **6.0 Communication and Community Engagement**

### **6.1 Statutory Authorities and Interested Parties**

The construction manager in conjunction with the applicant and with the support of the environmental manager/representative or any appointed specialists will be responsible for the liaison on environmental matters with statutory and non-statutory authorities.

Consultation should be established and maintained with a number of regulatory bodies with regard to the environmental aspects of this project, as required; and could include:

- Environmental health officer (LBWF)
- Environment Agency (EA)
- Health and Safety Executive
- Emergency services
- Responsibility: construction manager / environmental manager / representative
- Action: establish and maintain consultation with the LH and other interested parties about the status of the project, potential impacts, mitigation measures, predicted time scales of activities etc.

### **6.2 Local Community Engagement**

The principal contractor should commit to providing community relations personnel, who will be the first line of response to resolve issues of concern or complaints. Reasonable steps will be taken to engage with local residents during development of the site together with surrounding commercial uses.

Occupiers of neighbouring properties and businesses will be informed in advance of works taking place. Site boards outlining information on the project and forthcoming works will be erected at the entrance to the site. Site contact numbers will be displayed as appropriate, along with the complaints procedure.

- Responsibility: environmental manager/representative
- Action: establish and maintain consultation with local residents, and other interested parties about the status of the project, potential impacts, mitigation measures and predicted time scales of activities.

### 6.3 Complaints Management

A formal complaints procedure will be developed, the environmental manager/representative will be responsible for receiving, recording and responding to external complaints.

The environmental manager/representative will have their telephone number displayed for quick response to complaints. The complaints will be logged, together with a record of the responses and action taken.

- Responsibility: environmental manager/representative
- Action: log complaints, conduct investigation, develop any corrective action, produce written response to complaints and generate monthly report of complaints received.

## 7.0 Monitoring

### 7.1 Environmental Monitoring Programme

Scheduled monitoring of environmental performance and formal compliance auditing will be conducted throughout the development of the site. This will enable the overall effectiveness of established environmental measures and compliance procedures to be assessed, and allow areas of underperformance to be identified so corrective actions can be taken to strengthen environmental safeguards or improve outcomes.

#### Inspections

Regular inspections will be carried out on all construction activities and work areas in order to check compliance with this CEMP and regulatory conditions. The results of these inspections shall be recorded as part of the SHEQ auditing procedure.

#### Event based inspections

Event based checks shall be conducted by the project manager/construction manager and environmental manager/representative following any significant event such as rainfall of sufficient quantity to generate run off, high winds, the receipt of an environmental complaint, issue of a non-compliance report or any exceedance in monitoring results. Event based checks should be recorded on a separate inspection form detailing the reasons, observations, findings and outcomes of the inspection which should then be recorded and actions closed out.

### 7.2 Reporting

#### Monthly Reporting

A monthly environmental monitoring report should be prepared and submitted for review to the applicant and project team. The report shall include a summary of environmental uses and actions during the period to ensure compliance with the CEMP, including details of any action item requests, complaints received, incidents and associated investigations and corrective actions, and environmental inductions and awareness training provided during the period

### 7.3 Performance

#### Progress Meetings

Performance against the objectives and targets outlined in the CEMP should be reviewed at regular progress meetings. Progress meetings can include internal principal contractor

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meetings and project team meetings with applicant and applicant representatives. Performance against 'rolling' targets can be reviewed and corrective actions agreed, as required. These actions should be monitored to demonstrate continuous review and improvement.

- Responsibility: project manager / principal designer
- Action: environmental issues to be added to the agenda of all internal progress meetings and external progress meetings (applicant / principal contractor/ principal designer).

### CEMP Review

The applicant, principal designer and principal contractor will ensure that controls outlined in the CEMP are properly implemented and regularly monitored to ensure their effectiveness. Changes to the controls will be instigated if they are not achieving their objectives. The CEMP shall be revised and refined required, to ensure it remains consistent with environmental regulatory requirements and conditions of planning approval.

## **8.0 General Construction Management**

### 8.1 Hours of Work

The standard working hours for all activities will be:

- 08.00 – 18.00 Monday to Friday; and
- 08.00 – 13.00 Saturdays.

The following enabling activities shall be permitted to take place within the period before and after normal working hours as outlined above:

- Arrival and departure of workforce on site;
- Deliveries and unloading;
- Checks and examinations of plant and machinery (including test running) and the carrying out of essential repairs / maintenance to plant and machinery;
- Site inspections and safety checks; and
- Site clean –up.

No continuous 24-hour activities are envisaged for works and any working on Sundays or bank holidays will be subject to reasonable notice. Any change to working hours will be agreed in advance with LBWF.

These hours will be strictly adhered to unless or in the event of:

- An emergency demands continuation of works on the grounds of safety;
- Minor internal works are being carried out within the confines of the building envelope; and;
- Completion of an operation that would otherwise cause greater interference with the environment/general public if left unfinished.

### 8.2 Welfare Facilities

The principal contractor will provide welfare facilities for all employees. Site cabins and /or suitable rooms will be made available for breaks and when weather prevents works. Welfare facilities will be equipped with heating, tables, chairs, a means of heating food and boiling water, wash basins and toilet facilities. Welfare facilities will be located with good access, lighting and ventilation and will be maintained and cleared on a regular basis.

### 8.3 Construction Plant and Equipment

An indicative list of large plant and equipment that are likely to be used at various stages of construction are shown in Table 2. A detailed list of plant and equipment to be used will be provided in the site specific CEMP once the principal contractor has been appointed.

Table 2 - Indicative list of large equipment and plant to be used during the development

Plant and Equipment	Stage of Works						
	Demolition	Remediation	Substructure	Superstructure	Facade	Fit Out	Public Realm
Concrete Crusher	✓	✗	✗	✗	✗	✗	✗
360° Excavator	✓	✓	✓	✗	✗	✗	✓
Tower / Mobile Crane	✗	✗	✓	✓	✓	✓	✗
Breaker	✓	✓	✗	✗	✗	✗	✗
Compressor & Air Tools	✓	✓	✓	✓	✓	✓	✓
Drills / Cutters	✓	✓	✓	✓	✓	✓	✓
Compactor / Roller	✗	✓	✓	✗	✗	✗	✓
Piling Rigs	✗	✗	✓	✗	✗	✗	✗
Concrete Pumps	✗	✗	✓	✓	✗	✗	✗
Generators	✓	✓	✓	✓	✓	✓	✓
Concrete Vibration Equipment	✗	✗	✓	✓	✗	✗	✓
Scaffolding	✓	✗	✓	✓	✓	✓	✓
Fork Lift Truck	✓	✓	✓	✓	✓	✓	✓
Goods/Passenger Hoist	✗	✗	✓	✓	✓	✓	✓
Mast-climber platforms	✗	✓	✓	✓	✗	✗	✓
Mechanical Road Sweeper	✓	✓	✓	✓	✓	✓	✓
Floodlights	✓	✓	✓	✓	✓	✓	✓
Hydraulic benders and cutters	✓	✓	✓	✓	✗	✗	✓
Lorries and Vans	✓	✓	✓	✓	✓	✓	✓
Ready mix concrete trucks	✗	✗	✓	✓	✗	✗	✓

### 8.4 Construction Compound and Material Storage

The final location/s of the construction compound and material storage areas will be confirmed upon appointment of the principal contractor.

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The detailed construction compound layout plan will show the following;

- Parking areas for site operatives and visitors;
- Loading and unloading areas;
- Plant and machinery storage area;
- Material storage area; and
- Welfare facilities.

## 8.5 Construction Traffic Management

### Demolition and Construction Traffic Management Plan (DCTMP)

A Demolition and Construction Traffic Management Plan (DCTMP) will be prepared and submitted to LBWF / TFL, prior to commencement of on-site works. A draft DCTMP is included as an appendix within the ES and this will be monitored by LBWF and TfL (as appropriate). The DCTMP will ensure that a strategy for planning of the construction access routes will be implemented to take into account current legislation, police, fire authority and health and safety executive guidance, local authority transport schemes and neighbourhood lorry restrictions.

In addition, the DCTMP will be reviewed and updated in line with the construction programme and is expected to include details of the following:

- Temporary traffic control measures, if required;
- Timing controls (e.g. limiting peak period vehicle movements);
- Temporary and permanent access to the works for personnel/vehicles;
- Traffic management procedures for waste disposal vehicles;
- Personnel and vehicle segregation;
- Equipment e.g road cones, temporary fencing and signage;
- Provision to ensure that vehicles can be loaded and unloaded off the public highway where possible;
- The site labour force will be encouraged to use public transport to travel to and from the site;
- HGV wheels will be washed prior to vehicles leaving the site;
- Road sweepers will be used on adjacent roads to the site at an appropriate frequency depending on the stage of construction to keep the roads clean and free from debris/mud; and
- Neighbouring businesses, construction sites and statutory bodies (e.g TfL) will be consulted and kept informed as to the construction and traffic management proposals.

### Access and Haul Routes

Directional signage will be implemented to ensure that construction traffic utilises designated routes to minimise the effect on the surrounding road network. Locations of temporary signage for the approved route will be discussed with the LBWF highway officer.

Heavy Goods Vehicles (HGV) movement's will be restricted as far as reasonably possible so as to avoid peak traffic flow periods (i.e. From 08.00-09.00 and 17.00-18.00).

All construction traffic entering and leaving the site will be closely controlled and during delivery times, traffic marshals will be positioned at the egress / ingress point to control and record entry and exit movements.

### Site Parking

On-site parking for construction workers will be restricted to an absolute minimum. This will only be made available to those construction personnel who need to carry heavy equipment

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or materials to the site. Unapproved parking on public roads will not be allowed and the labour force will be encouraged to use public transport. Any local traffic management measures for site access will be agreed with the LBWF prior to construction commencing.

#### Loading and Unloading

All goods deliveries will be directed to a designated area on site where all vehicles will be unloaded and the materials taken to the appropriate storage area.

#### Vehicle Cleaning Facilities

Wheel washing facilities could include, but not limited to, drive-over dry ramp system, drive through bath system, and high pressure spray wash systems. Drive-over dry ramp system works on the vibration effect created by the vehicle tyres driving over inverted steel bars on a raised platform, the vibrations and motion flexes open the tyre treads enabling dirt and debris to fall to the ground.

A drive through bath system comprises of the central bath section which contains internal metal grids that are submerged in water. As the vehicle drives through the bath and over the metal grids, the tyres flex enabling dirt to fall out while the water effectively washes the tyres.

A high pressure spray system comprises of either the manual washing of the vehicle, by site staff members, in a designated wash area; or the installation of an automated drive through wheel washing facility that sprays water over the tyres of the vehicle as it drives through or stand on a raised platform.

### 8.6 Storage of Plant and Materials

The construction compound will be defined within the site-specific CEMP. Plant and equipment will be stored in areas which are less susceptible to possible pollution incidents, or on dedicated hard standings.

Hazardous substances, such as diesel, oil, chemicals, cement, cleaning materials and paint, used during the construction process have the potential to cause serious pollution.

Therefore, environment agency pollution prevention guidance (PPG) will be followed (although withdrawn). Of particular relevance are the following PPGs and replacement guidance series, guidance for pollution prevention (GPPs):

- PPG1: Understanding your environmental responsibilities – good environmental practices (July 2013)
- PPG2: Above ground oil storage tanks (January 2017)
- PPG5: Works or maintenance on or near water (October 2007);
- PPG6: Working on construction and demolition sites (March 2012);
- PPG7: Safe storage – the safe operation of refuelling facilities (July 2011);
- PPG8: Safe storage and disposal of used oils (February 2004);
- PPG21: Pollution incident response planning (March 2009); and
- PPG22: Incident response – dealing with spills (April 2011).

A bunded storage area will be located on the site in the main compound and will be provided for the duration of the construction period for the storage of oils, fuels, chemical and other hazardous construction materials. The base and bund walls will be impermeable to the material stored and be of 110% capacity of the liquids being stored in line with Environment Agency (EA) guidelines. Access to the hazardous storage area will be restricted to those people who are authorised to do so and have adequate training.

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Storage areas will be regularly checked and documented. Leaking or empty oil drums will be removed from the site immediately and disposed of via a licensed waste disposal contractor.

The construction compound will have a paved surface to the vehicle maintenance and fuel storage areas, with a closed drainage system temporary concrete equipped with both silt settlement facility and an oil interceptor, if/where necessary.

Refuelling will occur in designated areas on an impermeable surface and away from any drains or stormwater outlets. Adequate spill kits will be available in the event of an accident and staff will be made aware of how to respond to an incident.

Storage areas and containers will be protected against vandalism and unauthorised interference and securely locked when not in use.

### **8.7 Security**

A 2.4m high construction hoarding, or similar, will be erected around the perimeter of the work or phases in advance of the commencement, with gated access put in place. Banksmen will aid HGVs in entering and exiting the site, and open and close the gates.

Only authorised personnel will be permitted on site. All visitors will be required to enter through the main entrance gate to the site and report to the construction manager / site manager. All visitors will be required to sign in and out to ensure that site management are aware of the number of people on-site in the event of an emergency.

Visitors will be required to undergo induction training, wear the necessary PPE i.e. safety helmet, hi-visibility attire, safety footwear and will be accompanied by a representative on-site at all times.

The hoarding and all storage areas will be checked on a daily basis to ensure that it is maintained in good condition and remains secure. All entrance and exit gates into the site will be secure at all times.

All mobile plant/equipment will be parked safely and locked within a designated area to prevent tampering, and keys to all plant / equipment will be kept in a secured location.

## **9.0 Environmental Control Measures**

### **9.1 Waste Management**

Waste produced on site will be subject to the duty of care under the Environmental Protection Act (1990). It is the joint responsibility between the principal contractor and the applicant to ensure that waste produced on-site is disposed of in accordance with relevant legislation. The transportation of waste to and from the site will also comply with the duty of care requirements.

The development will seek to maximise the reuse of materials generated on-site, where possible, in order to minimise waste disposal. Additional intrusive site investigations will be undertaken prior to construction commencing to identify any areas of contamination present on-site. Further soil sampling during construction activities will be undertaken for classification and disposal of waste soils, if required, and will follow the methodology described in the following two EA publications: Framework for the Classification of

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Contaminated Soils in Hazardous Wastes 2004, and waste acceptance at Landfills: guidance on waste acceptance procedures and criteria 2010. All soil sampling and testing will be undertaken in accordance with BS 10175: Investigation of potentially contaminated sites: code of practice.

Waste materials will be disposed of by the contractor/s to appropriate recycling facilities or appropriately licensed landfills. The appropriate landfill for the disposal of any contaminated soil off-site will depend on the waste classification deemed from the chemical analysis or waste acceptance criteria testing as necessary. Any contaminated soils that are to be removed from the site, should be removed via the Orient Way access once this is operational. The site manager will audit waste carriers and disposal facility and maintain documentary evidence that these requirements are being met, including a register of waste carriers, disposal sites (including transfer stations) and relevant licensing details for each waste stream. Waste contractors who remove waste should be registered with the environment agency.

Materials used during the construction works such as oil, chemicals, cement, cleaning materials and paint have the potential to cause serious pollution. Therefore, the environment agency's pollution prevent guidance and other relevant guidance will be followed during the handling, storage and use of such materials.

Procedures will be set in place to respond to any emergency incidents which may occur on the site.

All relevant contractors will be required to investigate opportunities to minimise and reduce waste generation in line with WRAP's Halving Waste to Landfill initiative by:

- Agreeing with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme;
- Implementing a 'just in time' material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal of waste;
- Prioritising preassembled and prefabricated construction materials, wherever practicable, to minimise onsite generation of waste and packaging and reduce the number of delivery and collection vehicles to and from the site;
- Paying attention to material quantity requirements to avoid over ordering and generation of waste materials;
- Segregating waste at source where practical;
- Colour coding and signposting skips to reduce risk of cross contamination. Skips will also be covered to prevent dust and debris blowing around the site, these will be cleared on a regular basis; and
- Not burning waste or unwanted materials on site.

## 9.2 Air Quality, Dust, Odour and Dirt

Using the construction phase, there will be various site clearance works and activities undertaken, which all have the potential to generate particle emissions arising from dust and smoke.

The main sources of particle emissions during construction activities include:

- Haulage routes, vehicles and construction traffic;
- Materials handling, storage, stockpiling, spillage and disposal;
- Site preparation, earthworks and restoration after completion;
- Construction, excavation and fabrication processes;

- Internal and external finishing and refurbishment.

A number of mitigation methods will be implemented to minimise the effects arising from dust produced during construction works. These include:

- Vehicles carrying loose aggregate and workings to/from site will be sheeted at all times;
- Implementation of design controls for construction equipment and vehicles and the use of appropriately designed vehicles for materials handling. This includes ensuring that all on road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable:
- Ensure all vehicles switch off engines when stationary so that there are no idling vehicles;
- Completed earthworks will be covered, seeded, or vegetated where appropriate and practicable;
- Regular inspection and , if necessary, cleaning of local highways and site boundaries to check for dust deposits (and removal if necessary);
- Minimise surface areas of stockpiles (subject to Health and safety and visual constraints regarding slope gradients and visual intrusion) to reduce area of surfaces exposed to wind pickup:
- Where appropriate, windbreak netting/screening will be positioned around material stockpiles and vehicle loading/unloading areas, as well as exposed excavation and material handling operations, to provide a physical barrier between the site and the surroundings;
- During dry or windy weather, material stockpiles and exposed surfaces will be dampened down using a water spray to minimise the potential for wind pick up;
- Use of dust suppressed techniques such as water sprays or local extraction e.g suitable local exhaust ventilation systems, for all operations
- Ensure that all construction plant and equipment is maintained in good working order and not left running when not in use. Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable;
- Restrict on-site movements to well within site and not near the perimeter, if possible;
- No unauthorised burning of any material anywhere on site; and
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. Record all dust and air quality complaints and make complaints log available to LBWF when asked.

Additional more stringent measures have been identified for the development over the above, which should be implemented, are set out in table 4.

Table 4 – Dust mitigation measures for High Risk Construction Sites

Operation	Mitigation Measures
Site Management	Hold regular liaison meetings with other high-risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised
Preparing and maintain the site	Cover, seed or fence stockpiles to prevent wind whipping. Carry out regular dust soiling checks of buildings within 100m of site boundary and cleaning to be provided if necessary. Provide showers and ensure a change of shows and clothes are required before going off-site to reduce transport of dust. Agree monitoring locations with the local authority. Where possible, commence baseline monitoring at least three months before phase begins. Put in place real-time dust and air quality

	pollutant monitors across the site and ensure they are checked regularly.
Operating vehicle/machinery and sustainable travel	Produce a construction logistics plan to manage the sustainable delivery of foods and materials.
Operations	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practical after the event using wet cleaning methods.
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces. Use hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil. Only remove secure covers in small areas during work and not all at once.
Construction	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 overflowing during delivery. For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.
Trackout	Record all inspections of haul routes and any subsequent action in a site log book. Install hard surfaced haul routes, which are regularly damped down with fixed or move sprinkler systems and regularly cleaned. Inspect haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable; implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site) where reasonably practical. Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits. Access gates to be located at least 10m from receptors where possible. Apply dust suppressants to locations where a large volume of vehicles enter and exit the construction site.

### 9.3 Noise and Vibrations

All works must comply with BS 5228: Noise and vibration control and the construction and open sites Part 1: Noise and Part 2: Vibration. In order to ensure compliance with BS 5228 the following monitoring may be conducted:

- A regime of noise monitoring may be adopted by the appointed contractor over the duration of the works if required, above which consideration would be given to the use of alternative techniques and/or other means of controlling noise levels. Readings will be recorded and kept on-site, and made available for review by LBWF, if requested.

The following measures will be adopted to reduce noise and vibration during the works:

- Noisy plant or equipment will be situated as far as possible from noise sensitive buildings and orientated in such a way that noise is directed away from sensitive areas wherever possible.
- Application of the principle of best practicable means as defined in Section 72 of the Control of Pollution Act 1974, by carrying out all work in such a manner as to reduce any disturbance from noise to a minimum.
- Siting of delivery compounds away from receptors where practicable and use of low noise techniques.

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- Barriers (e.g. site huts, acoustic sheds or partitions) will be used to reduce the levels of noise reaching noise sensitive receptors.
  - Vehicles and mechanical plant used for the purpose of the works shall be fitted with effective exhaust silencers, maintained in good and efficient working order and operated in such a manner as to minimise noise emissions. The contractor shall ensure that all plant complies with the relevant statutory requirements.
  - Machines in intermittent use should be shut down or throttled down to a minimum when not in use.
  - Compressors should be fitted with properly lined and sealed acoustic covers which should be kept closed whenever in use. Pneumatic percussive tools should be fitted with mufflers or silencers of the type recommended by the manufacturers.
  - Equipment powered by mains electricity shall be used in preference to equipment powered by internal combustion engine or locally generated electricity, where practicable.
  - No part of the works nor any maintenance of plant shall be carried out in such a manner as to cause unnecessary noise except in the case of an emergency when the work is absolutely necessary for the saving of life or property or the safety of the works,
  - Plant shall be maintained in good working order so that extraneous noise from mechanical vibration, creaking and squeaking is kept to a minimum.
  - Hoarding will be erected around the site boundary to the required height appropriate to the noise sensitivity of the area, where feasibly and practicable, and will continue to be maintained throughout the works. The hoarding will consist of plywood sheets or similar, with joints sealed to minimise the escape of noise;
  - In the event that it is not possible to erect hoarding around the site due to the nature of the works, i.e. earth works, mobile hoarding will be erected to reduce the effect on receptors.
  - A CTMP will be adhered to in order to pre-plan and manage traffic associated with the works to minimise disturbance to sensitive receptors.
  - Vehicles employed for any activity associated with the construction works will, where reasonably practical, be fitted with effective exhaust silencers and shall be maintained in good working order and operated in a manner such that noise emissions are controlled and limited as far as reasonably practicable.
  - Time slots are adopted for deliveries, in line with the CTMP, to ensure that convoys of vehicles do not arrive simultaneously and to avoid unnecessary idling on site; the use of sufficient clear signage to ensure that construction vehicles use only designated routes.
  - Strict control to prevent temporary parking on kerbside in the vicinity of noise sensitive receptors near the site.
  - Shouting and raised voices shall be kept to a minimum.
  - Vehicles will not wait or queue on the public highway with engines running.
  - The site layout will be designed to minimise the need for reversing.
  - Toolbox talks will instruct workers on noise and vibration issues; and
  - A site inspection will be undertaken daily to identify and rectify and issues which may increase noise and/or vibration.

#### 9.4 Ecology and Arboriculture

While the site is not of significant ecological value, the onsite scrub, amenity planting and limited tree habitat do offer some limited opportunities for nesting birds.

Measures for the protection of ecological and arboricultural resources that will be adopted during construction works include the following:

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- Removal of trees will be undertaken outside of the main bird nesting season (March to August inclusive), unless a scheme to minimise the impact on nesting birds has been approved in writing by the LBWF. These may include a watching brief by a competent ecologist during works;
  - Construction Exclusion Zone, to be secured by means of temporary protective fencing with weatherproof signage, will be used for trees to be retained as part of the development where no unauthorised access to construction operations are permitted;
  - Should any ecological issues be identified during the course of development, consultation with the relevant statutory and advisory bodies such as Natural England (NE) and the EA will be undertaken.

Given the results of the reptile survey undertaken and the previous assessments, it is considered that reptiles are currently absent from the site. As such, the development proposals will not impact upon reptiles. In the unlikely event that reptiles are identified (given the current survey results) during the construction phase of the Development, all works should cease and an ecologist should be contacted for advice on how to proceed.

### 9.5 Ground Conditions and Contamination

Work will be carried out in accordance with relevant CDM regulations 2015, details of these measures will be presented within the pollution response plan (PRP), and the CTMP.

All the workers on site will be made aware of potential contamination issues on the site during the induction and will use best practice techniques during all construction activities. An EPP will be prepared by the Principal Contractor and all staff will be made aware of its contents and procedures.

The operation of construction vehicles and the handling, use and storage of hazardous materials will be undertaken as follows:

- Vehicles and plant will be well maintained to prevent accidental pollution from leaks.
- Static machinery and plant will include drip trays beneath oil tanks / engines / gearboxes / hydraulics, which will be checked and emptied regularly via a licensed waste disposal operator;
- Refuelling would be undertaken in specified areas. Drip trays will be installed to collect leaks from diesel pumps;
- The handling, use and storage of hazardous materials will be undertaken in line with the current best practice;
- Adequate bunded and secure areas with impervious walls and floors, with a capacity of 110% of substance volume, are to be provided for the temporary storage of fuel, oil and chemicals on site during construction. Valves and trigger guns will be protected from vandalism and kept locked up when not in use;
- Provision of spill containment equipment such as absorbent material on site;
- The appropriate utility company will be consulted on the potential requirement for an oil interceptor and sediment trap at the point where site surface water run off enters the sewerage network;
- Store all construction, oil, fuel and diesel materials as far from the nearby water bodies and drainage as possible; and
- A spillage Emergency Response Plan (ERP) will be produced in advance of commencement on site which site staff will be required to have read and understood. On site provisions will be made to contain a serious spill or leak through the use of booms, bunding and absorbent material.

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A member of staff will be nominated to control and monitor the control of Substances Hazardous to Health (COSHH) system. Suppliers must send data sheets for every hazardous substance to the site. Supervisors and safety managers will brief staff members who will be using hazardous materials, on its safe use, disposal and any emergency procedures. Written records of these briefings will be kept in the COSHH file held on the site.

A COSHH/fuel inventory will be maintained and key contacts listed to be notified in the event of a significant pollution incident, which may subsequently lead to the contamination of controlled waters, Directly and indirectly purchased bulk fuel and COSHH items will be stored in accordance with the relevant EA PPG/GPPs. Tanks and dispensing pumps will be locked when not in use to prevent unauthorised access. Information regarding spill prevention and disposal of COSHH items will be provided as part of the standard site induction presentations and during regular toolbox talks and the works progress.

A competent/licensed contractor will survey (pre-site preparation survey as defined by the HSE) and remove asbestos containing material and other materials and structures contaminated with asbestos fibres, if found on site.

Piling will be carried out in accordance with EA guidance Note on Piling / Penetrative Ground Improvement Methods on Land Affected by Contamination and ground investigations will inform the Foundation / Piling Works Risk Assessment which will define the appropriate piling methods and foundation design to mitigate risk.

A Materials Management Plan (MMP) will be developed to ensure the suitable management of materials and waste on site during the demolition/construction process and to ensure waste materials are minimised. Segregation of material will be required to ensure contaminated material do not cross contaminate other materials, and the long term storage and management of material on site will be minimised. The MMP will also include the requirement for on-site testing of materials, and methodology to identify what, if any, remedial actions will be undertaken and how such actions will be validated and recorded if unexpected contamination is encountered during the works. A verification plan will record the placement of materials at the site.

Gas protection measures as per British Standard 8485:2015 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings' to build in to the scheme for enclosed or underground spaces.

### 9.6 Hydrology and Water Quality

Implementation of an appropriate temporary drainage system will be required in order to minimise the potential risk of increased sediment affecting the surrounding areas during construction activities on-site. This will be detailed in the site specific CEMP.

The following general mitigation measures will be implemented to protect the water environment and surface water quality during all construction activities:

- The exact locations of nearby sewers and water supply infrastructure will be established by on site survey prior to demolition works. An appropriate protection system (i.e temporary support structure, sheet piles, installation of secant piles etc) will be implemented to minimise any impact to the public sewer network.
- Silty water abstracted during excavations will be discharged to settlement tanks. Cleaned run-off will be discharged through the existing foul sewer drains. If sewer capacity is limited, then silty water will be stored and removed from the site by tanker and disposed of at a suitably license location. A discharge consent detailing volumes and rates of

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discharge will be agreed with Thames Water prior to the commencement of works if necessary;

- The principal contractor will take precautions during works to protect the entire drainage system from siltation or pollution; and
- Minimise the risk of ground contamination all plant operators will be required to clean up any small fuel or soil spillage immediately.

In the event of a significant fuel or hydrocarbon spillage the following actions will be implemented:

- The incident will be reported immediately to the environmental manager /representative
- The environmental manager will then implement measures to initially prevent the spread of the spillage, particularly to any drainage point and then implement measures to clear the spillage;
- All collected waste material will then be placed into the appropriate waste receptacles such as oil drums for disposal off site as hazardous waste;
- All such incidents will be recorded in the on-site incident log, a copy of which will be forward to the project team; and
- In the event of a significant environmental incident occurring the Environment Agency and LBWF will be advised immediately.

### 9.7 Lighting

Lighting on construction sites whether natural or artificial is essential to health and safety. Poor lighting can represent significant risks to staff members which can result in accident and injury, the quicker and easier it is to see a hazard the better the likelihood of avoiding it.

As outlined within section 35 of the CDM regulations (2015), the site must be provided with suitable and sufficient lighting, which must be, so far as is reasonably practicable, by natural light. This related to both the construction site as well as the approach and traffic route to the site.

Full details on lighting requirements and positions will be outlined within the site specific CEMP. In determining any temporary construction lighting arrangements for the site, due consideration will be given by the principal contractor to residents and other sensitive receptors that may experience a nuisance by the light.

General control measures for the use of lighting on site are outlined below:

- As far as is practical, lighting must be directed away from residential and ecological sensitive areas; and
- Lighting should always be positioned to prevent glare.

### 9.8 Archaeology

During site investigation works carried out on behalf of St William during November 2019, RPS carried out a watching brief and sample testing across several areas of the site. No archaeological merit was found and therefore it is not envisaged that further archaeological monitoring will be required.