

APPENDIX 4.2A CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

BEEHIVE REDEVELOPMENT – CAMBRIDGE

The Beehive Redevelopment For The Railway Pension Nominees Limited

Outline Construction Environmental Management Plan

July 2024

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AUDIT SHEET

Quality Standards Control

The signatories below verify that this document has been prepared in accordance with our quality control requirements. These procedures do not affect the content and views expressed by the originator. This document must be treated as draft unless it has been signed by the originators and approved by a director.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
CEMP 01	16.05.2023	Draft Issue	Nicholas Daniel		
CEMP 02	29.07.2024	Amended to suit revised phasing strategy	Nicholas Daniel		

Limitations

The conclusions and recommendations contained in this report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by BSB has not been independently verified by BSB, unless otherwise stated in the report.

The work described in this report was initially undertaken in **May 2023** and was based on the conditions encountered and the information available during that period. The scope of this report and the services are accordingly factually limited by those circumstances. This report was subsequently amended in July 2024, to take account of the revised phasing strategy, five phase-option 15.

The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This report has been based solely on the specific design assumptions and criteria stated herein.

1. INTRODUCTION

1.1. Background

Blue Sky Building (BSB) has been appointed to identify best practice environmental management measures in the formulation of this Outline Construction Environmental Management Plan (CEMP) for managing the environmental impact of construction activities, during the redevelopment of the Beehive Centre, Coldhams Lane, Cambridge CB1 3ET. In support of an outline planning application for that said development by Railway Pension Nominees Ltd (“the applicant”).

The Proposed Development consists of demolition and redevelopment of the existing Site at Coldhams Lane, providing a new local centre with office and laboratory floorspace along with supporting infrastructure, including pedestrian and cycle routes, vehicular access, car and cycle parking, servicing areas, landscaping, and utilities.

This CEMP assumes a start on site date of Q4 2026 / Q1 2027, with full vacant possession in Q3 2028, in accordance with the revised phasing strategy, 5 Phase - Option 15, in Appendix A of this document.

1.2. Purpose and Scope of This Outline CEMP

1.2.1 – Purpose

The aim of this CEMP is to provide an overarching and strategic framework for the management of and the mitigation of environmental impacts deriving from the proposed construction activities and the implementation of measures prior to, and during, the construction phase of the proposed development. This framework will be implemented by the Principal Contractor appointed to the project to minimise and mitigate actual and potential environmental impacts.

Prior to the commencement of any activities on site, this CEMP will be updated by the Principal Contractor into a Final CEMP (likely pursuant to a planning condition) and will be agreed with the Cambridge City Council (CCC).

<https://www.cambridge.gov.uk/>

The Principal Contractor will then be required to comply with the requirements of the Final CEMP.

It is anticipated that the Final CEMP will be considered a ‘living’ document. As such, the document will be subject to regular reviews and updates to reflect the actual activities associated with the construction works and any changes to guidelines, authority requirements and legislation. This is an essential part of managing this document and must be adhered to.

Key (CCC) information on planning, environmental and building control matters can be found at:

<https://www.cambridge.gov.uk/council-services> & <https://www.cambridge.gov.uk/construction-sites>

1. INTRODUCTION

1.2.2. Scope

This CEMP details the specific obligations on the Principal Contractor when undertaking the works; the specific measures to be used during the demolition, construction and associated enabling and infrastructure works; and the specific details of the control measures for each environmental issue. All to be in accordance with planning requirement's, Cambridge City Council's approved guidance and all relevant statutory regulations.

1.3. Environmental Elements

The following Environmental Elements have been included within this CEMP:

- Noise and Vibration.
- Surface and Groundwater.
- Ground conditions.
- Transport.
- Noise and Vibration.
- Air Quality.
- Waste.

1.4. Framework of this Outline CEMP

This Outline CEMP is based on established good management practice and includes the following information:

- Information pertaining to data management, roles and responsibilities, structure, mitigation and monitoring, auditing, and non-compliance and corrective actions.
- Information pertaining to staff training, health and safety, community liaison.
- Information relating to the Site and the Proposed Development.
- Outline of the construction works sequencing.

Environmental management measures, for the following elements:

- Transport.
- Noise and Vibration.
- Air Quality.
- Waste.
- Ground Conditions.
- Surface Water Management.
- Schedule of Environmental Legislation.

1. INTRODUCTION

1.5. Aims & Objectives

1.5.1 – AIM

The aim of this CEMP is to outline how the demolition, construction and infrastructure works of the proposed development will avoid, minimise or mitigate impacts on the environment within their defined work locations along with the surrounding local area and details the Principal Contractors approach to environmental management throughout the period of associated activities.

1.5.2. Objectives

The key objectives of this CEMP include, but are not limited to:

- Defining key stakeholder roles and responsibilities.
- Conforming with applicable environmental legislation and other statutory requirements.
- Describing the operational controls for each of the identified environmental aspects.
- Ensuring that any adverse environmental impacts are avoided, minimised, or mitigated.
- Promoting best practice environmental options (BPEO) and best practicable means (BPM).

1.6. Planning Policy & Regulatory Framework

1.6.1. The Proposed Development

The proposed developments consists of demolition and redevelopment of the existing Site providing a new local centre (E (a-f), F1(b-f), F2(b,d)), open space and employment (office and laboratory) floorspace (E(g)(i)(ii) to the ground floor and employment floorspace (office and laboratory) (E(g)(i)(ii) to the upper floors; along with supporting infrastructure, including pedestrian and cycle routes, vehicular access, car and cycle parking, servicing areas, landscaping and utilities.

1.6.2. The CEMP

A copy of the CEMP will always be available on site and shall follow current best construction practice including that set out in Cambridge City Council's Code of Construction Practice, all of CCC, s Codes and requirements are available on the council website via the following links:

<https://www.cambridge.gov.uk/construction-sites> and or
<https://www.cambridge.gov.uk/>

1. INTRODUCTION

1.6.3. Regulatory Framework

In addition to complying with all the requirements of Cambridge City Council, the Principal Contractor shall comply with all other relevant legislation, standards, codes of practice, and guidance for the works being carried out including (but not exclusive to) those listed below in this section, in addition to and including all relevant CIRIA and BRE practice notes. It is the Principal Contractor's responsibility to check for any updated legislation, standards, and codes at the time of their appointment and to update this CEMP accordingly.

Legislation

- The Explosives Regulations 2014
- Clean Air Act 1993
- Public Health Act 1961
- Health and Safety at Work, etc. Act 1974
- Control of Pollution Act 1974
- Control of Pollution (Amendment) Act 1989
- Environmental Protection Act 1990
- New Roads and Street Works Act 1991
- Lifting Operations and Lifting Equipment Regulations 1998
- Special Waste Regulations 1996
- Control of Lead at Work Regulations 2002
- Control of Asbestos Regulations 2012
- Ionising Radiations Regulations 2017
- Electricity at Work Regulations 1989
- Control of Noise at Work Regulations 2005
- Controlled Waste (Registration of Carriers & Seizure of Vehicles) Regulations 1991
- Environmental Protection (Duty of Care) Regulations 1991
- Management of Health & Safety at Work Regulations 1999
- Provision & Use of Work Equipment Regulations 1998
- Personal Protective Equipment at Work Regulations 1992
- Construction (Design & Management) Regulations 2015
- Control of Substances Hazardous to Health Regulations 2002
- Work at Height Regulations 2005
- Dangerous Substances and Explosive Atmosphere Regulations 2002
- Manufacture and Storage of Explosives Regulations 2005

Guidance

- HSE Guidance booklets:
- HSG 47 Avoiding danger from underground services
- L21 Management of health and safety at work
- L101 Safe work in confined spaces

HSE Guidance Notes

- GS 6 Avoidance of danger from overhead electric lines
- CS 15 The cleaning and gas freeing of tanks containing flammable residues
- EH 40 Occupational exposure limits (revised annually)

HSE Construction Information Sheet

- No.45 Establishing exclusion zones when using explosives in demolition.

Asbestos Removal Legislation

- The Health and Safety at Work etc. Act 1974
- The Control of Pollution Act 1974
- The Special Waste Regulations 1996
- The Personal Protective Equipment at Work Regulations 1992 (as amended)
- The Control of Asbestos Regulations 2012
- Carriage of Dangerous Goods and Use of Transportable
- Pressure Equipment Regulations 2009
- The Construction (Design and Management) Regulations 2015

1. INTRODUCTION

Approved Codes of Practice

- L21 Management of health and safety at work: Management of Health and Safety at Work Regulations 1999 (second edition)
- L24 Workplace health, safety and welfare. Workplace (Health, Safety and Welfare) Regulations 1992
- L25 Personal protective equipment at work (Second edition). Personal Protective Equipment at Work Regulations 1992 (as amended). Guidance on Regulations
- L64 Safety signs and signals. The Health and Safety (Safety Signs and Signals) Regulations 1996
- L87 Safety representatives and safety committees (Third edition)
- L95 A guide to the Health and Safety (Consultation with Employees) Regulations 1996
- L127 The management of asbestos in non- domestic premises (second edition)
- L143 Work with materials containing asbestos. Control of Asbestos Regulations 2012
- L144 Managing health and safety in construction: Construction (Design and Management) Regulations 2015

British Standards

- BS 8520-1:2009 Equipment used in the controlled removal of asbestos-containing materials. Controlled wetting equipment. Specification
- BS 8520-2:2009 Equipment used in the controlled removal of asbestos-containing materials. Negative Pressure Units
- BS 8520-3:2009 Equipment used in the controlled removal of asbestos-containing materials. Operation, cleaning, and maintenance of class H vacuum cleaners
- BS EN ISO 13982-1:2004+A1:2010 Protective clothing for use against solid particulates. Performance requirements for chemical protective clothing providing protection to the full body against airborne solid particulates (type 5 clothing)
- BS EN ISO/IEC 17020:2012 General criteria for the operation of various types of bodies performing inspection
- BS EN ISO/IEC 17024:2012 Conformity assessment. General requirements for bodies operating certification of persons
- BS EN ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories
- BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites'
- BS 7385-2:1993 Evaluation and measurement for vibration in buildings. Guide to damage levels from ground borne vibration.
- BS 6472-1:2008 'Guide to evaluation of human exposure to vibration in buildings - vibration sources other than blasting.
- BS 7121 Safe use of cranes

HSE Guidance Booklets & Leaflets

- HSG189/2 Working with asbestos cement
- HSG210 Asbestos essentials task manual. Task guidance sheets for the building, maintenance, and allied trades
- HSG213 Introduction to asbestos essentials. Comprehensive guidance on working with asbestos for the building, maintenance, and allied trades
- HSG227 A comprehensive guide to Managing Asbestos in Premises
- HSG247 Asbestos: The licensed contractor's guide
- HSG248 Asbestos: The analyst's guide for sampling, analysis and clearance procedures
- HSG264 Asbestos: The survey guide

2. THE FINAL CONSTRUCTION & ENVIRONMENTAL PLAN

2.1. Principal Contractors Requirement's and Responsibilities

Once appointed, it will be the Principal Contractors responsibility, to develop this Outline Construction & Environmental plan into a working document and to manage that document throughout the duration of the project. Using all relevant information appertaining to the execution of the works, including but not limited to, strategic construction programmes, strategic logistic / phasing plans including traffic management & delivery strategies as well as all relevant design information in addition to all relevant codes of practice, standards, and legislation along with the specific requirements of Cambridge City Council and any residual planning conditions. The Principal Contractor will identify in the Final CEMP how compliance with the requirements of Cambridge City Council's codes and requirements and all other relevant codes, requirements, and legislation on Environmental and Construction matters, will be achieved.

There is a large body of environmental and safety requirements relevant to construction projects, in the form of primary legislation (Acts of Parliament), secondary legislation (Statutory Instruments, including Regulations and Orders) and statutory guidance and Codes of Practice. The Principal Contractor will be responsible for identifying any new legislation and regulation and complying with all prevailing legislation at the time of construction including any requirements under Health and Safety regulations.

In addition to the environmental requirements described, the Principal Contractor will be responsible for obtaining licences from the CCC before erecting any scaffolding, hoardings, gantries, temporary crossings, or fences or depositing a skip on the highway.

A suitably qualified environmental professional will be appointed by the Principal Contractor to prepare the Final CEMP.

2.2. Document Control

The Final CEMP will be held and maintained electronically, on the agreed document control platform for the project, which will hold all project information. The latest revisions of the CEMP, will be identified with a document reference and all stakeholders will be informed of any changes to the document, to ensure all are working to the most relevant and up to date information.

2.3. Project Management

2.3.1. Roles & Responsibilities

Table one, on the next page, identifies generic key roles and responsibilities for the project, in relation to Environmental Management and control's:

2. THE FINAL CONSTRUCTION & ENVIRONMENTAL PLAN

TABLE 1. SUMMARY OF ANTICIPATED KEY ROLES AND RESPONSIBILITIES RELATING TO THE IMPLEMENTATION OF THE CEMP

Role	Key Responsibilities
Client/Lead Design/ Cost Consultant	Responsibility for appointment / allocation of the Principal Contractor, Project Manager and Environmental Manager.
Principal Contractor	Responsibility for the enabling and construction activities and holds overall responsibility for the activities on site and implementation of the Final CEMP. Responsibilities include: • Ensuring that the works are carried out in accordance with the Final CEMP and contract documentation, including the implementation of mitigation and management measures, environmental monitoring, environmental auditing, and other matters covered in this Outline CEMP; • Ensuring the appointed contractors / subcontractors are appropriately qualified and competent; • Ensure environmental awareness training for all workers, including an induction for all site workers / contractors which includes environmental elements pertaining to the implementation of the Final CEMP; • Monitor the performance of contractors / sub-contractors and provide direction as necessary; • Liaise regularly with the Environmental Manager; • Complete a monthly audit of the Final CEMP and report findings, with follow up on identified actions as required; and • Undertaking corrective actions in the event of breaches of the CEMP or applicable environmental legislation. • Ensuring that resources are appropriately allocated to allow for the inclusion of the actions included in the Final CEMP for the duration of the project. • Responsible for the actions of management of contractors / sub- contractors associated with the enabling and construction works and ensuring that they appropriately comply with the requirements of the Final CEMP and applicable environmental legislation.
Environmental Manager	Co-ordinate monitoring and reporting of the Final CEMP implementation, through liaison with the Principal Contractor and other parties as appropriate, to ensure that the works are implemented in accord with the commitments in the Final CEMP. Responsibilities include: • Undertake environmental monitoring and reporting as specified in the Final CEMP; • Undertaking environmental audits in conjunction with the Principal Contractor as specified in the Final CEMP. Reporting of audit findings is to occur on a monthly basis. • Regularly review the Final CEMP to ensure it accurately reflects the enabling and construction works occurring on site, at a frequency of no less than six months (unless significant changes to the enabling and construction methodology occurs); • Ensure that all relevant environmental consents, license's, permits etc. are in place prior to the commencement of the relevant works. Ensure the requirements of these permits are included in the Final CEMP and are adhered to; • Act as the first point of contact for environmental issues associated with the Proposed Development; • Undertake environmental training (including toolbox talks) as required, to ensure that enabling and construction staff are aware of the environmental requirements; • Ensure that the objectives of the Final CEMP are being achieved and that are not contrary to any relevant legal requirements; • Engage with the Principal Contractor on environmental issues identified during the enabling and construction works, and issue Corrective Notices where required. Follow-up on such notices is to be undertaken in conjunction with the Principal Contractor to ensure non-compliances have been appropriately rectified.
Environmental Consultant	Advise Client on environmental related matters as requested.
Contractor(s) / Sub- Contractor(s)	• Work to agreed plans, methods, and procedures to minimise environmental impacts; • Commit to undertaking works associated with the Project in accordance with the Final CEMP; • Undertake the site induction training (which is to include an environmental management element); • Report all environmental incidents immediately to their line manager; and • Monitor the workplace for potential environmental risks and alert their line manager if any are observed.

2. THE FINAL CONSTRUCTION & ENVIRONMENTAL PLAN

2.3.2 – Key Contacts- Project Directory

(This section to be completed/updated following appropriate appointments). It should contain, key contacts for the development project at the Beehive Centre, including but not limited to, The Client Team, The Design Team, Key Consultants, Principal Contractor's contact information and key Contractor/ Sub- Contractor contact information.

PROJECT DIRECTORY TO BE INSERTED HERE

3. GENERAL FRAMEWORK/ADMINISTRATION/DUTY HOLDERS

3.1. Public Liaison

The Principal Contractor should provide Cambridge City Council's Environmental Protection Team with a full programme of key activities for the development before it starts.

The specific measures to be implemented by the Principal Contractor will include but will not be limited to:

- The Principal Contractor will liaise with CCCs Environmental Protection Team on a regular basis, agreeing routine arrangements for each site activity and ensuring compliance with CCCs Technical Guidance and regulatory requirements.
- The Principal Contractor will be responsible for establishing and maintaining contact with Cambridge City Council and residents of the local area; keeping them informed of construction matters likely to affect them.
- This liaison will include the regular and frequent distribution of Newsletters and attendance at meetings at the request of CCC with representatives of local businesses and residents' groups. (See under community relations below).
- The Principal Contractor will provide an information and reporting telephone 'Hot Line' staffed throughout working hours. Information on this facility shall be prominently displayed on site hoardings. The Contractor's nominated persons will attend monthly reviews with CCCs Environmental Protection Team, or otherwise as and when requested.
- The Principal Contractor will facilitate CCCs Environmental Protection Team to undertake regular planned inspections of the site to check compliance and associated records.
- The Principal Contractor will provide the CCC with a full programme of works, for the purpose of providing detail on the nature and timing of the main site activities, which may interface or effect CCC and or residents in the local area.

3.2. Community Liaison

Contact with neighbours and the general public throughout the demolition, enabling and construction phases will be pro-actively maintained, with regular update meetings on no less than on a quarterly basis, along with the issuing of a brief news sheet on progress. Updated news sheets will be maintained on site hoardings.

The Principal Contractor will nominate community relations personnel, who will be focused on engaging with the local community. They will ensure that occupiers of nearby properties and residents are informed in advance of works taking place, including the estimated duration. They will inform local businesses and residents likely to be affected by such activities at least 14 days prior to undertaking the works, as well as applying for the appropriate permits and licenses, e.g., scaffolds and parking bay suspension or any works effecting the main highway in and out of the project footprint.

3. GENERAL FRAMEWORK/ADMINISTRATION/DUTY HOLDERS

3.3. Neighbour and Community Relations Strategy

The principal Contractor will develop and implement a 'Neighbour and Public Relations Strategy', to enable that to be done successfully the following actions will be undertaken:

- Initial Contact: Once full planning permission has been obtained and the Principal Contractor has been appointed, formal contact will be established with the nearest neighbours and those who could potentially be affected by the demolition, enabling and construction works.
- A single point of contact for neighbour and public relations will be established, with a senior member of the project staff being nominated for the role. Contact details for this single point of contact will be displayed on the site hoarding. Outside normal working hours, site security will act as the main point of contact via a dedicated phone number. Security will alert the staff contact if necessary (available 24 hours). Should there be any complaints, these will be logged, fully investigated, and reported to the relevant department within the Cambridge City Council as soon as possible. The complainant will be informed as to what action has been taken.

3.4. Emergency Incident Communication

In the case of work required in response to an emergency, CCC and all neighbours will be advised as soon as reasonably practicable that emergency work is taking place. Potentially affected occupiers will also be notified of the 'hotline' number, which will operate during working hours.

3.5. Construction Staff and Training

All site construction staff are to be made aware of the requirements of Cambridge City Council in respect of the works interface with regulatory requirements and Environmental impact mitigation measures, in addition to being made aware of all the contents of the Final CEMP. It will be deemed the responsibility of everyone involved to ensure all regulatory requirements and Environmental impact mitigation measures are adhered to.

Regular training is to be implemented where deemed appropriate, and retraining and lessons learnt workshops are to be held in response to non-compliance incidents, should they occur.

3.6. Health and Safety

Under the Construction (Design and Management) Regulations 2015 (CDM 2015) a construction phase Health & Safety Plan is required for every construction project. The Principal Contractor will prepare and implement a project specific Health & Safety Plan, which will contain within, references to Environmental Impact mitigation measures.

4. PROJECT OUTLINE

4.1. The Site

The project is located at the existing Beehive Centre site, Coldham's Lane, Cambridge CB1 3ET. The image below indicates the project's location and the extent of the project footprint used in the planning application.



4. PROJECT OUTLINE

4.2. The Proposed Development

The development consists of a full redevelopment of the Beehive centre site, comprising of, the demolition and redevelopment of the Site providing a new local centre (E (a-f), F1(b-f), F2(b,d)), open space and employment (office and laboratory) floorspace (E(g)(i)(ii) to the ground floor and employment floorspace (office and laboratory) (E(g)(i)(ii) to the upper floors; along with supporting infrastructure, including pedestrian and cycle routes, vehicular access, car and cycle parking, servicing areas, landscaping and utilities.

4.3. Project Programme

This project will be carried out in a phased manner, the phasing details are inserted into Appendix A of this document. Once the Principal Contractor is appointed a detailed programme must be formulated by them, based on those phasing details, the selected methodology and logistics and strategic programmes. A copy of all relevant information is to be provided to CCCs Environmental Protection Team. This will include not only details on how the works will be carried out from an operational perspective, but also:

- Detailed method statement for works and any activities affecting the surrounding area.
- Detailed method statements for specific/special activities at the Beehive Centre site, in line with the principle identified in this report.
- Details of site traffic movements showing the projected number of vehicles; what is being delivered, when peaks in activities occur, traffic marshalling arrangements.
- Routes to site for deliveries.
- The Principal Contractor will agree detailed schedules of work with CCC prior to commencement of the development and will work with them to assess the potential for environmental impact and ensure all mitigation measures are in place to manage the impact on the Environment.

5.0. CONSTRUCTION WORKS AND CONSTRUCTION PROGRAMME

5.1. Overview

This section of the document identifies the outline construction sequence of the project.

Planning for construction is broad at this stage in the planning process and may be subject to modification during the detailed planning of these works, particularly following appointment of a Principal Contractor and throughout preparation of their detailed methodology and management plans as well as the finalisation of the design. The exact sequencing and phasing of the works will be developed by the Principal Contractor, but the benchmark will be in accordance with the information contained within the narrative of this document and the phasing drawings in Appendix A, used at planning stage. Once detailed plans are finalised, this CEMP is to be updated.

This CEMP assumes that no ground remediation or ground improvement works are needed and that the extent of ground obstructions, if any, to be removed have already been identified. We also note at the time of writing no drainage drawings appear to be on the system, we therefore have assumed that existing sewers to the roadway will remain and form part of the new development.

5.2. Pre-Construction Planning

Prior to commencement of works on site a period of pre-construction planning and activities are required to ensure works can commence, including but not limited to the following:

- Production of the Final CEMP, including all Appendices.
- Production of all management's Plans, including but not limited to, detailed Logistics Plans, Traffic Management plans and Health and Safety Plans.
- Development of the overall and phased programmes, in accordance with the sequencing noted in section 5.3 of this document.
- Neighbour liaison before the commencement on site to explain the nature of works.
- Liaison with the project teams of potentially concurrent local developments to agree shared and combined logistics issues.
- Further site investigations to inform the design if required.
- Condition surveys of boundaries and adjacent properties, particular attention being drawn to the location of the live railway adjacent to the boundary.
- Existing statutory services surveys.
- Unexploded ordnance surveys and checks.
- Ground conditions surveys for structural capacity and potential contamination, we envisage this would have already been carried out, but provision should be made.
- Liaison with CCC regarding traffic routes and loading arrangements.
- Formulation of project Construction Phase Plan and risk assessments.
- Formulation of detailed Site Waste Management Plans and Environmental Plans as per the current DEFRA guidelines.
- Development of project specific enabling works method statements.
- Arboriculture Surveys and preparation of a protection plans if required.
- Production of detailed works programmes and sequencing.
- Notices for works on the highway in accordance with the Highways Act 1980 and Road Traffic Act 1998.
- Hoarding and scaffold licences.
- Construction notices.
- Connections to existing statutory services and main sewers.
- Licence for discharge of water from the site into the public sewer.
- Baseline movement & environmental monitoring establishment.
- Submission of section 61 Prior Consent application.
- Register the project under the Considerate Constructors Scheme.
- Mobilisation of selected plant and operators.
- Early engagement with plant suppliers including crane suppliers to agree lifting requirements and the securing equipment, complete crane base designs if needed.
- Early orders on long term delivery items if required, including but not limited to: M.E.P equipment, utilities - sub-stations and the like and any precast structures and facade elements.
- Orders for temporary utility services to be put in place, including, electricity, water/ drainage, telephone, and data infrastructure.

5.0. CONSTRUCTION WORKS AND CONSTRUCTION PROGRAMME

5.3. Project Sequence

The construction of the proposed development will be carried out in accordance with the agreed phasing strategy, noted on the planning phasing drawings in Appendix A of this document and will comprise the following key stages, which may vary depending on the stage of the phasing being applied:

1. Pre-Construction Planning
2. Site establishment
3. Demolition & Site Clearance
4. Site Strip/Bulk Excavations
5. Infrastructure/Highway works
6. Piling and substructure
7. Superstructure
8. Envelope and cladding
9. Primary M.E.P
10. Internal Fit Out
11. Pre-Commissioning
12. Final Commissioning, Architects/Consultant/Client Inspections
13. External Works/Landscaping
14. Final Inspections and Practical Completion

5.4 Construction Programme

At this stage the formal programme of works and timescales for the development are still under consideration. This is due to the project still being in preplanning stage and once final designs and approvals from the Local Authority have been received and a Principal Contractor has been appointed, then confirmations of the timescales can be assigned to the relevant activities and an overall project schedule can be formulated by the Principal Contractor and inserted into appendix B of this document. We expect the overall sequence of the project to follow that within 5.3 of this CEMP, or similar.

It should be noted, once formulated, any updates or amendments to the programme timescales will result in revision changes to this CEMP, it is the responsibility of the Principal Contractor, to ensure this CEMP is kept up to date.

6. THE CONSTRUCTION SITE

6.1. Hours of work

The hours of work aloud on this project, are required to be in line with Cambridge City Council's guidelines and requirements, these can be found through the link below, an extract from the information contained on CCCs guidance pages in respect of permitted hours of work, is also noted below.

<https://www.cambridge.gov.uk/construction-sites>

6.1.1. Extract from Cambridge City Council's Guidelines

Hours of work for demolition and construction

"We often receive complaints about disturbance caused by demolition and construction work in residential areas during unreasonable hours.

Some noise and disturbance are inevitable from such activities, but environmental legislation does not stipulate any hours when construction work or similar activities can or cannot be undertaken.

Generally, where residents are likely to be affected, we recommend that demolition and construction work is only carried out during the following reasonable hours:

- *Monday to Friday: 7am to 7pm (typical daytime hours)*
- *Saturdays: 7am to 1pm*

We also recommend that noisy works are not carried out on Sundays or bank holidays.

In exceptional or special circumstances, such as emergencies like a burst water pipe or collapsed sewer, or when works are required on a main road, these hours are unlikely to apply.

We discourage proposals for evening or night-time work. If work needs to be undertaken outside the reasonable hours above, we advise that noise should not be audible outside or beyond the boundary of the property, to prevent undue disturbance to neighbours."

6.2 Information for Contactors and Visitors

All subcontractors and visitors to the site will be made aware of the CEMP and the controls applicable to their presence and activities on site including but not limited to:

- Method statements
- Site induction
- Environment briefings
- Toolbox talks

The Principal Contractors Site Management team will be responsible for monitoring communications between all relevant parties involved in the project. This will ensure that all environmental matters relating to the development are discussed and managed with all observations and communications documented in regular meetings and, if necessary, issued via email. All applicable records and correspondence will be retained on site by the Principal Contractor.

Relevant site layout and location plans/development drawings detailing the location and construction of the site compound, storage locations and car parking are to be displayed on an information board at both the main site entrance and site office. Note, because of the phased nature of this project, it is envisaged these details and locations may change as works progress.

6. THE CONSTRUCTION SITE

6.3. Management of Contractors

Contractors will be required to provide method statement(s) and risk assessments covering all their activities and state the environmental aspects and impacts of their activities along with the associated control and mitigation measures. This information must be issued to the Principal Contractor prior to their commencement to allow for suitable review and scrutiny.

Contractors will be instructed that their method statement(s) should include as a minimum:

- A description of the works being undertaken.
- Descriptions of the impacts to the environment caused by their works based on a review of surveys and information available for the development. The impacts should consider areas such as hazardous substances, waste, noise, dust, and vibration etc.
- Details of the activities to be undertaken, equipment to be used, hours of operation, site access arrangements, vehicle movements and details of waste and emissions expected to be generated.
- Management and mitigation measures.
- Monitoring and measurement processes.
- Emergency preparedness and response procedures.

The method statement(s) must also confirm that the following specific control measures are incorporated into their work activities:

- All waste to be segregated (where applicable) and placed in a suitable waste container.
- All fuel to be stored in suitable double skinned bowsers, tanks or within a bunded area.
- Drip trays or absorbent blankets to be placed under all static plant.

- All hazardous chemicals to have an up-to-date COSHH assessment, be appropriately labelled and be stored in a locked container.
- Emergency arrangements for spill response.
- Spillages to be reported immediately.
- Vehicle and plant engines to be turned off when not in use.
- All excavations work to cease immediately if unknown contamination and waste hotspots are identified.

Furthermore, the Principal Contractor shall ensure that Contractors are communicated with prior to commencing on site to cover the following:

- Each Contractor will nominate an individual who will be on site and who will control quality, health, safety, and environmental affairs on behalf of the Contractor.
- Contractor's employees must comply with any quality, safety and environmental instructions given by the Principal Contractors representatives.
- All Contractors and their employees will attend a Site Induction Talk at times arranged with the Site Management Team.
- Any personal injury, damage, loss, or negative environmental impact sustained or caused by subcontractor employees must be reported immediately to the Principal Contractors Site Manager.
- No Contractor will subcontract all or part of the contract without prior approval of the Principal Contractor.
- Contractors must advise the Principal Contractors Site Management of any deviation from methods of work or materials use and seek approval before proceeding.

Only those Contractors that have been formally assessed in line with the Principal Contractors pre-qualification process will be allowed to undertake work activities on site as part of this development.

6. THE CONSTRUCTION SITE

6.4. Training & Competency

Site operatives, either working directly for the Principal Contractor or for Contractors, will be competent to perform their respective roles especially those which have the potential to cause significant environmental impacts. Competence is defined in terms of appropriate qualifications, training, and work experience. Assessment of Contractor competency will form part of the Principal Contractors safety and environmental pre-qualification process.

All site operatives will receive an environmental induction prior to the commencement of any site works and this induction will include:

- Summary of the CEMP and its contents.
- Project duty holders & management structure.
- Key roles & responsibilities.
- Details of the applicable environmental aspects and impacts of the development.
- Air Quality (dust and odour emissions).
- Noise & vibration.
- Traffic & transport management.
- Waste management.
- Hazardous substances.
- Pollution prevention & control measures.
- Emergency preparedness & response (use of spill kits, reporting of incidents, incident investigation, non-conformance/corrective actions).
- General environmental awareness.

A record of all the inductions undertaken will be kept by management, this will include the names and signatures of each delegate and their respective organisation, along with the date the induction was completed. This will form part of all the records generated as a result of the implementation of this CEMP.

6.5. Hoardings, Site Layout and Facilities

This project will be executed in a phased manner, therefore the areas of the developments footprint which are to be deemed a construction site will change as the works progress, the phasing sequence is to be fully developed by the Principal Contractor, in liaison with the Client Team, an outline phasing sequence is inserted into Appendix A of this document. As each area is deemed a construction site, it will be made completely secure to deter public access by means of a 2.4-Metre-high hoarding, with separate access gates for pedestrian's and vehicles, access will be fully controlled. The proposed hoarding line and gates, will be in accordance with Cambridge City Council's licencing requirements. The position and layout of the hoardings and gates is to be fully developed by the Principal Contractor and agreed with CCC, outline proposals which are inserted in Appendix A of this document.

Note, where works to the estate road are taking place, it may be necessary to use lockable/movable Herris type fencing to segregate the public from the works. A detailed plan should this be required, is to be inserted into the logistics planning documents.

Site welfare arrangements will be established inside the site boundaries, together with a site office space, the positions of which are to be indicated on Logistics drawings, once a Principal Contractor has been appointed. Site accommodation will be of sufficient size to enable efficient, safe, and secure running of the construction phase of the project, ensuring compliance with all legislation, guidance and good practices, particularly in relation to having a range of adequate welfare facilities in line with managing and operating on large construction projects.

6. THE CONSTRUCTION SITE

6.6. Emergency Planning and Response

The Principal Contractor will develop a plan for emergencies to incorporate but not be limited to, the following:

- Emergency procedures including emergency pollution control to enable a quick response.
- Emergency phone numbers and the method of notifying CCC, and any other statutory authority. Contact numbers for the Principal Contractor's key staff will also be included.
- The Principal Contractor will display a 'contact board' on the hoarding identifying key personnel with contact addresses and telephone numbers, so that members of the public know who to contact in the event of a report or query.
- Cambridge Fire Brigades requirements for the provision of site access points.
- Site Fire plan and management controls to prevent fires.
- A plan to reduce fire risk and potential fire load during construction, operation and subsequently during maintenance or repair. The project will comply with any third- party requirements as may be appropriate.

6.7. Material Handling

Materials handling will be by crane, forklifts, or telehandlers external hoists if feasible or by use of the new permanent lifts once installed.

Any crane used, will be subject to compliance with lifting plans, which will contain details of how oversailing of adjoining properties will be minimised and managed, if applicable.

Tower Crane positions and lifting zones along with external hoist positions, if applicable, will be indicated on any logistics drawings within Appendix A of this document.

6.8. Considerate Contractors Scheme

The site will be registered with the 'Considerate Constructors Scheme'. This scheme ensures that contractors carry out their operations in a safe and considerate manner with due regard to neighbours, passing pedestrians and road users. It is the Principal Contractors responsibility to ensure that the registration process is executed and put in place.

Cambridge City Council have specific requirements and guidance for contractors registering with the scheme, these can be accessed via the information on their web site and can be found at:

<https://www.cambridge.gov.uk/>

or

<https://www.cambridge.gov.uk/considerate-contractor-scheme-code-of-practice>

7.0. SITE LOGISTICS

7.1 Logistics Strategy

The efficient management of the site logistics is vital to the success of any project. A key strategy of logistics for a construction project is to ensure that the products and materials arrive on site at the time and in the quantities that are required, in a safe and efficient manner. A robust and workable logistics strategy is particularly important on this project, given the phased nature of the works and the fact that by its very nature, there will be several interfaces with businesses occupying the developing footprint, whilst initial works are ongoing and as a result several interfaces with the general public.

The Contractor will ensure that the necessary pre-planning is undertaken and that the quality of the communication between those planning the project and those supplying the products and materials is maintained throughout the duration of the project.

7.2 Logistics Plan

A robust detailed Logistics plan for the project is to be developed and implemented and will form the basis of the logistics strategy. Apart from key strategies, the logistics plan will contain developed plans, using the information from the phasing drawings outlined within this document. Those developed plans must make it clear at the various stages of phasing, what the measures are to be at the various stages of interfacing with businesses and the general public, to mitigate the impact of the construction works. All phasing plans and logistics plans once agreed will be inserted into Appendix A of this document. Any strategies and plans must be developed through liaison with CCCs Environmental Team and consider all measures needed to mitigate the environmental impact of the construction works, vehicle movements and material usage and storage.

The overall logistics plan must include, but not be limited to including the following:

- Avoidance of vehicles stopping on any street and causing obstruction to the surrounding road network.
- Detailed diagrams of site lay out and facilities including hoarding lines, vehicle and pedestrian access points, at each stage of the phased works.
- Where there may be a need to hold vehicles, holding areas should be agreed in advance with CCC.
- Excavated waste /arising or any loose materials loaded into lorries or being delivered to site, must be properly sheeted.
- Products and materials will be delivered to site by articulated or rigid vehicle and potentially unloaded in dedicated lay down areas or more ideally loaded straight into their final position. This applies particularly where steel frame and or façade system works are proposed, which should be taken straight from the delivery vehicle, straight into the final fixed position, all of which should be pre-planned before delivery. This approach should be taken with all deliveries where possible, thus reducing the need for storage areas and reducing the amount of plant movements.
- No unscheduled materials must be accepted, those arriving without a delivery scheduled, should be turned away. An outline of the procedure in the event of this issue occurring needs to be contained in the plan.

8. TRAFFIC MANAGEMENT

8.1. Overview

Traffic and transport activities associated with the development can lead to several environmental issues, some of which have already been considered in this CEMP. These include:

- Noise.
- Dust.
- Traffic congestion.
- Safety hazards from moving vehicles.

This section highlights the potential risks of Environmental Impact in addition to outlining the measures by which the Principal Contractor will avoid nuisance to the public that may arise from increases in traffic flows and temporary rearrangements of the road network associated with the construction works.

8.2. Mitigation Controls

To mitigate the potential impacts from development associated traffic and transport, the following measures will be adopted across a range of activities that are planned at the site:

8.2.1. CLOCS Compliance

The project will adopt Construction Logistics and Community Safety (CLOCS) standards for all delivery vehicles. (CLOCS Standard for construction logistics, V1.3. 2019) Fleet Operator Recognition Scheme (FORS) Silver accreditation as a minimum will be a contractual requirement, FORS Gold operators will be appointed where possible. Where FORS Silver operators are appointed, written assurance will be sought from contractors that all vehicles over 3.5t are equipped with additional safety equipment, and that all drivers servicing the site will have undertaken approved additional training (e.g. Safe Urban Driving + 1 x e-learning module or Work Related Road Risk Vulnerable Road User training + on- cycle hazard awareness course + 1 x e-learning module etc.). CLOCS Compliance will be included as a contractual requirement.

Desktop checks will be made against the FORS database of trained drivers and accredited companies as outlined in the CLOCS Standard Managing Supplier Compliance guide. These will be carried out as per a risk scale based on that outlined in the CLOCS Managing Supplier Compliance guide.

Checks of FORS ID numbers will form part of the periodic checks and will be carried out as per an appropriate risk scale. Random spot checks will be carried out by site staff on vehicles and drivers servicing the site at a frequency based on the aforementioned risk scale. These will include evidence of further training, license checks, evidence of routing information, and checks of vehicle safety equipment. Results from these checks will be logged and retained and enforced upon accordingly.

Collision reporting data will be requested from operators and acted upon when necessary.

8. TRAFFIC MANAGEMENT

8.2.2. Traffic & Transport – General

A Traffic Management Plan (TMP) will be developed and implemented on site by the principal contractor. The TMP will outline the routes and timings of deliveries to be taken by hauliers to minimise disruption to local residents and businesses. In addition to containing information in respect of predicted traffic numbers throughout the duration of the project, as well as clearly demonstrating how traffic and deliveries will be managed to mitigate the impact on the Environment. This includes the potential risk for noise disturbance as well as minimising additional traffic during peak periods.

When formulating the plan, the Principal Contractor is to consider all the information contained within this document and is to fully liaise with Cambridge City Council's Environmental Department in respect of the content of the proposed Traffic Management Plan.

The Contractor will use designated construction traffic routes for deliveries to the site and removal of waste etc. Access routes to and from the site to be used by heavy goods vehicles (HGVs) will be agreed with CCC prior to initiation of the construction programme, to minimise disruption to the road and pedestrian network.

The Principal Contractor is expected to attend any CCC consultation group meetings in order to manage and coordinate the cumulative construction impact of the project in conjunction with other developments.

Detailed logistics plans will be developed as part of the Principal Contractor's Logistics Management Plan (LMP) and CEMP, when procurement will be further advanced, and more knowledge of vehicle origination and routes can be planned.

In order to reduce the number of vehicles attending the site the Principal Contractor will target the following best practice suggestions:

- Procurement of local sub-contractors and labour.
- Procurement of local suppliers.
- Combined deliveries.
- Install a delivery regime of "just in time"
- Use of off-site storage hubs' if available.
- Cycle parking on-site for development operatives.
- Encourage/reward car sharing.
- Encourage the use of public transport, timetable and routes should be available to all operatives at the site.
- Site meetings should be timetabled for after peak hours or utilisation of video conferencing such as Zoom or Microsoft Teams.
- Where necessary the Principal Contractor will make arrangements for temporary traffic management measures and will utilise banksmen to control vehicle manoeuvring.

8. TRAFFIC MANAGEMENT

8.2.3. Vulnerable Road Users

Cyclist activity is to be unhindered, during site deliveries a banksman will be utilised to ensure cyclist safety in conjunction with other road users, whilst vehicles are accessing and egressing the site. Any cycle lanes must be left open and precautions taken not to endanger cyclists must be taken. Those precautions are to be noted in the TMP.

HGV movements during cycling peaks may require Traffic Marshals to guide HGVs near the site. This may help reduce the risk of collision between cyclists and an HGV. They will be encouraged to use Direct Vision Standard of the highest star rating.

Signage will be erected highlighting any risks including plant, vehicles and general health and safety to pedestrians. Banksman will guide pedestrians, particularly during deliveries to the site, along the safest route.

Deliveries will be restricted to the period between 08:00 and 18:00 and, where practicable, concentrated within the hours of 10:00 and 15:00 In order to avoid the potential for conflict between pedestrians and deliveries during the peak traffic hours.

Pedestrian routes will not be blocked during deliveries and collections unless a temporary road or footway closure is in operation. In such circumstances appropriate alternative routes and signage will be provided.

Site management will conduct routine daily/weekly checks to ensure the safety and security of pedestrians around the Site. This will form part of the overall monitoring strategy, reporting to Cambridge City Council and local parties as necessary.

8.2.4. Routing

Deliveries will be planned in accordance with the TMP and Logistics Management Plan.

Deliveries and collections should be undertaken on a 'just-in-time' basis and only a single vehicle will be loaded or unloaded at any given time. Deliveries arriving without a pre-booked slot will be refused and will exit the area by the nearest and safest route as instructed by the banksman and return to site after an agreed period.

The use of other streets in the area by construction lorries, other than those identified in the TMP, will not be permitted. The smallest practicable vehicle size will be used where possible, including non-articulated vehicles.

Traffic routing will be undertaken in line with Cambridge City Council's guidance and will ensure the carriageways always remain open (unless subject to a Temporary Road Closure). If required, notifications and applications to Cambridge City Council will take place in good time.

Roads up to and into and out of the site are to be used in accordance with agreement's with CCC and are to be clearly identified within the TMP.

8. TRAFFIC MANAGEMENT

8.3. Delivery Management

To minimise the likelihood of congestion during the construction period, strict monitoring and control of vehicles entering and egressing the site will be implemented. Construction deliveries will be carefully planned with delivery times agreed with each sub-contractor and supplier using a booking system. Delivery schedules will be produced to look at the profiles of up- and-coming deliveries, and to regulate deliveries and eliminate bottle necks.

Traffic on site, should be managed and directed by the main contractor, this is an essential element, to ensure no backing up of vehicles or traffic incidents occur. The strategy for traffic management, should be part of the overall strategic logistics plan and traffic management plan.

The contractor may consider the potential use of an off-site Consolidation Centre to limit the number of vehicles delivering directly to site. Specific time slots will be allocated to the sub- contractors and suppliers for the use of cranes and hoists, to ensure that the main plant will be utilised efficiently, and that deliveries are not queued.

If a delivery arrives with no time slot or booking, it should be turned away, it is the responsibility of those managing deliveries, to ensure this regime is robust.

8.4. Construction Traffic Forecasts

The number of lorry movements, hours of operation and any lorry holding areas will be agreed in advance with the CCC. The Contractor will maintain an up-to-date log of all drivers that will include a written undertaking from them to adhere to approved routes for construction traffic.

There will be no daytime or overnight parking of lorries within the vicinity of the construction site.

Indicative estimated numbers of construction related vehicle journeys for the construction period should be calculated based on volumes of excavated waste material, together with imported concrete, brickwork, Steelwork, cladding and installation plant and associated equipment. The Principal Contractor is required to develop estimated traffic figures, for agreement with the authorities and inclusion into the TMP.

8.5. Operatives Journey to Work

Parking on Site should not be permitted, and parking in the local area around the site or close by to the development, should be discouraged, the use of official commercial car parks away from site is to be encouraged.

Given the location of the site, operatives and site staff should be encouraged to arrive by public transport and or by other means such as cycling. A cycle to work scheme should be encouraged and secure bicycle storage and showers should be provided on site. The Principal Contractor should also promote a car sharing scheme.

Contractors may elect to bring labour to site by van or minibus, in which case parking must be arranged at a commercial car park, away from site.

9. SITE WASTE MANAGEMENT

9.1. General Approach to Waste and Waste Generation

The Principal Contractor will use working methods that minimise waste. Any waste arising from the site will be properly categorised and dealt with in accordance with appropriate legislation.

Opportunities for re-using or recycling construction or demolition waste should be explored and implemented.

The Principal Contractor is also to take account of any waste management strategy the Client team commissions and issues for use on this Project, this information however, needs to be issued prior to the formulation of the final CEMP.

The Principal Contractor will carry out the works in such a way that, as far as is reasonably practicable, the amount of spoil and waste (including groundwater, production water and run-off) to be disposed of is minimised.

9.1.2. Waste Prevention & Reduction

Waste prevention and reduction measures are the most preferred option and provides the biggest gains for waste avoidance. By adopting waste minimisation practices this will ensure that the overall quantity of materials not beneficially used is kept to a minimum.

The following factors will be continually considered during the remediation and earthworks phase to minimise waste generation at the site:

- Good design factoring the minimal amounts of materials to achieve the desired results.
- Detailed calculations for the quantity of any input materials needed for the construction and refurbishment.
- Strong procurement procedures and the avoidance of over ordering input materials.
- 'Just in Time' delivery of materials.
- Maintain inventory 'stock checks' of input material delivered to site.

- Raw materials, where possible, to be kept in locked or covered storage until the time of use (avoiding damage from vandalism, weather, theft, impact etc.).
- Empower both site management and operatives to oversee all site waste management and minimisation activities.
- Engage designated site personnel to manage and monitor specific waste management and minimisation options.
- Recording and monitoring of all waste movements and amounts.
- Use of skilled and competent tradesman and plant operators so little waste is generated through poor use and handling of materials.

9.1.3. Preparing for Re-use

Where avoidance of waste is not possible, the waste types identified should be assessed and recorded for the possibility of re-use (in its original form) before they are considered for recycling. Materials such as topsoil, sub soil etc. can be stored separately and be considered for either re-use on site or other contractor or local developments. Storing re-usable materials in separate areas/containers reduces the potential for cross contamination and to encourage the re-use of materials. Options for re-use will consider:

- Use of any reclaimed materials.
- Re-use of packaging materials (such as pallets).
- Repair of materials and equipment for re-use.

9. SITE WASTE MANAGEMENT

9.1.4. Recycling

Recycling of applicable waste materials will either occur at the site or be removed by a licenced waste carrier to a competent waste recycling/reprocessing organisation specialising in construction and demolition wastes.

Where possible, the Principal Contractor will undertake recycling/reprocessing of waste in situ using their own equipment or via specialist sub-contractors (in compliance with applicable material management plans, waste exemptions or environmental permits).

If a suitable area is available, separate skips/containers will be retained at the site to actively segregate those waste types that have been identified for recycling. This may include waste types such as metals (ferrous and non-ferrous), wood/timber, paper, card, green waste, hardcore (if they are to be processed off-site), high grade plastics, glass etc.

Where space constraints are an issue a larger waste container will be used to store mixed recyclable wastes. This material will then be forwarded to a suitable waste management plant which can process mixed waste through a 'materials recycling facility' and separate off the various recycling fractions. This process will include the provision of a percentage breakdown of the recycled material's segregated based on the mass of each skip/container processed. The results of which will be used in calculation of wastes generated from the site.

9.1.5. Recovery

For any waste types generated where there is currently no recycling/reprocessing option or is in a condition that renders it unsuitable for recycling, will be considered for Refuse Derived Fuel (RDF) generation. RDF waste materials have a calorific value that allows it to be burned with the resultant heat used to generate electricity. Typical examples of RDF type waste material include:

- Contaminated plastics (excluding uPVC).
- Single use plastic packaging (polymer, film including food packaging).
- Timber fragments.
- Contaminated card & paper.
- Smaller fragments of recyclable material.

This material is sometimes referred to as a general or residual waste and is generally considered as suitable to produce RDF although moisture content and calorific value are the key tests of its suitability. General waste will be stored independently of the other segregated recycled materials. Should a lack of available space require all waste to be placed in a mixed waste container/skip then this material, once transferred to a materials recycling facility, will be separated accordingly including those which would be considered suitable for RDF production. As with waste for recycling, figures will be obtained as to the percentage of the mixed material that was utilised for RDF production.

9. SITE WASTE MANAGEMENT

9.1.6. Disposal

All remaining wastes which cannot be processed to the higher levels of the waste hierarchy should either be disposed of to a regulated landfill site or taken for incineration (waste type dependent). Whether this waste is contained with the general/residual waste container or as part of the mixed waste volume, this remaining fraction of material should be separated at a materials recycling facility before being forwarded to the final outlet.

9.1.7. Duty of Care Checks

Prior to any processing/treatment of waste on site or any off-site removal, detailed checks will be undertaken for every applicable waste management organisation used by during the development. Examples of applicable waste management organisations will include, but not be limited to:

- Waste carriers/hauliers.
- Waste transfer stations.
- Materials recycling facilities.
- Reprocessing facilities.
- Landfill sites.

9.2 Legislative Frameworks and Guidance

There are many guidance notes and legislative frameworks that cover waste, waste generation, waste minimisation and disposal, some of which is noted below:

9.2.1- Revised Waste Framework Directive

The revised Waste Framework Directive (rWFD) came into force in December 2008 and establishes the overarching legal framework for the management of waste across the European Union. Contained within the rWFD is the 5-point waste hierarchy which prioritises the order for how any waste material generated is treated. In England, The Waste (England & Wales) Regulations 2011 implements the waste hierarchy aspect of the rWFD. Specifically, regulation 12(i) requires that:

‘Any establishment or undertaking which imports, produces, collects, transports, recovers or disposes of waste, or which a dealer or broker has control of the waste must, on the transfer of the waste, take all such measures available to it as are reasonable in the circumstances to apply the following waste hierarchy as a priority order’

- Prevention (do not generate in the first place).
- Preparing for Re-use (re-use of the waste as many times as possible e.g. wooden pallets, bulk bags etc.).
- Recycling (recycle waste types e.g., conversion of concrete, bricks, ceramics into aggregates).
- Recovery (such as converting organic waste as a fuel to generate electricity).
- Disposal (residual waste that is sent to landfill or incineration).

9. SITE WASTE MANAGEMENT

9.3. Other Legislative Frameworks

In addition, the disposal of all waste or other materials removed from the Site will be in accordance with the requirements of the Environment Agency, Control of Pollution Act (COPA), 1974, Environment Act 1995, Special Waste Regulations 1996, Duty of Care Regulations 1991 and the Waste Management Regulations 2011.

As well as all the above, the Principal Contractor will be expected to conform to the UK Governments “Waste Strategy 2010” Which is interfaced in terms of requirements with other frameworks.

In general, and in accordance with the principles of the UK Government’s ‘Waste Strategy 2010’ a principal aim during demolition and construction will be to reduce the amount of waste generated and exported from the Development site.

This approach complies with the waste hierarchy whereby the intention is first to minimise, then to treat at source or compact and, finally, to dispose of off-site as necessary. All relevant Contractors will be required to investigate opportunities to minimise and reduce waste generation, such as:

- Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme.
- Implementation of a ‘just-in-time’ material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste.
- Attention to material quantity requirements to avoid over- ordering and generation of waste materials.
- Re-use of materials wherever feasible (e.g., re-use of crushed concrete from demolition for the piling platform; re- use of excavated soil for landscaping).
- Achievement of Government targets of the use of reclaimed aggregate.
- Maximise the proportion of materials recycled in accordance with The London Plan.
- Segregation of waste at source.
- Re-use and recycling of materials off-site where re-use on- site is not practical (e.g., through use of an off-site waste segregation facility and re-sale for direct re- use or re- processing).

9.4 Resource Management Plan & Waste Management Plan

9.4.1. Resource Management Plan

The resource management plan, should highlight how waste material will be recycled on site, or returned to suppliers via take-back schemes. Co-mingled waste will be collected on site and will be removed by a licenced Contractor to be sorted for recycling or disposal.

9.4.2. Waste Management Plan

Once appointed, the Principal Contractor is to generate a Waste Management Plan, which will adopt the principals set out in the CEMP. This CEMP is to be updated, with specific reference to the principals of that Waste management Plan once its formulated.

10. NOISE & VIBRATION

10.1. Overview

Noise and vibration at the site will be generated from several sources during demolition and construction activities at the development. The key sources of noise and vibration will include, but not be limited to:

- Traffic movements.
- Plant movements.
- Plant Usage
- Demolition operations.
- Drilling operations.
- General construction activities.

10.1.1. Noise -General Activities

Demolition and Construction works shall be confined to the following hours:

- Monday – Friday 07:00 – 19:00
- Saturday 08:00 – 13:00
- Sundays/Bank holidays: No work

The above as defined by Cambridge City Council at:

<https://www.cambridge.gov.uk/construction-sites>

Workforce may arrive on site 30 minutes prior but no working outside these times. Noise is to be kept to a minimum in the first hour.

Works maybe permitted outside of these hours in certain circumstances. Any proposal for out of hours works shall be submitted to Cambridge City Council for approval, with a recommended 14-day advanced notice, as defined in their guidelines.

General induction training and toolbox talks will be undertaken by Principal Contractor for site operatives who have responsibility for particular aspects of controlling noise and vibration at the site. All contractors to be made familiar with the guidance in BS5228 (Parts 1 and 3) 'Code of Practice for Noise & Vibration Control on Construction and Open Site – Noise' which should form a pre-requisite of their appointment.

10.2. Impacts

Generally, noise can be defined as any unwanted sound and in most cases occurs unexpectedly and is either too loud or repetitive. At certain decibel levels, it is hazardous to health, with low frequency noise just as damaging. Noise accounts for most of the complaints that local councils receive about environmental pollution and is a major source of stress.

English law defines a nuisance as 'an unlawful interference with a person's use or enjoyment of land or of some right over, or in connection, with it'.

Significant ground-borne vibration can lead to human health impacts a reduction in the quality of life of nearby residents and the working efficiency of commercial building occupants. Very high levels of vibration have the potential to cause damage to nearby structures and infrastructure.

The Principal Contractor will discuss and agree with CCC whether to seek their formal consent in accordance with Section 61 of Control of Pollution Act 1974 the proposed methods of work and to the steps proposed in order to minimise noise and vibration. Notwithstanding this, the Principal Contractor will discuss in detail and agree the proposed noise and vibration control measures with the Local Authority.

10. NOISE & VIBRATION

10.3. Best Practical Means

Best Practicable Means (BPM) of noise control will be applied during construction works to minimise noise and vibration at neighbouring residential properties and other sensitive receptors arising from construction activities.

The general principles of noise management are given below: Control at source by means of:

- Equipment – noise emissions limits for equipment brought to site.
- Equipment – method of directly controlling noise e.g., by retrofitting controls to plant and machinery.
- Equipment - indirect method of controlling noise e.g., acoustic screens.
- Equipment - indirect method of controlling noise e.g. benefits and practicality of using alternative construction methodology to achieve the objective as opposed to more conventional but noisier techniques; selection of quieter tools/machines; application of quieter processes.

Control across site by means of:

- Administrative and legislative control.
- Control of working hours.
- Control of delivery areas and times.
- Careful choice of compound location.
- Physically screening site.
- Control of noise via Contract specification of limits.
- Noise Monitoring, to check compliance with noise level limits, cessation of works until alternative method is found.
- Many of the activities which generate noise can be mitigated to some degree by careful operation of machinery and use of tools. This may best be addressed by toolbox talks and site inductions.

10.4. Noise Control Measures

The Principal Contractor will undertake to produce a Construction Noise and Vibration Report, their environmental team will undertake a noise assessment as part of that report, to predict noise levels at adjoining properties. This noise assessment will be carried out in accordance with BS5228-1: 2009+A1: 2014 'Code of Practice for noise and vibration on construction and open sites.

This assessment allows the Principal Contractor to select the most appropriate tools, methodology and controls to minimise disruptions of buildings at close proximity of the adjacent structures (sensitive receptors) and in particular live and occupied premises during the enabling, piling and excavation periods.

Noise levels will be monitored by the Principal Contractor during the works. CCC shall be given access to all noise readings if required as soon as they become available.

Although the noise levels to be included in a formal agreement between the Contractor and CCC are the maximum to be allowed, at sensitive locations the Contractor will be requested to achieve, where practicable, noise levels lower than the specified limits.

The Principal Contractor shall ensure compliance with the recommendations set out in BS5228:2009 and in particular with the following requirements:

- Vehicles and mechanical plant will be maintained in a good and effective working order and operated in a manner to minimise noise emissions. The contractor will ensure that all plant complies with the relevant statutory requirements.
- HGV and site vehicles will be equipped with broadband, non-tonal reversing alarms.
- Compressor, generator, and engine compartment doors will be kept closed and plant turned off when not in use.
- All pneumatic tools will be fitted with silencers/mufflers.
- Care would be taken when unloading vehicles to avoid unnecessary noise.
- The use of particularly noisy plant will be limited, i.e., avoiding use of particularly noisy plant early in the morning.

10. NOISE & VIBRATION

- Restrict the number of plant items in use at any one time.
- Plant maintenance operations will be undertaken at distance from noise-sensitive receptors.
- Reduce the speed of vehicle movements.
- Ensure that operations are designed to be undertaken with any directional noise emissions pointing away from noise-sensitive receptors.
- When replacing older plant, ensure that the quietest plant available is considered.
- Drop heights will be minimised when loading vehicles with rubble.
- Vehicles should be prohibited from waiting within the site with their engines running or alternatively, located in waiting areas away from sensitive receptors.
- Local hoarding, screens or barriers should be erected to shield particularly noisy activities.
- Temporary noise screens will be used to reduce noise from particularly noisy activities and the height of perimeter hoarding will be extended where this would assist in reducing noise disturbance at sensitive receptors.
- Hours of operation should be strictly enforced and any deviations other than those previously identified will be with the consent of the local authority.
- Limiting of high impact activities (including demolition and piling works) to specific times of the day in accordance with the Guide. For example, this may include 2 hours on – 2 hours off, or the restriction of such activities between 09:00- 12:00 and 14:00-17:00.
- Piling will be carried out with the method that minimises both noise and the transmission of vibration to sensitive receptors.
- Vehicles, plant and equipment will undergo regular servicing and maintenance to prevent irregular noise levels.
- The location of stationary plant in areas which will have a minimized impact on occupied residential and commercial properties, where feasible.

- Static plant, when in operation, is to be sound attenuated using methods based on the guidance and advice in the BS 5228, where practical.
- Implementation of Best Practice Means (as defined in Section 72 of the COPA) by trade contractors at all times and are to carry out all work in such a manner as to reduce disturbances from noise and vibration.
- Preference for electrically powered plant, to mechanically powered alternatives, where practical.

10.5. Construction Traffic

The Contractor will incorporate the following measures into the scheme to avoid noise related impacts from construction traffic:

- Vehicles will not wait or queue up with engines running on the site or the public highway.
- Vehicles will be properly maintained to comply with noise emissions standards.
- Deliveries will be restricted to be within working hours of the site.
- Design and routing of access routes will minimise vehicle noise and the need to perform reversing manoeuvres.
- Full compliance to the TMP by all.

10. NOISE & VIBRATION

10.6. Vibration Control

Vibration is a particular risk during the piling and excavation stages.

The measures taken to reduce the acoustics of these two operations will also assist in mitigating the effects of vibration on neighbours and their property.

Specific measures required include but are not limited to:

- A digital seismograph measuring device will be used to measure the amount of vibration produced during the works. Where elevated levels are recorded the source will be investigated and, where possible, alternative techniques employed to reduce the levels.
- The Contractor will comply with the vibration levels established by agreement with CCC, which will consider BS 5228-2.
- The potential requirement for vibration monitoring will be assessed in line with BS 5228-1:2009+A1:2014 'Code of Practice for Noise and Vibration Control on Construction and Open Sites'.
- Where vibration monitoring is required measured vibration levels shall be compared with the criteria in BS 5228:2009 Part 2 (i.e., 1mms-1 PPV for potential disturbance in residential area and using a suggested trigger criteria of 2mms-1 for commercial areas). Lower limits will be confirmed with Cambridge City Council if there is a risk of vibration levels may interfere with vibration sensitive equipment or other vibration sensitive objects.
- The location of vibration monitors (accelerometers) will be located on or adjacent to partition walls and shall be (subject to agreement) identified on a suitable OS plan with a copy issued to Cambridge City Council Environmental Health Department.
- Any exceedance of vibration trigger limits shall initiate a review of the applicable activities/works to enforce changes of the methodology or equipment in order to mitigate the situation and to return to suitable vibration levels.

11. AIR QUALITY

11.1 Overview

Air Quality within the vicinity of the site and immediate surrounding development area could be impacted by dust and particulate matter emissions during the redevelopment of the existing building. The main sources of these emissions are likely to be from, but not limited to:

- Delivery haulage vehicles and construction equipment.
- Works on the façades which are made of hardcore materials such as brick & concrete.
- Groundwork activities including excavations if services need installing or upgrading.
- Onsite material processing hardcore (concrete, bricks, stone etc).
- Concrete cutting.

11.1.1. Impacts

Receptors prone to dust and particulate matter impacts include:

- Human receptors both on and adjacent to the site through inhalation and contact with eyes.
- Ecological receptors (where applicable).
- Settlement of dust and particulate matter on local property (cars, buildings etc).

11.2. Mitigation Controls

The potential to generate dust and particulate matter will be minimised through the implementation of the following Best Available Techniques (BAT) and Best Practical Means (BPM) measures with specific reference and application of the of the Institute of Air Quality Management 'Guidance on the Assessment of Dust from Demolition & Construction' and 'Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites'.

The Principal Contractor will, as far as reasonably practical, seek to control and limit emissions to the atmosphere in terms of gaseous and particulate pollutants from tools and equipment used on site and dust from construction activities.

The site activities will be assessed in accordance with Cambridge City Council's guidance and requirements, under their air quality management for Cambridge in addition to being in accordance with any supplementary planning conditions and guidance. The contractors must submit a statement to the Local Authority for approval identifying proposed dust control measures before work starts.

Further details of CCCs requirements and guidance can be found at:

<https://www.cambridge.gov.uk/search/?q=air+quality+on+construction+sites#gsc.tab=0&gsc.q=air%20quality%20on%20construction%20sites&gsc.page=1>

11. AIR QUALITY

11.3 Mitigation Measures

Throughout the project, the Principal Contractor will ensure the following:

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
- Display the name and contact details of person(s) accountable for air quality and dust issues on the Site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information.
- Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by CCC.
- 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 CCC when its requested.
- Record any exceptional incidents that cause dust and/or air emissions, either on or offsite, and the action taken to resolve the situation in the logbook.
- 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.
- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the CCC when its requested. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of site boundary, with cleaning to be provided if necessary.
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make the inspection log available to the local authority when its requested.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the Site boundary that are at least as high as any stockpiles on site.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site hoarding, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site.
- Cover, seed or fence stockpiles to prevent wind whipping.
- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas.
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- 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.
- Ensure an adequate water supply on the Site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment.
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

11. AIR QUALITY

11.3. Mitigation Measures (continued)

- Avoid bonfires and burning of waste materials.
- Ensure effective water suppression is used during deconstruction operations. Handheld sprays are more effective than hoses attached to equipment as the water can be 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.
- Bag and remove any biological debris or damp down such material before deconstruction
- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers 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.
- Avoid scabbling (roughening of concrete surfaces) if possible.
- 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 that appropriate additional control measures are in place.
- 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.
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.
- Use water-assisted dust sweeper(s) on the access and local roads, if required.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site logbook.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsters and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Access gates to be located at least 10m from receptors where possible.

12. HAZARDOUS SUBSTANCE STORAGE & POLLUTION PREVENTION

12.1. Overview

Hazardous substances such as chemicals, fuels and lubricants will be stored and used during the works onsite. Examples associated with construction activities are primarily the following substances:

- Fuels (red & white diesel etc.).
- Oils (hydraulic, lubricant etc.).
- Solvents.
- Cleaning agents.
- Adhesives/resins.

12.2. Impact of Poor Storage/Misuse or Spillage

Poor handling, storage and use of liquid hazardous substances can result in spillages that can impact both the natural environment and human health. Specific examples of the impacts can include:

- Pollution of foul and surface water sewers.
- Direct discharge and contamination of surface waters.
- Land and groundwater contamination.
- Inhalation and adsorption of hazardous substances by humans (site workers, visitors, public).

12. HAZARDOUS SUBSTANCE STORAGE & POLLUTION PREVENTION

12.3. Mitigation Controls

Measures will be developed, implemented, maintained, and monitored by the Principal Contractor to comply with the Water Resources Act 1991, Environmental Protection Act 1990 and other associated regulations.

All fuel deliveries will be supervised by a competent person capable of dealing with any spills or other incidents that may occur. The level of all storage tanks will be checked before delivery to prevent overfilling and to ensure that the product is delivered to the correct tank.

A designated fuel and hazardous storage area will be set up within the site compound to ensure containment of any ongoing and potential accident spillage.

The following list shows measures that will be put in place to prevent pollution and would conform to the best practice policy proposed by the EA via the Pollution Prevention Guidance (online at):

<https://www.gov.uk/guidance/pollution-prevention-for-businesses>

- The handling use and storage of hazardous materials to be undertaken in line with the EA's Pollution Prevention Guidance (e.g. Oil Storage Regulations for Business, Prevent Groundwater Pollution from Solvents etc.).
- Adequately bunded and secure areas with impervious walls and floor for the temporary storage of fuel, oil, and chemicals on site during construction.
- Drip trays will be in use to collect leaks from fuel pumps or from standing plant. Water pumps and generators used on the site will have integral drip trays where possible.
- All valve and trigger guns must be protected from vandalism and unauthorised use. When not in use they should be turned off and securely locked. Any tanks or drums should be stored in a secure container or compound, which should be kept locked when not in use. Bowsers must also be stored within secure compounds when not in use.
- Drip trays and bunded areas shall be inspected and kept free of accumulated rainwater, as necessary. Any cleaning/arising/oily water from drip trays etc. will be assessed and disposed of in accordance with EA waste classification guidance (WM3).
- Small quantity of fuel in approved fuel cans can be temporarily stored over an absorbent pad when in use in a work area. To help limit the impact of any spills, all hazardous substance storage areas should be located at least 10 metres away from any foul/surface drain or watercourse.
- Re-fuelling activities will only be undertaken in designated areas, by suitably qualified persons. Toolbox talks will be communicated to site staff and contractors so that they are fully informed of refuelling procedures.
- Oil interceptor(s) fitted to all temporary discharge points and for discharge from any temporary oil storage/ refuelling areas (where applicable).
- Development of pollution control procedures in line with the EA's Pollution Prevention Guidance, and appropriate training for all construction staff.
- Provision of spill containment equipment such as absorbent material on site. Spill kits will be regularly inspected and immediately replaced if used. These spill kits will contain absorbent pads, absorbent granules, and methods of disposal of materials and used kit. These kits will be located at appropriate points around the site which are at a higher risk of pollution (e.g., refuelling area and next to fuel tanks).
- All hazardous liquids e.g., oils, lubricants, chemicals, paints will be stored in a segregated area in a suitable locked COSHH container and in accordance with the Safety Data Sheet. COSHH assessments will be available nearby for information in the event of a spillage.

Although the EA Pollution Prevention Guidelines (PPG's) have now been superseded by the EA online pollution prevention guidance they still provide suitable structure for legislative compliance and reflect Best Practice methods.

12. HAZARDOUS SUBSTANCE STORAGE & POLLUTION PREVENTION

12.4. Emergency Preparedness & Response

12.4.1. Emergency Spill Control

Immediately after observing any leakage or spillage of oils, fuels, or chemicals at the site; works should cease immediately until deemed safe to continue by site management.

If the spillage consists of flammable liquids all possible sources of ignition should be extinguished, and site management informed immediately. The Principal Contractor should contact the Client/Developer as soon as reasonably practical to inform of the incident.

It will be the responsibility of the Principal Contractor & Site Operatives to identify the source of the leakage/spillage and seek to rectify the problem or reduce the amount of material that could continue to leak out. On open ground use absorbent pads as a barrier to any further contamination. If required put on appropriate Personal Protective Equipment prior to coming into direct contact with any leaked/spilled material.

Once the possibility of any further spillage/leakage has been stopped the Principal Contractor should seek to contain the spillage taking into consideration the following:

- On land - use suitable material to construct a bund around the spill to stop it from spreading.
- Use booms to contain oil spills that have entered or about to enter drainage.
- In internal buildings use absorbent pads or oil absorbent granule; and,
- Any contaminated soils will be excavated, taken to the quarantine area, and sampled to identify for waste classification purposes (EA Technical Guidance WM3). Further validation sampling will be undertaken at the land around the 'hot spot' of contamination to provide clarification that all contaminated material has been removed.

It is crucial to protect any spillage from entering a sensitive receptor area. Should any spillage enter a sensitive receptor and cause a pollution incident it will be the responsibility of Principal Contractor to inform the EA on the emergency pollution incident number 0800 807 060.

In the event of an incident on site that requires the emergency services attendance dial 999.

Once all spilled materials have been contained clean-up of the material should commence. All contaminated materials (soil, sand, absorbent granules) should be disposed of as hazardous waste in line with current waste regulations. Materials should be placed in the hazardous waste wheelie bin; however, for bigger spillages a larger waste receptacle such as a self-contained skip should be used. These can temporarily be held at the quarantine area. All contaminated material must be forwarded to an appropriately licensed recovery or disposal site as specified by a technically competent manager or environmental consultants.

All leaks and spills must be fully investigated by the Principal Contractor along with the immediate replenishment of any materials and items taken from the emergency spill kits.

12. HAZARDOUS SUBSTANCE STORAGE & POLLUTION PREVENTION

12.4.2. Incident Investigation

All environmental incidents will be reported directly to the Principal Contractor immediately and to the Client as soon as reasonably practicable.

Examples of environmental incidents can include:

- Spillage of hazardous substance onto ground, into drains or a watercourse.
- Damage to the habitat of protected species.
- Releases of significant dust, particulates and odours that cause a nuisance to the local community.
- Incidents involving fugitive releases of waste or the non-compliant transfer of waste.
- Noise emissions leading to human health impacts and/or statutory nuisance.

If a pollution incident occurs, it must be reported to the designated Emergency Coordinator. All Environmental Incidents must also be notified to the Project Environmental Officer and safety incidents to the Safety Manager. The Emergency Coordinator will notify the client of the incident and ensure they are kept up to date with any close out actions taken.

The Project Environmental Officer will report to the Principal Contractors Environmental Officer as outlined in the Principal Contractors Environmental Procedure. The Site Manager will verbally notify all major environmental incidents to the Principal Contractors Environmental Officer within one hour. This notification will be followed up within 24 hours by sending a copy of the Non-Conformance Report relating to the incident to the Principal Contractors Environmental Officer with a written explanation of the cause and the proposals to prevent recurrence of the incident.

The Principal Contractor will complete a formal written investigation by completion of a Non-conformance Report. The investigation must be carried out in a timely manner and should focus on gathering evidence and information including but not limited to:

- Description of events.
- Photographs.
- Drawings, sketches.
- Details of applicable substances.
- Witness statements.
- Description of damage.
- Analysis and physical investigation of any contamination.

The information gathered during the investigation should be analysed to determine:

- Factors contributing to the incident and root causes; and,
- Opportunities for corrective and preventative actions.

All site operatives connected to the incident may be included in the investigation process when required by the incident investigator.

On completion of the incident investigation, project management will identify a suitable corrective and preventative action to mitigate the incident from occurring again. On completion, site management should also conduct a review of the CEMP and any associated environmental aspects and impacts evaluations and make suitable amendments if required.

13.SURFACE WATER MANAGEMENT

13.1. Overview

This section sets out the requirements on the Principal Contractor for managing the environmental impacts of constructing the development, associated with surface water management.

The contractor will prepare a detailed Surface Water Management Plan and site-specific Erosion and Sediment Control Plan, which will minimise discharge of potentially polluted site water to nearby drains and overland flow routes.

The detail of these plans will be developed further in conjunction with the Environment Agency and Local Authority once a Principal Contractor has been appointed. Water monitoring points in key locations will be established prior to commencement of construction and monitored during the construction phases.

Access to both the Environmental Agency's and Cambridge City Council's guidance on surface water management, can be found through the links below:

<https://www.gov.uk/government/publications/surface-water-management-plan-technical-guidance>

<https://www.cambridge.gov.uk/search/?q=surface+water+management+on+construction+sites#gsc.tab=0&gsc.q=surface%20water%20management%20on%20construction%20sites&gsc.page=1>

Some key points these plans may consider are:

- No polluted water is to be discharged from the site.
- Sediment and erosion controls are to be regularly inspected to ensure sufficient capacity.
- Wheel washes are to be implemented on site.
- Drainage of surface runoff and de-watering effluents to settling tanks to remove suspended solids prior to discharge to sewer or removal by a suitably licenced waste operator
- Storage of chemicals and hazardous materials within bunded areas, with adequate capacity (of 110%). Bunded areas are to be regularly inspected to ensure that sufficient capacity is available.
- Prevention of spills and leaks.

13.SURFACE WATER MANAGEMENT

13.2 – Key Site Activities and Options

Below is noted some key site activities which use water, along with some options that should be considered for sustainability and reducing the risk of contamination.

13.2.1. Key Site Activities Using Water

Activity	Water Use	Source: Potable or Non-Potable
Site Cabins	Drinking, Kitchen, Canteen	Potable
	Toilets and urinals, showers and hand washing	Non-potable
Drainage	Flushing	Both
General Cleaning	Tool rinsing, boot washing, plant & equipment washing	Non-Potable
Site Dust Suppression	Dampening (bowzers) and misting	Non-Potable
Concrete Production	Mixing plant	Both
Masonry	Mortar mixing	Both
Screeds	Laying	Both
Concrete Wash Out	Plant wash out	Non-Potable
Commissioning	M&E pipe and plant testing	Both (as appropriate to system)

Activity	Options to Reduce Potable Water Demand
Site Cabins	Efficient showers, taps, toilets and urinal controls. Trigger controls on catering taps and use of vessels for washing rather than under running taps. Rainwater capture for toilet flushing. Waterless urinals
Drainage	Reuse water collected from dewatering, e.g. dewatering Use water from attenuation tanks or rainwater harvest tanks
General Cleaning	Fill containers rather than use running taps or open hoses Trigger operated spray guns Use of a closed water recycling system for wheel washing.
Site Dust Suppression	Use of control systems to allow damping activities to be altered for different applications. Use of water efficient road sweepers. Use water collected from elsewhere for dust suppression (e.g. from attenuation tanks).
Masonry	Use water butts as opposed to long hose runs when mixing mortar in remote areas of the site
Screed	Apply in early morning/ late afternoon for natural cooling (reduced need for damping) Use ready mix
Concrete Production	Consider water storage where water for cleaning could be blended with potable for production.
Concrete Wash out	Consider collecting waste water filtering and reusing

APPENDICES

The following sections are to be fully developed by the Principal Contractor and this plan updated as documents are completed and inserted into the relevant sections.

The following appendices apply to this document:

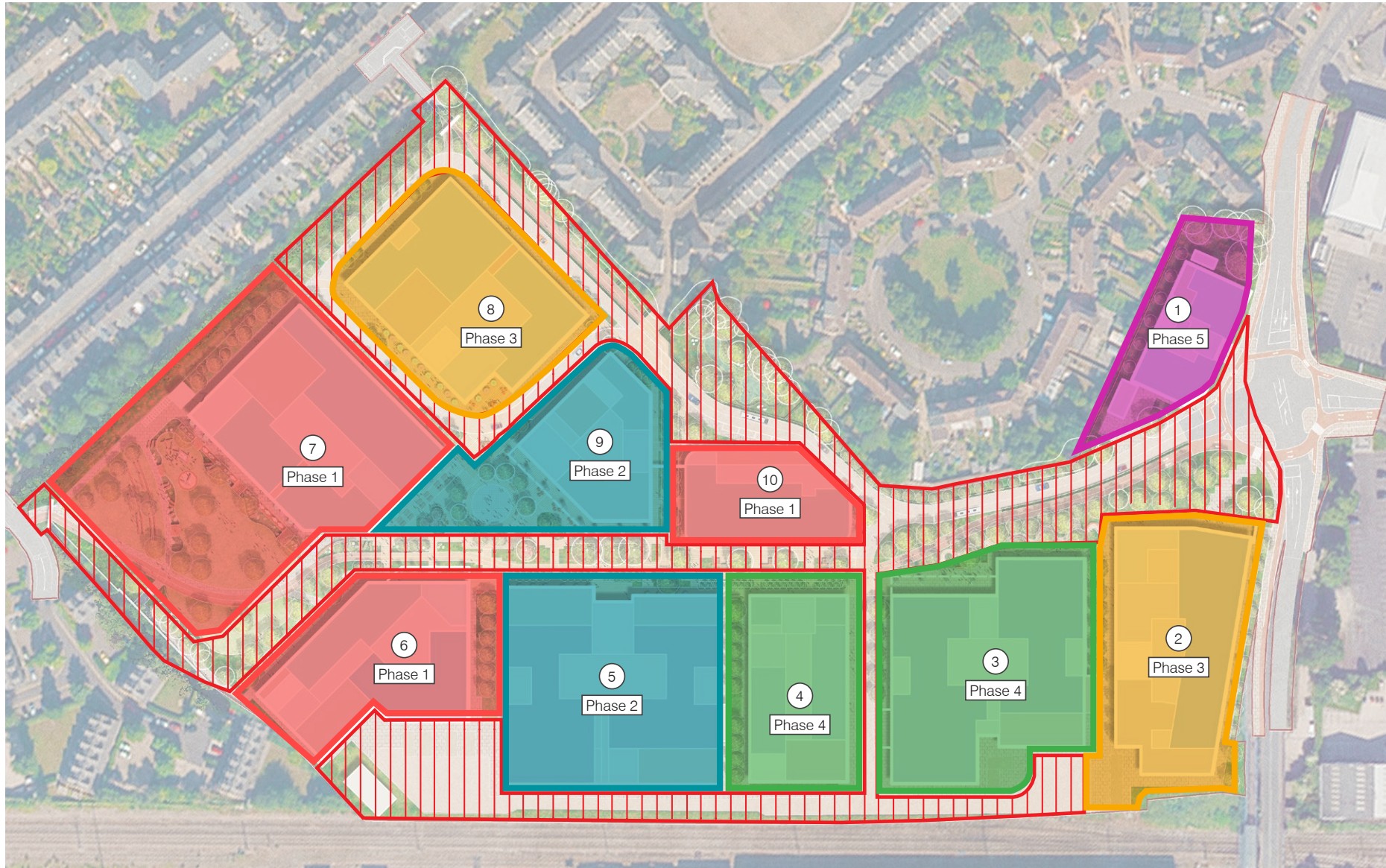
Appendix A – Phasing Option

Appendix B – Construction Programme

Appendix A - Phasing Option

Appendix A - Phasing Option

Optimised



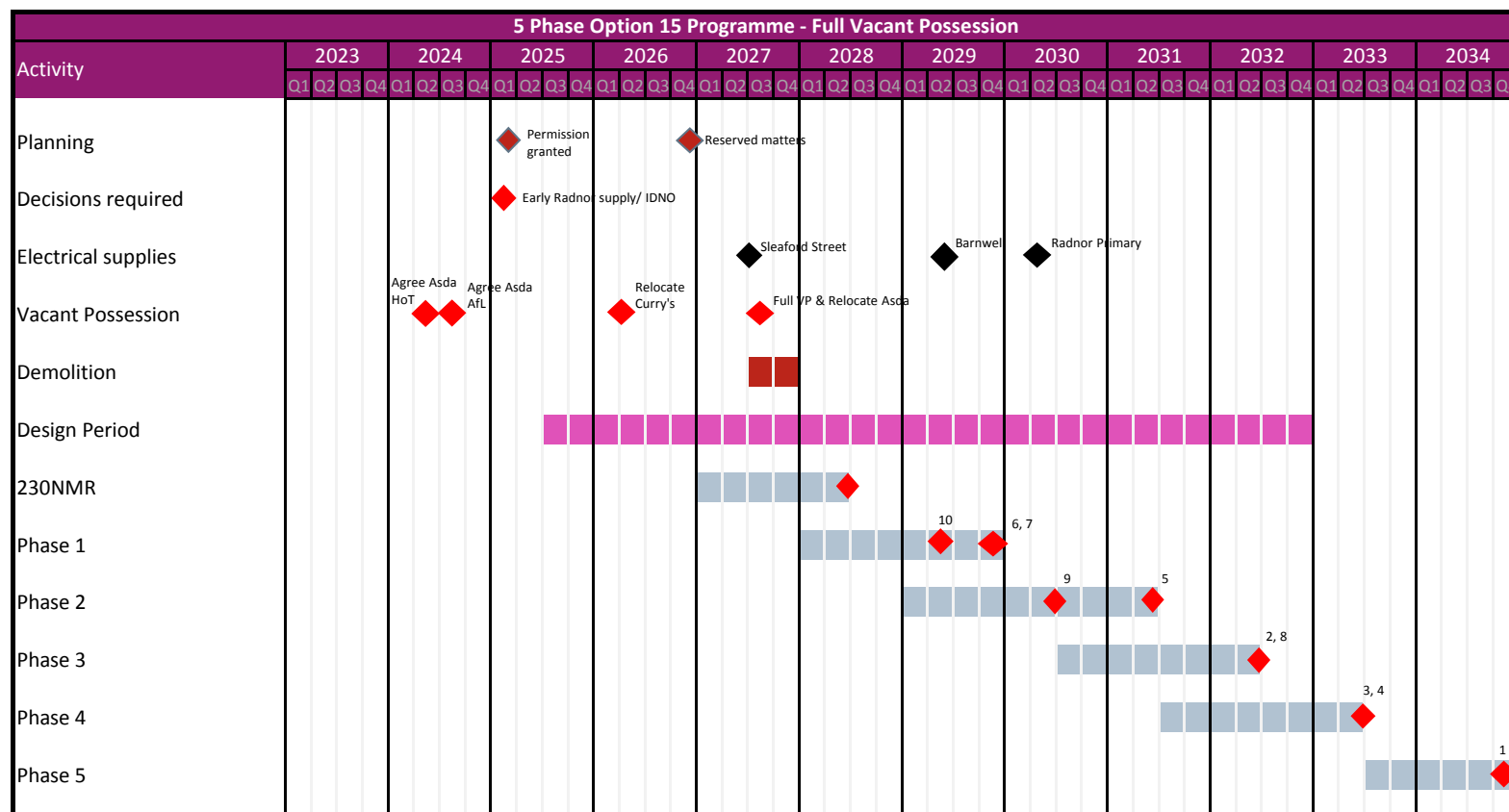
Appendix A - Phasing Option

5 Phase Option 15 - Full VP

	Building	Type	GIA m2	GIA sqft	NIA m2	NIA sqft	Phase GIA sqft	Phase NIA sqft
Phase 1	6	Lab	15,051	162,009	8,172	87,963	540,816	233,288
	7	Office	19,005	204,570	12,615	135,788		
	10 (MSCP)	Parking	16,187	174,237	886	9,537		
	Substation (IDNO)	Infrastructure						
	Entrance Road	Infrastructure						
	Cycle Route	Infrastructure						
	"Park"	Infrastructure						
Phase 2	5	Lab	29,246	314,804	19,777	212,880	448,213	305,784
	9	Office	12,394	133,409	8,631	92,904		
Phase 3	2	Lab	16,793	180,760	11,114	119,631	351,036	235,129
	8	Office	15,819	170,276	10,730	115,498		
Phase 4	3	Lab	16,678	179,522	11,015	118,565	314,503	205,033
	4	Office	12,540	134,981	8,033	86,467		
Phase 5	1	Office	2,122	22,841	1,345	14,478	23,552	14,478
	Cycle Store 1	Parking	66	710				

TOTAL COMMERCIAL	155,901	1,678,118	92,318	993,711
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Appendix A - Phasing Option



Building	Construction Period (months)	Start Date (month)	End Date (month)
1	18	Jul-33	Dec-34
2	24	Jul-30	Jun-32
3	24	Jul-31	Jun-33
4	18	Jan-32	Jun-33
5	24	May-29	Apr-31
6	24	Jan-28	Dec-29
7	24	Jan-28	Dec-29
8	24	Jul-30	Jun-32
9	18	Jan-29	Jun-30
10 (Car Park)	12	Jul-28	Jun-29

Appendix B - Construction Programmes

Construction programmes to be formulated by the principal contractor when appointed and inserted into this document.



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