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# London Luton Airport Expansion

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Volume 5 Environmental Statement and Related Documents

**5.02 Appendix 4.2 Code of Construction Practice  
(Tracked Change Version)**

Application Document Ref: TR020001/APP/5.02

APFP Regulation 5(2)(a)

**The Planning Act 2008**

**The Infrastructure Planning (Applications: Prescribed Forms and Procedure)  
Regulations 2009**

**London Luton Airport Expansion Development Consent  
Order 202x**

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**5.02 ENVIRONMENTAL STATEMENT APPENDIX 4.2 CODE OF  
CONSTRUCTION PRACTICE (TRACKED CHANGE VERSION)**

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# 1 INTRODUCTION

## 1.1 Background

- 1.1.1 Luton Rising (a trading name of London Luton Airport Limited) (the Applicant) proposes to increase the capacity of London Luton Airport (the airport) to 32 million passengers per annum (mppa) (the Proposed Development) consistent with their Vision for Sustainable Growth 2020 to 2050 published in 2017 (Ref. 1).
- 1.1.2 This document is the Code of Construction Practice (CoCP) for the works to construct the Proposed Development and is provided as part of a suite of documents which make up the Environmental Statement (ES) **[TR020001/APP/5.01]** submitted as part of the application for development consent.
- 1.1.3 The Proposed Development builds on the current operational airport with the construction of a new passenger terminal and additional aircraft stands to the north east of the runway.
- 1.1.4 This will increase- the overall passenger capacity to 32 mppa.
- 1.1.5 In addition to the above, and to support the initial increase in demand, the existing infrastructure and supporting facilities will be improved in line with the short-term requirements for additional capacity.
- 1.1.6 Key elements of the Proposed Development include:
- a. extension and remodelling of the existing passenger terminal (Terminal 1) to increase the capacity;
  - b. new passenger terminal building and boarding piers (Terminal 2);
  - c. earthworks to create an extension to the current airfield platform, the vast majority of material for these earthworks would be generated on site;
  - d. airside facilities including new taxiways and aprons, together with relocated Engine Run-up Bay and Fire Training Ground;
  - e. landside facilities, including buildings which support the operational, energy and servicing needs of the airport;
  - f. enhancement of the existing surface access network, including a new dual carriageway road accessed via a new junction on the existing New Airport Way (A1081) to the new passenger terminal along with the provision of forecourt and car parking facilities;
  - g. extension of the Luton Direct Air to Rail Transit (Luton DART) with a station serving the new passenger terminal;
  - h. landscape and ecological improvements, including the replacement of existing open space; and

- i. further infrastructure enhancements and initiatives to support the goal of zero emission airport ground operations by 2040<sup>1</sup>, with interventions to support carbon neutrality being delivered sooner including facilities for greater public transport usage, improved thermal efficiency, electric vehicle charging, on-site energy generation and storage, new aircraft fuel pipeline connection and storage facilities and sustainable surface and foul water management installations.

1.1.7 The CoCP includes control measures and standards to be implemented throughout the construction of the Proposed Development. Whilst multiple construction works will run concurrently throughout the Proposed Development, the CoCP will act as the overarching document for all construction related activity. The CoCP presents a consistent approach to the environmental management of construction activities for the entire Proposed Development.

## 1.2 Purpose of the CoCP

1.2.1 This CoCP outlines the environmental management and mitigation requirements to be implemented throughout the construction period for the delivery of the Proposed Development. The CoCP has been informed by two rounds of Statutory Consultation.

1.2.2 The purpose of this document is to:

- a. deliver effective planning, management, and governance throughout the construction period to manage potential impacts upon individuals, businesses and the natural and historic environment; and
- b. outline processes to engage with the local community and their representatives.

1.2.3 The lead contractor will comply with appropriate environmental and health and safety legislation at the time of construction. For this reason, the appropriate statutory requirements are not repeated within this CoCP. Further requirements on specific areas, such as the management of earthworks and groundwater control will be considered from industry best practice guidance documents as established in each environmental topic section of this CoCP. This CoCP, however, does include the relevant health and safety aspects pertinent to accident and incident prevention and control.

1.2.4 This CoCP will be kept under review and updated, if necessary, as construction proceeds with the approval of the relevant planning authority.

## 1.3 Structure of the document

1.3.1 This document comprises the following sections:

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<sup>1</sup> This is a Government target, for which the precise definition will be subject to further consultation following the Jet Zero Strategy, and which will require further mitigations beyond those secured under the Development Consent Order.

- a. Policy and Environmental Management Principles (**Section 2**): an overview of the identified environmental management systems to be implemented during construction;
- b. Management Approach (**Section 3**): the mechanisms by which broader environmental commitments and detailed requirements in local community areas are passed from the Applicant to the lead contractor;
- c. Community relations and stakeholder engagement (**Section 4**): an overview to engagement with the local community, including the mechanisms for communications, enquiries and complaints;
- d. General requirements: including hours of work, good housekeeping, security and other measures (**Section 5**); and
- e. Requirements by environmental topics (**Sections 6 to 18**): an outline of the measures that will be employed to reduce disturbance from construction activities, as far as reasonably practicable, including:
  - i. Accident and incident prevention and control;
  - ii. Agriculture land quality;
  - iii. Air quality;
  - iv. Biodiversity;
  - v. Climate change and greenhouse gases;
  - vi. Cultural heritage;
  - vii. Health and community;
  - viii. Landscape and visual;
  - ix. Noise and vibration;
  - x. Soils and geology;
  - xi. Traffic and transport;
  - xii. Waste and resources; and
  - xiii. Water environment.

1.3.2 The identified topics above largely reflect the topic headings used in the ES. Other EIA topics, such as employment and economics, and activities such as earthworks, are also referenced in a number of sections of this document.

1.3.3 Various strategies, management plans and outline management plans also form part of the application for development consent and are referred to in the relevant sections of this CoCP. These include:

- a. Amphibian and Reptile Mitigation Strategy provided as **Appendix 8.6** of the ES [TR020001/APP/5.02];
- b. Badger Mitigation Strategy provided as **Appendix 8.7** of the ES [TR020001/APP/5.02];
- c. Bat Mitigation Strategy provided as **Appendix 8.8** of the ES [TR020001/APP/5.02];
- d. Bird Mitigation Strategy provided as **Appendix 8.9** of the ES [TR020001/APP/5.02];
- e. Orchid and Invertebrate Mitigation Strategy provided as **Appendix 8.10** of the ES [TR020001/APP/5.02];



- f. Cultural Heritage Management Plan provided as **Appendix 10.6** of the ES [TR020001/APP/5.02];
- g. Outline Construction Traffic Management Plan provided as **Appendix 18.3** of the ES [TR020001/APP/5.02];
- h. Outline Construction Workers Travel Plan provided as **Appendix 18.4** of the ES [TR020001/APP/5.02];
- i. Outline Landscape and Biodiversity Management Plan (LBMP) provided as **Appendix 8.2** of the ES [TR020001/APP/5.02];
- j. Outline Remediation Strategy (for the former Eaton Green Landfill Site) provided as **Appendix 17.5** of the ES [TR020001/APP/5.02];
- k. Outline Site Waste Management Plan provided as **Appendix 19.1** of the ES [TR020001/APP/5.02]; and
- l. Outline Soil Management Plan (SMP) provided as **Appendix 6.6** of the ES [TR020001/APP/5.02].

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## 2 ENVIRONMENTAL MANAGEMENT PRINCIPLES

### 2.1 Environmental Management System

- 2.1.1 The lead contractor will have an Environmental Management System (EMS) that is certified to British Standard BS EN ISO:14001. The management systems will set out processes, practices, and plans that enable the lead contractor to manage environmental impacts and increase their operating efficiency.
- 2.1.2 As part of the EMS, the lead contractor will include measures to manage environmental effects and ensure that they are integrated into the construction methods. To support this, contractor's method statements for construction operations will be prepared (refer to **Section 3**).
- 2.1.3 The lead contractor's EMS will establish:
  - a. the primary environmental aspects of the construction work and how these will be managed;
  - b. staff competence, training and awareness requirements and how these are achieved and maintained;
  - c. processes for managing auditing and management reviews;
  - d. record-keeping arrangements; and
  - e. the procedures to be implemented to monitor and report requirements and the effectiveness of the measures outlined within this CoCP.
- 2.1.4 One of the key aims of an EMS is to continually improve performance. The lead contractor will therefore ensure that relevant aspects of the EMS, including relevant management plans and strategies, are regularly reviewed, audited and

updated to ensure that they are appropriate and relevant to the different phases of the works.

2.1.5 Any references to industry and best practice guidance provided within this CoCP should not be considered an exhaustive review and any subsequent updates to this guidance over the course of the works should be considered as appropriate, and as further defined in the latest management plans.

2.1.6 Management plans and strategies listed below, must be developed by the lead contractor for each part of the authorised development in accordance with the scope provided in this CoCP, and must be approved in writing by the relevant planning authority following consultation with the relevant highway authority, statutory undertakers as appropriate on matters related to ~~its~~ their functions, and the relevant water undertaker in relation to (ed), (de) and (hi) below. This includes:

- a. Community Engagement Plan (**Section 4**);
- b. Construction Site Lighting Arrangements (Section 5);
- ~~b-c.~~ Emergency Plan (Section 6);
- ~~c-d.~~ Pollution Incident Control Plan (Section 6);
- ~~d-e.~~ Dust Management Plan (Section 8);
- ~~e-f.~~ Carbon Efficiency Plan (Section 10);
- ~~f-g.~~ Construction Noise and Vibration Management Plan (Section 14);
- ~~g-h.~~ Framework Materials Management Plan and Materials Management Plan (Section 15); and
- ~~h-i.~~ Construction Surface Water Management Strategy (Section 19).

## **3 MANAGEMENT APPROACH**

### **3.1 Legislative, consent and license compliance**

3.1.1 The Applicant and the lead contractor will adhere to all legislative requirements, including the provisions of the DCO. In addition, the Applicant and the lead contractor will obtain all necessary consents and licenses for the construction works in accordance with relevant legislation.

### **3.2 Enforcement**

3.2.1 Compliance with the CoCP is a requirement of the DCO. The Applicant will impose the requirements of the CoCP through the works contracts which will incorporate both general and environmental topic requirements.

3.2.2 The lead contractor will be required to comply with the requirements of the CoCP and the Applicant will take appropriate action where required to ensure compliance.

### **3.3 Contractors' Method Statements**

3.3.1 The lead contractor will establish the processes to be followed for construction operations in method statements which will seek to address health, safety, site security and the wider environmental issues associated with all construction works.

3.3.2 As a minimum, method statements will be prepared for site preparation, construction operations and reinstatement of land and/or infrastructure post-completion of the primary construction operations.

3.3.3 Contractor's method statements will define any specific environmental control measures to be implemented in accordance with the requirements of the CoCP and hold-points as necessary for environmental consents or implementation of mitigation, including compensatory mitigation. Method statements will be informed by risk assessments.

3.3.4 The Applicant or an appointed representative will review and agree the lead contractor's approach to developing methods statements.

### **3.4 Supervision**

3.4.1 To supervise the construction operations, suitably qualified and experienced personnel will be employed. This will include professionally qualified environmental management staff, with relevant experience in the environmental topics covered in the ES and the CoCP. They will be present on-site during the main construction operations, as appropriate, to advise the lead contractor and the contract management team. The staff will further supervise and report on the implementation of appropriate environmental mitigation measures and safeguarding processes.

### 3.5 Contact person

- 3.5.1 For all construction operations, a point of contact will be identified for communication with the regulatory authorities. The lead contractor will provide the regulatory authorities with the details of the contact person(s) prior to the commencement of the construction works.

### 3.6 Training and competence

- 3.6.1 The Applicant will require the lead contractor to appoint an appropriately qualified, competent, and suitably experienced workforce.
- 3.6.2 The lead contractor will hold responsibility for the identification of training requirements of their personnel. The identification of training requirements will enable appropriate training to be provided and suitably qualified and experienced professionals will be engaged for this purpose.
- 3.6.3 The training programmes will prepare relevant staff with the appropriate level of knowledge on health and safety regulations, community relations and wellbeing, and environmental topics, in addition to the ability to adhere to environmental control measures and advise employees of changing circumstances throughout the construction operations.

### 3.7 Employment and training

- 3.7.1 The Applicant has developed an **Employment and Training Strategy [TR020001/APP/7.05]** to target specific training and employment opportunities to the local community. This has been submitted as part of the application for development consent.
- 3.7.2 The **Employment and Training Strategy** sets out proposed measures for contractors, the Applicant and key stakeholders to implement and consider when engaging with the local labour force, educational institutes, and other relevant bodies, to maximise employment benefits from the construction and operation of the Proposed Development.

### 3.8 Considerate Constructors Scheme

- 3.8.1 The lead contractor will be required to sign up and adhere to the Considerate Constructors Scheme (refer to the Glossary for further information).

### 3.9 Interface management between adjacent construction sites

- 3.9.1 The lead contractor will be required to implement measures to manage the environmental aspects of interfaces between adjacent construction sites. The construction sites will include the boundaries between sites under the responsibility of different contractors or, where reasonably practicable, other third-party contractors working on construction projects adjacent to but which are unrelated to the Proposed Development.

### 3.10 Monitoring and reporting

- 3.10.1 The lead contractor will undertake the appropriate monitoring and reporting as outlined for each environmental topic (see **Sections 6 to 18**) with the aim of ensuring compliance with the requirements of this CoCP, and any additional consent requirements.
- 3.10.2 The monitoring process will evaluate the effectiveness of mitigation measures and the potential impact of construction operations associated with the Proposed Development. Consideration will also be given to those additional actions that may be necessary to enable compliance.

## 4 COMMUNITY RELATIONS AND STAKEHOLDER ENGAGEMENT

### 4.1 Community Engagement

- 4.1.1 The Applicant or a nominated representative will prepare a Community Engagement Plan that will provide the overall approach to community engagement and a detailed guide to the enquiries and complaints procedure.
- 4.1.2 The plan will include procedures to:
- a. maintain effective community engagement throughout the construction operations to further develop existing relationships with the communities alongside the Proposed Development;
  - b. communicate with affected communities prior to the commencement of the relevant construction operations about how the effects of construction activities will be managed and, where appropriate, mitigated;
  - c. communicate to affected communities prior to the commencement of relevant construction operations regarding the programme of the construction operations; and
  - d. present information on the enquiry and complaints procedures and how this is managed and operated.
- 4.1.3 The lead contractor will provide appropriately experienced community relations personnel to implement the plan, to provide appropriate information and to be the first point of contact to resolve community issues.
- 4.1.4 The lead contractor will take reasonable steps to engage with the community having due regard for wellbeing and mental health, and communicating in plain English. Engagement will particularly be focused on those who may be affected by construction impacts, including local residents, businesses, landowners and community resources, and the specific needs of protected groups (as defined in the Equality Act 2010). The Community Engagement Plan will refer to the **Equality Impact Assessment [TR020001/APP/7.11]** and present strategies for communicating with diverse and hard-to-reach groups, including a strategy for providing translated information where reasonable and upon request.
- 4.1.5 The Applicant will establish and be a key member of community focus groups providing strategic insight and feedback to and from the Proposed Development. Meetings will be attended by the lead contractor's Community Liaison Officer together with a representative from the Applicant and local authorities as may be necessary to cover the matters to be discussed. The Community Engagement Plan will detail the process for the Applicant's engagement with community focus groups (e.g., the programme and method for community engagement).

### 4.2 Communications

- 4.2.1 During the construction operations, a programme of relevant and ongoing communications will be prepared and implemented by the lead contractor or a

nominated representative following approval by the Applicant. This will include, but is not limited to, the following:

- a. digital media: a website for the construction works relating to the Proposed Development (including the project objectives, works descriptions, partner profiles, key personnel introductions, timelines, commitments, information on standards and mechanism for residents/stakeholders to sign up to electronic newsletters);
- b. social media: project-specific social media channels (e.g. Facebook/Twitter) for the construction works relating to the Proposed Development including a mechanism for monitoring and responding to social media inquiries;
- c. printed media: the lead contractor will provide printed-media and materials and advertising where appropriate to inform the affected communities. This will include a newsletter, prepared by the lead contractor on the Proposed Development's progress and planned construction operations. The lead contractor will ensure the material is accessible and easy to read;
- d. helpline and dedicated email address: a Community Relations Line will be made available 24 hours a day, seven days a week, to handle enquiries during the construction period. This should include acknowledgement of enquiry within one working day, full response within five working days and resolution of official complaints within 21 working days;
- e. stakeholder database: a database will be established to set up and maintain effective stakeholder communication through an up-to-date contact list;
- f. noticeboards: noticeboards will be employed to provide information at appropriate sites, locations and at relevant local community centres; and
- g. community events: where appropriate, relevant community events will be set up to respectively engage with local communities and maintain ongoing communication relating to detailed design, implementation and establishment of the Proposed Development.

4.2.2 Wherever possible, the lead contractor will notify occupiers of nearby or affected properties, businesses, adjacent or affected parish councils, and other elected representatives at least four weeks in advance, and again at least two weeks in advance, of the nature and anticipated duration of planned construction works that may affect them, including both principal and ancillary works. As a minimum, the lead contractor will take steps including direct correspondence and/or mail drops, as well as providing information in local community centres. The notification will also provide details of the enquiries and complaints procedure developed in accordance with the requirements in **Section 4.3**. Information included in the notifications will include, as appropriate:

- a. the location of the planned works;
- b. the activities to be carried out;

- c. the duration of the planned works and the periods within which works will be undertaken (i.e., whether during normal working hours, during the evening or overnight);
- d. the anticipated effects of the planned works;
- e. the measures to be implemented in line with the CoCP and management plans, as informed by the ES, to mitigate the impact of the planned works; and
- f. the enquiries and complaints procedure.

4.2.3 Additional community engagement will also be required where appropriate, as outlined in the topic specific sections of this CoCP.

### **4.3 Enquiries and complaints procedure**

4.3.1 The lead contractor or a nominated representative of the Applicant will employ a Community Relations Line and dedicated email address to deal with enquiries and complaints from the public. The Community Relations Line will be staffed 24 hours a day, seven days a week, during periods of ongoing construction works, and is comprised of a phone line, email and website contact facility.

4.3.2 The lead contractor or a nominated representative of the Applicant will prepare a complaints procedure. The procedure for logging an enquiry or a complaint will be outlined within the Community Engagement Plan.

4.3.3 The extent of the action taken will depend on the nature of the complaint. All complaints will be investigated by the lead contractor with the aim of determining the cause of the complaint and assess whether the construction works adhere to the Proposed Development's environmental requirements and other relevant requirements such as legislation, standards and codes of practice.

4.3.4 The lead contractor will also establish a small claims procedure and an independent complaints commissioner. The small claims procedure will present a positive and transparent platform for minor, construction-related claims from residents, businesses and agricultural landowners.



## 5 GENERAL REQUIREMENTS

### 5.1 Working Hours

#### Core working hours

- 5.1.1 Core working hours will be from 08:00 to 18:00 on weekdays (excluding bank holidays) and from 08:00 to 13:00 on Saturdays. The Applicant will require that the lead contractor adhere to core working hours, except for works to be undertaken in the additional working hours outlined below. Further detail is provided in **Section 14** (Noise).

#### Start-up and close-down periods

- 5.1.2 To maximise productivity within the core hours, the lead contractor will require a period of up to one hour before and up to one hour after core working hours for start-up and close-down of activities. This will include (but not be limited to) deliveries, movement to/from place of work, unloading, maintenance and general preparation work. This will not include operation of plant or machinery likely to cause a disturbance to local residents or businesses unless covered by an exemption. These periods will not be considered an extension of core working hours.

#### Additional working hours

- 5.1.3 To ensure the safe operation of the airport, construction personnel safety, or for reasons of engineering practicability, some activities will need to be conducted outside of the core working hours defined above. In some situations, this may result in a need to undertake works on a 24 hours/seven days per week basis.

- 5.1.4 When planning for the need of additional working hours, the following hierarchy of time periods, in order of preference, shall be considered:

- a. Weekday evenings 18:00 – 22:00 and weekday mornings 07:00 – 08:00;
- b. Saturday afternoons 13:00 – 18:00;
- c. Sunday daytime 10:00 – 18:00;
- d. Saturday / Sunday evenings 18:00 – 23:00; and
- e. Night-time works 23:00 – 07:00.

- 5.1.5 Activities which may require working outside of core working hours, may include, but are not limited to, the following:

- a. construction of the Luton DART tunnel and directly associated activities (such as removal of excavated material, supply of materials and maintenance of equipment); where reasonably practicable, material will be stockpiled for removal during core working hours;
- b. utility diversions and taxiway constructions to keep the airport in operation during construction of the Proposed Development;
- c. highways-related works (e.g. for highways lane closures and lifting operations over live highways);

- d. earthworks activities located within the defined Night-Time Working Boundary (see Appendix A), which are season and weather dependent (earthworks activities outside of this boundary will not be undertaken 23:00 – 07:00); ~~and~~
- e. surveys (e.g. for wildlife or engineering purposes), which need to be carried out outside core working hours; ~~and~~

- 5.1.6 In some cases, construction activities commencing during core working hours may extend into evening and night-time hours for reasons of engineering practicability or because they involve activities that cannot be safely stopped once started. Such activities may include but are not limited to major concrete pours.
- 5.1.7 Where there are operational constraints, airside construction activities may be required outside of core working hours.
- 5.1.8 Large or unusual unloading activities may also be carried out outside of core working hours to avoid congestion risks in and around the airport and construction site.
- 5.1.9 Activities outside core working hours that could give rise to disturbance will be kept to a reasonably practicable minimum.
- 5.1.10 Repairs or maintenance of construction equipment that is required to be carried out outside core working hours will normally be carried out on Saturday afternoons between 13.00 and 18.00 or Sunday daytimes between 10:00 and 17:00. Only essential repairs or maintenance works will be undertaken on Sundays.
- 5.1.11 In the case of work required in response to an emergency or which, if not completed, would be unsafe or harmful to the works, staff, the public or the local environment, the relevant local authority will be informed as soon as reasonably practicable of the reasons for the works and their likely duration. This information will also be made available to the helpline. Examples of the type of work envisaged include where unexpectedly poor ground conditions, encountered while excavating, require immediate stabilisation.

## 5.2 Construction site layout and good housekeeping

- 5.2.1 To reduce the likelihood of an environmental incident or nuisance occurring, the following measures will be used, where relevant:
- a. ~~T~~Treatment of perimeters, provision of staff facilities and waste management; ~~;~~
  - b. ~~C~~Cleanliness on site, including management of foreign object debris (FOD), in accordance with the requirements of the airport operator; ~~;~~
  - c. ~~E~~Effective preventative pest and vermin control and prompt treatment of any pest and vermin infestation, including arrangements for disposing of food waste or other attractive material, if an infestation occurs, the contractor will take action to eliminate the infestation and prevent further occurrence; ~~;~~

- d. **P**rohibition of open fires, and a requirement to take measures to control the risk of fires;
- e. **R**emoval or stopping and sealing of drains and sewers taken out of use; no discharge of site run-off to ditches, watercourses, drains, sewers or soakaways without the agreement of the appropriate authority;
- f. **M**aintenance of wheel-washing facilities or other containment measures;
- g. **L**ocation of storage, machinery, equipment and temporary buildings to minimise environmental effects and, where practicable, outside flood risk areas;
- h. **T**he use of less intrusive noise alarms that meet the particular safety requirements of the site, such as broadband reversing warnings, or proximity sensors to reduce the requirement for traditional reversing alarms;
- i. **C**ontrols on lighting/illumination to limit visual intrusion or any adverse effect on sensitive ecology;
- j. **T**he location of site accommodation to avoid overlooking residential property;
- k. **M**anagement of staff congregating outside the site prior to commencing or leaving work;
- l. **S**ecurity measures, including closed circuit television (CCTV) – the location and direction of view of security cameras or blocking software to prevent intrusion into residential properties will be considered;
- m. **A**voidance of the use of loudspeaker or loudhailer devices;
- n. **C**ontaining and limiting the visual intrusion of construction sites, as far as reasonably practicable;
- o. **P**rovision of maps showing sensitive areas and buffer zones where no potential pollutants are to be stored or used;
- p. **S**moking areas at site offices/compounds or worksites equipped with containers for smoking wastes – these would not be located at the boundary of working areas or adjacent to neighbouring land.; and
- q. Public Rights of Way (PRoW), including diversions, will be maintained for as long as reasonably practicable for pedestrians, cyclists and equestrians affected by the Proposed Development, including reasonable adjustments to maintain or achieve inclusive access.

5.2.2 Where reasonably practicable, inclusive access (including for people with reduced mobility) will be maintained to services and buildings where they have been temporarily disrupted during the works. Where a need is identified (e.g. through stakeholder engagement with relevant local organisations or community liaison processes), the lead contractor will review access and routes. These reviews will indicate where additional measures or reasonable adjustments may be required for the purposes of ensuring accessibility by disabled or mobility-impaired people. Where the normal means of access has to be diverted or

blocked off, alternative safe routes for persons with restricted mobility will be identified, taking into account existing hazards and obstructions such as pavement kerbs and street lighting standards.

### 5.3 Worksite security

- 5.3.1 The Applicant has a statutory duty to prevent unauthorised access to the site. The lead contractor will carry out site-specific assessments of the security and trespass risk at each site and implement appropriate control measures.
- 5.3.2 The following measures will be used by the lead contractor, where appropriate, to prevent unauthorised access to the site:
- a. use of high perimeter fencing or hoarding, as appropriate for site security and public safety, and placed so that P~~R~~oW is maintained or appropriately diverted;
  - b. site lighting at site perimeters;
  - c. adequate security guards and patrols;
  - d. CCTV and infra-red surveillance and alarm systems where required;
  - e. consultation with neighbours on site security matters;
  - f. consultation with local crime prevention officers on security proposals for each site with regular liaison to review security effectiveness and response to incidents; and
  - g. immobilisation of plant out of hours, removing or securing hazardous materials from site, securing fuel storage containers and preventing unauthorised use of scaffolding to gain access to restricted areas and neighbouring properties.
- 5.3.3 The lead contractor will agree the security measures with the Applicant.

### 5.4 Hoardings, fencing and screening

- 5.4.1 The lead contractor will be responsible for the appropriate provision of high quality, effectively designed and sustained high perimeter security hoardings, fencing and screening where appropriate. These features will be designed to respond to local landscape character and visual amenity in each location and act as noise control. The features will further enhance site security and public safety and must be situated so that there is no intrusion to ~~P~~R~~oW~~ ~~public rights of way~~ and other identified routes.
- 5.4.2 The following measures will be used as appropriate:
- a. maintenance of adequate screening, fencing and hoardings to an acceptable condition to prevent unwanted access to the construction site, to provide noise attenuation, screening and site security where required;
  - b. maintenance of protective fencing and/or specialist fencing (e.g. reptile fencing) to protect environmentally sensitive features during construction operations;

- c. maintenance of existing walls, fences, hedges and earth banks for the purpose of screening as far as reasonably practicable;
- d. adoption of different types of fencing, including hoardings used for noise control and sound insulation;
- e. consideration for the impact on local landscape character and visual amenity of hoardings facing away from the site;
- f. provision of site information boards with contact details including out-of-hours contact details, the community helpline and details of the construction programme, at key locations;
- g. display of notices on site boundaries to warn of hazards on site, such as deep excavations and construction access;
- h. display of notices to confirm that businesses whose access or view may be impacted upon by construction operations remain open, including details of access;
- i. provision of signage to indicate re-routed pedestrian/cycle paths; and
- j. provision of information on routes to alternative community facilities.

## 5.5 Site lighting

- 5.5.1 To enable the safety and security of the construction sites, site lighting and signage will be provided by the lead contractor prior to the commencement of construction for approval by the relevant planning authority in consultation with relevant authorities. The site lighting will provide the minimum illumination levels required to enable a safe and secure construction site and will use low energy consumption fittings. Where necessary, and for health and safety, lighting to site boundaries will be provided and illumination will be sufficient to provide a safe route for the construction workforce and passing pedestrians. The use of lighting will observe a curfew when practicable, although this is not possible during 24 hours/7seven days per week working patterns or for security purposes.
- 5.5.2 Measures will be adopted to enhance safety and security within and around the construction sites. Of note, precautionary measures will be adopted to avoid shadows cast from the site on surrounding footpaths, walkways, roads and amenity areas. Further measures include lighting combined with smart-technology where appropriate, such as lighting activated with motion sensors to avoid unnecessary usage and act as a security method. Where possible, lower power security lighting will be used. Warm-white light sources (3,000K) are the preferred type due to the lower content of blue wavelength light (refer to The Institution of Lighting Professionals (ILP), Guidance note 8: Bats and artificial lighting GN08 (Ref. 2)).
- 5.5.3 Task-based lighting will be provided for specific high-risk tasks. The lead contractor will be responsible for switching off task-based lighting after use and at the end of the working hours.
- 5.5.4 Proposed lighting will comply with the following, where applicable:

- a. The Institute of Lighting Professionals, Guidance notes for the reduction of obtrusive light GN01:2021 (Ref. 3);
- b. The Institution of Lighting Professionals, Maintenance factor determination and its impacts on the performance and overall efficiency of LED luminaires GN11:2020 (Ref. 4);
- c. The Institution of Lighting Professionals, Guidance note 8: Bats and artificial lighting GN08:2023 (Ref. 2);
- d. The Institution of Lighting Professionals, The brightness of illuminated advertisements, PLG05:2014 (Ref. 5);
- e. The International Commission on Illumination (CIE), Guidelines for minimizing sky glow CIE 126:1997 (Ref. 6);
- f. The International Commission on Illumination (CIE), Guide on the limitation of the effects of obtrusive light from outdoor lighting installations, CIE 150:2017 (Ref. 7);
- g. BS EN 12464-2 (Lighting of workplaces – Outdoor) (2014) (Ref. 8); and
- h. BS 5489-1 (Code of practice for the design of road lighting) (2020) (Ref. 9).

5.5.5 Lighting will also be designed, positioned and directed to account for the environmental conditions and confined to the task area using horizontal cut-off optics and zero floodlight tilt angles. Lighting will seek to avoid intrusion on adjacent buildings, sensitive receptors, ecological receptors and structures used by other protected species, and additional land uses to prevent unnecessary disturbance. The identified environmental measures will be most applicable to sites where night working will be undertaken.

5.5.6 Monitoring of light obtrusion effects shall include illuminance measurements to be recorded near sensitive habitats where considered necessary by the ecologist (e.g. bat roosts and foraging routes), and adjustments made to avoid spill light onto these habitats. Illuminance levels to be recorded before and after any intervention. Monitoring will be particularly relevant outside of hibernation periods, as identified by the ecologist.

5.5.7 Plant lighting will be shielded from view by neighbouring dwellings and sensitive habitats wherever practicable. The use of site cabins will also provide shielding of the lighting from beyond the construction site.

5.5.8 Site lighting will be located and directed so that it will not cause undue interference with railway operations, highway users or airport operations. The requirement for obstruction lighting shall be reviewed throughout the construction period in line with CAA/ICAO requirements.

5.5.9 Particular attention will be paid to minimising sky glow and light intrusion beyond the construction site. The lead contractor will respond promptly to complaints regarding obtrusive light (e.g. from dwellings). This will be particularly relevant when new construction phase lighting is installed. The affected lighting will be visually checked and illuminance levels recorded before and after any intervention.

- 5.5.10 To mitigate the effects of light obtrusion, adjustments which could be considered, where practicable, include but are not limited to:
- a. ~~A~~void over lighting the task (e.g. in excess of recommendations in BS EN 12464 (Ref. 9));
  - b. ~~I~~nstall shields, louvres or cowls to limit direct view of the light source;
  - c. ~~R~~re-aim luminaires away from the observer;
  - d. ~~R~~re-locate luminaires;
  - e. ~~R~~revise the on/off switching regimes to limit the duration of lighting; and
  - f. ~~U~~se lower powered floodlights.
- 5.5.11 The lead contractor will keep a record of lighting installed on the construction site. The record will be available on request to show that all lighting fixtures comply with the requirements of the CoCP.

## 5.6 Welfare facilities

- 5.6.1 Welfare facilities will be provided for construction workers.
- 5.6.2 The welfare facilities will be subject to the same environmental control measures as outlined within the CoCP for other construction works.

### Worker Code of Conduct

- 5.6.3 The Applicant will require the lead contractor to sign up to and adhere to a Worker Code of Conduct, to be cascaded through the workforce.
- 5.6.4 The Worker Code of Conduct will cover general behaviour expected of those involved in construction activities, including their interaction with local communities, in line with the Applicant's values.
- 5.6.5 Particular provision will be included relating to construction workers using temporary workforce accommodation, car parking, use of local community and recreation facilities, anti-social behaviour and communicable diseases.

## 6 ACCIDENT AND INCIDENT PREVENTION AND CONTROL

### 6.1 Emergency Preparedness

6.1.1 The lead contractor will be responsible for the development of the emergency procedures for each site which will be approved by the Applicant or a nominated representative. As far as reasonably practicable, the procedures will be standardised across the various work sites and will account for the anticipated hazards relevant to the site-specific layout. The emergency procedures will contain phone numbers for the emergency services and the principal staff of the lead contractor, in addition to the method for notifying statutory authorities and airport operator.

6.1.2 The emergency procedures will be developed in consultation with the emergency services and other relevant third parties, including the airport operator and relevant water undertaker, as appropriate. Consultation will also take account of the construction operations on the existing airport and will be developed in accordance with established industry best-practices.

6.1.3 The lead contractor will liaise with emergency services and key stakeholders, including the airport operator, to ensure that emergency access routes, muster points, and parking for emergency services vehicles are appropriately considered and maintained during construction.

6.1.4 For the provision of site access points, the lead contractor will ensure that the reasonable requirements of the relevant emergency services will be adopted. The lead contractor must ensure that the access points are suitably designed and developed and account for the types of emergencies that could occur, and the extent and severity of their effects. The design and development should further account for the alteration of site access points throughout the duration of construction operations and will therefore be updated as appropriate.

6.1.5 The lead contractor will implement emergency procedures in accordance with an Emergency Plan. The objectives of the Emergency Plan will be to:

- a. avoid, contain and control any major accidents/disaster hazards;
- b. implement the measures necessary to protect persons and the environment;
- c. set out protocols for communicating with the public, emergency services and authorities concerned in the area in the event of a major accident/disaster; and
- d. provide for the restoration and clean-up following a major accident.

6.1.6 The emergency procedures will consider major accidents to people and to the environment, and will include the following as appropriate:

- a. the strategy for responding to major accidents/disasters both off and on-site;
- b. roles and responsibilities of the lead appropriately qualified and experienced personnel;



- c. identification and provision of facilities required to enable effective response, including alternatives where the effects of a major accident could render them inaccessible or unusable;
- d. identification and provision of suitable equipment and materials required to respond to an emergency, including a system of inspection and maintenance to ensure that they can be deployed effectively when required; and
- e. consideration of potential adverse effects resulting from emergency actions.

6.1.7 The lead contractor will be responsible for preparing the Emergency Plan, which will set out emergency procedures and relevant guidance required to execute the Plan effectively. The Plan will set out a requirement for suitable drills and practice at appropriate intervals, and/or whenever a significant change to the arrangements is made.

6.1.8 The Emergency Plan will include, but is not limited to, procedures for:

- a. activating the Emergency Plan;
- b. mobilising internal and external resources;
- c. accounting for people on-site;
- d. enacting emergency action;
- e. communicating with relevant off-site authorities and other third parties; and
- f. maintaining an incident log and preservation of the scene.

6.1.9 The lead contractor will monitor the effectiveness of the arrangements in place to manage the risk of potential major accidents and the associated mitigation.

## 6.2 Major accidents and disasters

6.2.1 The lead contractor will identify relevant major accidents and disasters that could arise during construction and eliminate/reduce the risk as far as reasonably practicable. Where this is not reasonably practicable, the lead contractor will implement measures to reduce, control and mitigate the effects of the major accident/disaster on people, the built environment and the natural environment.

### General Provisions

6.2.2 As part of planning the phasing of the works, a construction phase plan (in accordance with Construction Design and Management (CDM) Regulations Ref. 10) will be established by the lead contractor in liaison with the airport operator, which will consider the interaction of the works with airport operations. **Sections 6.2.3 to 6.2.9** below describe measures to be considered (albeit not limited to) within the plan.

6.2.3 The lead contractor will consider the interaction of the works with airport operations and existing safety, environmental and emergency systems and vice

versa (including obstruction of signs and lighting). The lead contractor's safe system of work will incorporate specific consideration of arrangements for the identification of steps necessary for safe working and the mitigation and management of risk from major accidents and disasters during construction, in a proportionate manner. This will include processes to ensure that any significant changes are assessed, and relevant documents and procedures are reviewed with the airport operator and updated where required. Other considerations may also include (but not be limited to) arrangements for the operation of construction machinery and for undertaking works, which will consider adverse weather conditions, such as strong winds, snow, lightning etc.

- 6.2.4 Construction methods and equipment that comply with restrictions, such as height of equipment, will be selected so that they do not infringe taxiway, apron or runway regulated clearances. Heights and safe working constraints will have regard to the Obstacle Limitation Surface (OLS) heights. Restrictions on working will also be implemented due to jet blast and wingtip clearance. Construction activities near existing live taxiways and taxiing aircraft, such as on the additional taxiways, may require revised or curtailed taxiing routes to avoid being in close proximity to live construction areas.
- 6.2.5 Crane operations would be managed through the use of advanced notifications and, if required, the fitting of aviation warning lighting.
- 6.2.6 Measures further include, but are not limited to:
- a. adequate signal interference risk assessment and control; and
  - b. inspection pits for the buried utilities would be performed and clearances clearly demarcated on site.
- 6.2.7 Services critical to the airport operations would be protected at all times during the construction works. All works will be carried out in accordance with the guidance provided by the HSE in their document HSG47 'Avoiding Danger from Underground Services' (Ref. 11). Existing utility networks will be located by the lead contractor through a utility survey in accordance with PAS128 (Ref. 12) (or equivalent standard applicable at the time), prior to start of intrusive works, and appropriate clearances will be clearly demarcated on the ground.
- 6.2.8 Further consideration of arrangements for the identification of steps necessary for the safe working and management of the risk of major accidents and disasters are detailed within **Section 5.3** (relating to worksite security), **Section 6.4** (fire prevention and control), **Section 9.1** (relating to bird strike risk), **Section 8.4** and **Section 15.2** (management of site earthworks), and **Section 8.6** and **Section 16** (relating to construction traffic management).

### 6.3 Pollution prevention and incident control

- 6.3.1 The lead contractor will develop and implement appropriate measures to control the risk of pollution resulting from construction operations. This will include a Pollution Incident Control Plan, produced as part of the contractors' EMS. The Pollution Incident Control Plan will recognise the risk of pollution from construction operations and will present proactive management practices to

ensure that any pollution incident that may occur is controlled, reported to relevant parties and remediated. The plan will define the criteria for implementing the relevant measures.

- 6.3.2 The lead contractor will prepare a Pollution Incident Control Plan and agree it with the Applicant or a nominated representative and the airport operator, including the following measures as appropriate to manage the risk of pollution incidents:
- a. a statement of appropriate information to be provided to the Applicant, the airport operator, the relevant local authority/ies and the Environmental Agency, as appropriate, in the event of any incident such as a spillage or release of a potentially hazardous material;
  - b. notification of appropriate emergency services, authorities, the airport operator and personnel on the construction site;
  - c. notification of relevant statutory bodies, environmental regulatory bodies, local authorities and ~~local-relevant~~ water and sewerage providers undertakers of pollution incidents, where required;
  - d. provision of maps showing the locations, together with address and contact details, of local emergency services facilities (e.g. police stations, fire authorities, medical facilities and other relevant authorities);
  - e. ensure that site drainage plans and flood risk management plans are available on site and are kept up to date;
  - f. ensure that pollution shut-off valves are used in compounds with formal drainage;
  - g. ensure provision and maintenance of spill kits and staff competence and awareness in implementing plans and using pollution response kit;
  - h. provision of contact details for the relevant authorities, such as the Environment Agency, and the persons responsible on the construction site and within the contractors' organisation for pollution incident response; and
  - i. provision of contact information for a competent spill response company which can be contacted at short notice for an immediate response, where appropriate.
- 6.3.3 In the preparation of the pollution incident response measures, as outlined within the Pollution Incident Control Plan the lead contractor will consult with the relevant statutory bodies and other relevant third parties. The measures will also comply with the Environment Agency's Pollution Prevention Guideline (PPG), PPG21: Incident Response Planning (Ref. 13). This document has been withdrawn, but as it constitutes relevant advice on good practice it should be referred to in the absence of alternative guidance documents.
- 6.3.4 The lead contractor will put in place arrangements to investigate and provide reports on any potential or actual significant pollution incidents, including, as appropriate:

- a. a description of the pollution incident, including its location (and Ordnance Survey (OS) grid reference), the type and quantity of contaminant and the likely receptor(s);
- b. contributory causes;
- c. adverse effects;
- d. measures implemented to mitigate adverse effects; and
- e. any recommendations to reduce the risk of similar incidents occurring.

6.3.5 Further considerations relating to the arrangements by the lead contractor to control and manage pollution, chemicals and oils to the water environment are outlined within **Section 18.4** of this CoCP.

## 6.4 Fire prevention and control

6.4.1 All construction sites and welfare facilities will have in place appropriate plans and management controls to prevent fires. A Fire Risk Assessment will be completed and implemented to manage risk throughout construction, including emergency plans and procedures and measures for the safe storage and handling of fuel, and kept updated as appropriate throughout the works. Any hot work operations will be completed under procedures outlined by the contractor.

## 6.5 Unexploded ordnance (UXO)

6.5.1 A Detailed UXO Risk Assessment would be obtained by the lead contractor prior to construction works or the carrying out of surveying and investigative works permitted under Article 21 of the DCO. The lead contractor will raise awareness of the risks associated with UXO through site induction processes and toolbox talks.

6.5.2 The lead contractor will keep a watching brief in areas identified as having the potential for UXO.

6.5.3 Where UXO is discovered, the lead contractor will prepare and implement an emergency response procedure, including the preparation of notifications to the relevant local authorities, the airport operator and relevant services. The emergency response procedures will be prepared in accordance with Unexploded ordnance, A guide for the construction industry CIRIA C681 (CIRIA, 2009) (Ref. 14) or the appropriate equivalent guidance at the time of construction should this be superseded.

## 6.6 Control of infectious diseases

6.6.1 Relevant Government guidance on working safely during epidemics/pandemics will be implemented to prevent the spread of infectious disease during construction.

## 7 AGRICULTURAL LAND QUALITY

### 7.1 General Provisions

- 7.1.1 Controls will be implemented to mitigate potential avoidable impacts on agricultural land, including maintaining access. The lead contractor will:
- a. identify the farms and types of farms adjacent to the construction site;
  - b. identify watercourses and, where known, field drainage layouts and outfalls into watercourses or ditches, fixed irrigation pipes and sources of irrigation water and fixed water supplies for livestock;
  - c. maintain details of the owners, occupiers and agents for land adjacent to the construction site; and
  - d. maintain details of the husbandry associated with the areas of land adjacent to the construction site.
- 7.1.2 The controls are to be set out in the final Soils Management Plan, an Outline of which is provided as **Appendix 6.6** of the ES [TR020001/APP/5.02].
- 7.1.3 The lead contractor will ensure liaison is maintained with affected landowners, occupiers and agents, as appropriate. The lead contractor will be required to:
- a. advise landowners, occupiers and agents, as appropriate, regarding the intended commencement of construction works in areas of the site adjacent to agricultural holdings, and when any agricultural land used temporarily is intended to be returned to agricultural use;
  - b. advise landowners, occupiers and agents, as appropriate, regarding the provision of accommodation works;
  - c. advise the programme of works and access routes to be used; and
  - d. take precautions in developing the construction programme to reduce disturbance.
- 7.1.4 Reasonable precautions will be taken during the construction of the Proposed Development to identify, protect and maintain existing land drainage, irrigation and livestock water supply systems.
- 7.1.5 The requirements of **Section 9** (Biodiversity) of the CoCP in relation to measures to prevent the spread of invasive and non-native species will be met. Measures to prevent the spread of weeds generally from the construction site to adjacent land will also be implemented.
- 7.1.6 The lead contractor is required to comply with the relevant guidance (Ref. 15) issued by the Department for Environment, Food and Rural Affairs (Defra) regarding the prevention, as far as reasonably practicable, of the spread of soil-borne, plant and animal diseases. Appropriate measures will be implemented to control runoff to reduce any risks associated with disease transmission.
- 7.1.7 Wherever reasonably practicable, the Applicant will endeavour to mitigate risks associated with the existence of any unrecorded sites. This will include obtaining locations of recorded burial sites from the Animal and Plant Health

Agency and the establishment of a protocol for procedures in the event that an unexpected/unrecorded burial site is discovered.

## 7.2 Agricultural soil resources

7.2.1 Agricultural soil resources will be protected using a SMP which will be prepared by the lead contractor and which must be substantially in accordance with the Outline SMP provided as **Appendix 6.6** of the ES [TR020001/APP/5.02]. This will provide additional measures in relation to the use of topsoil and subsoil reserves within the soft landscape scheme.

7.2.2 Appropriate measures will be implemented, in accordance with the Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009) (Ref. 16), or the appropriate equivalent guidance should this be superseded in the future, in relation to undertaking works on or adjacent to agricultural land.

7.2.3 Additional measures for the management of soils during the construction of the Proposed Development are outlined in **Section 15** (Soils and geology).

## 7.3 Monitoring

7.3.1 Appropriately qualified environmental management staff will be responsible for monitoring Agricultural Land Quality to facilitate compliance with this section of the CoCP.

## 8 AIR QUALITY

### 8.1 Air quality management – general provisions

8.1.1 The Applicant will require the lead contractor to control and limit dust, air pollution, odour and exhaust emission during the construction works as far as reasonably practicable and in accordance with best practicable means (BPM).

8.1.2 A Dust Management Plan must be developed and implemented by the lead contractor as part of their EMS. This ~~isese~~ will incorporate the construction phase air quality mitigation measures identified in the ES, including but not limited to:

- a. communications, in line with the Community Engagement Plan to be produced in accordance with **Section 4.1**, which includes the enquiries and complaints procedure;
- b. a display board (refer to **Section 4.1**) to indicate the person accountable for air quality and dust issues on the site boundary, and the head/regional office contact information;
- c. reference to the general site management and good housekeeping procedures as included in the Guidance on the Assessment of dust from demolition and construction, Institute of Air Quality Management, January 2014 v1.1 (IAQM 2014) (Ref. 17);
- d. controls and measures to control or mitigate the effect of potential nuisance caused by the construction works, as determined by an up-to-date and site-specific assessment of the risks;
- e. dust and air pollution monitoring measures;
- f. measures relevant to control risks associated with asbestos dust; and
- g. reference to best practice publications, including:
  - i. Guidance on the Assessment of dust from demolition and construction, Institute of Air Quality Management, January 2014 v1.1 (IAQM 2014) (Ref. 18); and
  - ii. Air Quality Monitoring in the Vicinity of Demolition and Construction Sites, Institute of Air Quality Management, October 2018 (IAQM 2018) (Ref. 19).

### 8.2 Site management

8.2.1 The lead contractor will plan the site layout to ensure that machinery and dust-causing activities are situated away from sensitive receptors, as far as possible.

8.2.2 The lead contractor will erect hoardings, screens or barriers along the site perimeter to control the spread of dust.

8.2.3 Task-based dust control will be included in contractors' method statements, including, but is not limited to:

- a. use of enclosures for small areas and misting for larger areas;

- b. excavated materials will be carefully placed and not dropped from height; and
- c. covered/netted materials during transportation.

8.2.4 Site fencing, barriers and scaffolding will be kept clean using wet methods, where necessary.

8.2.5 The lead contractor will ensure there is an adequate water supply for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate, and avoiding site runoff of water or mud. Water efficiency measures in accordance with Section 17.6 will also be implemented.

8.2.6 The lead contractor will ensure equipment is readily available on site to clean any dry spillages. Spillages will be cleaned up as soon as reasonably practicable after the event using wet cleaning methods.

### 8.3 Construction plant and vehicles

8.3.1 Measures will be implemented by the lead contractor to limit emissions from construction plant and vehicles, including the following, as appropriate:

- a. the lead contractor will operate construction plant in accordance with the manufacturer's written recommendations;
- b. all vehicles and plant will be switched off when not in use;
- c. vehicle and construction plant exhausts should be directed away from the ground and be positioned at a height to facilitate appropriate dispersal of exhaust emissions;
- d. enclosing, shielding or provision of filters on plant likely to generate excessive quantities of dust beyond the site boundaries. Dust extractors, filters and collectors on drilling rigs and silos will be used;
- e. the movement of construction traffic around the site will be kept to the minimum reasonable for the effective and efficient operation of the site and construction of the Proposed Development.
- f. construction plant will be located away from site boundaries which are close to sensitive receptors where reasonable and practicable;
- g. site access points will be designed to avoid queuing traffic;
- h. the use of diesel or petrol-powered generators will be avoided by using mains electricity or battery powered equipment where reasonable and practicable;
- i. cutting and grinding operations will be conducted using equipment and techniques which incorporate appropriate dust suppression measures; and
- j. vehicle, plant and equipment maintenance records will be kept on site and these will be made available to the Applicant on request.



## 8.4 Transportation, storage and handling of materials

8.4.1 The lead contractor will implement measures to reduce emissions to air through the effective transportation and storage of materials. Measures include, but are not limited to the following:

- a. construction vehicles transporting materials within or outside the construction site will not be overloaded beyond outlined capacity;
- b. construction vehicles delivering and/or removing materials or loads from the construction site via the highway will be required to be covered by a fixed cover or sheeting (which must be appropriately effective at preventing the spillage of materials and dust) or to use alternative dust suppression measures (such as damping);
- c. stockpiles and mounds will be covered, seeded or fenced to prevent wind whipping;
- d. sand and other aggregates will be stored in bunded areas and not allowed to dry out, unless this is required for a particular process, in which case it will be ensured that appropriate additional control measures are in place;
- e. a wheel washing system will be implemented for vehicles entering and leaving the site, and water-assisted dust sweepers will be used on access and local roads to remove any material tracked out of the site;
- f. there will be an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits;
- g. access gates will be located at least 10m from sensitive receptors where possible;
- h. The lead contractor will be provided with a specification that all HGVs used on and off-site should meet Euro VI emission standards as a minimum requirement;
- i. electric charging will be provided in the temporary staff car park;
- j. stockpiles and mounds will be positioned at a suitable angle and will avoid sharp changes in shape to prevent material slippage;
- k. any materials that have potential to produce dust will be removed from the site as soon as possible, unless being re-used on site;
- l. the quantity of handling operations for materials and resources will be kept to a minimum practical level, including the optimisation of materials movements to minimise double handling of materials wherever practicable;
- m. handling areas for materials will be maintained to constrain dust emissions. This includes appropriate measures such as carrying out watering to reduce or prevent release of dust from site boundaries; and
- n. ~~E~~construction vehicles be registered on the Fleet Operator Recognition scheme (FORS scheme), aiming for gold standard as a minimum.

8.4.2 A Construction Traffic Management Plan (CTMP) will be produced by the lead contractor to manage the delivery of goods and materials. The CTMP will be submitted substantially in accordance with the requirements set out in the Outline CTMP presented in **Appendix 18.3** of the ES [TR020001/APP/5.02]. In addition, the lead contractor will produce a Construction Workers Travel Plan (CWTP) to support and encourage sustainable travel (public transport, cycling, walking and car-sharing). The CWTP will be submitted substantially in accordance with the requirements set out in the Outline CWTP presented in **Appendix 18.4** of the ES [TR020001/APP/5.02] (refer to **Section 16** (Traffic and ~~t~~Transport)).

## 8.5 Haul routes

8.5.1 Haul routes will be provided through the works for use by construction vehicles to access the works. The construction and maintenance of haul routes, will include the following measures, as appropriate:

- a. Installation of hard surfaced haul routes which are regularly damped down with fixed or mobile sprinkler systems, or water bowsers, and regularly cleaned;
- b. inspection of all on-site haul routes regularly and instigation of necessary repairs to the surface as soon as reasonably practicable;
- c. recording of all inspections of haul routes and any subsequent action in a site log book;
- d. re-use of haul route surfacing materials where the locations of haul routes change during the course of construction;
- e. provision of areas of hard standing at site access and egress points to be used by any waiting vehicles;
- f. methods to clean and suppress dust on haul routes (including watering) and in designated vehicle waiting areas. The frequency of cleaning will be suitable for the purposes of suppressing dust emissions from the site boundaries;
- g. enforcement of speed limits on haul roads for safety reasons and for the purposes of suppressing dust emissions; and
- h. remove any haul routes when no longer required as soon as reasonably practicable.

## 8.6 Dust

8.6.1 The lead contractor must develop and implement a Dust Management Plan as part of their EMS, which will include measures to control emissions as specified below.

### Demolition activities

8.6.2 Dust pollution from demolition activities will be managed using the following measures, as appropriate:

- a. effectively covering and securing skips;
- b. stripping of interiors of buildings before demolition;
- c. any blasting works will be kept to the reasonably practicable minimum in the context of the design and programme requirements of the Proposed Development, and explosive blasting will be avoided, using appropriate manual or mechanical alternatives;
- d. effective water suppression will be used during demolition operations, including the use of hand-held sprays over hoses to allow water to be directed more precisely to where it is needed, and the use of high-volume water suppression systems, to produce fine water droplets that effectively bring dust particles to the ground;
- e. bonfires and burning of material will not be permitted on site;
- f. any biological debris will be bagged and removed, or such material damped down, before demolition;
- g. avoidance of the prolonged storage of waste materials on site and compliance with the CoCP in respect to storage; and
- h. removal of waste from the site will comply with the requirements of the CoCP relating to the transportation of materials.

## **Excavations and earthworks activities**

8.6.3 Dust pollution from excavations and earthworks activities will be limited through the use of the following measures, as appropriate:

- a. topsoil will be stripped as close as reasonably practicable to the period of excavation or other earthworks activities to avoid risks associated with runoff or dust generation;
- b. drop heights from excavators to vehicles involved in the transport of excavated material will be kept to the reasonably practicable minimum;
- c. covering of waste/stockpiles;
- d. dampening of stockpiles and haul roads;
- e. materials will be compacted after deposition, with the exception of topsoil and subsoil on land to be restored for landscaping and wildlife habitats; and
- f. soil spreading, seeding, planting or sealing of completed earthworks will be undertaken as soon as reasonably practicable following completion of the earthworks.

## **Grouting activities**

8.6.4 Dust pollution associated with grouting activities will be limited through the use of the following measures, as appropriate:

- a. dust extractors, filters and collectors on silos, for example; and

- b. the mixing of grout or cement-based materials will be undertaken using a process suitable for the prevention, as far as reasonably practicable, of dust emissions.

## **Conveying, processing, crushing, cutting and grinding activities**

8.6.5 Dust pollution associated with processing and crushing rock, for use as aggregate or other materials within the works, and for conveying material, processing, crushing, cutting and grinding will be limited through the use of the following measures, as appropriate:

- a. drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment will be minimised, and fine water sprays will be used on such equipment wherever appropriate;
- b. use of cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques, such as water sprays or local extraction;
- c. the enclosure of conveyor transfer points, and damping of conveyor loads;
- d. enclosed conveyers where crossing roads, other public areas and property not owned by the Applicant;
- e. scabbing (roughening of concrete surfaces) will be avoided if possible;
- f. enclosure of specific operations where there is a high potential for dust production; and
- g. the application of water sprays to damp down in dry weather.

## **8.7 Odour**

8.7.1 As contaminated materials may be excavated during the Proposed Development, excavated materials could contain odorous materials. The following measures will be implemented by the lead contractor to minimise the risk of odour generation:

- a. contaminated and non-contaminated materials will be stockpiled, covered and enclosed separately following excavation;
- b. early identification of contaminated material which could generate an odour issue;
- c. enclosing of any odorous materials;
- d. locating contaminated materials as far away from residential receptors as possible;
- e. careful programming to minimise the duration of work with potential to generate odour nuisance;
- f. removing odour generating material sources in a timely fashion to limit the formation of odours;

- g. provision of a boundary odour control system, i.e. use of masking or scrubbing agent, if required; and
- h. delivering an odour risk assessment (in line with the Outline Remediation Strategy) (**Appendix 17.5** of the ES **[TR020001/APP/5.02]**).

## 8.8 Monitoring

- 8.8.1 The lead contractor will implement inspection and monitoring procedures to assess the effectiveness of measures to prevent dust and air pollutant emissions, these will be captured in the Dust Management Plan.
- 8.8.2 Relevant local authorities will be consulted on the monitoring procedures to be implemented, which will include the following measures, as appropriate:
- a. ~~D~~aily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust and record inspection results and logs to be available to the local authority on request. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of the site boundary, with cleaning to be provided if necessary~~;~~
  - b. ~~R~~egular site inspections to monitor compliance with the Dust Management Plan and recording of inspection results. An inspection log will be produced which will be made available to the local authority on request~~;~~
  - c. ~~F~~requent site inspections by the person accountable for air quality and dust issues on site, with regular checks (at least three times a day) and continual visual assessment by site workers when activities with a high potential to produce dust are being carried out, or during prolonged dryer windy conditions~~;~~
  - d. ~~I~~nspection procedures for areas adjacent to the construction site to visually assess any dust and air pollution which may be generated~~;~~
  - e. ~~P~~lans for undertaking continuous automatic monitoring of airborne dust and setting a relevant site action level (defined as a measurement threshold above which investigation will be required)~~;~~
  - f. ~~R~~eference to inspection and maintenance schedules for construction vehicles, plant and machinery~~;~~ and
  - g. ~~I~~nspection procedures relating to the level of traffic movements, use and condition of haul routes.
- 8.8.3 On request, the lead contractor will provide local authorities with reports of the monitoring. These will include, where appropriate, the interpretation of any continuous automatic monitoring data, any site action level alarms, investigations and remedial actions.
- 8.8.4 All dust, odour and air quality complaints will be recorded in a complaints log and the causes identified. The lead contractor will take appropriate measures to reduce emissions in a timely manner and record the measures taken.

- 8.8.5 Monitoring of dust and particulate matter during the construction of the Proposed Development will be undertaken following the current best practice guidance (currently IAQM 2018).
- 8.8.6 Continuous automatic monitoring of dust as airborne PM10 will be undertaken. The monitoring instruments will send an alert (via the internet or mobile phone system) when a pre-determined site action level is reached. The site action level will be determined as appropriate from current best practice guidance.
- 8.8.7 If the alert is triggered, the following on-site process will be followed:
- a. ~~A~~a nominated person (as identified by the lead contractor) will investigate activities on site, as quickly as reasonably practicable, to ascertain if any visible dust is emanating from the site or if any activities are occurring on site that are not in line with the dust control measures~~;~~
  - b. ~~A~~any identified causes will be rectified where practicable and actions recorded in the site logbook and reported to the Applicant and the relevant authority as soon as reasonably practicable~~;~~
  - c. ~~I~~if the source of the incident cannot be identified as originating from the site operations, operations of other nearby construction sites and other activities will be investigated for potential causes of the alarm~~;~~ and
  - d. ~~I~~if the source of the alarm is not related to the site operations, the outcome of any investigation and associated actions will be recorded in the site logbook.
- 8.8.8 The data collected will be provided to the Applicant and the relevant local authorities.
- 8.8.9 Dust deposition, dust flux, or real-time PM10 continuous monitoring locations will be discussed with the local authority.
- 8.8.10 Regular liaison meetings will be held with other high-risk construction sites within 500m of the site boundary to ensure that plans are coordinated, and dust and particulate matter emissions are minimised.

## 9 BIODIVERSITY

### 9.1 General measures

- 9.1.1 Appropriate measures will be adopted to protect the biodiversity of the area in which the Proposed Development is located, with special attention to specified areas of ecological value.
- 9.1.2 The lead contractor will be required to manage impacts from construction on ecological resources, including the following:
- a. non-statutory sites designated for nature conservation such as Local Wildlife Sites (LWS), County Wildlife Sites (CWS) and District Wildlife Sites (DWS);
  - b. legally protected and conservation notable species; and
  - c. other habitats and features of ecological importance (including ancient woodlands, veteran and ancient trees, linear/ecological corridors and water bodies).
- 9.1.3 The requirement for protected species licences and the broader package of mitigation, including the large areas of habitat creation, is detailed within the Outline LBMP, which is provided as **Appendix 8.2** of the ES **[TR020001/APP/5.02]**. The lead contractor will prepare a LBMP (agreed by the relevant planning authority) which is substantially in accordance with the Outline LBMP. Works will be implemented by the lead contractor in accordance with the LBMP. The Outline LBMP describes preparatory works that will need to be undertaken ahead of the start of construction to permit timely progress of the programme.
- 9.1.4 Species specific mitigation strategies are set out in **Appendices 8.6 to 8.10** of the ES **[TR020001/APP/5.02]** as follows:
- a. Amphibian and Reptile Mitigation Strategy (**Appendix 8.6**);
  - b. Badger Mitigation Strategy (**Appendix 8.7**);
  - c. Bat Mitigation Strategy (**Appendix 8.8**);
  - d. Bird Mitigation Strategy (**Appendix 8.9**); and
  - e. Orchid and Invertebrate Mitigation Strategy (**Appendix 8.10**).
- 9.1.5 Within the Order limits, the lead contractor will take opportunities to further reduce habitat loss and protect and enhance biodiversity. Strategies to achieve this include the installation of appropriate exclusion measures to prevent accidental incursion; measures to avoid pollution of sensitive habitats such as watercourses; and making use of existing access routes through vegetation belts where possible.
- 9.1.6 Where habitat is removed, displaced or destroyed, the necessary information required to implement identified biodiversity mitigation measures and deliver biodiversity net gain will be taken from the Outline LBMP. Habitat creation will include elements integrated with the developed infrastructure and the wider green infrastructure strategy. The phasing of required biodiversity mitigation will

also be stated in the LBMP and shown within the landscape mitigation drawings, ensuring that delivery of necessary measures coincides with the construction programme in relation to the specific mitigation measure (e.g. provision of adequate habitat creation prior to translocation of species out of the construction zone).

- 9.1.7 The lead contractor must account for the requirements relating to dust and air quality, noise and vibration, lighting and protection of the water environment, detailed within **Sections 8** (Air quality), **14** (Noise), **5.5** (Site lighting) and **18** (Water environment) respectively in order to protect ecologically important habitats and species both within and adjacent to the construction site.
- 9.1.8 The lead contractor must account for the requirements relating to tree protection fencing, as detailed within **Section 13** (Landscape and visual) in order to protect retained trees adjacent to and within the construction site. Additional measures in relation to ancient woodland and ancient or veteran trees, and potential veteran trees, will be adhered to. This includes the establishment of buffer zones within which no works can be undertaken and the translocation of one tree as detailed within the Outline LBMP and the Arboricultural Impact Assessment (**Appendix 14.3** of the ES [TR020001/APP/5.02]).
- 9.1.9 Ground clearance and excavation works have the potential to attract birds which may pose a bird strike risk to aircraft. The Bird Strike Risk Assessment (BSRA) (**Appendix 8.4** of the ES [TR020001/APP/5.02]) details those bird species that pose the greatest risk to aircraft. Appropriate measures to mitigate bird strike risk must be agreed with the airport operator. Operations during construction which could attract birds include:
- a. allowing the pooling of water which may attract flocks of waterfowl;
  - b. vegetation removal and stockpiling of removed vegetation;
  - c. ground excavation; and
  - d. soil stockpiling which may attract foraging birds (due to exposed invertebrates etc).
- 9.1.10 **Section 18** (Water environment) details measures that will be taken to manage surface water run-off and flood risk. These measures will reduce the risk of pooling of surface water. Additional mitigation measures may include netting excavated areas and material stockpiles and active control and dispersal.
- 9.1.11 Where survey baselines have expired (usually taken as being valid for two to three years) and are required to inform the implementation of mitigation, licences and other measures, the lead contractor will undertake pre-construction surveys to determine the current status and distribution of notable and protected habitats and species (including orchids, bats, great crested newt, badger, breeding birds (including barn owl), wintering birds, roman snail, reptiles and amphibians), and invasive and non-native species.
- 9.1.12 The lead contractor will ensure that exclusion zones are maintained in line with best practice and the context of the construction works to be undertaken, and all mitigation measures included within the ES and detailed within its supporting documents.



## 9.2 Ecological management measures

9.2.1 Ecological management measures will include the following, as appropriate:

- a. summary of features of interest for all known areas of ecological value that may be affected due to construction;
- b. plans showing the locations of all known areas of ecological interest that may be affected due to construction, including access routes;
- c. plans showing the location of invasive non-native species including those listed on Schedule 9 of the Wildlife and Countryside Act 1981 (Ref. 20), as amended, such as Japanese knotweed. Control measures of such species will be implemented as described in **Section 9.3**;
- d. provision of guidance on ecological best practice methods to be followed in order to mitigate potential ecological effects during construction;
- e. plans showing the location of any fences/barriers to be erected for the purpose of controlling animal movements during and after construction (e.g. deer, badger and amphibian fencing);
- f. plans showing the location of any ecological features that are to be created/installed prior to construction (e.g. bat roosting features/boxes, bird boxes, artificial badger setts) as defined in the Outline LBMP (**Appendix 8.2** of the ES [TR020001/APP/5.02]) and species-specific mitigation strategies (**Appendix 8.6 to 8.10** of the ES [TR020001/APP/5.02]);
- g. procedures to be adopted in the event of unanticipated discovery or disturbance of protected species or important habitats;
- h. reference to the relevant procedures, including any special measures, to be implemented in the event of a pollution incident, where this occurs on or adjacent to a designated nature conservation site or where protected or notable species are known to be present, or other habitats and features of ecological importance, i.e. ancient woodland; and
- i. reference to the species-specific mitigation strategies provided as **Appendix 8.6 to Appendix 8.10** of the ES [TR020001/APP/5.02].

9.2.2 Other measures for potential ecological impacts are addressed in other sections of this CoCP and are not repeated here. These include measures relating to:

- a. control of dust (see **Section 8**);
- b. control of water quality and flow (see **Section 18**);
- c. control of noise and vibration (see **Section 14**); and
- d. lighting (see **Section 5.5**).

9.2.3 The lead contractor will implement the mitigation measures detailed in this CoCP, the LBMP and the species-specific mitigation strategies. These measures serve to mitigate the loss of ecologically important features through implementation of species-specific mitigation strategies and habitat creation, including enhancements to any habitats that lie within the land provided for the

Proposed Development but outside the minimum area required for construction. Where replacement planting is provided, this mitigation will be integrated with landscape planting, as appropriate, and use native species of local provenance.

- 9.2.4 A suitably qualified and experienced Ecological Clerk of Works (ECoW) will be appointed by the lead contractor to oversee the implementation of the ecological mitigation measures relevant to construction.
- 9.2.5 General measures to be implemented by the lead contractor will include, where reasonably practicable:
- a. ensuring careful siting of compounds, materials and waste storage areas, haul routes and other measures to avoid semi-natural habitats and protected species;
  - b. avoiding night-time working wherever practical, particularly in the vicinity of sensitive habitats such as woodland, hedgerows and watercourses;
  - c. limiting the use of lighting, generators and other noisy equipment at night in the vicinity of sensitive habitats;
  - d. covering all excavations overnight or providing appropriate escape ramps for mammals, e.g. badgers, in the form of a sloped face to the excavation or a scaffold plank or similar;
  - e. avoiding the formation of large areas of surface water pooling which could attract birds that pose a strike risk to aircraft;
  - f. visually checking uncovered excavations for the presence of wildlife each morning before works commence, taking advice from the ECoW if a protected species is found or suspected;
  - g. supervised vegetation clearance and translocation of animals and plants to retained/enhanced areas of the Proposed Development and for translocation to occur once receptor habitats are established, as described within the ES;
  - h. keeping obvious mammal trails clear of obstructions where possible;
  - i. reducing the severance impact of vegetation removal by maintaining the feature intact as long as possible, keeping any gap to the minimum required for the purpose and considering filling gaps with brash or similar when work is not being undertaken (e.g. on a bat commuting route at night) so that it can continue to function as a wildlife corridor; and
  - j. careful and regular management of soil storage areas to maximise their future value in landscape planting and to dissuade badgers and other burrowing animals from colonising them in the interim (see **Section 7**, Agricultural land quality).
- 9.2.6 Mitigation strategies have been prepared (**Appendix 8.6 to Appendix 8.10** of the ES **[TR020001/APP/5.02]**) in relation to the following:
- a. European protected species derogation licence for bats and mitigation strategy – in respect of any works otherwise likely to breach the

Conservation of Habitats and Species Regulations 2017 (Ref. 21).  
Species potentially requiring a derogation licence include bats;

- b. Badger development licences and mitigation strategy - in respect of any works that will result in the disturbance, damage and/or destruction of a badger sett;
- c. Bird mitigation strategy – a document that details how breeding birds and their nests will be safeguarded from damage or disturbance during construction;
- d. Reptile and amphibian mitigation strategy – a document that details how common reptile and amphibian species will be safeguarded from killing and injury during construction; and
- e. Orchid and invertebrate mitigation strategy – a document that details how orchids will be safeguarded from damage or destruction during construction. Species potentially requiring a conservation licence include roman snail.

9.2.7 The programming of construction works will account for seasonal constraints for a range of species and their habitats (e.g. bird nesting habitat, amphibian and reptile hibernation and bat breeding roosts as applicable). Consideration will be given to impacts on nesting birds outside of, but adjacent to the construction zone. In addition, supervised and staged clearance of suitable reptile and amphibian habitats within the construction zone will occur at an appropriate time of year.

### 9.3 Control of invasive and non-native species

- 9.3.1 A specialist invasive and non-native species contractor will be appointed by the lead contractor to implement appropriate measures for the treatment/control of invasive, non-native species (both plants and animals) and injurious weeds.
- 9.3.2 Appropriate construction, handling, treatment and disposal procedures will be implemented in relation to these and any other species listed in Schedule 9, Part I or Part II of Section 62 the Wildlife and Countryside Act 1981 (Ref. 20), as amended, or the Weeds Act 1959 (Ref. 22) to prevent the spread of such species. Advice in the Environment Agency’s publication: Managing invasive and non-native plants, April 2010 (Ref. 23), and Invasive Alien species (Permitting and Enforcement) Order 2019 (Ref. 24) – Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 (Ref. 25) on the prevention and management of the introduction and spread of invasive alien species will also be referenced in determining the strategy.
- 9.3.3 The lead contractor will ensure that measures will be implemented for biosecurity to reduce the risk that invasive and non-native species and diseases are spread as a consequence of the Proposed Development.
- 9.3.4 Removal of invasive species will take account of ecological best practice guidance and appropriate measures will be taken to identify and protect other features of environmental importance (e.g. heritage assets).

## 9.4 Monitoring

- 9.4.1 The lead contractor will consult with the Applicant, and the relevant local authority, and the relevant statutory authority relevant to its function, in relation to any monitoring and survey works to be undertaken prior to construction, i.e. update badger survey work. Where required, the monitoring and survey works will update the baseline ecological conditions identified in the ES that accompanies the application for development consent.
- 9.4.2 Species specific monitoring requirements will be detailed within the relevant Natural England licence method statements. There will also be general monitoring of non-licensed species where relevant.
- 9.4.3 Habitat monitoring will be implemented to assess the success of the establishment of newly created habitats and the protection measures for retained habitats, as detailed within the Outline LBMP which is provided as **Appendix 8.2** of the ES [TR020001/APP/5.02]. This monitoring will be utilised to update the biodiversity net gain calculation throughout the project life cycle. Any remedial works required will be carried out by the lead contractor, so that the desired habitat condition criteria is achieved.
- 9.4.4 The lead contractor will undertake suitable monitoring throughout the construction works. The lead contractor will also hold responsibility for the implementation of mitigation measures to enable the effectiveness of these measures to be identified.

## 10 CLIMATE CHANGE AND GREENHOUSE GASES

### 10.1 General provisions

10.1.1 The impacts of climate change will be considered in relation to all construction-related activities, and mitigation measures in relation to a reduction in carbon emissions and protecting against physical climate change risks must be adopted where appropriate.

### 10.2 Reducing carbon emissions

10.2.1 The lead contractor will develop and implement a Carbon Efficiency Plan as part of their EMS, to manage carbon emission from construction activities and promote good practice. This will contain measures including:

- a. proposed measures to reduce significant sources of construction energy use (fuel/electricity) and associated carbon emissions;
- b. the approach to procuring energy from renewable and/or zero or low emission sources;
- c. the approach to energy and carbon dioxide (CO<sub>2</sub>) monitoring and reporting from relevant site activities including construction activities and the transportation of materials and waste; and
- d. consideration of the procurement, maintenance and use of energy and carbon efficient construction plant.

10.2.2 Mitigation measures will consider both the embodied and operational carbon associated with construction works. Mitigation measures will be set out of the Carbon Efficiency Plan and will include the following, where practicable:

- a. specification of materials with lower embodied GHG emissions within lead contractor's contracts (e.g. where practical, materials with a higher recycled content and locally sourced materials will be selected), including where feasible, design for end of component reuse;
- b. monitoring of fuel use/compressed air leaks;
- c. driver/plant use training;
- d. avoidance of oversized generators for plant and temporary buildings;
- e. nominating individuals with responsibility for site energy management;
- f. commitments to recycle/reuse demolition waste;
- g. commitments to reduce water use and disposal;
- h. use of renewable/zero or low carbon fuels for construction vehicles, plant and machinery where reasonably practicable, e.g. electric vehicles and plant;
- i. provision of suitable levels of thermal insulation to the appropriate areas of site accommodation to minimise energy demand for heating;
- j. early connection to grid electricity to reduce use of mobile diesel energy generation;

- k. efficient use of construction plant and machinery, i.e. using appropriately sized plant and machinery, and switching off when not operational;
- l. efficient transportation of construction materials and waste transport through electric vehicles;
- m. sourcing of construction materials from local suppliers where practicable to reduce transport emissions; and
- n. promotion of modes of sustainable transport in line with the CWTP (see **Section 16**).

### 10.3 Climate change risks

- 10.3.1 The lead contractor will pay due consideration to the impacts of extreme weather events and related conditions during construction. Measures will include, for example:
- a. health and safety plans to prevent worker exhaustion due to heat supportive measures for working in high temperatures might include the provision of sunblock, sun hats and lightweight clothing, refreshment breaks and cooled water supply;
  - b. temporary buildings designed with measures to cool summertime overheating;
  - c. preparation of and adherence to the Construction Surface Water Management Strategy (see **Section 18.2**) to manage flood risk during construction; and
  - d. safety measures to mitigate against issues caused by high winds such as increase dust or damage to structures/construction plant.
- 10.3.2 The lead contractor will use a short to medium-range weather forecasting service from the Met Office or other approved meteorological data and weather forecast provider to inform short to medium-term programme management, environmental control and impact mitigation measures. The lead contractor will register with the Environment Agency's Floodline Warnings Direct service in areas of flood risk.
- 10.3.3 The lead contractor's EMS will consider all measures deemed necessary and appropriate to manage severe weather events and should as a minimum cover training of personnel and prevention and monitoring arrangements to manage severe weather events. As appropriate, construction method statements should also consider severe weather events where risks have been identified.
- 10.3.4 The lead contractor will produce a high-level risk assessment of severe weather impacts on the construction process to inform mitigation measures. This will include a consideration of climate change projections, and consideration of receptors and construction-related operations/activities potentially sensitive to severe weather events.
- 10.3.5 The lead contractor will, as far as reasonably practicable, use construction materials with superior properties that offer increased tolerance to fluctuating

temperatures, heavy precipitation and other extreme weather events, such as storms.

- 10.3.6 The vulnerable aspects of earthworks, such as ground stabilisation, will not be undertaken during the winter months to avoid placing and compacting soil which is too wet, resulting in long-term settlement issues. Transportation of earthworks sensitive to moisture will be also avoided in winter months. Requirements for consideration of climate change impacts on groundwater levels, soil moisture content and precipitation are included in the construction and design of earthworks and structures in-line with BS EN1997-1 and BS6031 Code of Practice for Earthworks (Ref. 26).
- 10.3.7 Construction works will be carried out in accordance with the SMP, an outline of which is provided as **Appendix 6.6** of the ES **[TR020001/APP/5.02]**.
- 10.3.8 Construction works will be carried out in accordance with airport requirements of working airside e.g. airside construction works will be paused if there is low visibility or increased dust being blown across airfield.

# 11 CULTURAL HERITAGE

## 11.1 General Provisions

- 11.1.1 The Applicant and the lead contractor will manage the impact of construction works on cultural heritage assets, including:
- a. designated assets: scheduled monuments; listed buildings, registered parks and gardens; conservation areas and registered historic battlefields; and
  - b. non-designated assets: archaeological and paleo-environmental remains including geological deposits that may contain evidence of the human past, historic landscapes and historic buildings and the built environment and locally designated assets.
- 11.1.2 Additional mitigation measures have been identified in **Chapter 10** of the ES **[TR020001/APP/5.01]** and are detailed in the Cultural Heritage Management Plan (CHMP) which is provided as **Appendix 10.6** of the ES **[TR020001/APP/5.02]**.

## 11.2 Cultural Heritage Management Plan

- 11.2.1 The CHMP provided as **Appendix 10.6** of the ES **[TR020001/APP/5.02]** is secured in the DCO and sets out the scope, guiding principles and methodology for the planning and implementation of further archaeological evaluation and archaeological mitigation that is required as a result of the construction of the Proposed Development. The evaluation and mitigation measures set out in the CHMP comprise:
- a. additional trial trench evaluation;
  - b. detailed archaeological excavation;
  - c. targeted archaeological monitoring during construction and operation; and
  - d. protocols to be adopted for dealing with unexpected archaeological discoveries.
- 11.2.2 The CHMP also includes:
- a. an overview of principal roles and their responsibilities for the successful delivery of the measures set out in the CHMP;
  - b. measures to deliver further site-specific Written Schemes of Investigation that will be prepared by the Archaeological Contractor and agreed with the relevant local authority Archaeology Advisor;
  - c. measures for the monitoring of the archaeological works by the relevant local authority Archaeology Advisor to ensure compliance with the CHMP;
  - d. measures for meetings, progress reporting and for confirming the completion of archaeological works with the relevant local authority Archaeology Officer;



- e. an outline public outreach strategy; and
- f. measures for post-fieldwork reporting by the Archaeological Contractor which will be agreed with the relevant local authority Archaeology Advisor, including interim reporting, post-excavation assessment, Updated Project Design and publication.

11.2.3 The CHMP has been prepared in consultation with relevant heritage stakeholders including Historic England, the Archaeologist for Central Bedfordshire Council (CBC), who is acting as Archaeological Advisor to Luton Borough Council, the Archaeology Advisor for Hertfordshire County Council (HCC) and the Conservation Officer for CBC.

## 12 HEALTH AND COMMUNITY

### 12.1 General Provisions

12.1.1 The lead contractor will make provision to limit adverse health and wellbeing effects relating to the construction of the Proposed Development. Approaches will include, but are not limited to:

- a. provision and implementation of a Community Engagement Plan to reduce stress and uncertainty associated with the Proposed Development, as described in **Section 4** (Community relations and stakeholder engagement);
- b. measures to manage dust and noise emissions as detailed in **Section 8** (Air quality) and **Section 14** (Noise and vibration);
- c. measures to limit visual disturbance as detailed in **Section 13** (Landscape and visual) and light obtrusion as detailed in **Section 5.5** (Site lighting);
- d. management of construction vehicle movements and maintaining PRoW as long as reasonably practicable, as detailed in **Section 5.2.1** (Construction layout and good housekeeping);
- d.e. engagement with Luton Borough Council prior to the commencement of works associated with Terminal 2, to review the potential construction workforce numbers and local rental accommodation requirements;
- e.f. maintaining access and not commencing construction works in the existing Wigmore Valley Park until the replacement open space is accessible to the public; and
- f.g. adherence to a Worker Code of Conduct, as detailed in **Section 5** (General requirements).

### 12.2 Occupational healthcare

12.2.1 The lead contractor will ensure that there is provision for occupational healthcare, either on-site or in appropriate locations.

12.2.2 The occupational healthcare service will include health and wellbeing campaigns, including, but not limited to, the promotion of healthy living and wellbeing, and mitigation advice against workplace accidents and injuries.

12.2.3 Occupational healthcare will be available to all construction workers during working hours (and agreed extensions to working hours). Outside of working hours, a contact number will be available for construction workers (including those living away from home) to direct them to the appropriate health/social care provider.

12.2.4 Additional requirements for occupational health care and first aid provision will be determined based on a systematic identification of the occupational health and safety risks arising as a result of the construction activities. Appropriate health surveillance will be provided.

12.2.5 Construction workers will receive training on the health consequences of risk-taking behaviour and controlling communicable diseases.

## 13 LANDSCAPE AND VISUAL

### 13.1 General provisions

- 13.1.1 The lead contractor will employ appropriate measures to protect the landscape from construction activities, to manage and maintain landscape works provided as part of the Proposed Development and to protect visual amenity.
- 13.1.2 Construction-related impacts on landscape and visual amenity will be controlled through the following:
- a. protection of existing elements of the landscape that are to be retained;
  - b. careful design and management of temporary construction components in response to landscape character and visual amenity; and
  - c. the effective implementation of operational design measures, as early as reasonably practicable during the construction programme, which have a role in mitigating landscape and visual impacts.
- 13.1.3 Planting, seeding, wildflower seeding, and other landscape works will consider the recommendations of the latest version of the following standards (and subsequent revisions at the time of construction):
- a. British Standards Institution, BS 3936-1, Nursery stock. Specification for trees and shrubs, BSI (1992) (Ref. 27);
  - b. British Standards Institution, BS 3882, Specification for topsoil and requirements for use, BSI (2015) (Ref. 28);
  - c. British Standards Institution, BS 3998, Tree Work. Recommendations, BSI (2010) (Ref. 29);
  - d. British Standards Institution, BS 5837, Trees in relation to design, demolition and construction, BSI (2012) (Ref. 30);
  - e. British Standards Institution, BS 8545, Trees: from nursery to independence in the landscape. Recommendations, BSI (2014) (Ref. 31);
  - f. British Standards Institution, BS 6031, Code of practice for earthworks (incorporating corrigendum No.1), BSI (2009) (Ref. 32); and
  - g. CAP772, Birdstrike Risk Management for Aerodromes, Civil Aviation Authority (Ref. 33).
- 13.1.4 Alternatively, where a British Standard does not exist, works will follow industry best practice and the relevant local authority will be consulted as appropriate.
- 13.1.5 The lead contractor will carry out works in accordance with the LBMP, unless otherwise agreed in writing by the relevant planning authority, as described in **Section 9** (Biodiversity). The Outline LBMP (**Appendix 8.2** of the ES [TR020001/APP/5.02]) will integrate the protection of habitats and ecological features.

## 13.2 Measures to reduce potential impacts

13.2.1 The lead contractor will implement appropriate control measures to manage the impacts of construction-related impacts on landscape character and visual amenity. Control measures will include, but are not limited to, the following:

- a. protection of existing trees where possible and other vegetation to be retained in order that these elements continue to contribute to landscape character and visual amenity;
- b. the use of well-maintained temporary hoardings and fencing, designed in response to landscape character and visual amenity;
- c. management of site lighting with consideration for visual amenity and to minimise visual disturbance;
- d. handling of soils in accordance with the SMP (see **Section 7**, Agricultural land quality);
- e. protection of soil to be used for landscape purposes;
- f. well-maintained temporary earthworks, including borrow-pits and soil stockpiles, designed in response to landscape character and visual amenity. This will include temporary landscape proposals, where appropriate, such as seeding of soil stockpiles;
- g. implementation of design proposals, including landscape design proposals, in accordance with the Strategic Landscape Masterplan **[TR020001/APP/5.10]**, the LBMP and the Landscape Mitigation drawings (**Figures 14.9 to 14.13** of the ES **[TR020001/APP/5.02]**);
- h. maintenance and management of landscape proposals in accordance with the Strategic Landscape Masterplan **[TR020001/APP/5.10]**, the LBMP and the Landscape Mitigation drawings (**Figures 14.9 to 14.13** of the ES **[TR020001/APP/5.02]**); and
- i. provision of suitably qualified and experienced specialists with responsibility for monitoring landscape works.

13.2.2 Where land is not required for construction activities, landscape design measures will be implemented as early as possible. The Applicant will require the lead contractor to consider where measures can be implemented early and thereby programme the landscape works accordingly.

## 13.3 Management of trees

13.3.1 The lead contractor will employ a specialist arboricultural consultant to oversee works relating to the management and protection of trees.

### Protection of trees

13.3.2 The lead contractor will protect trees in line with the Arboricultural Impact Assessment (provided as **Appendix 14.3** of the ES **[TR020001/APP/5.02]**) recommendations and specific requirements set out in the Outline LBMP. The lead contractor will be responsible for surveying and verifying the condition of any trees (as appropriate) within 15m of construction activities.

- 13.3.3 The arboricultural consultant will identify trees that are to be retained and which require protection, based on those that are identified within BS5837 (2012) (Ref. 34) and which have stem diameter greater than 75mm measured at 1.5m above ground level.
- 13.3.4 Measures to protect retained trees will include the following, as appropriate:
- a. the provision of appropriate protective fencing around Root Protection Areas (RPA) to reduce the risks associated with vehicles operating over root systems or beneath canopies;
  - b. measures to prevent compression of soils within RPA by vehicles and plant movement, storage of materials;
  - c. processes for the selective removal of lower branches to reduce the risk of arboricultural damage by construction plant, machinery and vehicles;
  - d. maintenance of vegetation buffer strips, where reasonably practicable; and
  - e. all tree surgery operations conducted throughout the Proposed Development will comply with the recommendations in BS 3998; Tree work Recommendations (2010) (Ref. 35), where appropriate.

### **Tree felling**

- 13.3.5 Where there are no windthrow or visual issues, tree felling will be kept to a minimum to facilitate the safe construction of the Proposed Development. Where appropriate, tree surgery, such as crown reduction and pollarding methods, will be employed foremost to felling to maintain the maximum biodiversity and landscape value and visual amenity. All tree surgery and felling operations must consider the legal protection given to species such as roosting bats and breeding birds. The lead contractor will be responsible for undertaking tree felling and will consider the United Kingdom Forestry Standard (UKFS) (2017).
- 13.3.6 The arboricultural consultant should coordinate with the lead contractor, and the appointed ecologist, to establish the quantities of cut timber and brash that should be retained on site for habitat creation measures, such as the creation of log piles and hibernacula.

### **Tree planting**

- 13.3.7 The lead contractor, or an appropriately qualified specialist contractor, will undertake all works relating to the supply, storage, handling, planting and maintenance of new planting. This will be conducted in accordance with the following (and subsequent revisions at the time of construction):
- a. British Standards Institution, BS 4428: Code of practice for general landscape operations (excluding hard surfaces), BSI (1989) (Ref. 36);
  - b. British Standards Institution, BS 8545 Trees: from nursery to independence in the landscape, BSI (2014) (Ref. 37);
  - c. UKFS (2017) (Ref. 38); and

- d. United Kingdom Woodland Assurance Standard (UKWAS) (2014) (Ref. 39).

13.3.8 When procuring trees and shrubs, consideration will be given to appropriate biosecurity measures to minimise the risk of pests and diseases being introduced to the immediate environment. All imported trees will have spent at least one full growing season on a UK nursery and have been subject to a full pest and disease programme. Evidence of this control programme, together with a complete audit trail of when the imported trees were received and how long they have been on the nursery, should be made available to the Applicant on request. This audit trail will extend beyond the nursery after despatch, allowing for a full recall in the event that any pest and/or disease problems may subsequently manifest themselves in the landscape.

### **Clearance and reinstatement of sites upon completion**

13.3.9 The lead contractor will ensure that the construction sites are thoroughly cleared of all construction related machinery, facilities, structures, materials and waste upon completion of works.

## **13.4 Monitoring**

13.4.1 Appropriate monitoring of landscape and visual amenity mitigation proposals will be undertaken as detailed within the Outline LBMP which is provided as **Appendix 8.2** of the ES [TR020001/APP/5.02]. Monitoring of landscape works will be undertaken by suitably qualified and experienced specialists, during the works and maintenance/management period.

13.4.2 The lead contractor will be responsible for implementing management measures, as identified within the Outline LBMP which is provided as **Appendix 8.2** of the ES [TR020001/APP/5.02], throughout the construction period as landscape works are completed.

13.4.3 The lead contractor will monitor the progress of new landscape works throughout the construction period. Any failures of landscape planting and seeding will be determined via the design specification and works requirements as set out in the Outline LBMP (**Appendix 8.2** of the ES [TR020001/APP/5.02]). This will ensure annual replanting and reseeding works are undertaken where required, including the requirement for reinstating any failed species (as required) to achieve successful establishment of the landscape mitigation proposals. The lead contractor will be responsible for replanting or reseeding areas that fail for a period of five years following initial planting.

## 14 NOISE AND VIBRATION

### 14.1 General provisions

14.1.1 Best practicable means (BPM) will be applied during construction works to minimise noise (including vibration) at neighbouring residential properties and other sensitive receptors (including local businesses and quiet areas designated by the local authority) arising from construction activities.

### 14.2 Measures to reduce potential noise and vibration impacts

#### Best practicable means (BPM)

14.2.1 BPM are defined in Section 72 of the Control of Pollution Act 1974 and Section 79 of the Environmental Protection Act 1990 as those measures which are “*reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications*”.

14.2.2 The lead contractor will have a duty to avoid, reduce, control and/or manage construction noise and vibration through BPM, including:

- a. **N**oise and vibration control at source – for example, the selection of quiet and low vibration equipment, review of construction programme and methodology to consider quieter methods, location of equipment on site, control of working hours (see **Section 5.1**), the provision of acoustic enclosures and the use of less intrusive alarms, such as broadband vehicle reversing warnings;
- b. **S**creening – for example, local screening of equipment or perimeter hoarding; **and**
- c. **I**f necessary<sup>2</sup>, a scheme of noise insulation<sup>3</sup> to a receiving property in the unlikely event that noise levels exceed the relevant day, evening or night-time Significant Observed Adverse Effect Level (SOAEL)<sup>4</sup> for 10 or more days in any consecutive period of 15 days or for a total number of days exceeding 40 in any 6 consecutive months.

14.2.3 The recommendations of the British Standards Institution, BS 5228 Code of practice for noise and vibration control on construction and open sites parts 1 (Ref. 40), and 2 (Ref. [4242](#)), BSI (2014) will be implemented, together with the specific requirements of the CoCP.

14.2.4 For noisy construction activities, the steps proposed to be taken to minimise noise resulting from the works will be demonstrated as part of any Section 61 consent application in accordance with BPM.

<sup>2</sup> Construction noise forecasts in **Chapter 16** of the ES [TR020001/APP/5.01] do not exceed the relevant SOAEL at any noise sensitive receptors.

<sup>3</sup> To be defined in the relevant Section 61 consent application.

<sup>4</sup> As defined in **Chapter 16** of the ES [TR020001/APP/5.01].



## Noise and vibration management

- 14.2.5 Monitoring and management processes will control the impacts from noise and vibration throughout the construction works. This will include the management and monitoring processes to integrate noise controls into the preparation of method statements and ensure proactive links between noise management and community relations activities. In addition, a noise and vibration monitoring protocol will be implemented to check ongoing compliance, improvement and rapid corrective actions to avoid any potential non-compliance.
- 14.2.6 The lead contractor will be responsible for preparing and implementing a Construction Noise and Vibration Management Plan as part of their EMS, which will include management and monitoring processes to ensure as a minimum:
- a. integration of noise and vibration control into construction method statements;
  - b. preparing details of site hoardings and screens that will be put in place to provide acoustic screening during construction, together with an inspection and maintenance schedule for such features;
  - c. developing a noise and vibration monitoring protocol including noise and vibration monitoring locations as well as publishing all monitoring required to ensure compliance with all acoustic commitments and consents;
  - d. preparing and submitting Section 61 consent applications (where required); and
  - e. implementing management processes to ensure ongoing compliance, improvement and actions to avoid any potential non-compliances with the noise and vibration management measures.
- 14.2.7 No impact piling shall commence until a piling method statement (detailing the type of piling to be undertaken and the methodology by which such piling will be carried out, including measures to control noise and vibration and measures to prevent and minimise the potential for damage to subsurface water infrastructure, and the programme for the works) has been submitted and approved as part of the Section 61 process. Any piling must be undertaken in accordance with the terms of the approved piling method statement.
- 14.2.8 Noise-generating construction activities that could disrupt community facilities will be identified in the construction programme and their scheduling will consider the needs of potentially affected community facilities. For example, this may be scheduling construction/demolition activities close to schools outside school hours or during school holidays or outside of exam periods.
- 14.2.9 Where receptors may be exposed to high levels of construction noise, localised solid site hoarding is proposed to screen the properties from construction noise. At some locations it may not be feasible to install long-term hoarding due to the presence of individual accesses or the short-term duration of the activity. In such cases, the use of localised screening around high noise sources will be considered and confirmed in the relevant Section 61 application.

## Section 61 Consents

- 14.2.10 Where construction activities that are noisy<sup>5</sup> or could generate perceptible vibration at any sensitive receptor are required to be undertaken, the lead contractor will seek to obtain consent from the relevant local authority under Section 61 of the Control of Pollution Act 1974 (Ref. 41) for the proposed construction works, excluding non-intrusive surveys. The lead contractor will identify such activities as part of its Noise and Vibration Management Plan and will proactively seek to agree the activities with the relevant local authority. The lead contractor will keep the schedule of noisy activities in the management plan up to date and will advise the relevant local authority of any update as soon practicable as part of regular engagement throughout each period of construction. Through the regular engagement the lead contractor will agree with each relevant local authority the approach to Section 61 consents where activities that were originally planned for core hours and were considered to be not noisy during core hours have to be extended into additional hours or 24-hour~~s~~ working and as a result would be considered noisy in these more sensitive time periods. Site specific management and mitigation requirements for noise and vibration will be defined in the Section 61 consent applications. Applications will be made to the relevant local authority for a Section 61 consent at least 28 days before the relevant work is due to start or earlier if reasonably practicable, unless otherwise agreed with the relevant local authority.
- 14.2.11 Unless otherwise agreed with the relevant local authority, Section 61 consent applications will include:
- a. plans showing the location of the construction works;
  - b. a full description of the construction works including details of their duration and proposed hours of work;
  - c. a robust rationale for works which need to be undertaken outside core working hours;
  - d. a method statement;
  - e. type of plant and specification of equipment to be used;
  - f. the steps to minimise noise (including vibration) in line with BPM;
  - g. noise and vibration sensitive locations (including, for example, residential properties, schools and other teaching facilities, hospitals and residential nursing homes, and/or other buildings which house vibration sensitive equipment) and anticipated noise monitoring points; and
  - h. a set of predicted noise, and where relevant, vibration levels.
- 14.2.12 Details of construction activities, noise and vibration mitigation measures, prediction methods, location of sensitive receptors and noise and vibration levels will be discussed with the relevant local authorities, both prior to construction work and throughout the construction periods. Prediction, evaluation and assessment of noise and vibration as well as discussion

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<sup>5</sup> Could give rise to noise disturbance.

between the Applicant and the lead contractor and the relevant local authorities will continue throughout the construction periods.

- 14.2.13 Any application for a Section 61 consent will require noise (and where appropriate vibration) assessments to be undertaken and BPM measures set out to manage noise associated with construction of the Proposed Development. The lead contractor will submit the assessments to the Applicant or a nominated representative for review prior to submission to the relevant local authority unless the Applicant agrees otherwise in writing.
- 14.2.14 To inform any Section 61 consent application, surveys of ambient noise will be carried out at representative receptors where noise impacts are probable. The requirement for noise surveys, the survey procedure and locations will be agreed with the relevant local authority as part of the Section 61 prior consent procedure.
- 14.2.15 The lead contractor will carry out noise (and vibration where appropriate) predictions for Section 61 applications. Unless otherwise agreed with the relevant local authority, noise levels will be predicted in accordance with the methods set out in BS 5228-1 (2014) (Ref. 42). All construction noise levels will be predicted or measured at a distance of 1m from any affected eligible facade which has windows to bedrooms or living rooms.
- 14.2.16 All applications for consent will include a statement advising how and when local residents, businesses or other organisations likely to be affected by the works will be notified of the start date, nature and duration of the works, along with details of a complaints hotline.
- 14.2.17 In the event that works for which Section 61 consent has been applied for have to be rescheduled or modified (e.g. method or working hours) for reasons not envisaged at the time of submitting the Section 61 consent application, the lead contractor will apply for a dispensation or variation from the appropriate local authority, before commencing those works, at the time specified within the Control of Pollution Act 1974 (Ref. 41).
- 14.2.18 The lead contractor will seek to agree with local authorities a common format and model consent conditions for Section 61 applications or any dispensations and variations to an existing consent.

### **14.3 Vibration thresholds**

#### **Protection of building occupants and users**

- 14.3.1 When considering human response to vibration BS 5228-2 (Ref. 42) provides guidance levels in terms of Peak Particle Velocity (PPV), as reproduced in [Table 14.1](#)~~Table 14.1~~.

Table 14.1: Vibration thresholds for protection of occupants of buildings from disturbance (from BS5228-2).

Vibration level <sup>6,7,8</sup>	Effect
0.14 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3 mm/s	Vibration might be just perceptible in residential environments.
1.0 mm/s	It is likely that vibration of this level in residential environments will cause <del>complaint, but</del> <u>complaint</u> <del>but</del> can be tolerated if prior warning and explanation has been given to residents.
10.0 mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments.

~~14.3.2 The Significant Observed Adverse Effect Level (SOAEL) for vibration is defined in Chapter 16 of the ES [TR020001/APP/5.01] as a PPV of 1.0mm/s. Vibration calculations in Chapter 16 of the ES [TR020001/APP/5.01] indicate that vibration-generating construction activities are unlikely to exceed this level at a distance of 25 m or greater.~~

~~14.3.3~~ 14.3.2 ~~Vibration thresholds equivalent to the defined SOAEL are provided in Table 14.2 for receptors that are sensitive to vibration (Group A) and relaxed thresholds are provided for those that are considered less sensitive to vibration (Group B). These thresholds should not be routinely exceeded for a period of 10 or more days of working in any 15 consecutive days as a result of the works. As described in Table 14.1 potential levels of vibration exceeding the SOAEL can be tolerated with prior warning. Consequently, the SOAEL can be exceeded for vibration works lasting for a period of less than 10 days of working in any 15 consecutive days if prior warning is provided. The thresholds for vibration considers, in conjunction with the guidance presented in Table 14.1~~ Table 14.1, the sensitivity of the building use to vibration. The more sensitive building uses, including residential properties, are defined as Building Group A with less sensitive uses defined as Building Group B. The building uses and threshold values are presented in Table 14.2 ~~Table 14.2. The vibration threshold for residential receptors is the Significant Observed Adverse Effect Level (SOAEL)~~

<sup>6</sup> The magnitudes of the values presented apply to a measurement position that is representative of the point of entry into the recipient.

<sup>7</sup> A transfer function (which relates an external level to an internal level) needs to be applied if only external measurements are available.

<sup>8</sup> Single or infrequent occurrences of these levels do not necessarily correspond to the stated effect in every case. The values are provided to give an initial indication of potential effects, and where these values are routinely measured or expected then an assessment in accordance with BS 6472-1 or -2, and/or other available guidance, might be appropriate to determine whether the time varying exposure is likely to give rise to any degree of adverse comment.

as defined in **Chapter 16** of the ES [~~TR020001/TR020001/APP/5.01REP1-003~~].

Table 14.2: Vibration thresholds ~~equivalent to the defined SOAEL~~.

<u>Building Group</u>	<u>Building types</u>	<u>Threshold - (PPV)</u>		
<u>A</u>	<u>Residential, auditoria, concert halls, theatres, sound recording, broadcast studios, places of worship, courts, lecture theatres, museums, schools, colleges, libraries, hospitals and hotels.</u>	<u>≥1.0 mm/s</u>		
<u>B</u>	<u>Occupied office and commercial</u>	<u>≥3.0 mm/s</u>		
<u>Building Group</u>	<u>Building</u>	<u>Period</u>	<u>Prior Warning Provided</u>	<u>Threshold PPV</u>
<u>A</u>	<u>Residential, auditoria, concert halls, theatres, sound recording, broadcast studios, places of worship, courts, lecture theatres, museums, schools, colleges, libraries, hospitals and hotels</u>	<u>Any time</u>	<u>No</u>	<u>≤1.0 mm/s</u>
		<u>Less 10 days in any 15 consecutive days</u>	<u>Yes</u>	<u>≤3.0 mm/s</u>
<u>B</u>	<u>Occupied office and commercial</u>	<u>Any time</u>	<u>No</u>	<u>≤3.0 mm/s</u>
		<u>Less 10 days in any 15 consecutive days</u>	<u>Yes</u>	<u>≤5.0 mm/s</u>

### Protection of buildings from damage

14.3.414.3.3 **Chapter 16** of the ES [~~TR020001/TR020001/APP/5.01REP1-003~~] ~~does not predict~~The ES is not forecasting any vibration levels that are likely to result in damage to buildings however, in case of unexpected circumstances, to protect buildings from damage, the lead contractor will require its contractors to use BPM to control vibration levels so that the PPV in ~~Table 14.3~~**Table 14.3** (as predicted in accordance with BS 5228-2 (Ref. 42) or measured in accordance with BS 7385-1 (Ref ~~43.43~~) ~~for sources other than blasting~~ are not exceeded as a result of the works at the building foundation unless agreement is sought based on the clause set out in **Paragraph 14.3.10**.

Table 14.3: Vibration thresholds levels for building damage

Category of building	Impact criteria: (PPV at building foundation)	
	Transient vibration	Continuous vibration
Structurally sound buildings	≥12 mm/s	≥6 mm/s
Potentially vulnerable buildings <sup>9</sup>	≥6 mm/s	≥3 mm/s

~~To determine whether a detailed assessment needs to be undertaken to determine whether the levels in **Table 14.3: Vibration thresholds** are likely to be exceeded, or that there is a potential for building damage, the lead contractor will carry out a scoping vibration assessment. Activities requiring an assessment could include vibratory compaction, impact or vibratory piling and other driven processes.~~

**Exceedances of vibration thresholds**

~~14.3.6 To protect the occupants and users of buildings from vibration, BPM will be used to control vibration levels at all times during construction. If vibration generating construction activities are to be undertaken within 25m of a sensitive receptor the lead contractor will undertake a construction vibration risk assessment, which will include predictions of PPV levels of vibration (in accordance with BS 5228-2 (Ref.42) that may be experienced at sensitive receptors.~~

~~14.3.4 In order to determine whether a detailed vibration assessment needs to be undertaken, the lead contractor will carry out a scoping vibration assessment, considering the values in **Table 14.2** and **Table 14.3**. Activities requiring an assessment could include vibratory or dynamic compaction, impact or vibratory piling and other driven processes.~~

~~14.3.5 Based upon the outcome of the scoping vibration assessment, and consideration of BPM to minimise vibration levels at all times during construction, where there is a risk that the values in **Table 14.2** and or **Table 14.3** may be exceeded, the lead contractor will undertake a detailed construction vibration assessment as part of a Section 61 application and, if required, identify measures to avoid significant adverse effects on health and quality of life.~~

~~14.3.6 This will include predictions of PPV levels of vibration using the methodologies included in BS 5228-2 (Ref. 42) and BS 7385-1 (Ref. 43)<sup>9</sup>. If this identifies that people occupying buildings may experience levels in excess of the threshold values in **Table 14.2** or **Table 14.3**, those potentially~~

<sup>9</sup> BS 7385 highlights that the criteria for aged buildings may need to be lower if the buildings are structurally unsound. The standard also notes that criteria should not be set lower simply because a building is important or historic (e.g. listed). Where information about these structures is not currently known, the more onerous criteria on this row of the table shall be adopted on a precautionary basis until condition surveys have been undertaken.

affected will be notified at least four weeks in advance and again at least two weeks in advance where relevant. The notification will describe the nature and duration of the works, including likely timings of vibration generating activities, and any associated proposals for vibration monitoring.

~~14.3.7~~ If predicted vibration levels exceed 1.0mm/s component PPV at any buildings from group A (see **Table 14.2**) or 3.0mm/s PPV at any buildings from group B (see **Table 14.2**), a detailed assessment will be carried out in accordance with BS 7385-1 (Ref.). If this identifies that people occupying buildings may experience levels in excess of the threshold values in **Table 14.2**, those potentially affected will be notified as soon as practicably possible in advance of the works. The notification will describe the nature and duration of the works and any associated proposals for vibration monitoring.

~~14.3.8~~14.3.7 Occupants of affected buildings will be informed initially at least four weeks in advance and again at least two weeks in advance where relevant. Information provided will include the nature and duration of the works and likely timings of vibration generating activities. Trials of vibration generating activities will be undertaken and monitored at nearby sensitive receptors in order to validate vibration predictions. This process will ensure that the measured levels are no greater than anticipated / predicted.

~~14.3.9~~14.3.8 So that the PPV thresholds in **Table 14.2** are not exceeded as a result of the works, vibration monitoring will be undertaken. Guidelines for the measurement of vibrations and evaluation of their effects on structures are provided in BS 7385-1 (Ref. 43). Additionally, the lead contractor will be cognisant of the advice given in ISO 4866 (Ref. 44). Notification provided to occupants of affected buildings will describe proposals for vibration monitoring.

~~14.3.10~~14.3.9 Where the predicted vibration at the foundations of such buildings exceeds 6mm/s PPV, the lead contractor will undertake an initial structural survey of the building. Based on the structural survey, the level of vibration above which condition surveys and continuous vibration monitoring are required will be confirmed with the building owner. The local authority will be notified through the relevant Section 61 consent application.

~~14.3.11~~14.3.10 The lead contractor will consult with the relevant local authority regarding any works predicted to generate a PPV above 12mm/s. Where there is no reasonable or practicable means to reduce predicted or measured vibration, the lead contractor will:

- a. seek to agree with the local authority under the relevant Section 61 consent<sup>10</sup>, monitoring for vibration and strain induced in the building during the works, then;
- b. seek to agree with occupiers and owners (as appropriate) of properties:
  - i. the surveys to be carried out and any consequent actions; and
  - ii. any additional reasonable and practicable mitigation to be provided for occupants;

<sup>10</sup> Also under the Party Wall Act as necessary.

- c. carry out a condition survey before and after the relevant works; and
- d. advise the local authority through the relevant Section 61 consent application.

~~14.3.12~~14.3.11 Where the condition and vibration monitoring surveys undertaken by the lead contractor demonstrate that vibration from the works has given rise to building damage, the lead contractor are to make good that damage.

### **Protection of particularly vibration-sensitive equipment/ processes**

~~14.3.13~~14.3.12 The lead contractor will avoid any impact on sensitive equipment where reasonably practicable. Any actions to control or mitigate impacts will be agreed between lead contractor and the operator of the equipment. The local authority will be notified through the relevant Section 61 consent application.

## **14.4 Monitoring**

- 14.4.1 The lead contractor will undertake and report on noise and vibration monitoring, including physical measurements, observational inspections and audits (at regular intervals), and real-time noise and vibration monitoring. These measures will demonstrate compliance with all noise and vibration requirements, the conditions outlined in the CoCP and any Section 61 consents.
- 14.4.2 Monitoring data will be provided regularly to, and will be reviewed by, the Applicant, and will be made available to the relevant local authorities.
- 14.4.3 Monitoring data will be provided by contractors at minimum on a monthly basis. Where continuous real-time monitoring of noise levels is required (as identified through discussions with the local authorities under the Section 61 process), more frequent sharing of monitoring data will take place, and real-time alerts in case of noise threshold exceedances will be implemented.



## 15 SOILS AND GEOLOGY

### 15.1 General provisions

- 15.1.1 This section provides the control measures and standards to be implemented by the lead contractor in relation to the earthworks.
- 15.1.2 The Applicant and the lead contractor will comply with appropriate environmental legislation and guidance available at the time of construction. For soils and geology this will be detailed in the SMP, the Framework Material Management Plan (FMMP) and the Remediation Strategy. Further requirements for specific areas, such as the management of earthworks and groundwater control will be considered from industry best practice guidance documents.
- 15.1.3 The Outline SMP provided as **Appendix 6.6** in the ES [TR020001/APP/5.02] will be developed by the lead contractor into a SMP (which must be substantially in accordance with the Outline SMP) to provide additional measures in relation to the use of topsoil and subsoil reserves within the soft landscape scheme.
- 15.1.4 A FMMP would be produced by the lead contractor post approval of the DCO, before construction to describe how materials (made ground, natural soils) will be handled and reused on site, during construction works. The framework is to be applied to all excavated materials reuse and management (including storage). It will also provide evidence that excavated and stockpiled materials are being managed in accordance with best practice, provide a clear audit trail and ensure the construction activity will not be classed as a waste activity by the Environment Agency. The individual Material Management Plans (MMP) would subsequently be produced by the lead contractor for all phases and work packages, with reference to the FMMP. The MMPs would be produced after the FMMP and before any earthworks, these would be agreed in principle with the Environment Agency and signed off by a Qualified Person before being placed on the CL:AIRE website. Further details of the FMMP and MMPs are included in **Paragraphs 15.2.3 and 15.2.4**.
- 15.1.5 The Outline Remediation Strategy (for former Eaton Green Landfill Site) provided as **Appendix 17.5** of the ES [TR020001/APP/5.02] has been developed to describe the Remediation Strategy for the main area of concern with regard to potential contamination, located within the Main Application Site. This is the area of the former landfill (Eaton Green Landfill). The lead contractor will prepare a detailed Remediation Strategy substantially in accordance with the Outline Remediation Strategy.
- 15.1.6 The lead contractor will consider the following documents in the planning and carrying out of earthworks:
- Defra (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Ref. 16);
  - Outline Remediation Strategy (for Former Eaton Green Landfill Site), **Appendix 17.5** of the ES [TR020001/APP/5.02];
  - CL:AIRE: Definition of Waste: Code of Practice (DoW CoP) (Ref. 45);

- d. Earthworks Specification, which will be developed in the detailed design stage post application for development consent;
- e. British Standards for Earthworks (BS EN 16907:2008) (Ref. 46); and
- f. Waste (England and Wales) Regulations 2011 (Ref. 47)

- 15.1.7 Excavated soils and materials will be managed by the lead contractor in accordance with the waste hierarchy (i.e. prevention, preparing for reuse, recycling, other recovery and disposal in such a way as to prevent harm to human health, amenity and the environment. Further detail is provided in the OSWMP and in **Section 17**.
- 15.1.8 As part of the earthworks excavated material designated as waste, such as that within the area of the historical Eaton Green landfill and also at certain locations (agreed with the Environment Agency) in other areas of the site, will be separated and treated in accordance with the Remediation Strategy and recovered within the Proposed Development under a bespoke Environmental Permit – ‘deposit for recovery’ (DfR) under the Environmental Permitting (England and Wales) Regulations 2016 (Ref. 48). The Environmental Permit will be obtained post application for development consent by the specialist contractor undertaking remediation works.
- 15.1.9 It is the intention to obtain an agreement in principle from the Environment Agency for the DfR permit.
- 15.1.10 Soils considered a non-waste, such as natural soils and Made Ground, will be reused in accordance with the FMMP and MMP for the phases/work packages. The MMP will be prepared by the lead contractor in line with the CL:AIRE: DoW CoP, in order to identify potential risks posed to the water environment, human health and the wider environment (including crops/livestock) at the location of re-use. The requirements of the FMMP and MMPs are detailed in **paragraphs 15.2.3 and 15.2.4**, respectively.
- 15.1.11 The interface between materials reused under the two regulatory regimes detailed above in **paragraphs 15.1.4 and 15.1.5** will be developed at detailed design stage and included in the earthworks specification. Materials (waste and non-waste) are to be fully segregated, handled, treated and stockpiled independently and evidence provided to the Environment Agency to confirm that cross contamination has been minimised, in accordance with the FMMP and the Remediation Strategy.

## 15.2 Management of site earthworks

- 15.2.1 The site earthworks will require the management of topsoil and natural subsoils, as detailed in the SMP, as well as the management and recovery of materials associated with the historical landfill in accordance with the Remediation Strategy (an Outline of which is provided as **Appendix 17.5** of the ES **[TR020001/APP/5.02]**) and earthworks specification.
- 15.2.2 Where reasonably practicable, the lead contractor will:

- a. source fill required for development of the earthworks on-site, from the area specified within the earthworks specification, limiting the requirement for the import of materials to site;
- b. reduce waste volumes by recovering suitable fill materials from excavated materials where reasonably practicable in available timescales;
- c. handle excavated acceptable material in an appropriate manner to ensure it remains of sufficient quality to be used as engineered fill for infilling works/environmental mitigation earthworks to reduce the environmental effects of the Proposed Development. For topsoils and subsoils reference to be made to the Outline SMP, **Appendix 6.6** of the ES [TR020001/APP/5.02];
- d. phase earthworks to limit the volume of soils requiring temporary stockpiling. Where stockpiles are required, these will be carefully designed to reduce visual intrusion and spreading of dust. Contaminated materials that require stockpiling will be held in contained areas with impermeable bases and bunding to prevent infiltration and run-off of contaminated waters; and
- e. Materials (waste and non-waste) are to be fully segregated, handled, treated and stockpiled independently and evidence provided to the Environment Agency to confirm that cross contamination has been minimised.

15.2.3 A FMMP will be produced by the lead contractor in accordance with DoWCoP. The objective of the document is to provide a consistent framework for all excavated materials (non-waste) reuse and management (including storage) and the production of MMPs and supporting documents for all work packages/phases. The FMMP will be updated annually with a stockpile audit to demonstrate stockpiled materials are being reused in accordance with DoWCoP. The FMMP does not cover the recovery of any waste within the landfill boundary this would be covered by the DfR permit as described in the Outline Remediation Strategy, provided in **Appendix 17.5** of the ES [TR020001/APP/5.02].

15.2.4 A MMP will be produced for reuse of non-waste on-site for each relevant part of the Proposed Development prior to excavation. The document will be produced by the lead contractor, and will include the following:

- a. a description of the Proposed Development and how excavated materials are to be re-used;
- b. evidence of suitability for use of the material, including copies of specifications for the reuse of the material and risk assessments;
- c. explanation of how reuse of excavated materials fits within the DCO;
- d. a breakdown of the quantities of materials to be excavated and placed, including locations;
- e. contingency arrangements;

- f. details of how materials will be tracked around the site and what records are to be kept;
- g. details of stockpiles for future use in later phases/work packages;
- h. a qualified person (QP), independent from the project team, will be required to review each MMP and make a declaration to CL:AIRE at least one week prior to commencement of the relevant works; and
- i. a verification plan setting out how validation of works will be produced for each works package, including proving that excavated materials have been reused in the correct location and in the correct quantities within the development works. Verification records to be checked as work progresses to confirm compliance with the plan.

- 15.2.5 The lead contractor will ensure collection and disposal of any waste material requiring disposal to waste facilities as soon as reasonably practicable to avoid the build-up and need for temporary stockpiling of waste materials on site, as outlined in the SWMP.
- 15.2.6 The lead contractor will produce a verification report for each MMP upon completion of the works, to provide evidence that DoWCoP has been complied with.
- 15.2.7 The lead contractor will obtain a DfR for the reuse of landfill and waste materials, as well as any supporting documentation as reasonably required by the Environment Agency, such as a Construction Quality Assurance (CQA) plan, detailed hydrogeological risk assessment or specifications.

### 15.3 Land contamination

- 15.3.1 In addition to the excavation and treatment of contaminated soils and landfill material, gas and leachate control systems would be installed. Permanent gas control measures would be installed, leachate control system would be a temporary measure during construction and decommissioned on completion of the relevant construction works. The control systems are required to ensure that gas and leachate migration pathways are controlled and do not adversely affect the Proposed Development or off-site receptors as a consequence of the Proposed Development. Details of the gas control measures at the perimeter of the landfill will be confirmed at detailed design.
- 15.3.2 Control measures will also be implemented by the lead contractor during the works, to avoid impact to the health of construction workers and neighbouring site users from contamination in landfilled waste/made ground during earthworks and waste processing. This will include the measures set out below, as appropriate (in addition, details on dust and odour suppression measures are provided in **Section 8**):
- a. further ground investigation (where identified as required in the Outline Remediation Strategy, such as Off-site Car Parks) and completion of remediation trials;
  - b. preparation of a Detailed UXO Risk Assessment, where required, (further detail on UXO is provided in **Section 6.5**);

- c. establishment of site compound(s) for stockpiling and processing of landfill materials to control the works, potential for pollution and prevent unauthorised access; and
- d. programming of earthworks to limit exposure of large areas of the former landfill.

15.3.3 The specialist remediation contractor will produce a detailed method statement for the watching brief for the earthworks on the landfill as previously unidentified contamination may be encountered. The individual responsible for the watching brief and inspection of materials must be competent and experienced in the identification of potential evidence of contamination. Daily site inspections will be completed and records made. This is likely to include:

- a. confirmation that work is being undertaken in accordance with agreed strategies and method statements;
- b. weather conditions;
- c. inspection of haul roads;
- d. details of environmental controls measures being implemented;
- e. checking fuel storage areas for evidence of leaks/spillage;
- f. inspections of soil stockpiles and dewatering works to confirm if pollution control measures are effective;
- g. inspections of all excavation works for potential visual and/or olfactory indicators of contamination, such as oil staining, tars, unusual colours, hydrocarbon/solvent odours, buried tanks, drums or structures, or infrastructure;
- h. record actions taken if evidence of contamination noted;
- i. a set of protocols would be established by the specialist remediation contractor in the event of unexpected contamination or much higher concentrations of known contaminants being identified;
- j. if further contamination is suspected then a specialist environmental engineer/consultant will be required to undertake further investigation, sampling and testing; and
- k. the Remediation Strategy would be updated to reflect any further findings where appropriate; and changes agreed in writing with the Environment Agency following consultation with them and with the relevant planning authority under the relevant Requirement of the DCO.

15.3.4 Other control measures will also be implemented, which will include the following enhanced precautions, as appropriate:

- a. monitoring of air, ground gas and leachates as per the monitoring programme to be agreed by the lead contractor with the Environment Agency and relevant planning authority;
- b. personal monitoring for construction workers with alarms (where necessary);

- c. site briefing;
- d. specific controls to be in place to control potential exposure to construction workers and adjacent site users from asbestos in soil and asbestos containing materials (ACMs) to include air monitoring and procedures for unexpected ACMs;
- e. the specialist remediation contractor is expected to have a representative(s) on site full-time overseeing the remediation/materials management/DfR permit who has appropriate experience and is suitably qualified/competent;
- f. a watching brief during excavation works to ensure any suspected radionuclide containing material is appropriately managed;
- g. provision of decontamination facilities; and
- h. controls to working practices.

15.3.5 An environmental monitoring and audit system with lines of formal communication will be established to report to the Applicant and communicate actions/impacts/monitoring results, to be recorded weekly and provided in a monthly summary report. The report will be provided to the relevant local authority and the Applicant.

15.3.6 A watching brief will be undertaken in the area to the east of the landfill to identify any geological features of interest exposed by excavation of the chalk with an action plan to produce a record should such features be identified.

15.3.7 The measures will apply equally to land used for construction and land used temporarily, for example, for site offices and works compounds. However, for land used temporarily, risk assessment and remediation will usually only be designed for the temporary use, rather than any long-term post-construction use.

15.3.8 Where piling or similar penetrative works are undertaken in areas of land affected by contamination, appropriate guidance will be adhered to, including the National Groundwater and Contaminated Land Centre's report Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention (NC/99/73 2001) (Ref. 49). A detailed quantitative hydrogeological risk assessment (HRA) will be required to be produced by the lead contractor and agreed with the Environment Agency, at detailed design stage, prior to works commencing. The detailed HRA will be produced as part of the supporting documentation for the DfR permit. Pilot trials will also be undertaken to assess the pile performance and monitor concrete bleed. In addition, monitoring of groundwater and ground gas would be undertaken to confirm any short-term fluctuations or impacts on the baseline regime.

## 15.4 Groundwater contamination

15.4.1 Control methods will be put in place to avoid groundwater contamination during construction works, including:

- a. groundwater monitoring and analysis in accordance with the requirements of the groundwater monitoring plan to be prepared by the lead contractor and agreed with the Environment Agency, prior to, during and after construction. This is likely to be a continuation/development of the on-going monitoring programme but will include increased frequency of monitoring. Details of the monitoring programme carried out up to the submission of the application for development consent are provided at **Appendix 17.7** of the ES [TR020001/APP/5.02];
- b. adoption of measures to prevent groundwater contamination detailed in the Outline Remediation Strategy, provided in **Appendix 17.5** of the ES [TR020001/APP/5.02];
- c. installation of leachate sumps within the former landfill. A figure showing the general arrangement of sumps has been included in the Outline Remediation Strategy. The final locations and design would be agreed with the Environment Agency. Sumps to be monitored during construction with periodic removal of leachate for on-site treatment and disposal to sewer or removal to offsite waste treatment facility;
- d. excavation completed in defined stages with contained remediation compounds, water treatment facilities and with additional licences/permits secured e.g. discharge consent to sewer, mobile treatment licence;
- e. groundwater remediation, if identified as being necessary by monitoring results, with remediation measures described in the groundwater monitoring plan;
- f. consultation with the relevant local authorities and the Environment Agency regarding control or protection measures to be implemented to deal with identified risks, including, appropriate techniques for excavating/handling contaminated material and the control of contaminants and discharges in their in situ or mobilised form, for solids, liquids, gas and leachate;
- g. excavation, segregation and stockpiling of potentially contaminated soils/waste for reuse in accordance with the Remediation Strategy and further processing of waste, as required prior to reuse. A typical processing scenario is described in the Remediation Strategy; the actual processes will be determined by the remediation contractor following segregation trials;
- h. procedures including watching briefs to identify ACMs during excavation and stockpiling and for all areas within the Proposed Development where land contamination is unexpectedly encountered;
- i. identification and decommissioning of existing preferential pathways i.e. services/service trenches (e.g. Thames Valley Drain) affected during construction;
- j. lining of drainage trenches and buried services with bedding media to inhibit the mobilisation of contaminated groundwater or lateral migration through granular backfill;

- k. installation of gas protection requirements in accordance with the Outline Remediation Strategy and verification in accordance with CIRIA C735 (Good practice on the testing and verification of protection systems for buildings against hazardous ground gases) (Ref. 50);
- l. verification testing of remediated ground or groundwater and preparation of verification reports; and
- m. post-remediation permit to work system to protect remediated areas.

## 15.5 Monitoring

15.5.1 Monitoring plans will be prepared and implemented as part of the lead contractor's EMS and will be consistent with the requirements in the Remediation Strategy and earthworks specification.

15.5.2 Monitoring will include:

- a. monitoring of groundwater and ground gases prior to, during and after construction in accordance with the Outline Remediation Strategy and Groundwater, Ground Gas and Leachate Monitoring Plan (**Appendix 17.7** of the ES [TR020001/APP/5.02] and measures set out in **Section 18** (Water environment) and **Section 8** (Air quality));
- b. chemical and geotechnical testing of soils and remediated materials to ensure they meet the standards specified in the Outline Remediation Strategy and earthworks specification;
- c. monitoring of ground gases and dust during construction to ensure no off-site impacts from construction activities, in line with the measures set out in **Section 8** (Air quality); and
- d. monitoring of confined spaces for possible ground gas accumulations, restricting access to confined spaces, i.e. to suitably trained personnel only, and
- e. use of specialist Personal Protective Equipment (PPE) where appropriate.



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## 16 TRAFFIC AND TRANSPORT

### 16.1 General provisions

- 16.1.1 During construction works, impacts from construction traffic on the local community (including all local residents and businesses and their customers, visitors to the area, and users of the surrounding transport network) will be minimised by the lead contractor where reasonably practicable.
- 16.1.2 Construction related traffic movements will be managed by a Construction Traffic Management Plan (CTMP) and a Construction Workers Travel Plan (CWTP).
- 16.1.3 A Traffic Management Working Group (TMWG) will be set up as a forum for stakeholder engagement prior to commencement and during the construction of the Proposed Development.

### 16.2 Construction Traffic Management Plan

- 16.2.1 An Outline CTMP (provided as **Appendix 18.3** of the ES **[TR020001/APP/5.02]**) provides the structure for the document that will set out the way in which the following will be managed to reduce the impact of the construction traffic to include the following matters:
- a. highway safety;
  - b. management of deliveries to the construction site;
  - c. practices to reduce the number of construction vehicles movements;
  - d. abnormal loads; and
  - e. protection of the public highway.
- 16.2.2 The lead contractor will prepare a detailed CTMP, substantially in accordance with the Outline CTMP, which will further describe the traffic management, safety and control measures proposed during construction of the Proposed Development.

### 16.3 Construction Workers Travel Plan

- 16.3.1 An Outline CWTP (provided as **Appendix 18.4** of the ES **[TR020001/APP/5.02]**) covers the following matters which will be addressed in the CWTP developed by the lead contractor(s) for each construction phase:
- a. the need for a travel plan co-ordinator and a description of their responsibilities;
  - b. key issues considered in the CWTP for each compound/construction site or group of sites;
  - c. anticipated workforce trip generation and how it may change during the construction process;
  - d. typical travel plan measures that the contractor could consider to reduce the impact of construction workforce on the transport network;

- e. the approach to setting target to reduce individual car journeys by the construction workforce;
- f. the approach to surveying workforce travel patterns; and
- g. for the approach to monitoring and reviewing the CWTP.

16.3.2 A detailed CWTP will be prepared by the lead contractor substantially in accordance with the Outline CWTP, with the aim of encouraging the use of sustainable modes of transport to reduce the impact of workforce travel on local residents and businesses.

## 16.4 General measures to reduce construction traffic impacts

16.4.1 Public access will be maintained, where reasonably practicable, and appropriate measures will be implemented to ensure that the local community, economy and transport networks can continue to operate effectively. Where this is not reasonably practicable, alternative measures will be identified to maintain public access, especially for pedestrians and cyclists, to routes in the vicinity of the sites. The impact of road-based construction traffic will be reduced by implementing and monitoring clear controls on vehicle types, hours of site operation, parking and routes for large goods vehicles.

16.4.2 The lead contractor will comply with the requirements of the DCO regarding the layout and positioning of site accesses.

16.4.3 Where site accesses and at-grade crossings of public roads are required for construction vehicles, the lead contractor will provide traffic management measures as required and design these measures to avoid unnecessary delay to vehicles on the public highway.

16.4.4 The lead contractor will keep roads, accesses and the like free from mud and other loose materials arising from the works, as far as reasonably practicable.

16.4.5 The design of temporary traffic management schemes will maintain an appropriate number of lanes on public roads. ~~Lane closures~~ and will in all cases be subject to the traffic regulation process established by the DCO.

16.4.6 In addition to the physical measures described above, additional mitigation measures will be developed when the construction programme is known, including:

- a. delivery scheduling;
- b. timing for out of peak deliveries;
- c. timing for out of hours deliveries;
- d. use of holding and vehicle call off areas;
- e. use of logistics and consolidation centres; and
- f. smart procurement.

## 17 WASTE AND RESOURCES

### 17.1 General provisions

17.1.1 The Applicant and the lead contractor will promote resource efficiency (covering waste minimisation and reuse, recycling, and sustainable material specification, energy and water) throughout the construction of the Proposed Development.

### 17.2 Management of waste

17.2.1 The waste hierarchy, as outlined by the Waste (England and Wales) Regulations 2011 (Ref. 51), as amended, will be used by the Applicant and the lead contractor as the overarching framework for the management of waste from construction-related activities. The application of the Waste Hierarchy aims to prevent and minimise harm to human health, the environment and local amenities.

17.2.2 The lead contractor will act to minimise the waste generated from construction activities where reasonably practicable. This will include:

- a. adherence to targets for waste recovery as defined in the SWMP which will be prepared by the lead contractor and must be substantially in accordance with the Outline Site Waste Management Plan (OSWMP) (refer to **Appendix 19.1** of the ES [TR020001/APP/5.02]);
- b. identifying further opportunities to minimise waste during detailed design activities; and
- c. measures such as careful storage of materials on site, minimisation of packaging and the use of re-usable packaging.

#### Identification and classification of waste on-site

17.2.3 The lead contractor's SWMP will identify the quantities and types of waste estimated to arise during the construction operations. The identified waste will be classified in accordance with the statutory controls governing the management of inert, non-hazardous and hazardous wastes.

17.2.4 The lead contractor will update and further refine the Outline SWMP and will implement the principles outlined in best practice guidance to minimise waste consigned to landfill.

17.2.5 The lead contractor will also use the CL:AIRE DoW CoP to reclassify excavated material (excluding the landfill excavated material) as a resource rather than a waste, where appropriate. Further information is provided in **Section 15** (Soils and geology).

#### Segregation and storage of waste

17.2.6 The lead contractor will establish a system with the aim of ensuring that waste materials are separated into appropriate waste streams to maximise their reuse, recycling and recovery on and off-site. On-site hazardous excavated material or waste will be segregated and stored away from other materials. Appropriate

storage receptacles will be used for the collection and storage of waste to facilitate the segregation of waste for re-use, recycling and recovery.

- 17.2.7 The lead contractor will select and appoint an appropriately licenced waste management company/companies to manage and transport waste in line with current waste legislation and policy, and to meet the waste recovery targets as defined in the OSWMP and SWMP.

### **Duty of care**

- 17.2.8 All waste for disposal off-site will be accompanied by appropriate legal duty of care documentation. The duty of care documentation will adhere to the relevant statutory requirements for waste transfer and hazardous wastes, in accordance with the Waste (England and Wales) Regulations 2011 (Ref. 48). The documentation will be retained by the lead contractor in line with statutory requirements.
- 17.2.9 The lead contractor will comply with all duty of care requirements to manage the potential effects of handling, storing, transporting and depositing excavated materials and demolition and construction wastes arising from the Proposed Development. The arrangements for registering the Proposed Development, consigning, handling and transporting hazardous wastes will be followed by lead contractor in line with the duty of care and the specific consignment note procedures in accordance with Hazardous Waste (England and Wales) Regulations 2005 (Ref. 52).
- 17.2.10 The lead contractor will maintain responsibility for the management of waste generated during construction. The lead contractor's employees will undergo appropriate training to undertake these responsibilities. Training will include, but not be limited to, waste management handling, storage, inspection and reporting.
- 17.2.11 The lead contractor will be responsible for ensuring that all waste material is appropriately transported by registered waste carriers and recovered, treated or disposed of at permitted or designated sites.

### **Waste monitoring**

- 17.2.12 To ensure compliance with the requirements of the CoCP and the SWMP, in addition to statutory controls, the lead contractor will conduct frequent and timely audits and inspections of waste management activities. The categorisation, quantities and disposal route of waste generated during construction operations will be identified, measured and recorded in the SWMP. This information shall be reported on a monthly basis to the Applicant.
- 17.2.13 The lead contractor will be responsible for recording all waste loads leaving the site. The record will provide a suitable audit trail for compliance purposes and will enable monitoring and reporting of waste types, quantities, management and disposal methods.
- 17.2.14 The lead contractors will adhere to waste recovery targets as defined in the SWMP.

## 17.3 Material resources

- 17.3.1 The Applicant has set project specific targets for the lead contractor for sustainable procurement including targets for recycled content in construction materials (e.g. aggregates) for use in the construction of the Proposed Development.
- 17.3.2 The lead contractor will use resources efficiently to maximise the environmental and built-environment benefits from the use of surplus resources arising during construction, and reduce the adverse environmental effects and risks associated with disposal off-site.
- 17.3.3 The Applicant and the lead contractor will also identify opportunities to achieve cut and fill balance during the construction operations of the Proposed Development.

## 17.4 Soil resources

- 17.4.1 A Materials Management Plan (MMP) will set out the detailed approach to excavated, non-landfill materials management for the Proposed Development. Further information is provided in **Section 15.2** (Soils and geology).
- 17.4.2 A SMP will set out the correct procedures for intensive soil handling operations, including topsoil stripping and storage and topsoil re-spreading and amelioration, as well as treatments for the subsoil to ensure that a suitable soil profile is produced to help enable healthy root growth and successful plant establishment within the soft landscape scheme. See **Section 7** (Agricultural land quality) and **Appendix 6.6** of the ES [TR020001/APP/5.02].

## 17.5 Energy efficiency

- 17.5.1 The lead contractor will adopt measures to reduce energy consumption and improve efficiency of energy use during construction. This includes all energy sources for transport, heating and power. The measures will draw on best practice from other construction schemes for major infrastructure projects. Where reasonably practicable, the measures will include the following:
- a. monitoring of fuel use/compressed air leaks;
  - b. driver/plant use training;
  - c. avoidance of oversizing of generators for plant and temporary buildings;
  - d. separate generators for peak time versus low time demand;
  - e. nominated individuals with responsibility for site energy management, and;
  - f. early energy grid connection to minimise use of diesel.

## 17.6 Water efficiency

- 17.6.1 The lead contractor will adopt measures to improve water efficiency during construction, for both potable and non-potable end uses. The measures will

draw on best practice from other construction schemes for major infrastructure projects. Where reasonably practicable, the measures will include the following:

- a. embedding water efficiency measures into facilities such as temporary accommodation and welfare facilities. Measures may include low flush or flush stop toilets, aerated taps and waterless urinals;
- b. implementing water meters and regularly taking readings;
- c. implementing measures to identify, minimise and prevent leakage from construction site water supply system, such as installing leakage monitoring and alert systems;
- d. adopting efficient technologies for dust suppression, such as efficient nozzle technology to create a more efficient spray pattern and/or the use of wetting additives to improve water efficiency for bowsers; and
- e. on-site messaging to raise awareness and reinforce water efficient behaviour, such as through briefings and posters, promoting water efficiency measures to reinforce behaviour.

17.6.2 The lead contractor will employ water recycling techniques across all construction sites, where practicable, e.g. rainwater harvesting, greywater reuse, vehicle washing and wheel washes.

17.6.3 The lead contractor will adopt measures that prioritise use of non-potable water sources, such as rainwater, for on-site non-potable purposes, such as but not limited to:

- a. wheel washes and dust suppression on site roads;
- b. lorry wash out;
- c. hydro-demolition with high pressure washer;
- d. construction water use;
- e. site and general cleaning (where appropriate); and
- f. specialist high pressure cleaning.

17.6.4 Non-potable and potable water supply systems will be kept separate to remove the potential for cross contamination.

17.6.5 Those processes utilising non-potable water will avoid dispersal of atomised droplets as far as reasonably practicable to remove the risk of inhalation. Activities with a high degree of splash or dispersal (e.g. dust suppression and high-pressure cleaning) will be managed by the lead contractor to prevent unwanted distribution or protection for potentially vulnerable receptors.

17.6.6 In addition, the lead contractor will undertake a water use profiling exercise in advance of undertaking all works. This will enable the lead contractor to understand the volumes and quality of the water required, identify potential water sources and align them with the key water demands.

17.6.7 As part of the water use profiling exercise, the lead contractor will liaise with Affinity Water Ltd. The volumes of water used in construction will be agreed with Affinity Water Ltd and use monitored against those agreed volumes.

- 17.6.8 The lead contractor will set water use targets and effectively monitor, record and report water consumption in respect of construction of the authorised development to the Applicant, and associated water efficiency, against these targets across construction sites. This monitoring data must be provided to Affinity Water Ltd on a quarterly basis.



## 18 WATER ENVIRONMENT

### 18.1 General provisions

- 18.1.1 The lead contractor will implement, where appropriate, measures throughout construction operations where construction-related activities will take place within or in proximity to surface water or groundwater sources. The measures will control the potential risks to the water environment, relating to water resources, water quantity and water quality. Measures will be set out in the Construction Surface Water Management Strategy documented in **Section 18.2** below.
- 18.1.2 The lead contractor will manage site activities and working methods to protect the quality of surface water and groundwater resources from effects of the Proposed Development, including changes to the hydrological regime through controls to manage the rate and volume of run-off.
- 18.1.3 Water quality monitoring systems will be employed during the construction works. In the event of the release of potentially polluting material surface water will be diverted to areas where it can be contained and either treated or tankered off site.
- 18.1.4 Good practice measures will be used (e.g. through the use of silt traps and the re-use of water in wheel washers). Where required, the lead contractor will include arrangements to obtain appropriate approval for works from the relevant regulatory body or statutory undertaker (including relevant water undertaker) which could affect any surface water or groundwater resource.

### 18.2 Surface water and groundwater management

- 18.2.1 The lead contractor will prepare a Construction Surface Water Management Strategy (CSWMS) for the management of construction operations, produced as part of their EMS. The CSWMS is to incorporate measures designed to protect the quality of surface water resources from adverse effects and avoid any changes of level or volume that could increase in the likelihood of downstream flood risk or reduce the water resources available to a water dependent receptor. The CSWMS will be completed in line with Environmental Permitting requirements.
- 18.2.2 The CSWMS will include, but is not limited to, the following:
- a. identification of water resources within the area including those identified in Section 20.7 of **Chapter 20** of the ES [TR020001/APP/5.01] (including source protection zones) which could be affected during the construction works;
  - b. identification of sources of potential pollution (identified on relevant drawings);
  - c. development of plans that reduce the risk of potentially polluting material leaving the site in an uncontrolled manner as far as reasonably practical, and is to cross reference the Pollution Incident Control Plan (refer to **Section 6.3**);

- d. compliance with the British Standard (BS) 6031:2009 Code of Practice for earthworks (Ref. 53) regarding the general control of site drainage;
- e. precautions to be taken to prevent damage to services and control pollution during service diversions, excavation ground penetration and tunnelling;
- f. precautions to be taken when working adjacent to watercourses where appropriate, to manage flood risk and the potential for deposition of silt or release of other forms of suspended material or pollution within the water column; and
- g. consideration of good practice guidance, including (but not limited to):
  - i. The Design Manual for Roads and Bridges LA113: Road drainage and the water environment (Ref. 54);
  - ii. The SuDS Manual (C753) (Ref. 55);
  - iii. Control of water pollution from construction sites: Guidance for consultants and contractors (C532) (Ref. 56); and
  - iv. The Environment Agency's PPGs <sup>11</sup>:
    - i. PPG1: General Guide to Prevention of Pollution (Ref. 57); and
    - ii. PPG5: Works and maintenance in or near water (Ref. 58).

18.2.3 In relation to groundwater, where reasonably practicable, all works within the saturated zone should be avoided. Where works cannot be avoided measures will be introduced to protect water quality, level and volume, in accordance with the measures outlined in the **Section 15.4** (Soils and geology).

18.2.4 The lead contractor will adhere to site good practice and the Environment Agency's Groundwater protection guides (previously GP3) (Ref. 59).

18.2.5 Refer to **Section 15** (Soils and geology) for a further description of management measures identified in relation to groundwater resources and contamination.

### Site surface water drainage systems

18.2.6 The lead contractor will implement temporary construction surface water drainage systems, which will be described within the CSWMS, to manage the potential surface water impacts arising from construction operations. The temporary construction site drainage measures will be completed before the commencement of the relevant earthwork operations and will be retained until the drainage system of the relevant part of the Proposed Development is fully operational, or site restoration works are completed.

18.2.7 The temporary construction site surface water drainage systems will include the provision of adequately sized attenuation and treatment facilities, where appropriate. The sizing of attenuation will take account of areas of existing flood

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<sup>11</sup> It is recognised that the Environment Agency archived the PPGs in 2015 and now references the guidance available on the Gov.uk website. However, the view of the Future LuToN project team is that the PPGs still provide useful environmental good practice guidance that should be referenced in the CoCP. Where current guidance contradicts guidance within the PPG's, current guidance should be adhered to.

risk and the relevant permitting requirements of the Environment Agency and/or the Lead Local Flood Authority.

- 18.2.8 The temporary construction site surface water drainage systems will take into consideration best practice guidance for site surface water drainage systems such as Defra's non-statutory technical standards for sustainable drainage systems (with due regard to the short lifetime and limited accessibility of the systems).
- 18.2.9 The management of surface water across the construction site will take account of existing surface water catchments and existing receptor of surface water will be retained wherever practicable.
- 18.2.10 Measures in the vicinity of the existing landfill will ensure surface water is not able to infiltrate through to the landfill material as this may lead to the migration of contaminants from the landfill into the wider aquifer. Therefore, surface water from the landfill area will be collected and conveyed to other areas and allowed to infiltrate at locations understood to be free of ground contamination.
- 18.2.11 A treatment train of measures will be implemented across the site to treat potentially polluting matter contained within surface water run-off. This will include measures to manage sediments (see below for further detail), hydrocarbons (generated by fuel oils), cement and other alkali-based construction materials and heavy metals.
- 18.2.12 The quality and quantity of surface water generated across construction areas will be monitored (refer to **Section 18.9**).

### **Sediment control**

- 18.2.13 The lead contractor will specify measures (within the CSWMS) to limit and manage sediment erosion, control sediment mobilisation and entrainment and manage sediment transport and deposition. This will include, but is not limited to, the following measures, as appropriate:
- a. minimisation of areas of exposed ground and stockpiles, as far as reasonably practicable, to reduce silty run-off;
  - b. adoption of geotextiles, where necessary, to shield stockpiles, and stockpiles left for more than three months will be seeded;
  - c. installation of cut-off ditches around excavations, exposed ground and stockpiles to prevent sediment release;
  - d. control of earth movement to reduce the risk of the contamination of silt and site run-off;
  - e. control of mud at site entry and exit points using wheel-cleaning areas and road sweeps, as appropriate;
  - f. washing and cleaning of plant, equipment and machinery in designated areas within the construction site where run-off is isolated for treatment prior to discharge;
  - g. installation of restriction and barriers, such as straw bale traps and gravel, for works adjacent to watercourses/water bodies, to prevent

damage to riparian vegetation, refer to **Section 9** (Biodiversity), and manage the pathway for untreated silt-laden run-off to enter the watercourse, as appropriate; and

- h. adequate provision for the removal and treatment of sediment from site run-off, such as in settlement tanks/ponds.

### 18.3 Pollution Prevention and Control

18.3.1 The lead contractor will consult with the relevant regulatory bodies on the measures to be implemented to contain and manage surface water run-off from construction operations, as appropriate. The lead contractor will obtain the necessary consents for work likely to affect the quality or quantity of any surface or groundwater resource.

18.3.2 The measures will aim to prevent deterioration of the water environment and other adverse impacts. Measures will include, but are not limited to, the following, as appropriate:

- a. identification of the response procedures to be implemented in the event of works affecting groundwater levels or quality with subsequent adverse effects on abstractions, watercourses, water bodies or springs;
- b. procedures for managing construction operations in areas of potentially contaminated land;
- c. procedures for managing intercepted groundwater that contains elevated concentrations of contaminants;
- d. procedures to limit adverse dust and air pollution effects associated with construction operations (refer to **Section 8**);
- e. compliance with the BS 6031 Code of practice for earthworks (Ref. 60), regarding the general control of site drainage;
- f. adoption of oil interceptors at the site office/ works compound, as appropriate;
- g. adoption of pollution shut-off valves in compounds with formal drainage; and
- h. adoption of bunds of non-erodible material or silt or sediment fences adjacent to watercourses.

18.3.3 The following Environment Agency guidance would also be followed during construction to ensure a good practice approach to managing potential impacts on surface water and groundwater quality:

- a. Prevention of pollution for businesses (Ref. 61);
- b. Reporting an environmental incident (Ref. 62);
- c. Getting permission to discharge to surface or groundwater (Ref. 63);
- d. Storage of oil (Ref. 64);
- e. Oil storage regulations (Ref. 65);
- f. Discharging sewage with no mains drainage (Ref. 66);

- g. Works on or near water (Ref. 67); and
- h. Manage water on land (Ref. 68).

18.3.4 Refer to **Section 15** (Soils and geology) for further description of management measures identified in relation to groundwater resources and contamination.

18.3.5 The lead contractor will adhere to a range of measures to control and manage pollution, chemicals and oils which are to be documented within the Pollution Incident Control Plan (refer to **Section 6.3**) and CSWMS. This will include, but is not limited to, the following:

- a. adherence to the Control of Pollution (Oil Storage) (England) Regulations 2001 (Ref. 69), as amended, and the Environment Agency's guidance on storage of oil (Ref. [6464](#), Ref. [6565](#)) to manage the storage of any oil-based materials, including petrol, diesel, waste and vegetable and plant oil, and above-ground fuel and oil storage tanks;
- b. adherence to PPG27 (Ref. 70): Installation, decommissioning and removal of underground storage tanks where below-ground oil storage is proposed;
- c. compliance with PPG26 (Ref. 71): Drums and intermediate bulk containers in relation to chemical storage, handling and use;
- d. consultation with the relevant regulatory bodies regarding specific requirements in relation to establishing and operating concrete batching plants on site;
- e. identification of emergency procedures to be put in place in the event of any pollution incidents specified in a pollution incident response plan to be prepared in line with Environment Agency guidance;
- f. use of stationary plant with secondary containment measures such as plant nappies and bunding to retain any leakage of oil or fuel, which will be emptied or replaced at regular intervals to prevent overflow;
- g. storage of spillage kits at key locations on site and at specific refuelling areas;
- h. training of staff to use spillage kits and record all spillage incidents; and
- i. the lead contractor will inform the Applicant of any spills which cause land contamination or pollution off-site.

18.3.6 Refer to **Section 15** (Soils and geology) for further description of management measures identified in relation to groundwater resources and contamination.

## 18.4 Control and management of foul water

18.4.1 The lead contractor will manage and dispose of foul water and sewage effluents from site facilities. The lead contractor will require approval from the statutory water undertaker for any foul drainage discharged to a public sewer. Where a foul sewer is not present or discharge to the foul sewer is not considered

appropriate, the lead contractor will need to adopt provisions to dispose of the liquid from site, such as via a tanker.

18.4.2 The lead contractor will adhere to the following measures, as appropriate, which are to be outlined in the CSWMS:

- a. provision of temporary foul drainage facilities to contain foul water;
- b. disposal of foul water off-site by a licensed contractor;
- c. compliance with relevant guidance, such as PPG4 (Ref. 72): Treatment and disposal of sewage, and the Environment Agency's Groundwater protection guides (previously GP3) (Ref. 73);
- d. connection to the local foul sewer system as agreed with the relevant statutory undertaker, where appropriate; and
- e. where a foul sewer is not present or discharge to the foul sewer is not considered appropriate, appropriate treatment and discharge to a watercourse or soakaway with approval from the Environment Agency, where required.

18.4.3 Records of existing foul water assets including pipe network and other facilities will be obtained. Their location will be taken into account during all construction activities.

## 18.5 Private water supplies

18.5.1 A risk assessment will be undertaken by the lead contractor for works with the potential to impact any identified private water supplies (any water supply and associated physical assets not provided by a water company where the water is consumed for domestic purposes or as part of a public or commercial activity). Refer to **Section 15** (Soils and geology) for a further description of management measures identified in relation to groundwater resources and contamination.

18.5.2 Records of existing water supply assets including pipe network and other facilities will be obtained. Their location will be taken into account during all construction activities.

18.5.3 Any water supply pipes damaged during construction operations will be repaired or replaced as quickly as is reasonably practicable. The repair of any such damage caused by utility companies working on behalf of the Applicant will be the responsibility of that utility company. Until water supplies are reinstated and tested, drinking water will be provided by bottle and/or tanker as a temporary measure as appropriate to affected parties. Provision of an interim water supply will also apply where supplies to livestock are temporarily interrupted.

## 18.6 Excavations and dewatering

18.6.1 Where appropriate, the lead contractor will undertake risk assessments for excavation work and dewatering impacts on surface water, groundwater and abstractions.

18.6.2 Refer to **Section 15** (Soils and geology) for further description of management measures identified in relation to groundwater resources and contamination.

## 18.7 Flood risk

18.7.1 The lead contractor will undertake all works associated with construction operations whilst being mindful of impacts to flood risk. A number of measures will be implemented to reduce significant impacts to flood risk. This will include, but is not limited to, the following, as appropriate:

- a. removal of obstacles and debris from surface water run-off pathways;
- b. development of a plan to identify suitable access and refuges in the event of severe weather events;
- c. consultation between the lead contractor and the Environment Agency and Lead Local Flood Authority, as appropriate;
- d. awareness of relevant regulatory bodies flood risk management plans during consultation as a reference for the development of specific construction site flood mitigation plans; and
- e. use of the Environment Agency's Floodline to provide a flood risk warning in flood risk areas within the Proposed Development.

18.7.2 Flood risk plans will be developed for the construction operations and will account for a broad range of topics including all construction areas located within Flood Zone 2 and 3, areas vulnerable to surface water and groundwater flooding, and other flood risk sources such as sewer flooding and reservoir flooding.

18.7.3 The lead contractor will ensure the effective planning of sites and the storing of materials in all flood risk plans. For all temporary and permanent works, a risk based precautionary approach will be adopted and specified in a risk assessment to be included in the CSWMS.

18.7.4 The lead contractor will develop construction proposals to ensure that all flood risks are managed appropriately. Where appropriate, this will include the provision of evidence that appropriate flood warning and emergency management measures are accounted for, particularly focusing on long-term maintenance and management. Where achievable, the lead contractor should ensure that stockpiles, accommodation, temporary facilities, machinery and plant are not located within Flood Zone 3 areas or areas at significant risk of flooding from other sources.

18.7.5 The lead contractor will be required to submit a report on flood risk to the Applicant. The report will summarise any applications that apply for environmental flood risk permits and the status of the works, in addition to any flood risk management or mitigation measures to support temporary or permanent works proposals. The report should include a statement of the cumulative flood risk impacts of the temporary and permanent works. The lead contractor will be responsible for preparing and submitting any such applications as may be required to relevant bodies.

18.7.6 Rainwater reuse strategies will be applied to supply water for activities where potable standard of water is not required.

## 18.8 Monitoring

18.8.1 Surface water and groundwater monitoring plans will be prepared and implemented as part of the lead contractor's EMS. The monitoring plans will be included within the CSWMS.

18.8.2 As part of the permitting process, the lead contractor will consult the Environment Agency and local relevant water and sewerage providers undertakers regarding water quality, flow and level monitoring to be undertaken for watercourses and groundwater that will be affected by construction works or the discharge of surface water run-off, which will include the following, as appropriate:

- a. pre-construction monitoring to establish baseline water quality conditions for watercourses and groundwater;
- b. monitoring during construction works to enable the effectiveness of mitigation measures to limit pollution risk to be monitored and any pollution incidents to be identified; and
- c. monitoring of watercourses or groundwater receiving surface water run-off during construction to enable the effectiveness of treatment and other sustainable drainage systems measures to be determined and to ensure that an unacceptable rise in groundwater levels does not occur.

18.8.3 The lead contractor will carry out appropriate monitoring to identify:

- a. pollution risks that are unacceptably high;
- b. spillages and leakages;
- c. potential non-compliance with the CoCP; and
- d. suspected pollution incidences.

18.8.4 Appropriate actions will be taken where pollution risks are unacceptably high, where there is non-compliance with the CoCP, where spillages and leakages are unacceptable or where there are any suspected pollution incidents.

18.8.5 The lead contractor will implement appropriate inspection and monitoring procedures. The contractors will also consult with the relevant regulatory body and Affinity Water Ltd regarding the Pollution Incident Control Plan (refer to **Section 6.3**) which will set out the measures to be implemented to address any adverse findings from the monitoring procedures. Refer to **Section 15** (Soils and geology) for further description of management measures identified in relation to groundwater resources and contamination.



## GLOSSARY AND ABBREVIATIONS

Term	Definition
BPM	Best practicable means
BS	British Standard
BSI	British Standards Institution
CCS	Considerate Constructors Scheme
CCTV	Closed-circuit television
CEP	Community Engagement Plan
CIE	The International Commission on Illumination
CIRIA	Construction Industry Research and Information Association's
CoCP	Code of Construction Practice
Considerate Constructors Scheme	The Considerate Constructors Scheme is a not-for-profit, independent organisation founded to raise standards in the construction industry. The Code of Considerate Practice commits construction sites, companies, and suppliers registered with the Scheme to care about appearance, respect the community, protect the environment, care about safety and value their workforce. <a href="https://www.ccscheme.org.uk/">https://www.ccscheme.org.uk/</a>
CO <sub>2</sub>	Carbon Dioxide
CSWMS	Construction Surface Water Management Strategy
CTMP	Construction Traffic Management Plan
CWS	County Wildlife Sites
CWTP	Construction Workers Travel Plan
DCO	Development Consent Order
Defra	Department for Environment, Food and Rural Affairs
DoW CoP	CL:AIRE: Definition of Waste Code of Practice
DMRB	Design Manual for Roads and Bridges
DWS	District Wildlife Sites
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EMS	Environmental Management System
ETS	Employment and Training Strategy
Flood Zone 2	Flood Zone 2: Medium probability Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or. Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.

Term	Definition
Flood Zone 3	Flood Zone 3: High probability Land having between a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.
FMMP	Framework Materials Management Plan
GHG	Greenhouse Gases
HGV	Heavy goods vehicle
Highway Interventions	Junction and road improvement works included in the Proposed Development for which consent is being sought as part of the Application for development consent
IAQM	Institute of Air Quality Management
Lead contractor	A lead contractor appointed by the Applicant responsible for the planning, managing and co-ordination of the construction works (and shall also include any sub-contractors appointed by the lead contractor to carry out any part of the main construction works)
Outline LBMP	Outline Landscape and Biodiversity Management Plan
LLAOL	London Luton Airport Operations Limited, the current operator of London Luton Airport
LBC	Luton Borough Council
the airport	London Luton Airport
LWS	Local Wildlife Sites
Ministry of Agriculture, Fisheries and Food Good Practice Guide for Handling Soils	MAFF Good Practice Guide for Handling Soils
Major accident	In the context of this assessment, means an uncontrolled event caused by a man-made activity or asset that may result in immediate or delayed serious damage to human health, welfare and/or environment and requires the use of resources beyond those of the Applicant or its contractors to manage. It should be noted that malicious intent is not accidental.
MMP	Materials Management Plan
<u>mm/s</u>	<u>Millimetres per second</u>
Off-site Car Parks	The two locations to the south west of the airport, outside of the airport boundary, where car parking is included in the Proposed Development.
OS	Ordnance Survey
PM10	Particulate Matter 10

Term	Definition
PPG	Pollution Prevention Guideline These Environment Agency documents have been withdrawn, but still constitute relevant advice on good practice. Where stated, they should be referred to in the absence of alternative guidance documents.
PPE	Personal Protective Equipment
PPV	Peak particle velocity
Proposed Development	All works for which consent is being sought as part of the application for development consent, including works at the Main Application Site; Off-site Car Parks and Off-site Highway Interventions.
PRoW	Public <del>r</del> ights of <del>w</del> ay
Qualified Person	A qualified person (QP) is someone independent of the project who is registered as a QP with CL:AIRE and therefore has the status for DoW CoP project Declaration sign-off. They must have the necessary attributes as defined in the DoW CoP including being suitably qualified and experienced to be able to carry out the review of the specified documents which support the proposed use of materials at a specified site. Their role is to ensure that best practice is consistently and demonstrably applied and be confident in signing the Declaration which serves as a notification to the Environment Agency that a site is to be developed using the CoP.
<u>Relevant Sewerage Undertaker</u>	<u>Refers to Thames Water Utilities Limited (company number 02366623, whose registered office is at Clearwater Court, Vastern Road, Reading, Berkshire, RG1 8DB) and any successor to it as a sewerage undertaker within the meaning of Part 1 of the Water Industry Act 1991</u>
<u>Relevant Water Undertaker</u>	<u>Refers to Affinity Water Limited (company number 02546950, whose registered office is at Tamblin Way, Hatfield, Hertfordshire, AL10 9EZ) and Thames Water Utilities Limited (company number 02366623, whose registered office is at Clearwater Court, Vastern Road, Reading, Berkshire, RG1 8DB) and any successor to them as a water undertaker within the meaning of the Water Industry Act 1991.</u>
<u>RPA</u>	<u>Root Protection Areas</u>
Site	All land within the Order Limits (refer to the definition of the Application Site in <b>Chapter 2</b> of the ES [TR020001/APP/5.01])
SMP	Soil Management Plan
SuDS	Sustainable Drainage System
SWMP	Site Waste Management Plan
CSWMS	Construction Surface Water Management Strategy
TMWG	Traffic Management Working Group
UKWAS	United Kingdom Woodland Assurance Standard
UXO	Unexploded ordnance



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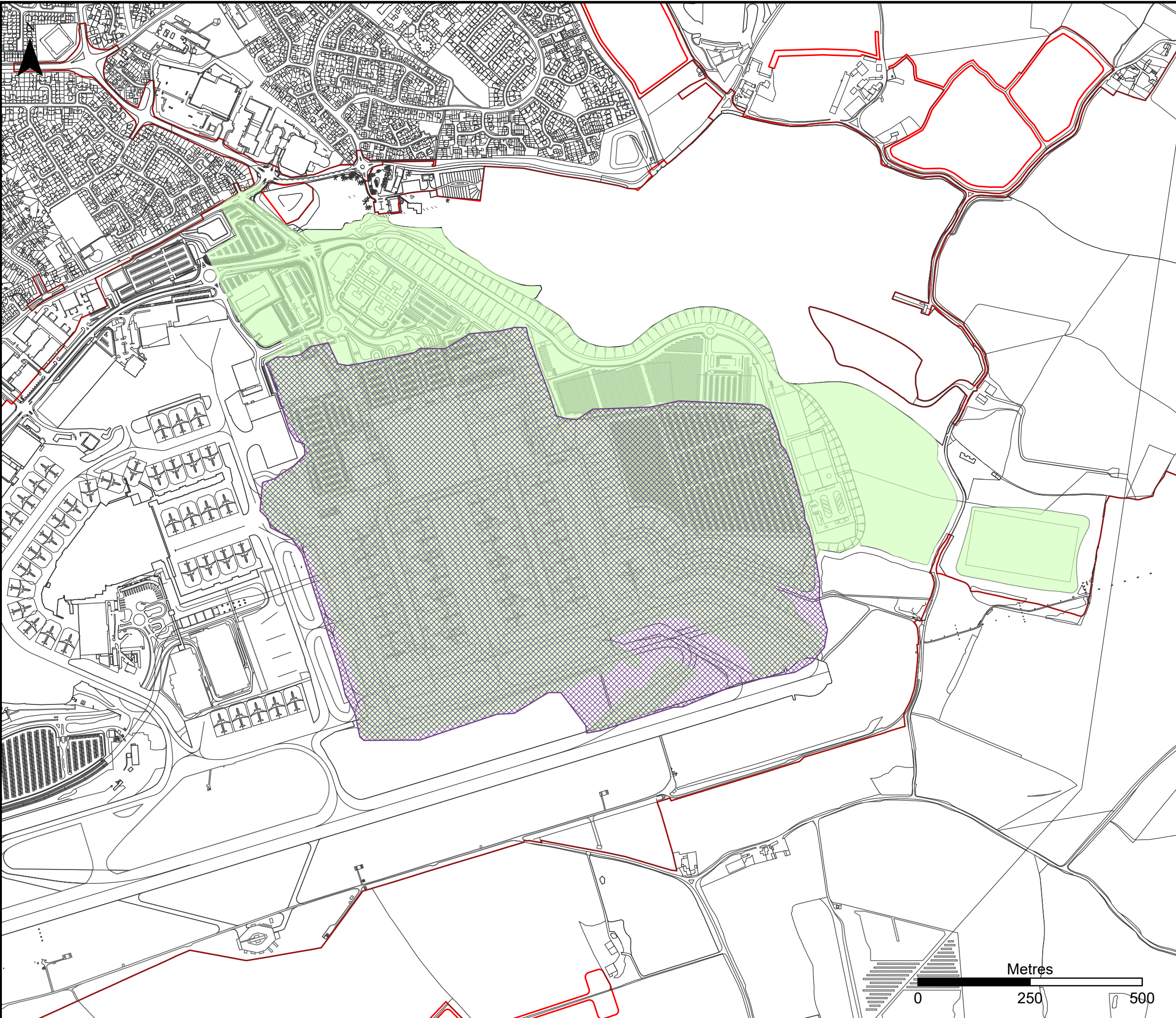
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## APPENDIX A





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 All structure positions are indicative. The proposed works will be subject to detailed design development. The changes will be within limits of deviation specified in the Development Consent Order.

- Legend**
- Order Limits
  - Assessment Phase 2b Scheme Layout
  - Indicative Earthworks
  - Night-time working boundary

Additional submissions Deadline 4	AB	RB	CS	01/11/23	P01
Revision History	Drawn	Checked	Approved	Date	Rev.

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**London Luton Airport Expansion  
 Development Consent Order**

Drawing Title  
**Night-Time Working Boundary – Earthworks**

Purpose of issue				Suitability	
Additional submissions Deadline 4				S2	
Drawn	Checked	Approved	Date	Scale	Size
AB	RB	CS	01/11/23	1:8,000	A3

DCO Application Ref.	APFP Regulation	DCO Document Ref.
TR020001	N/A	TR020001/APP/5.02

Drawing Number	Revision
LLADCO-3C-ARP-00-00-DR-YE-0535	P01

Project - Phase - Originator - Asset/Zone - Sub Asset - Type- Discp. - Number

