Easterly Alternation Infrastructure Project

Construction Environmental Management Plan (CEMP)

Heathrow

This document has been prepared on behalf of Heathrow Airport Ltd by;

VolkerFitzpatrick Ltd / VolkerWessels UK Ltd
Hertford Road,
Hoddesdon,
Hertfordshire
EN11 9BX
United Kingdom

Tel 01992 305000

It is intended to be submitted to the London Borough of Hillingdon as a supporting document for the Easterly Alternation Infrastructure project.

CONTENTS

Abbreviations

Abbreviation	Definition
ACoW	Arboricultural Clerk of Works
AGL	Airfield Ground Lighting
AMS	Arboricultural Method Statement
AQMA	Air Quality Management Area
CAVAT	Capital Asset Value for Amenity Trees
CCS	Considerate Constructors Scheme
CCTV	Closed-Circuit Television
CDM	Construction (Design and Management)
CE	Circular Economy
CES	Circular Economy Statement
CEZ	Construction Exclusion Zone
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CLO	Community Liaison Officer
CLP	Community Liaison Plan
CRoW	The Countryside and Rights of Way Act 2000
CTMP	Construction Traffic Management Plan
EA	Environment Agency
ECI	Early Contractor Involvement
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
EPA	Environmental Protection Act 1990
FRA	Flood Risk Assessment
GCN	Great Crested Newt
GHG	Greenhouse Gas
GLA	Greater London Authority
GLAAS	Greater London Archaeology Advisory Service
HGV	Heavy Goods Vehicle
HRA	Habitats Regulations Assessment
HSE	Health and Safety Executive
HSEQ	Health, Safety, Environmental and Quality
HSMP	Health and Safety Management Plan
HWCN	Hazardous Waste Consignment Note
IEMA	Institute of Environmental Management and Assessment
KPI	Key Performance Indicator

Abbreviation	Definition
LAeq	Equivalent Continuous Sound Pressure Level
LBH	London Borough of Hillingdon
LOAEL	Lowest Observed Adverse Effect Level
LSE	Likely Significant Effect
MAGIC	Multi Agency Geographic Information for the Countryside
MEWP	Mobile Elevated Working Platform
MMP	Materials Management Plan
NERC	Natural Environment and Rural Communities Act 2006
NRMM	Non-Road Mobile Machinery
OCEMP	Outline Construction Environmental Management Plan
PALS	Plan, Attitude, Lead, Share (Behavioural Based Safety Programme)
PEA	Preliminary Ecological Appraisal
PEP	Project Environmental Procedure
PM10	Particulate Matter with a diameter of 2.5 microns or less
PM2.5	Particulate Matter with a diameter of 10 microns or less
PPE	Personal Protective Equipment
PPG	Pollution Prevention Guidelines
PQC	Pavement Quality Concrete
PRoW	Public Right of Way
QMP	Quality Management Plan
RAMS	Risk Assessments and Method Statements
RCC	Roller Compacted Concrete
RPA	Root Protection Area
SAC	Special Area of Conservation
SME	Small and Medium Sized Enterprises
SMP	Site Management Plan
SOAEL	Significant Observed Adverse Effect Level
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SWMP	Site Waste Management Plan
TBT	Toolbox Talk
TCPA	Town and Country Planning Act
TM	Traffic Management
TRPP	Tree Removal and Protection Plan
WCA	The Wildlife and Countryside Act 1981 (as amended)
WTN	Waste Transfer Note
ZoI	Zone of Influence

1. Executive Summary

1.1.1 This Construction Environment Management Plan (CEMP) has been prepared by VolkerFitzpatrick Ltd (VFL) on behalf of Heathrow Airport Limited ("Heathrow").

1.1.2 It will be used to support an application for planning consent for development of infrastructure that will facilitate full runway alternation when Heathrow Airport ("the Airport") is operating in an easterly direction ("the Proposed Development").

1.1.3 It provides a description of the works proposed in the construction phase, highlights the mitigation commitments and the required monitoring and management of specific environmental effects where required.

1.1.4 The principal features of the works comprise;

- Provision of an enhanced noise mitigation barrier for the nearby village of Longford
- Re-configuring the airfield pavements and supporting infrastructure at the western end of Heathrow Airport Runway 09L.

1.1.5 The CEMP will be reviewed and updated on a regular basis throughout the pre-construction period as the detailed design is developed and any environmental or construction measures are identified for the project.

2. Overview

2.1.1 Other supporting documents include;

A Circular Economy Statement (CES)

2.1.2 The London Plan Guidance document on Circular Economy Statements (CES) sets out the information that needs to be submitted in support of the CEMP and includes the CES statement template spreadsheet.

A Site Management Plan (SMP)

2.1.3 This document will be developed by the Principal Contractor and will be consistent with the provisions of this CEMP outlining the key policies, procedures and management controls through which the project will be managed and provide more detail on the following;

- Construction Phase Health and Safety Plan
- Environmental Plan (a key reference for the CEMP)
- Quality Plan

2.2 Site Location and Context

2.2.1 Heathrow Airport is located approximately fifteen miles west of Central London and lies within the administrative boundary of London Borough of Hillingdon (LBH). The Airport also borders the London Borough of Hounslow and Borough of Spelthorne. The Airport is situated on approximately 1,227 hectares (ha) of land and operates two parallel runways (Northern Runway 09L/27R and Southern Runway 09R/27L) with four operational terminals (Terminal 2 Terminal 3, Terminal 4, and Terminal 5).

2.2.2 The Airport is broadly bounded to the north by the A4, to the west by the A3044, to the east by the A30 and to the south by the Duke of Northumberland's River, as well as smaller connecting roads. Approximately 600m from the western perimeter of Heathrow lies the M25, with a direct link to Terminal 5 (T5) and the perimeter road from Junction 14a. The M4 provides an additional direct link to the Airport's central terminal area and the perimeter road from Junction 4 via a 'spur'.

2.2.3 The Site location plans are shown on the drawings in Appendix A.

2.2.4 The land on the Airport is largely comprised of hardstanding in the form of runways, terminal buildings, taxiways, aprons, and auxiliary buildings, as well as 'airfield' grassland that is heavily managed to avoid attracting birds and other wildlife.

2.2.5 The proposed location of the noise barrier primarily comprises of semi-improved neutral grassland, semi-natural woodland, scrub, and semi-mature tree-lines, with small areas of amenity grassland. The Duke of Northumberland River flows from east to west, transitioning through various stages of channelisation along its route.

2.3 Description of the Proposed Development

2.3.1 The Cranford Agreement, which restricted the use of the northern runway for departures in an easterly direction, ended in January 2009 after public consultation.

2.3.2 Heathrow has not yet implemented runway alternation during easterly operations, because ground-based infrastructure (such as new taxiways and hold areas) is required to allow regular and scheduled departures on the northern runway in an easterly direction.

2.3.3 Heathrow is seeking planning permission for development of such infrastructure.

2.3.4 The proposed scope or works provides for enabling works to allow implementation of full runway alternation during easterly operations at Heathrow Airport including the creation of a new 'hold area' at the western end of the northern runway, the construction of new access and exit taxiways, the construction of an acoustic noise barrier to the south of Longford Village and temporary construction compounds.

2.3.5 The Proposed Development includes a relatively small area for construction works which is restricted to areas within the operational airfield to facilitate changes to taxiways and a small area for the construction of a noise barrier at the north-western end of the northern runway as shown in Figure 2.2.

2.3.6 The works (referred to as "Easterly Alternation Infrastructure") are proposed to comprise the construction of the following components:

- Taxiways and links to comprise hold areas at the western end of Runway 09L.
- New Runway Access Taxiways (RATs) on Runway 09L.
- Other associated airfield works, e.g. new connector taxiways or crossing points.

- Areas of additional pavement developed to enable aircraft to access and exit the runways.
- Changes to layout of aircraft stands (501 – 505) to the north of Terminal 5.

2.3.7 The need for an acoustic barrier to the south of the village of Longford is deemed to be required and has arisen following the results of ground noise modelling, landscape and visual assessment and stakeholder engagement. The approximate extent of the potential acoustic barrier is illustrated in Figure 2.2.

2.3.8 Accordingly, the construction of the acoustic barrier has also been included within the scope for the Circular Economy Statement (CES).

2.3.9 In addition to the infrastructure proposed above, to mitigate certain environmental impacts of the works the Applicant will need to break out existing areas of redundant pavement on the existing airfield.

2.3.10 This is to restrict, as far as possible, any significant net increase in the proportion of paved areas across the Airport which could lead to increased run-off and flood volumes and require upgrading the airfield stormwater drainage facility.

2.3.11 The operational changes enabled by these works would distribute noise more equitably around the Airport, providing greater predictability and extending the benefits of runway alternation to communities under the flight paths during easterly operations. Periods of relief would be provided for all affected communities but the communities living west of the northern runway and east of the southern runway would experience respite from what has for decades been continuous overflying on easterly operations.

3. Site Management Plan

3.1 Overview

3.1.1 VolkerFitzpatrick operate a number of policies and procedures that underpin their commitment and approach to effective management of all aspects of Health & Safety, Environmental and Quality performance before, during and after the construction phase of projects.

3.1.2 Central to our control of all project activities is a project Site Management Plan (SMP) through which the works are planned, documented and managed, ensuring the obligations under the CDM 2015 Regulations are met. It underpins key policies and includes sections comprising the following specific Health, Safety, Environmental and Quality (HSEQ) controls, including:

- Health and Safety Management Plan
- Environmental Management Plan
- Quality Management Plan

(The SMP is a separate document developed at the time of project implementation and supports the CEMP. A partial Draft document including the Environmental Management Section only has been included at Appendix B as supporting information to the CEMP.)

3.1.3 Its success is built on ensuring that a high level of control and planning is brought to all works undertaken by the company. It enables support in providing Client organizations such as Heathrow Airport and interfacing statutory authorities' delivery of predictable outcomes that are necessary for ensuring provision of excellent standards of health and safety, environmental and quality control to all their projects. This provides all parties with confidence that project delivery plans are robust, workable and will deliver the right outcomes.

3.1.4 Through our project planning procedures, we ensure that the right levels of resources are made available to support the project delivery phase, appropriate to the numbers or people we are putting to work in safety and logistical critical operations for Heathrow Airport.

3.1.5 Our Environment, Health & Safety, and CDM objectives for the Heathrow project are to:

- Clearly define how we will manage risks to deliver high standards of Health, Safety and Environmental Standards that meet or exceed Heathrow's expectations
- Implement a robust site management with effective processes and procedures that support all site activities.

- Provide our workforce and other stakeholders with the necessary controls for ensuring a safe and healthy environment in which to work.
- Deliver high standards of Environmental protection and awareness.
- Support behavioural aspirations for an Incident and Injury Free project and an onsite ethos of 'right first time'.
- Establish performance measures to continually monitor and improve our plan's effectiveness.

3.2 Management Standards and Site Management Planning for Health, Safety, Environment and Quality (HSEQ).

3.2.1 VolkerFitzpatrick (VFL) operate under BSI accredited HSEQ management systems, incorporating our policies and procedures that underpin our approach to project management, ensuring a safe, high quality and defect free delivery in accordance with client aspirations, specification requirements and current legislation.

3.2.2 Our approach incorporates best industry practice and takes account of innovation and lessons learned from the delivery of other projects as well as reflecting innovation and best industry practice.

3.2.3 We implement proven quality processes, tools and techniques to assure project outcomes of the highest possible quality.

3.2.4 We drive improvements in working procedures to deliver a 'Right First Time' and defect-free product, whilst ensuring the highest standards of environmental awareness and health & safety for our workforce and others who interface with our works.

3.3 Accreditation

3.3.1 VolkerFitzpatrick routinely undertake the statutory appointment role as Principal Contractor and are Accredited to the following ISO standards and these are supported by our company policy statements;

- ISO 45001: 2018 / Health and Safety Policy
- ISO 14001:2015 / Environmental Policy
- ISO 9001: 2015 / Quality Policy

3.3.2 (Registration certificates and policy statements are provided as appendices in the Draft SMP)

3.3.3 The Site Management Plan (SMP) and through this the 'Health and Safety Plan', Environmental Plan and 'Quality Plan' underpins key organization policy objectives. Respectively, these define project roles and responsibilities and the processes used to assure ours and our clients standards for project delivery.

3.3.4 The Draft SMP document (at Appendix B) is a framework plan document and is normally instigated following a Client instruction to proceed with a project / contract award. It will be developed closer to implementation and thereafter is maintained 'live' by the project delivery team throughout the duration of our works on the project, updated as required whilst the works proceed until fully closed out.

3.3.5 Our site teams are supported by specialist visiting managers/advisors. These advisors attend sites regularly to inspect on-going site works and paperwork in place to ensure that VFL policies are being adhered to. They also provide guidance on new best-practices and areas for improvement so that all VFL sites can sustain a high level of performance.

3.3.6 The members of the supporting HSEQ teams work across the business, which allows them to collate best working practices and procedures. New procedures are then shared through updates and alerts, to allow other sites to implement these improved practices. This shared resource ensures that VFL are at the forefront of industry and continual improvement.

3.4 CDM 2015

3.4.1 We manage our CDM 2015 regulation requirements through the use of the company's Site Management Plan (it is developed as a construction phase plan). This document is prepared to ensure VFL project sites meet and manage activities in accordance with the CDM regulations in our appointed role as Principal Contractor.

3.5 Draft Site Management Plan for the Easterly Alternation Infrastructure project

3.5.1 A partial draft document for the Easterly Alternation Infrastructure project has been prepared in line with Heathrow Airport's requirements for a current project and this will be used as supporting information for the CEMP. A copy has been provided as Appendix B.

3.6 Environmental Management Commitments

3.6.1 Our approach to environmental management is to meet the objectives on the Heathrow Easterly Alternation Infrastructure project and address the specific risks associated with the works and ensure we incorporate learning from our extensive experience of both civil and airport projects. Specifically, we are committed to:

- Implementing our Environmental Management System (EMS) throughout all project activities
- Complying with relevant environmental legislation, and applying the Considerate Constructors Scheme

- Establishing project environmental targets that support the effective management of issues identified through environmental appraisal.
- Wherever possible, influencing phasing or site decision-making through solutions that reduce environmental impact.
- Considering the circular economy drivers, sustainability and recycling during materials selection and management, wherever we have an influence.
- Mitigating adverse environmental impacts such as noise, dust, odour, waste, preparedness for emergency situations, and addressing local community and stakeholder concerns
- Working with Heathrow Airport, our suppliers and subcontractors to improve overall project environmental performance.
- Providing appropriate environmental information and guidance to the project team.

3.6.2 We will plan to execute and handover the works with zero environmental incidents by following our procedures, recognising good practice, complying with our policy standards and the requirements of BS 14001.

3.7 *Environmental Management Plan and associated Site Waste Management Plan (SWMP)*

3.7.1 Our site-specific Environmental Management Plan and associated Site Waste Management Plan (SWMP) (both being part of the Site Management Plan) are separate documents from the CEMP. They are based on an established framework structure and will be developed at the time of project implementation. They will allocate responsibilities and actions to the project team to ensure that all matters are addressed. These documents will be consistent with the provisions of this CEMP and submitted to the Heathrow Airport Ltd in sufficient time to allow review and approval prior to the works commencing.

3.7.2 The plans will detail how we will implement our environmental management mitigation and controls, keep records of environmental briefings and awareness training to the workforce, monitoring programmes, construction activities, incident reporting and emergency response.

3.7.3 Our Project Team will be supported by our Environmental Manager in the development of the Environmental Management Plan and early adoption ensures its timely implementation through appropriate allocation of responsibilities across the project team.

3.7.4 At the commencement of the project, we hold an Environmental Planning Meeting from which our Environmental Risk Assessment is developed to identify significant project environmental impacts and any mitigating actions that are required to be taken. In this way, our project teams can ensure that significant

environmental risks are suitably controlled. Our workforce will be briefed on environmental risks together with proposed mitigation measures.

3.7.5 In order to protect specific environmentally sensitive areas on site or adjacent to the site (e.g. waterways & local sensitive habitats) we will use an Environmental permit to work system when required.

3.7.6 We recognise that waste management and storage / handling of fuels are high risk activities and will be managed with the utmost importance and in accordance with applicable legislative and regulatory requirements.

3.8 Key Responsibilities

- Our Project Manager will be responsible for ensuring the establishment and implementation of the environmental strategies agreed for the project.
- The development of these strategies will be the joint responsibility of the Environmental Manager and our Project Manager.
- Our project team will carry out the on-site delivery of the agreed protocol and mitigations.

3.8.1 In conjunction with the Heathrow Airport Ltd operational team, we will address and review all identified environmental risks and issues through our Environmental Management Plan. It will set out all the relevant statutory procedures and rules along with site-specific requirements at Heathrow and will be updated and revised during the development of the design and planning stages and during the construction phase.

3.8.2 The Environmental Management Plan will identify our site compounds and site arrangements recognising issues specific to each location, such as Noise, Water Management, and third-party interface.

3.8.3 The EMP will also contain a number of standard emergency procedures that will be briefed to the workforce at regular toolbox talks and will cover the likes of:

- Emergency spillages
- Fuel and energy
- Noise management
- Water management
- Protected species

3.9 Environmental Policy Commitment

3.9.1 VFL are committed to maintaining high standards throughout our operations, with particular regard to avoiding and minimising adverse environmental impacts of all company operations. VolkerFitzpatrick strive to continually improve our

environmental performance through the reduction and control of waste, reusing and recycling materials, prevention of pollution, protection of local environmentally sensitive locations, and conserving natural resources.

3.10 Environmental Considerations for Waste and Recycling

3.10.1 In line with Heathrow's environmental and sustainability targets we are aiming to maximise the potential for recycling construction materials arising from the project and to contribute to targets set out in the London Plan for waste avoidance.

3.10.2 The target quantities for recycling of soils and granular sub-base materials will be met through the proposed re-use, recycling and processing of materials. These quantities are outlined in Appendix H.

3.10.3 Where materials can be recycled (e.g. by processing through crushing and screening) but it is not possible to re-use them on this project, they will be made available for re-use through the local recycled materials market for use on other construction projects in the area.

Broken out and processed concrete pavement will be mainly recycled by a Heathrow approved local licensed recycling and soils disposal facility and processed into a useable Type 1 Sub-base material.

Broken out and processed concrete pavement will be used, subject to agreement by a Heathrow approved concrete supplier as a partial (50%) replacement for coarse aggregate in the batching production of wet lean concrete – subject to specification and testing.

Asphalt surfacing removed through cold milling will be recycled by a Heathrow approved asphalt supplier and where appropriate, our aim is to re-use this material to produce an asphalt product. However, if this were to be subject to a restriction, we would work collaboratively with Heathrow to seek the best sustainable solution possible.

Through our own environmental targets, and in conjunction with Heathrow's requirements, the site team aim to use LED lights (Glims, AGLs and Tower Lights) to reduce the amount of energy required to power alternative forms of lighting. The reduction in power consumption is supplemented by the use of harvesting generator units, in which a rechargeable battery sits alongside generator units to harvest the excess power while they're operating and reduces the need for mains power using a sustainable alternative.

We aim to connect onto a mains power supply wherever possible to reduce the emissions from diesel-powered generators. Where possible, we will aim to reduce fossil fuel emissions on the project by connecting to a local sub-station or use a metered FEGP Power Unit and then recompense Heathrow for the electricity used.

We task our subcontractors to bring low emission plant to site wherever possible and to ensure, through examination of service records, that all plant is maintained and serviced regularly to sustain its eco-rating.

Through our continuous improvement system, our project teams have also successfully trialled the use of recycled cardboard desks that provide a lower carbon footprint in relation to their manufacturing, delivery and disposal.

We recognise the environmental and safety issues regarding concrete washout and washing of mixing/delivery vehicles and we have made suitable allowances for the provision of concrete washout facilities located in our airside compounds. This enables us to adopt best practice when dealing with sweeper tip arrangements and techniques for dealing with cementitious waste generated by concrete truck washout.

3.11 Dewatering

3.11.1 Should any element of the works require dewatering, we will use robust environmental protection measures such as Green Rhino's filtration socks or Sweeptech's KSA unit if the water is contaminated or required pH adjustment.

4. Key Construction Constraints & Interfaces

4.1.1 The following key constraints to the proposed works will be addressed by the construction proposals.

4.1.2 This CEMP has been developed to outline the principal environmental controls and impacts in relation to hours of working, noise, traffic and other environmental protection issues.

4.1.3 Heathrow Airport and the Principal Contractor will take all necessary steps to minimise any intrusion by construction operations on the local community, by best practicable means and demonstrate we can comply with the agreed planning requirements. The following outlines the principal areas of action to be addressed through the proposed working practices and arrangements for the works.

4.2 Working within the live operational Airfield

4.2.1 VolkerFitzpatrick will undertake careful planning of the works on the live airfield. This may require phasing certain operations to be carried out at night-time or other periods of reduced aircraft traffic. This will require robust planning and programming and close liaison with Heathrow Airport to ensure airfield operations are not compromised.

Working hours

4.2.2 The following working hours are proposed for day-time and night-time working on this project;

Table 4.2; Working Hours

Activity Carried Out on	Hours - Days	Hours - Nights
Monday to Friday	0600 - 1730	20:00 – 06:00 Sunday to Thursday (Friday morning)
Saturday and Sunday	Saturday – n/a Sunday – n/a	Friday – n/a Saturday – n/a
In advance of all night time working	14:00 - Go / No Go Call 20.45 - Go / No Go Call 21:00 - DNR Meeting 23.00 – Runway Access 04:30 – Runway Hand back	Sunday – 20:00 – 06:00 Monday
Working Restrictions	Weather / Ops Resources / Flight Movements etc. All discussed in Go / No Go Calls	Weather / Ops Resources / Flight Movements etc. All discussed in Go / No Go Calls

Noise arising from the works.

4.2.3 Extensive noise modelling has been undertaken by Heathrow Airport which has identified an increase in noise arising from the airfield following revised operational layouts at the western end of runway 09L. As part of the proposed works, the design includes a noise mitigation barrier to reduce the effect of this on the nearby village of Longford. The noise barrier will form a first phase of the works and this will mitigate subsequent construction noise effects.

4.2.4 During the construction period, works may be carried out on the airfield during daytime, at night, during temporary runway closures, and / or a combination of these.

Lighting

4.2.5 Lighting of works being undertaken at night-time can have an adverse impact on airfield operations, including aircraft movements in the hours of darkness. Night time lighting can also impact residents in nearby communities, such as Longford village.

4.2.6 It can also adversely impact some wildlife and protected species, such as bats who can range over large areas.

4.2.7 For this reason, careful attention will be taken to ensure the lighting of night-time works will be limited (for safety and operational reasons) to lighting ground areas as far as is possible, using directional mobile lighting rigs. In this way lighting arrangements will restrict as far as possible any light spill beyond the airfield perimeter to nearby residential and wildlife areas.

4.3 Works related to the Longford village Noise Mitigation Barrier

Environmental Permit

4.3.1 The proposed work to improve the Longford village Noise Mitigation Barrier lie adjacent to inland water-courses, the Duke of Northumberland's River / Longford River.

4.3.2 An environmental Permit will be required in order to carry out these works. Sufficient time allowance will need to be built into the programme and planning process to ensure the Permit is obtained in advance of the programmed construction. This may, inter-alia require carrying out up to date environmental surveys at appropriate times of the year.

Avoidance of Contamination arising from hazardous substances

4.3.3 There is the potential risk for contaminants (such as oils, for example) to reach the wider environment as a result of leakage or spillage of hazardous substances such as diesel, if appropriate preventative measures are not taken. To prevent the release of diesel to soils, water courses and the wider environment, the

Contractor will be required to adhere to strict codes of practice. Machinery/plant will be well maintained to prevent leaking or spills, and on-site diesel storage will be securely contained in a bunded area to provide extra capacity for spillages. The use of biodegradable oils will be mandatory for all plant and equipment.

Avoidance of Contamination arising from soil entering a watercourse

4.3.4 There is potential for soils arising from excavation works getting into the river. This is to be prevented by careful selection of construction techniques and working arrangements, if necessary, by setting up adequate temporary works protection between excavation areas and the river edge. The details of the arrangements will be agreed with the EA as part of the permitting process.

Diversion of utility services

4.3.5 It is anticipated that service diversion works will be required along the length of the noise barrier and agreement for these works will need to be made with Heathrow Airport and the utility providers.

4.3.6 Currently, diversion of LV cables is anticipated along the entire length of barrier, and protection and / or diversion of both a surface water drainage system and a water main may be required along some sections of the barrier route.

Lighting

4.3.7 The works for the Longford Barrier are expected to be undertaken during day-time and night-time hours.

4.3.8 Any lighting of the works is expected to be limited to any traffic management works and then only that required for safety and security and directed away from homes in Longford.

Construction Noise

4.3.9 The works for the Longford Barrier are expected to be undertaken during day-time and night-time hours.

4.3.10 Some night time working will be required due to the construction works adversely impacting the operational Airfield Object Limitation Surface.

4.3.11 Heathrow will work with London Borough of Hillingdon to ensure that night time works are carried out only when necessary. We currently estimate that circa 50% of the Noise Barrier will be constructed during daytime hours and 50% during night-time working.

Selection and Siting of Plant and Equipment

4.3.12 Consideration will be given, where practicable, during the selection of proposed construction plant items as to whether some items can be substituted for quieter options.

4.3.13 The proposed design arrangements have already recognised that installation of Noise Barrier foundations may be possible by use of rotary bored piling techniques as opposed to using driven piles.

4.3.14 Where practicable, construction plant items will be located away from noise sensitive areas. Noise reductions are achieved by setting plant specific setback distances.

Traffic Management on Western Perimeter Road

4.3.15 The noise barrier is designed to be constructed in a minimum of two work areas in order to limit disruptions to traffic on Wright Way and to the T5 business car park as outlined on the location Plan in Appendix A.

4.3.16 Traffic management is expected to be required for the protection of the construction workforce and the travelling public.

4.3.17 We anticipate that for the construction area adjacent to Wright Way, this will comprise a full or partial closure of Wright Way with a diversion via the Western Perimeter Road and site access from Terminal 5 Roundabout along Wright Way.

4.3.18 Traffic Management related to the Acoustic Barrier Works is expected to be in place for circa 8 weeks.

4.3.19 The construction area lies off Wright Way and near the perimeter of the T5 business car park. Traffic management will be maintained to some areas of Wright Way but adjusted to tie in with traffic management within the T5 business car park.

Protected and endangered species

4.3.20 The following paragraphs have been compiled by HAL's Environmental Consultant, WSP:

"Through the EIA process the potential for effects on grass snake as a result of killing, injuring or disturbing individuals during the construction of the noise barrier has been identified.

Measures will therefore need to be taken to ensure that the development complies with the legislation that relates to grass snake.

To achieve this, before construction of the barrier commences the grassland will be mown to a sward height of 5cm. This will encourage, because the habitat will offer limited cover after this cut, individuals within the grassland to move to areas that are to remain untouched by the development.

The area will be left for 2 days following the cut to allow all individuals to move, after which a reptile exclusion fence will be erected to separate the habitat from the construction area. This will ensure that grass snakes are unable to access the area during the period of the barrier construction.

Once the works are complete the fence will be removed and the disturbed habitats reinstated."

4.3.21 These measures will feature in the Principal Contractor's Site Management Plan and Environmental Plan proposals and the integrity of the protection measures will be monitored throughout the period of working in the vicinity of the Duke of Northumberland's River / Longford River.

Arboricultural Considerations

4.3.22 Specialist Arboricultural advice has highlighted potential effects on trees and vegetation from the construction of the noise barrier. The following guidance is to be reviewed during the Pre-construction period and advice taken as to suitable protective measures to be considered during the Construction Phase;

Above Ground Impacts.

4.3.23 During demolition and construction work there is potential for the stem and branches of retained arboricultural features to be damaged by the contractor making physical contact. Such damage can reduce vitality and cause decline in health.

4.3.24 To prevent above ground damage to arboricultural features a construction exclusion zone (CEZ) should be established. An Arboricultural Method Statement (AMS) will be developed to cover the duration of demolition and construction with appropriate levels of periodic arboricultural supervision where work is undertaken near trees.

4.3.25 The proposed noise barrier is taller than the current fence. As trees overhang the current fence, pruning in the form of crown lifting will be required for trees in some areas. The extent of pruning is relatively minor, and trees have been pruned previously to ensure clearance over the car park.

4.3.26 All tree works undertaken will comply with British Standard 3998:2010 – Tree Work Recommendations and be carried out by suitably skilled tree surgery contractors.

4.3.27 This aspect of the works and the requirement for an AMS has been included in the Draft SMP; Environmental Planning Meeting Agenda (See Appendix B)

4.3.28 With regard to the Noise Mitigation Barrier works, the specialist arboricultural advice is based on the premise that design and construction arrangements allow for;

- All construction and demolition activities will be from the south of the Proposed Development;
- There are no drainage designs required; and
- Existing areas of hard surfacing will remain in-situ or be used for construction access, site compounds and material storage.

Below ground impacts

4.3.29 During demolition and construction work there is potential for soil compaction and root damage caused by contractors. This could cause loss of vitality and decline in health with a reduction in quality of tree and potential instability or death of trees.

4.3.30 To prevent below ground damage to arboricultural features a CEZ would be established within an AMS for the duration of demolition and construction which is demarcated by a tree protection fence. Where access only is required then temporary ground protection measures could be installed to prevent soil compaction and root damage.

4.3.31 The indicative RPAs are based on a symmetrical circle and are shown in the TRPP. For groups of trees the RPA is based on a distance from the plotted group extent which represents tree stem locations. These RPAs are indicative, and the shape can be adjusted by an arboriculturist to ensure that sufficient area, and therefore soil volume, is protected.

4.3.32 The construction of the noise barrier component of the Proposed Development would require the installation of fence posts in the ground along the alignment of the fence. The location of some posts would be within the preliminary root protection area for tree groups. Due to the relatively small area to be excavated for each post, and the spacing between posts, the impact on the condition of the tree groups G1 to G7 (Please refer to the AMS) would be negligible given the existing hardstanding, the distance from the works to the trees and their tolerance to change.

Compensation planting

4.3.33 Tree removal should be compensated for through the planting of new trees either on-site or nearby to benefit the local environment.

4.3.34 The London Plan Policy G7 requires adequate replacement and references larger canopy surface areas provide greater benefits. No CAVAT valuation has been undertaken, however biodiversity Net Gain assessment has been undertaken (See ES Appendix 12.4: Biodiversity Net Gain Assessment).

4.3.35 The proposed development is assessed as resulting in the removal of eight medium sized trees and approximately 112 linear metres of densely planted small trees / woody shrubs.

4.3.36 Planting new trees should be close to the location of removal but along the line of the noise barrier would not be practical. This is anticipated to be secured through a suitably worded planning condition or through the Section 106 agreement.

Arboricultural Method Statement

4.3.37 Reference should be made to the outline Arboricultural Method Statement (AMS) included as Appendix 17; Arboricultural Impact Assessment Annex D to the Environmental Statement

4.3.38 The AMS adopts a precautionary approach to tree protection and addresses activities which have the potential to cause damage to retained trees.

4.3.39 The AMS addresses, in principle, the following matters which are of relevance to the noise barrier component of the Proposed Development :

- Arboricultural site supervision;
- Tree works;
- Tree protection fencing;
- Ground protection; and
- Additional precautions outside the Construction Exclusion Zone (CEZ).

4.3.40 It is recommended that this AMS be viewed as a 'living document'. It should therefore be reviewed, and if necessary, updated by the Principal Contractor at the following stages of design and construction:

- Detailed design and discharge of conditions or reserved matters;
- Contractor engagement;
- Pre-commencement; and
- Prior to any instance where the site clearance or construction methodology is amended.

5. Construction Phasing

5.1 Phases

5.1.1 The construction programme is split into six distinct phases as follows;

Table 5.1; Construction Phases

Phase		Phase Work Area
Noise Barrier	**Phase 1**	Longford Acoustic Mitigation Barrier
Airfield	**Phase 2**	New 500 Stand Taxi-Lane
Airfield	**Phase 3**	Realignment of Link 56
Airfield	**Phase 4**	Realignment of Link 57
Airfield Phases On Alternation	**Phase 5 E**	Rapid Access Taxi-Lane E
	Phase 5 W	Rapid Access Taxi-Lane W

5.1.2 Phasing diagrams for the works within the operational airfield are included in Appendix C and D.

5.1.3 The Longford Acoustic Mitigation Barrier, lying outside the operational airfield, is regarded as a single works phase in its own right and the drawing showing its location is included in Appendix C.

5.1.4 Note the works for the Longford Noise Barrier are expected to be undertaken during day-time and night-time hours, the night-time working being to ensure that the works and Plant Equipment do not infringe the Airfield OLS.

5.1.5 Traffic Management related to the Acoustic Barrier Works is expected to be in place for circa 8 weeks.

5.2 Construction Programme

5.2.1 The following outlines the high-level programme timing for the Easterly Alternation Infrastructure works, including the pre-construction phase, planning and permitting stages.

5.2.2 A copy of the outline programme can be found at Appendix D

Table 5.2; Construction Programme & Stages

Programme Stage	From	To
RIBA Stage 2; Concept Design		
Confirm the project CE goals to support the London Plan	Mar 2024	Jun 2024
RIBA Stage 3; Spatial Coordination		

Programme Stage		From	To
Planning Application Process with LB Hillingdon and consultation with LB Hounslow and Spelthorne BC		Oct 2024	Apr 2025
RIBA Stage 4; Technical Design			
Environmental Permit (Duke of Northumberland River) - Application Process.		Oct 2024	Jan 2025
Discharge Pre-Construction Conditions		Nov 2024	Jan 2025
RIBA Stage 5; Manufacturing and Construction		Jul 2025	Jun 2027
Construction Programme Phasing		Jul 2025	Jun 2027
Longford Acoustic Mitigation Barrier		Jul 2025	Oct 2025
Airfield Phase 1 – New 500 Stand Taxi-Lane		Nov 2025	Mar 2026
Airfield Phase 2 – Realignment of Link 56		Mar 2026	Nov 2026
Airfield Phase 3 – Realignment of Link 57		Nov 2026	Jun 2027
Airfield Phase 4	– Rapid Access Taxi-Lane E	Nov 2025	Jun 2026
	– Rapid Access Taxi-Lane W	Jun 2026	Nov 2026
RIBA Stage 6; Handover (In Stages)		Jul 2025	Jun 2027
RIBA Stage 7; Use (In Stages)		Jul 2025	Jun 2027
Discharge Post-Construction Conditions		Jun 2027	May 2028

Assumption; 1 year allowance for Discharge of Post-Construction Conditions

6. Construction Methodology

6.1 Key proposed methodologies

6.1.1 This section provides a brief outline of some key proposed methodologies associated with operations associated with the works.

6.1.2 Full method statements and risk assessments will be prepared during the construction stage to reflect a detailed plan as to how the works will be planned and managed.

6.2 Bulk Materials Supply

6.2.1 The project works, particularly related to airfield pavement construction will require the movement of significant volumes of bulk materials. The following outlines the main bulk materials elements and how these are to be sourced and transported.

Batched Material Supply - Concrete

6.2.2 Concrete materials for the project will be provided through the existing Tarmac concrete batching plant established within the airfield perimeter, near Security Control Post 24 / 24a (please refer to the Plan at Appendix E). The delivery to airfield pavement works will be via concrete mixer trucks travelling within the operational airfield area to avoid the need for them to leave and re-enter the secure airfield area and travel on public roads.

6.2.3 Concrete for the Noise Barrier works will be delivered via concrete mixer trucks travelling on public roads Southern and Western Perimeter Roads and Wright Way

Batched Material Supply - Asphalt

6.2.4 Asphalt materials for the project will be provided through the existing Associated Asphalt blacktop batching plant established within the airfield perimeter near Security Control Post 24 / 24a (please refer to the Plan at Appendix E). The delivery to airfield pavement works will be via insulated 20T tipper trucks travelling within the operational airfield area to avoid the need for them to leave and re-enter the secure airfield area and travel on public roads.

Granular Sub-Base Materials

6.2.5 The airfield project works will be a net producer of granular sub-base materials generated through the processing of removed concrete pavement areas by crushing and screening to ensure the recycling of materials arising from the works.

6.2.6 This will take place in an existing recycling facility established at the Cappagh Stanwell recycling centre to the south-east of the airport, just off the southern perimeter road (please refer to the Plan at Appendix E).

6.2.7 Preliminary discussions have already been raised with Cappagh Stanwell to receive suitable recoverable materials arising from the works, process them by crushing and screening and stockpiling the materials at the facility. We will take delivery of materials from this stockpile as and when required for the works and import them onto the airfield for re-incorporation into the new pavement construction.

6.2.8 Material (sub-base and crushed and screened hard materials) surpluses that cannot be re-incorporated into the works for this project will either be retained and made available for use by Heathrow Airport on other projects or recycled back into the local construction materials market.

6.2.9 At the time of preparation of the CEMP, there were no potential projects within the Heathrow Estate for which the retention and re-use of the surplus materials could be guaranteed.

6.2.10 All granular materials will be transported by 20T tipper trucks, sheeted to reduce dust arising from their movement.

Excavated Soils

6.2.11 Where new areas of pavement are required to be constructed, surplus soils will be excavated and removed from the operational airfield area and stockpiled at a suitable location. Separate stockpiles will be set up for re-useable topsoil materials distinct from subsoils. The process will enable suitable sampling and testing soils for suitability for re-use.

6.2.12 In areas of the works where pavements are being removed, filling of the removed paved areas will be filled using suitable sub-soils / top-soils that will be brought back onto site from the soils stockpile area for incorporation into the works.

6.2.13 Material (soils) surpluses that cannot be re-incorporated into the works for this project will be tested and either be retained and made available for use by Heathrow Airport on other projects, recycled back into the local soils materials market or as a last resort, disposed of to landfill.

6.2.14 At the time of preparation of the CEMP, there were no potential projects within the Heathrow Estate for which the retention and re-use of the surplus soils materials could be guaranteed.

6.2.15 All soils materials will be transported by 20T tipper trucks, sheeted to reduce dust arising from their movement.

6.3 Disposal sites

6.3.1 A number of candidate offsite stockpile and disposal locations for soils and other materials have been identified.

6.3.2 For the majority of the route to the disposal sites, transport vehicles will be on the strategic road network and it is expected that noise impacts will result in a negligible change at receptors.

6.3.3 However, for some candidate disposal sites, the final part of the journey to and from the sites will pass along quieter roads in built up areas, which could result in short term local noise impacts.

6.3.4 Off-site disposal site(s) will be selected once the construction contract has been awarded and it has been possible to confirm the material acceptability criteria at the receptor sites. This will be subject to waste acceptance criteria testing and assessment.

6.3.5 As part of the design and selection process, a noise assessment will be conducted and where calculated noise impacts are appreciable (more than a 1dBA increase and with an end state above LOAEL at NSRs), alternative approaches will be adopted.

6.4 Site Operations Methodology

6.4.1 The following outlines brief descriptions of the major elements of works and the proposed methodologies for their construction.

Site Establishment

6.4.2 It is anticipated that site facilities establishments will be provided as follows;

6.4.3 The primary establishment will be located at the existing airside welfare compound (adjacent to the concrete batching plants) and accessed via Security Control Post 24 / 24a (please refer to the Plan at Appendix E).

6.4.4 Appropriate car parking provisions for construction workers driving to and from the Airport will be made by the Contractor, in consultation with the Applicant. Facilities for vehicle and construction plant parking local to the airside works site will be developed by the contractor in consultation with the Applicant. Use of public transport would be encouraged where possible.

6.4.5 A secondary temporary satellite compound within the airport boundary and nearer to the 09L works site is under consideration located near Terminal 5 adjacent to CP18, as indicated on the drawing at Appendix E. This is subject to agreement by Heathrow and will be used for temporary storage of plant, materials and fuel in closer proximity to the works and would also contain a small welfare set-up.

6.4.6 This will be accessed via security Control Post 18.

6.4.7 For the Noise Mitigation Barrier works, a temporary welfare, parking & storage compound will be established in the Heathrow Terminal 5 POD Parking area to the north of Wright Way.

6.4.8 Use of public transport for the workforce will be encouraged where possible.

Identification and diversion of services

6.4.9 Before any surfaces are excavated or demolished, existing services will be identified by reference to drawings, sub-surface detection and if required trial holes. Services that could be affected by the works will be made dead and / or diverted before breaking surfaces commences.

Construction of the Noise Mitigation Barrier

6.4.10 In advance of the works, vegetation in the area will be cut to encourage any protected species to move to more favourable habitats during the construction period. Temporary reptile protection fencing will be erected to exclude any protected species and this will be monitored daily to ensure its integrity is maintained.

6.4.11 Traffic management arrangements (including possible lane closures on Wright Way) to protect the travelling public and workforce will be established. Detailed arrangements will be agreed with Heathrow and the Local Authority in advance of the works.

6.4.12 The existing fencing will be removed by lorry mounted crane, posts cut off at ground level.

6.4.13 Materials arising from the removed fencing will be assessed at that time for recycling potential and if suitable for re-use on the Heathrow Airport estate, removed to store.

6.4.14 If the materials are unsuitable for re-use or have low potential worth, they will be disposed through an appropriately licensed recycling facility.

6.4.15 New foundations will be formed by drilling between original post positions using excavator mounted drilling augers to the designed depth. Excavated spoil will be removed by excavator and removed to the soils recycling / recovery area and screening for re-use potential.

6.4.16 New posts will be inserted into the drilled voids using a lorry mounted crane, held in position by temporary works and the foundation voids filled with concrete delivered by mixer truck.

6.4.17 Once concrete has hardened, the disturbed areas around the new foundations will be restored by spreading retained topsoil.

6.4.18 New barrier panels will be brought to site and positioned by crane mounted lorry and fixed to new posts.

6.4.19 On completion of the barrier works, the traffic management arrangements will be removed and the road fully opened to traffic. (Please refer to the programme at Appendix D for timing and duration of Main Works and Reinstatement).

Breaking up / demolition of existing airfield concrete paved areas

6.4.20 Areas to be removed will be separated from adjacent remaining pavement areas by saw-cutting and corners of the demolition area will be cored to reduce likelihood of stress transfer to adjacent remaining areas.

6.4.21 Concrete paved areas will be broken up using excavator mounted hydraulic breakers, loaded by backhoe excavators into 20T tipper lorries and removed off the operational airfield to a stockpile and processing area at a local recycling and soils disposal facility to be crushed and screened for potential re-use in the future pavement reconstruction works.

Breaking up / demolition of existing airfield asphalt paved areas

6.4.22 Areas to be removed will be separated from adjacent remaining pavement areas by saw-cutting.

6.4.23 Asphalt paved areas will be milled using Virtgen planers, loaded directly by conveyor into 20T tipper lorries and removed off the operational airfield to a stockpile and processing area at a local recycling and soils disposal facility to be crushed and screened for potential re-use.

Excavation of existing sub-base under previously paved areas

6.4.24 The existing sub-base granular materials will be excavated by backhoe excavators and the materials arising loaded into 20T tipper lorries and removed off the operational airfield to stockpile and processing area to be screened (if required) for potential re-use in the future pavement reconstruction works.

Excavation of soils

6.4.25 Areas on which new airfield pavement is to be constructed will be excavated by backhoe excavators and the materials arising loaded into 20T tipper lorries and removed off the operational airfield to stockpile and processing area.

The depth of excavation is determined by the design, in which replacement PQC and Composite pavements will require an increased construction depth of 50mm to 90mm and new composite pavement areas to the RAT-East and RAT-West will require new excavation below existing to depths of approx. 110mm below existing pavement depths and 970mm in areas of new pavement. (Refer to the Layout and Phasing Diagrams in Appendix C).

6.4.26 Construction of new Pavement – Sub-base Following proof rolling of excavated sub-grade, granular sub-base material will be brought to the construction area and placed by backhoe excavator, levelled and compacted in-situ by vibrating roller.

Construction of new Pavement – Roller Compacted Concrete

6.4.27 Following placement and compaction of sub-base material, concrete will be brought to the construction area and placed between formed sides either by

concrete paving machine or, for smaller areas, by a combination of backhoe excavator and hand laying. Compaction of the concrete will be by a combination of vibrating and / or deadweight rollers.

Construction of new Pavement – Pavement Quality Concrete

6.4.28 Following placement and compaction of either sub-base material or roller compacted concrete (according to design), pavement quality concrete will be placed between formed sides either by concrete paving machine or, for smaller areas, by a combination of backhoe excavator and hand laying. Compaction of the concrete will be by vibrating pokers / screeds. For areas laid by machine paving the operation of compaction and surface finishing is incorporated in the mechanical paving process. Surface levelling of hand-laid areas is by mechanical screeds followed by surface texturing.

Potential for Low Carbon Concrete

6.4.29 In August 2023, Heathrow Airport published the outcomes of conducted limited trials of low carbon concrete conducted at a project site located close to the control tower which endeavoured to replicate its use in a range of typical airport infrastructure applications. The outcomes and conclusions of this trial are still under review.

6.4.30 Bearing in mind the Eastern Alternation Infrastructure project is not scheduled for construction until 2025, the conclusions of the 2023 trial may indicate a further trial or scaled up use may be considered appropriate for some parts of this project. At this stage, Heathrow Airport are maintaining an open mind as to the appropriateness for changes in specification for the operational airfield surfaces, if deemed appropriate.

6.4.31 Concrete materials already planned within extant designs already consider the potential for certain limited cement replacement materials, already known for having lower carbon impacts than ordinary cements or aggregates, i.e. through;

- Partial replacement of cement with Pulverized Fly Ash (PFA)
- Partial replacement of cement with Ground Granulated Blast-Furnace Slag (GGBFS)
- Partial Replacement of aggregates in concretes below PQ layers with crushed concrete materials

Construction of new Pavement – Asphalt paving

6.4.32 Following placement and compaction of sub-base material, asphalt will be brought to the construction area using insulated rigid body HGV tippers and placed either by asphalt paving machine or, for smaller areas, by hand laying techniques. Multiple layers are commonplace, according to the design and specification.

6.4.33 Compaction of the asphalt layers will be by a combination of vibrating and / or deadweight rollers.

6.4.34 Trimming and planning to suit layered construction and overlap of joints is undertaken by asphalt planing.

7. Project Delivery

7.1 Project Logistics:

7.1.1 This section outlines various aspects of project logistics associated with the delivery of the project, including;

- Construction Management
- Health And Safety
- Number Of Operatives
- Construction Logistics
- Construction Traffic & Transport
- Construction Vehicle Numbers
- Temporary Site Haul Roads
- Construction Plant & Equipment
- Environmental Management
- Estimated Water Usage In Construction
- Removal Of Temporary Structures And Buildings
- Removal Of Temporary Infrastructure
- Neighbours

7.2 Construction Project Management

Principal Contractor

7.2.1 Heathrow Airport are required to appoint a Principal Contractor to lead the Construction Project Management for the project to provide overall construction oversight and management of the works.

7.2.2 The Principal Contractor is also responsible for ensuring the construction phasing is finalised and for producing and agreeing the construction programme. The PC will also be coordinating the project delivery with the design team and other key stakeholders.

7.2.3 The Principal Contractor's management team will coordinate with the wider team, including Client and Design teams in detailing the control measures and standards to be implemented throughout the construction of the Proposed Development. This ensures a consistent approach to the Environmental and H&S management of construction activities for the entire Proposed Development.

Site Management Planning

7.2.4 Section 3.0 outlines the proposed Site Management Plan arrangements proposed for this project.

7.2.5 The project team propose a zero-harm policy is adopted by all parties associated with the works, seeking to reduce and minimise the risk or death or injury, ill health or incident to airport passengers, the local communities, airport employees and construction workers alike. This will be supported by the proposed management arrangements set out in the SMP.

7.2.6 The SMP will outline in some detail how Health and Safety, Environmental and Quality requirements will be defined and cascaded down to all suppliers within the contractual arrangements. It will set out expectations as to how they will support the project team in adhering to the H&S and Environmental measures throughout the life of programme, whilst delivering their works to exemplary standard for health, safety, and welfare performance.

7.2.7 In order to monitor health and safety performance across the project, VolkerFitzpatrick will agree with Heathrow a set of practical indicators to measure this aspect of the Proposed Development, reviewed at regular intervals including reporting to senior management.

Behavioural Based Safety Culture

7.2.8 Key to achieving a genuinely collaborative team is adoption of a behavioural safety programme that involves all parties to the project. VolkerFitzpatrick already operates a mature and effective behavioural safety programme across its businesses and works collaboratively with its clients and supply chain alike to ensure awareness of key issues and expectations as to how the project team achieves its zero-harm goals.

Early Design

7.2.9 ECI work has already been undertaken to support and inform the project design and construction proposals Heathrow by VolkerFitzpatrick in support of development of the design and construction arrangements and assistance in the Planning process.

7.2.10 The work has enabled a number of design led aspects to be incorporated in the planned project, including, but not limited to;

- Design of airfield pavements with the potential to use significant quantities of recovered and recycled materials.
- Whilst the Easterly Alternation Infrastructure works required the construction of new areas of airfield pavement, the removal of redundant areas of airfield paving has limited the net increase of new pavements across the project. In so doing, the design has limited the impermeable areas to be drained and thus mitigate the increases in surface water run-off as far as practicable. The removal of redundant pavements and replacement with areas that can drain

by infiltration ensures the burden on Heathrow's overall drainage arrangements does not require provision of significant additional drainage or attenuation works.

7.3 Health And Safety Management

Overview

7.3.1 VolkerFitzpatrick operate an Integrated Management System, incorporating policies and procedures underpinning our commitment and approach to quality project management processes (externally assessed to ISO45001 Health & Safety, ISO14001 Environmental and ISO9001 Quality).

7.3.2 VolkerFitzpatrick is able undertake the statutory appointment role as Principal Contractor if appointed.

7.3.3 Through our processes, we ensure a safe, high quality and defect free delivery of the works in accordance with specification and current legislation.

7.3.4 A key point of our policy is to bring zero harm to anyone working for us or affected by us.

7.3.5 Heathrow Airport's key requirements and those of the Local Authority planning conditions are considered in the development of our working plans and we ensure our aims align with these when developing project specific management proposals.

7.3.6 Central to our control of all project activities is our Project Site Management Plan (SMP) through which we plan, document and manage our obligations under the CDM 2015 Regulations. It underpins our policies and includes sections comprising the following specific HSEQ Plans:

- Health and Safety Plan
- Environmental Plan
- Quality Management Plan

Health and Safety Plan, Policy and CDM (2015) Obligations;

7.3.7 Control of all project activities, including environmental controls is documented through Site Management Plan (SMP) procedures (see partial Draft document at Appendix B) through which we plan, document and manage our obligations under the CDM Regulations, underpinning our policies. The SMP includes our Health and Safety Management Plan.

7.3.8 Our H&S Plan will include provisions for:

- Liaison and Consultation
- The Exchange of Design Information

- Handling Design Changes
- Selection and Control Of Contractors
- Exchange of H&S Information
- Site Security
- Site Induction
- On Site Health and Safety Training
- Welfare Facilities and First Aid
- Reporting and Investigation of Accidents, Incidents, Dangerous Occurrences and Close Calls
- Hazard Identification, Risk Assessment and Controls
- Project Site Rules
- Fire and Emergency Procedures
- The Health and Safety File

7.3.9 This ensures we can reflect specific requirements for the project, including any aspects that may be required by Heathrow Airport (and other stakeholders) and including our own H&S requirements, maintaining a consistent approach across the company.

7.3.10 The SMP will be made project specific upon confirmation the works are to proceed and thereafter developed during the currency of the project right through to completion.

7.3.11 The SMP addresses the Health & Safety requirements for our projects and satisfies the general requirements for all construction sites under part 4 of the Construction (Design and Management) Regulations 2015 (CDM 2015).

7.3.12 Following confirmation of the works, in order to inform and develop our SMP we will hold a series of Planning Meetings to review the project's key HSEQ issues, risks and any requirements to include measures in the SMP, as follows.

7.3.13 One such meeting is a H&S Planning Meeting chaired by our H&S Lead during which we review the project's key H&S issues and we will document the outcomes in the SMP.

7.3.14 We will review with Heathrow Airport the H&S aspects of the developing Design stage and co-operate with the Principal Designer in their preparation of the Design Risk Assessment during design development through Design Review Meetings.

7.3.15 Thereafter, HSEQS aspects will be reviewed with the Heathrow Airport team including during construction at weekly 'Visualisation' Whiteboard Meetings.

7.3.16 The SMP will address project specific risks to Health and Safety, Environmental and Quality through a robust risk assessment procedure, with the outcomes documented in the SMP.

7.3.17 This will include, inter-alia, risks associated with:

- Public interfaces
- Working on Heathrow Airport infrastructure
- Works carried out under possession arrangements
- Working from height
- Temporary works
- Lifting operations
- UG/OH Utilities
- Working in excavations
- Electricity
- Working adjacent to live traffic and TM

Control of H&S risks

7.3.18 Control of H&S risks is managed through a formal Risk Assessment and Method Statement (RAMS) procedure.

7.3.19 Certain known activities already have template documents within our H&S procedures to assist staff in formulating the appropriate project and task specific risk assessments.

7.3.20 Actions arising from these assessments to mitigate risks are developed through method statements and briefed out to the workforce to ensure their awareness and safety during construction.

HSEQ Performance and Review

7.3.21 Health & Safety, Environmental, Quality and Security is a top priority in VolkerFitzpatrick. Project Performance is supported by central HSEQ teams and this performance is regularly audited and reported to top management.

7.3.22 Lessons learned are captured through our H&S reviews and outcomes and recommendation disseminated across the company to improve awareness and company performance.

7.4 Environmental Management

Overview

7.4.1 VolkerFitzpatrick operate an Integrated Management System, incorporating policies and procedures underpinning our commitment and approach to quality project management processes (externally assessed to ISO45001 Health & Safety, ISO14001 Environmental and ISO9001 Quality standards).

7.4.2 VolkerFitzpatrick is able to undertake the statutory appointment role as Principal Contractor.

7.4.3 Through our processes, we ensure a safe, high quality and defect free delivery of the works in accordance with specification and current legislation.

7.4.4 A key point of our policy is also zero harm to the environment, anyone working for us or affected by us.

7.4.5 Heathrow Airport's key requirements and those of the Local Authority planning conditions are considered in the development of our working plans and we ensure our aims align with these when developing project specific management proposals.

7.4.6 Central to our control of all project activities is the Project Site Management Plan (SMP) through which we plan, document and manage our obligations under the CDM 2015 Regulations. It underpins our policies and includes sections comprising the following specific HSEQ Plans:

- Health and Safety Plan
- Environmental Plan
- Quality Management Plan

Application of our Environmental Plan, Policy and Procedures;

7.4.7 Control of all project activities, including environmental controls is through the Site Management Plan (SMP) (see Draft partial document at Appendix B) through which we plan, document and manage our obligations under the CDM Regulations, underpinning our policies. The SMP includes our Environment Management Plan.

The Environmental Plan will include provisions for:

- Environmental Standards
- Project Environmental Management
- Considerate Constructors Scheme
- Site Accommodation
- Environmental Risk Assessments

- Operational Controls
- Storage And Handling Of Fuels, Oils And Chemicals
- External Consultants
- Emergency Procedures
- Dissemination Of Environmental Plans And Training
- Site Restoration

7.4.8 This ensures we reflect specific requirements for a project, including any aspects required by stakeholders and our own QA requirements; maintaining a consistent approach across the company.

7.4.9 Through the SMP we address the Environmental requirements for the project and ensure we satisfy the requirements of CDM 2015.

7.4.10 Following contract award, we will hold an Environmental Planning Meeting, chaired by our Environmental Lead.

7.4.11 At this meeting, we review the project's key Environmental issues and ensure the outcomes are documented for action in our Environmental Plan within the over-arching SMP.

7.4.12 With regard to the specific Environmental issues, most issues already feature within our standard Environmental Planning arrangements and we will pick up any site-specific aspect at the stage of the Environmental Planning Meeting.

7.4.13 We are aware that certain parts of the works (the Longford village Noise Mitigation Barrier) are likely to require an Environmental Permit as the works location is in close proximity to an inland watercourse.

7.4.14 It will be necessary to allow sufficient time in advance of the project to apply for this permit which we expect will be in the region of 6 - 8 months. For this reason, we expect that certain parts of the Environmental Plan may need to be developed at a significantly earlier time that other aspects of the SMP.

Considerate Constructors Scheme

7.4.15 VW UK are an Associate member of the Considerate Constructors Scheme (CCS). As such all projects (acting in the PC role) over six weeks duration will be registered with CCS, unless advised to the contrary by the Environmental Manager. Compliance with the Scheme's Site Code of Considerate Practice indicates a site is achieving a standard beyond statutory requirements. The five criteria of the CCS code are:

- Care about Appearance
- Respect the Community
- Protect the Environment

- Care about Safety
- Value their Workforce

7.4.16 Project performance against these criteria will be evaluated by an independent assessment by the Considerate Constructors Scheme (CCS).

7.4.17 Outcomes of the CCS assessments will be published through communications with the neighbourhood community to inform and advise them of the Considerate Constructors scoring in a similar way to proposed communication of information about other aspects of the works (see 7.15), through;

- Signage
- Community social media
- Progress updates to local Borough and Parish Councils

7.4.18 The CCS scheme also makes provision for members of the public to provide feedback and complaints and CCS has a dedicated Public Support team to help anyone provide feedback about construction activity.

7.4.19 Complaints received via the Scheme are expected to be dealt with promptly by the registered activity. An acknowledgement of the complaint expected within 24 hours and a satisfactory conclusion to be made within ten working days.

7.5 Number Of Staff and Operatives

7.5.1 The following table outlines the anticipated numbers of Staff and Operations personnel expected to be associated with this project. Some, as noted are based off-site or visiting.

Table 7.5; Numbers Of Staff and Operatives

Staff & Operatives Category	Number
Senior Management Team (Off-Site / Visiting)	3
Daytime Operations Project Team	28
Night Time Operations Project Team	17
Commercial Team	6
Visiting & Back-Room Staff (Off-Site / Visiting)	9
Operations Personnel - Airfield Ops	57
Operations Personnel - Noise Barrier	24

7.6 Construction Logistics

Offices and Compounds

7.6.1 Locations of the main site compound (including existing airside welfare and project offices) and batching plant facilities is shown on the drawing at Appendix E. The principal access to these facilities will be;;

From the West, via the M25, A4, A3113 or A3044 and the Southern Perimeter Road

From the South and East via the M25, A312, A4, A30 and the Southern Perimeter Road

7.6.2 Access into the Heathrow airfield on the southern side will be via the Security Control Post 24 / 24a.

7.6.3 Access to the works at the Runway 09L site will be via the Southern Perimeter Road, the Western Perimeter Road.

7.6.4 Access into the Heathrow airfield on the western side will be via the Security Control Post 18.

7.6.5 We are proposing to establish a temporary satellite compound and welfare facility located near Terminal 5 adjacent to CP18, in closer proximity to the works to minimise excessive vehicle movements at the end and beginnings of airfield shift works. (Please refer to the Plan at Appendix E).

7.6.6 Access to the Acoustic Barrier works site will be via the Southern Perimeter Road, the Western Perimeter Road and then Wright Way. A temporary site compound will be located in the Heathrow Terminal 5 POPD Parking area.

7.6.7 The location of the principal project office, satellite offices, other airside and landside compounds, concrete and asphalt batching plants together with access routeing is indicated on the plan drawing at Appendix E.

Materials Logistics

7.6.8 The following describes the principal materials movements associated with the project together with the anticipated quantities required for the current design proposal.

Airfield Infrastructure Works Materials

7.6.9 The tables below outline a guide to the principal materials quantities either imported for production of new batched materials, or those derived through recycling materials arising from the construction process (specification allowing) and required for construction of new airfield pavements.

7.6.10 Materials for the batched products relate only to those associated with this project, and do not include other materials provided by the same plants for other projects on the Heathrow Airfield Estate.

7.6.11 Concrete and Asphalt materials produced from the batching plants and being used for the Eastern Infrastructure works will be delivered to the works site using internal airfield roads and are not expected to transit via public road network.

Table 7.61; Materials required by the Concrete Batching Plant

Materials required by the Concrete Batching Plant			
Material	Delivered by	Quantity (T)	Number of Vehicle Loads
Coarse Aggregate	HGV 20T Tipper	37,700	1,940
Fine Aggregate	HGV 20T Tipper	17,500	900
Cement	HGV 25T Artic' Bulk Tanker	8,600	360
Water	Piped underground direct to plant	4,527	N/A

Table 7.62; Materials required by the Asphalt Batching Plant

Materials required by the Asphalt Batching Plant			
Material	Delivered by	Quantity (T)	Number of Vehicle Loads
Coarse Aggregate	HGV 20T Tipper	3,900	200
Fine Aggregate	HGV 20T Tipper	3,600	190
Filler	HGV 25T Artic' Bulk Tanker	700	30
Binder	HGV 25T Artic' Bulk Tanker	400	30

Table 7.63; Earthworks & Sub-Base Materials

Earthworks & Sub-Base Materials for airfield pavements			
Material	Delivered by	Quantity (T)	Number of Vehicle Loads
Excavated Soils for re-use	HGV 20T Tipper	69,900	3,590
Concrete Excavated for Crushing and Processing	HGV 20T Tipper	32,600	1,680
Type 1 Sub-base	HGV 20T Tipper	20,000	1,030

7.6.12 Overall numbers of HGV construction vehicles and average frequency of movements across the duration of the project timeline are outlined in Section 7.9 and Appendix G.

7.6.13 The vehicle numbers above are based on the current recycling potential of materials arising from the project.

7.7 Construction Plant & Equipment

7.7.1 The project will require a variety of principal plant equipment items, including some non-road mobile machinery (NRMM) - defined as any mobile machine or vehicle that is not solely intended for carrying passengers or goods on the road.

7.7.2 An indicative summary of the Primary Construction Plant & Equipment expected to be used on this project is included at Appendix G

7.7.3 This list typically includes plant equipment that may be required on a temporary basis during, for example site establishment and delivery and collection of NRMM;

7.7.4 Estimates of the numbers of construction vehicles, according to the different works scopes is outlined in the table in Section 7.9.

7.7.5 Appendix G provides a separate detailed breakdown of numbers of vehicle movements across the duration of the project.

7.8 Construction Traffic & Transport

7.8.1 Construction related traffic movements will be managed through a Construction Traffic Management Plan (CTMP) developed by the project team in advance of the construction period.

7.8.2 This will be developed through our pre-start planning process in advance of the project, formalised through our Site Management Plan and communicated to site staff and operatives, client and suppliers alike.

7.8.3 This will outline proposals for traffic movements both to and from the project, between office and temporary compound areas on the public highway and on routes within the operational airfield.

7.8.4 The plan will provide guidance for routeing of vehicles delivering materials to site and this will be communicated to all suppliers to the project as part of the procurement process.

7.8.5 Arrangements with suppliers for materials deliveries will include scheduling and timing of vehicles to site to ensure vehicles are not arriving at unexpected times and they can be unloaded and promptly turned around. By these means we aim to reduce the potential queuing at security gates which would impact not only our project deliveries, but other vehicles not associated with the project but still accessing the Heathrow airside areas.

7.8.6 Should there be peak demands, we will discuss with Heathrow Airport the possibility of dedicating certain security lanes for this project only to alleviate short term pressures and to prevent over-spill onto the public road network.

7.9 Construction Vehicle Numbers

7.9.1 The following table outlines our anticipated numbers of construction vehicles associated with the works and has been based on the proposed design and construction methodology in place at this time.

7.9.2 The actual levels will vary from time to time during the works according to phase, but the indicated numbers are a typical maximum and have been used to estimate numbers of construction personnel outlined in 7.5. Different numbers have been indicated for Airfield Infrastructure works and Acoustic Barrier Construction works.

7.9.3 Some plant may be not in use full time, but could still remain on site, rather than removal from site for short periods and bringing it back, thus reducing the numbers of vehicle movements on public and airfield roads.

Table 7.91; Operational / Plant Equipment for Airfield Infrastructure Works

Operation / Plant Equipment Required		Number
Airfield Infrastructure Works		
9T articulated dump truck		2
Bomag 120 roller		2
Bomag BW213 14t single-drum roller		1
Cable drum trailer		1
Cable pulling winch trailer		1
Gomaco Commander 3 slip form paver		1
Liebherr 8m3 Concrete Truck Mixer		4
Line marking lorry		1
Long wheelbase Transit vans		2
900mm road saw		2
Small vans		Multiple (4 #A)
20t tracked excavator		2
Hydraulic breakers to suit excavator		1
Tower lights		Multiple (6 #A)
Trailer mounted diamond coring rig		2
Transit tipper		2
Vogele Super 1700 paving machine		1
Volumetric concrete mixer truck		1
14t wheeled excavator		2
20T tipper lorry		4
Road sweeper		2

(Note #A ; provisional estimates)

Table 7.92; Operational / Plant Equipment for Acoustic Barrier Works

Operation / Plant Equipment Required	Number
Acoustic Barrier Construction Works	
Traffic management Set-up	1
Traffic management 7.5T lorry	1
7.5T lorry mounted crane	1
Transit tipper	1
9T articulated dump truck	1
3T rubber tracked 360 excavator	1
14T rubber tracked 360 excavator	1
Auger rig to suit excavator	1
Hand tools	Multiple
Liebherr 8m3 concrete truck mixer	1
Low loader	1
MEWP	2
Small vans	Multiple (4 #A)
Tower lights	Multiple (3 #A)
20T tipper lorry	2
Road sweeper	1

(Note #A ; provisional estimates)

Materials Deliveries.

7.9.4 In addition to the operational vehicle numbers, we set out in the table below anticipated numbers of vehicle movements related to the HGV transport & delivery of materials to the project and away from the project. These comprise the most significant numbers of vehicle movements and effect;

- Air Quality
- Dust
- Noise

7.9.5 The control of materials deliveries and vehicle movements will be covered in detail through the Site Management Plan and the project pre-commencement planning process (see partial draft SMP document at Appendix B) during which management of the key environmental, health and safety and quality aspects are established. The following outlines a summary of key points already identified.

We will set out proposals for establishment and operation of traffic management on public and airfield roads through a Construction Traffic Management Plan

Through our procurement process, our aim is that only contractors who are Fleet Operator Recognition Scheme (FORS) accredited would be employed for the delivery of materials to the works. The FORS is a voluntary accreditation scheme for fleet operators that aims to raise the level of quality within fleet operations and demonstrates which operators are able to achieve higher standards of best practice in terms of safety, efficiency and environmental protection.

The VolkerFitzpatrick procurement team actively seeks relationships with vehicle / plant suppliers and transport providers whom can ensure Euro VI vehicles are used wherever possible in the interests of mitigating adverse vehicle emissions associated with their projects.

Vehicles engines will be switched off whilst vehicles are not in use and not left to idle in order to reduce emissions and noise.

Vehicles used to transport bulk materials on / off and around the site will be sheeted during transit to ensure dust arising from the works can be minimised as far as possible.

7.9.6 A breakdown of the numbers of HGV movements spread over the timeline of the project is included in Appendix G

7.10 Vehicle Routeing

7.10.1 Vehicle Routeing on public roads during the construction phase is shown on the drawing at Appendix E.

7.10.2 Vehicle routeing for vehicles transiting between the batching plants, compounds and the works areas will be agreed with Heathrow Airfield operations in advance of the works. It is not established at this stage as the projects are 2 to 3 years away and Heathrow Airport need to maintain flexibility within their estate for their airside operations during the intervening time.

7.10.3 When vehicle routes are agreed, adequate signage will be established to guide vehicle operators to ensure they are able to maintain movements along agreed routes and not stray into other areas that would interfere with Heathrow airside operations.

7.10.4 Written instructions and route guides will be made available to all vehicle associated with the works.

7.10.5 Provision of separate temporary haul roads is not envisaged at this stage provided suitable use can be made of the existing airside road network.

7.11 Estimated Water Usage In Construction

7.11.1 The primary usage of water in the construction process arises from the batching of concrete materials. The following table outlines an approximate use of water in the batched concrete materials;

Table 7.11; Estimated Water Usage in Construction

Concrete Material	Quantity	Approx. Water Demand (litres) by the Batched material
Wet Lean Concrete	5,509 (m3)	1,000,000
Roller Compacted Concrete (RCC)	3,659 (m3)	443,000
H6 PQC	20,564 (m3)	3,054,000
Structural concrete foundations	199 (m3)	30,000
Total		4,527,000

7.11.2 The figures above have assumed that (fine) aggregates have a notional water content as delivered. The addition of batched water will vary in periods of wet or dry weather where the delivered moisture content varies from the notional design assumption.

7.11.3 Additional water will be used by the concrete production and placing facilities for;

- Washdown of batching plant
- Washdown of delivery vehicles
- Washdown of concrete paving plant, tools and equipment

7.11.4 Water arising from any of the above will be controlled to ensure that elevated pH wash-water is not released to stormwater drains or the environment without pH correction and settlement / filtration for removal of suspended solids.

7.12 Removal Of Temporary Structures And Buildings

7.12.1 There are no temporary structures envisaged as being required for these works.

7.12.2 The only temporary buildings envisaged for the works comprise welfare and office accommodation that will be used for the contract period and include;

- offices
- worker welfare facilities
- workshops / stores
- security facilities
- construction compounds

7.12.3 Temporary offices and compounds will be dealt with as follows;

- The main office location at the existing airside welfare facility is expected to be re-used on subsequent projects and is expected to remain in place.
- The temporary satellite compound and welfare facility proposed to be located near Terminal 5 adjacent to CP18 will be removed and the area returned to operational airfield on completion of the works.
- The Satellite compound and welfare facility in the location of the Terminal 5 Pod Parking area will be removed and the area returned to POD parking on completion of the works.
- Compound fencing, temporary power supplies etc. will be removed on completion.

7.12.4 If further projects for Heathrow emerge during this project that extend beyond its completion date, it is our intention to continue to re-use and maintain this site accommodation and welfare arrangements for future use.

7.13 Removal Of Temporary Infrastructure

7.13.1 There is little or no additional temporary infrastructure associated with this project other than the temporary offices and compounds etc. described in Section 7.12.

7.13.2 The above facilities are proposed to be established on areas of existing pavement (parking and aircraft stand areas) and not separately paved over specifically for the project.

7.13.3 Haul roads and access routes will use existing established airside and public roads and will be maintained by road sweepers when in use, to ensure they are free from any debris and dust arising from their use by works traffic.

7.13.4 Temporary signage established for the purposes of providing guidance and direction for project construction traffic will be removed on completion of the works.

7.13.5 The concrete and asphalt materials batching plants have been established by Tarmac and Associated Asphalt respectively for use by projects across the Heathrow estate. They are not regarded as temporary facilities and will remain in place to serve other uses beyond the requirements for this project.

Recovered / recycled materials arising from the works;

7.13.6 This project will give rise to the following surplus materials;

- Granular Type 1 sub-base
- Excavated subsoils.
- Excavated topsoil.

- There may be scope for limited re-use of some materials through the on-site concrete batching facility, subject to specification

7.13.7 Material surpluses that cannot be re-incorporated into the works for this project will either be retained and made available for use by Heathrow Airport on other projects or made available for re-use and / or recycling on other projects through the local construction materials market.

7.13.8 In order to meet the aspirations of the London Plan and Circular Economy, these will be retained as far as is possible at a suitable location for Heathrow Airport and made available for re-use on future projects.

7.13.9 If this is not practicable to consider, it will be made available for the benefit of other local projects within the London Borough of Hillingdon or adjacent boroughs. As this represents a resource that has a tangible value. Materials that do not have a destination use will first be registered on the London Waste Map at https://apps.london.gov.uk/waste/.

7.13.10 All measures will be considered before disposing off-site as a waste.

7.14 Neighbour Relations

7.14.1 We recognise that there are several other projects both being planned and being delivered in and around the Heathrow airport area and there is potential for a number of these to impact on adjacent neighbours and users of the airport, access on local roads and its facilities. In particular, this project is in closer proximity to the village of Longford than many previous works, but it should be recognised that part of this project is construction of infrastructure that should mitigate the impacts of noise to this community more than the current arrangements.

7.14.2 Community liaison – Proactive links between noise management activities and community relations activities will be maintained to keep local residents informed of periods of intensive construction activities, including changes to hours of work. A site contact will be appointed to whom complaints / queries about noise and vibration can be directed, investigated and acted upon.

7.14.3 Noise and vibration monitoring – A noise and vibration monitoring protocol will be developed to ensure compliance with any acoustic commitments and consents and to enable action upon potential breaches quickly and efficiently.

7.14.4 We confirm that through stakeholder engagement we will maintain regular communications with the neighbourhood community to inform and advise them of the works stages and progress during the works.

7.14.5 Information regarding construction progress will be shared through communications with the neighbourhood community to inform and advise them of aspects of the works. This can include;

- Signage

- Community social media
- Routine progress updates to local Borough and Parish Councils

7.15 Traffic Management

7.15.1 The aim of the project team is to ensure that any traffic issues that may arise during the construction works will be sensitively managed, including making arrangements for road closures, temporary traffic management, access, noise, dust and highway considerations.

7.15.2 Heathrow Airport and the Principal Contractor take responsibilities for community relations and stakeholder engagement seriously and proposals will be provided to the London Borough of Hillingdon Council before the works commence.

7.16 Site Clearance & Removal of Existing Built Infrastructure

7.16.1 The Layout & Phasing Drawings in Appendix C outline the areas of site clearance & removal of existing built infrastructure across all Phases, including;

- Phase 1
- Phase 2
- Phase 3
- Phase 4 – On Alternation
- Phase 5 – Longford Acoustic Barrier

8. Summary

8.1.1 This CEMP has been developed to outline measures to minimise and mitigate the potential negative effects relating to the construction of the Proposed Development, and to ensure industry best practice is followed.

8.1.2 It has been prepared on behalf of Heathrow Airport Ltd by VolkerFitzpatrick Ltd, drawing on their input and experience as a Tier 1 contractor qualified and capable of undertaking the role of Principal Contractor. (VolkerFitzpatrick have not been appointed as Principal Contractor).

8.1.3 They have used this experience in to demonstrate how management of the works can be suitably established to ensure Environmental aspects are controlled throughout the duration of the construction phase.

8.1.4 Key environmental issues will require consideration / protection during the construction works and will include:

- Emissions from construction vehicles and equipment during construction;
- Damage or loss of notable trees;
- Disturbance or loss of buried archaeological remains;
- Mobilisation of contaminants and accidental spillages;
- Disturbance to protected and invasive species on site;
- Increase in noise levels as a result of the construction phase;
- Construction works and associated plant and machinery may temporarily impact visual receptors in proximity to the Site;
- Vehicle Management during the construction phase; and
- Waste Management.

8.1.5 This document and its supporting appendices outline a series of best practice measures recommended through a Site Management Planning (SMP) process. By adoption of this process, the appointed Principal Contractor will ensure environmental impacts are considered and suitable controls implemented throughout the construction of the development.

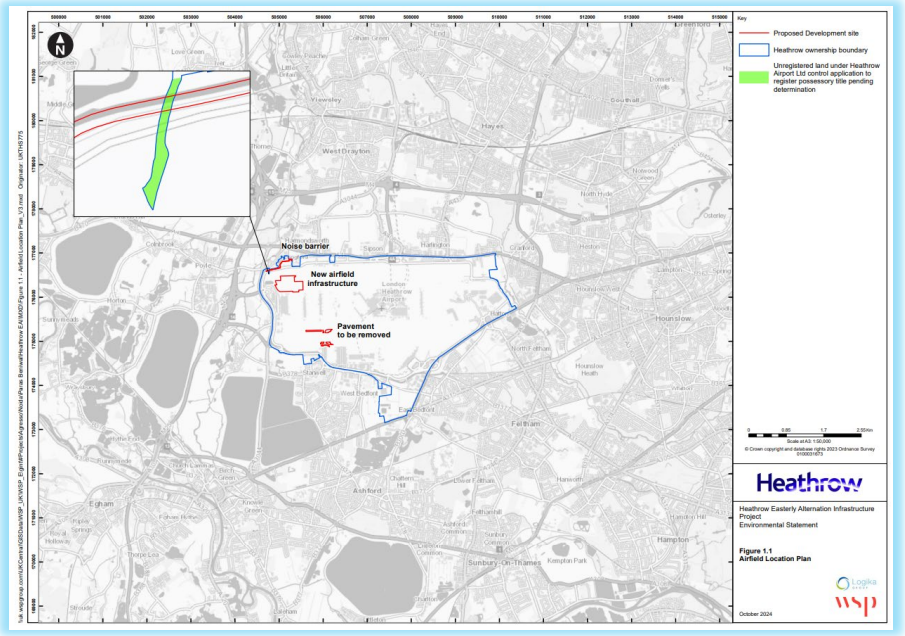
9. Appendices

A - Site Location Plans

9.1.1 The Site Location Plans are given on the following drawings;

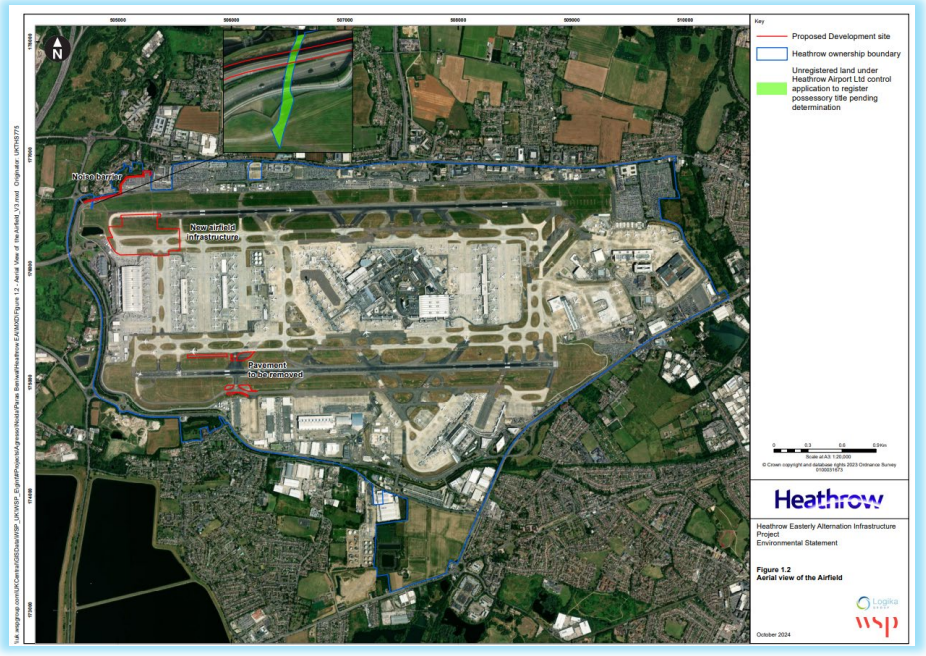
- WSP - Fig 2.1 (Airfield Location Plan)

Graphic A1; Site Location Plan



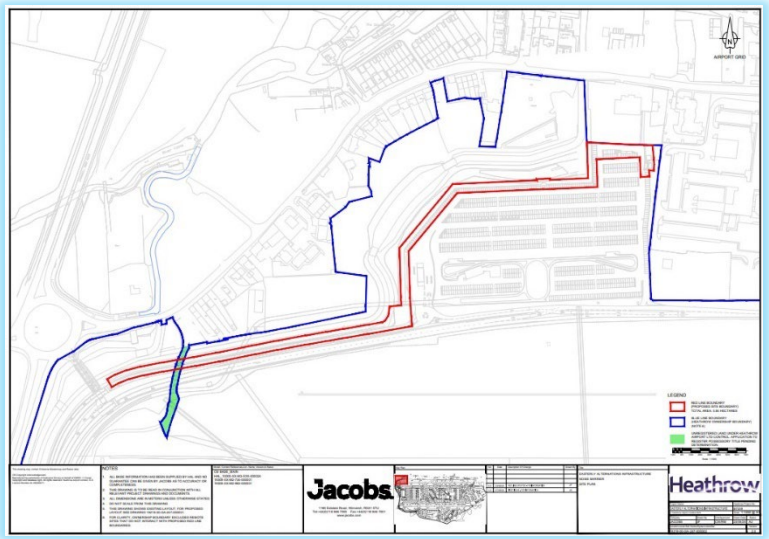
- WSP - Fig 1.2 (Location of the Proposed Development within Heathrow Airport's Boundary).

Graphic A2; Location within Heathrow Airport's Boundary



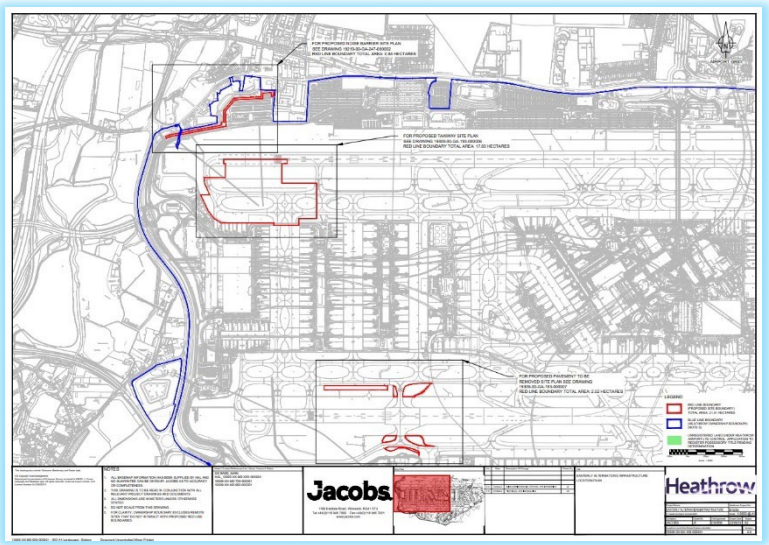
- Site Location Plan Longford Village Noise Barrier - *Jacobs 19219-00-GA-247-000002_Longford Noise Barrier - Site Plan_v2.0*

Graphic A3; Location of Longford Village Noise Barrier



- Site Location Plan Northern Runway Works - *Jacobs 19309-00-GA-193-000001_Northern Runway - Location Plan_v2.0*

Graphic A4; Location of Northern Runway Works



B – Draft Site Management Plan (Including Environmental Plan)

9.1.2 Preparation of a Draft Site Management Plan has been commenced on behalf of Heathrow Airport Ltd by;

VolkerFitzpatrick Ltd
Hertford Road,
Hoddesdon,
Hertfordshire
EN11 9BX
United Kingdom

9.1.3 It is intended for use as a model framework system for the management of Health & Safety, Environment, Quality and Sustainability (HSEQS) on a working project. This document has been partially developed during the pre-construction stage as supporting information to a Construction Environment Management Plan developed for the proposed Easterly Alternation Infrastructure project. The document includes Pre-Construction drafts of the following;

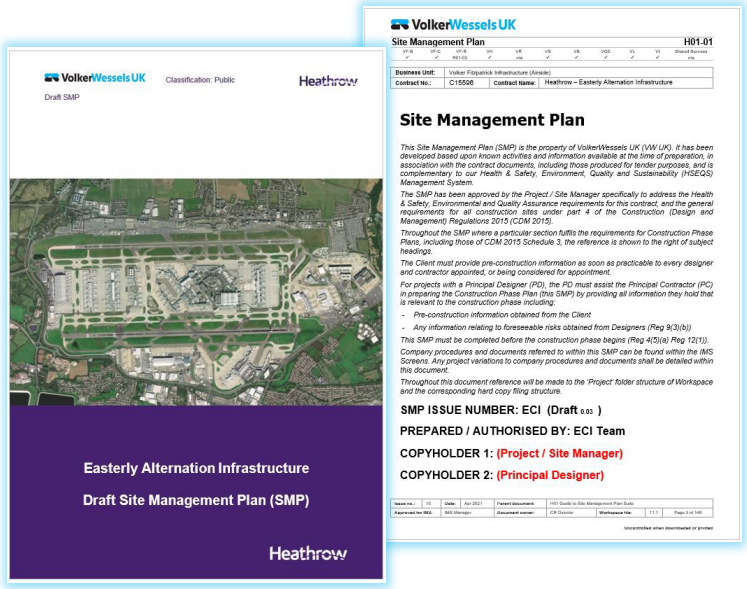
- the Environmental Section of the SMP and
- the Environmental Planning Meeting Agenda.

9.1.4 Part of the emerging draft has been provided as supporting information to the CEMP for information only and a standalone appended document.

"Easterly Alternation Infrastructure - DRAFT Site Management Plan (SMP)"

Graphic B; SMP

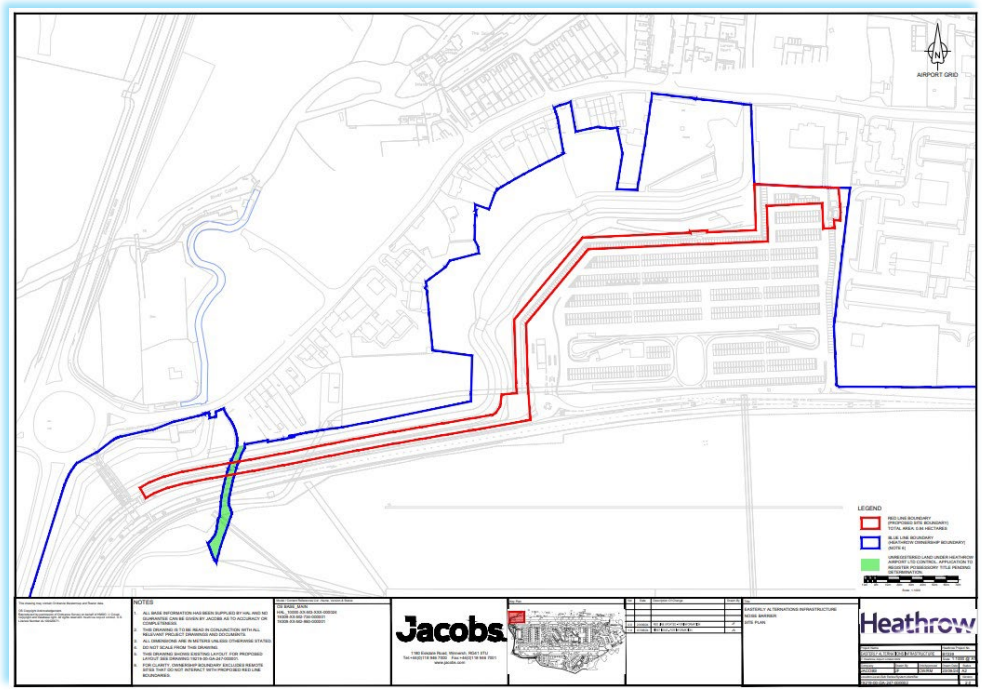
(See separate standalone document)



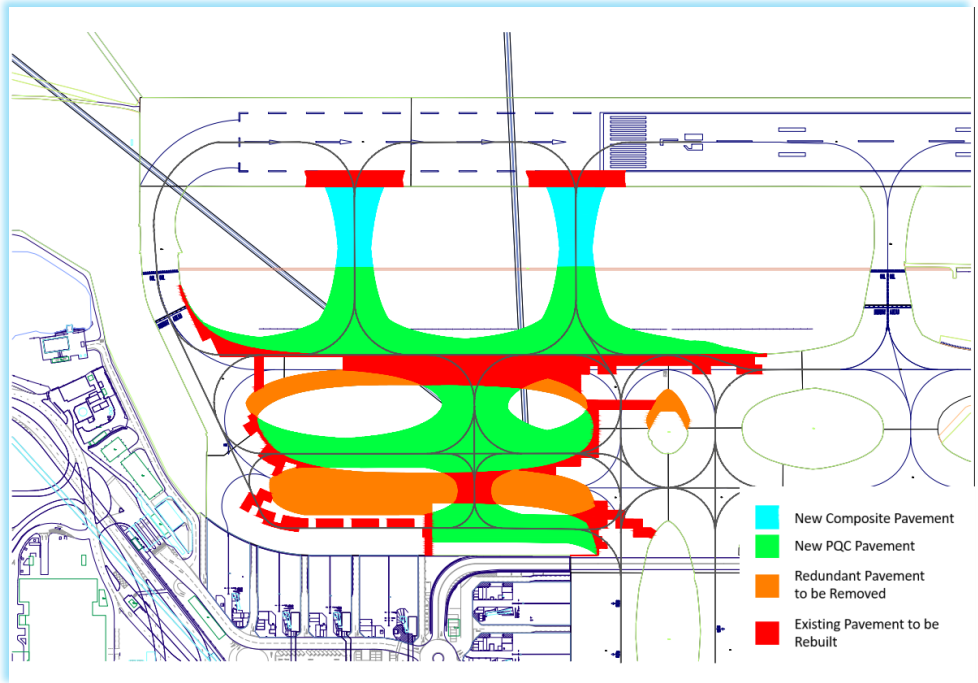
C – Layout & Phasing Diagrams

9.1.5 The following diagrams indicate the planned phasing of the project during the construction programme.

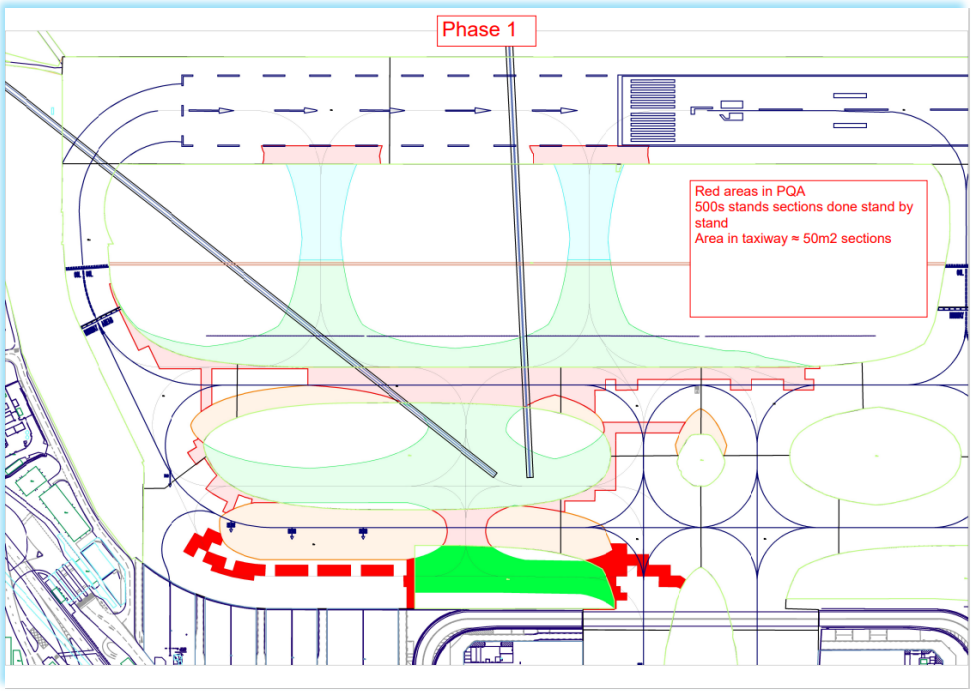
Graphic C6; Phase 1 (Longford Acoustic Barrier) - April 2027 to July 2027



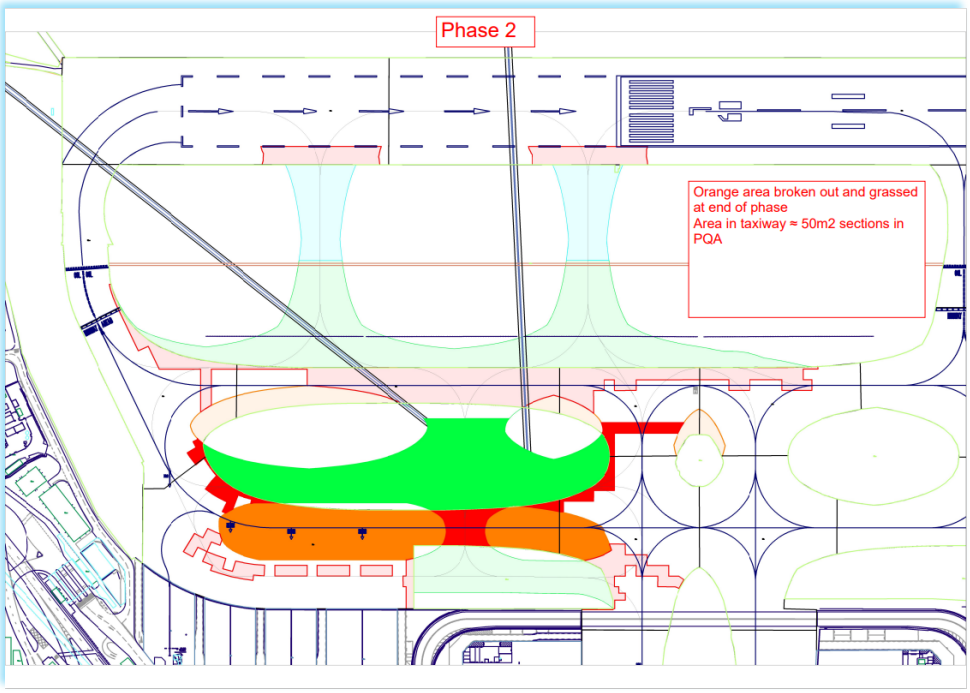
Graphic C2; All Operational Airfield Phases 2 – 5 March 2027 to October 2028



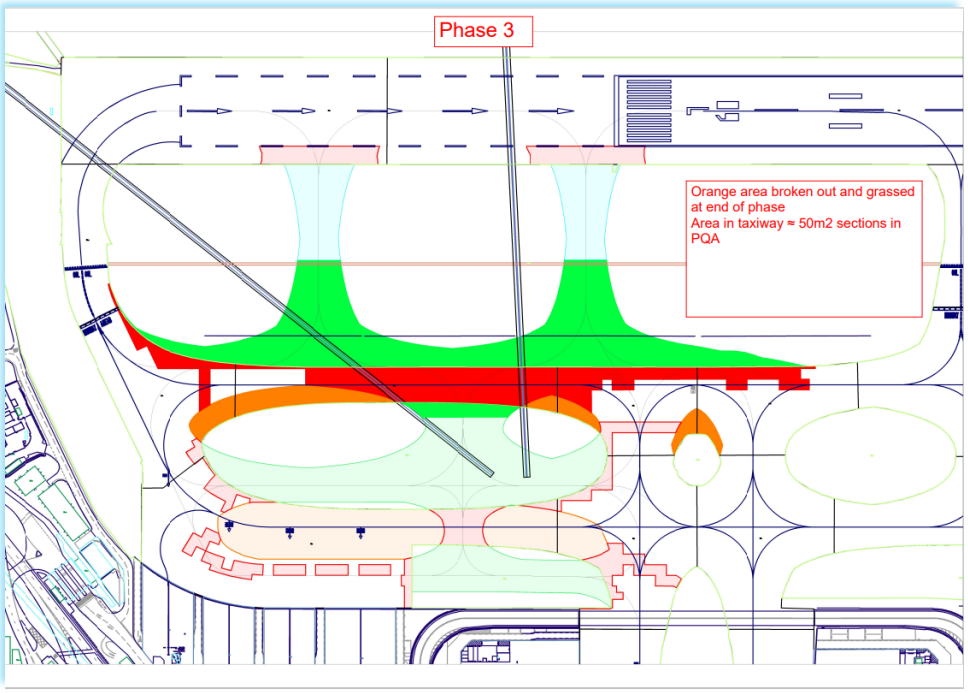
Graphic C3; Airfield Phase 2 - March 2027 to August 2027



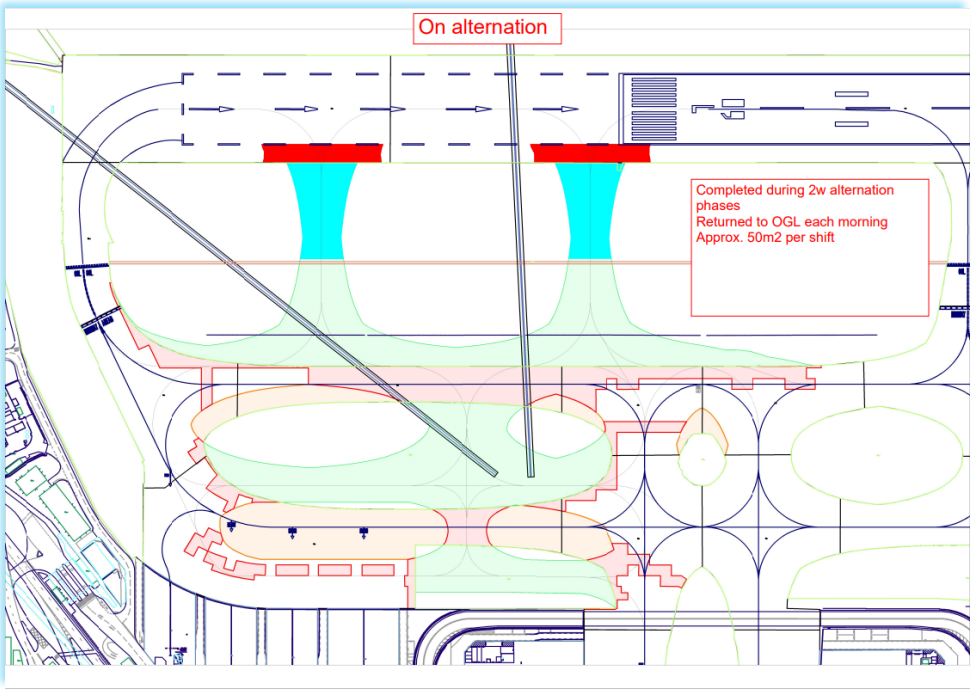
Graphic C4; Airfield Phase 3 - August 2027 to March 2028



Graphic C5; Airfield Phase 4 - March 2028 to October 2028



Graphic C6; Airfield Phase 5 (RAT-E & RAT-W On Alternation) - March 2027 to March 2028



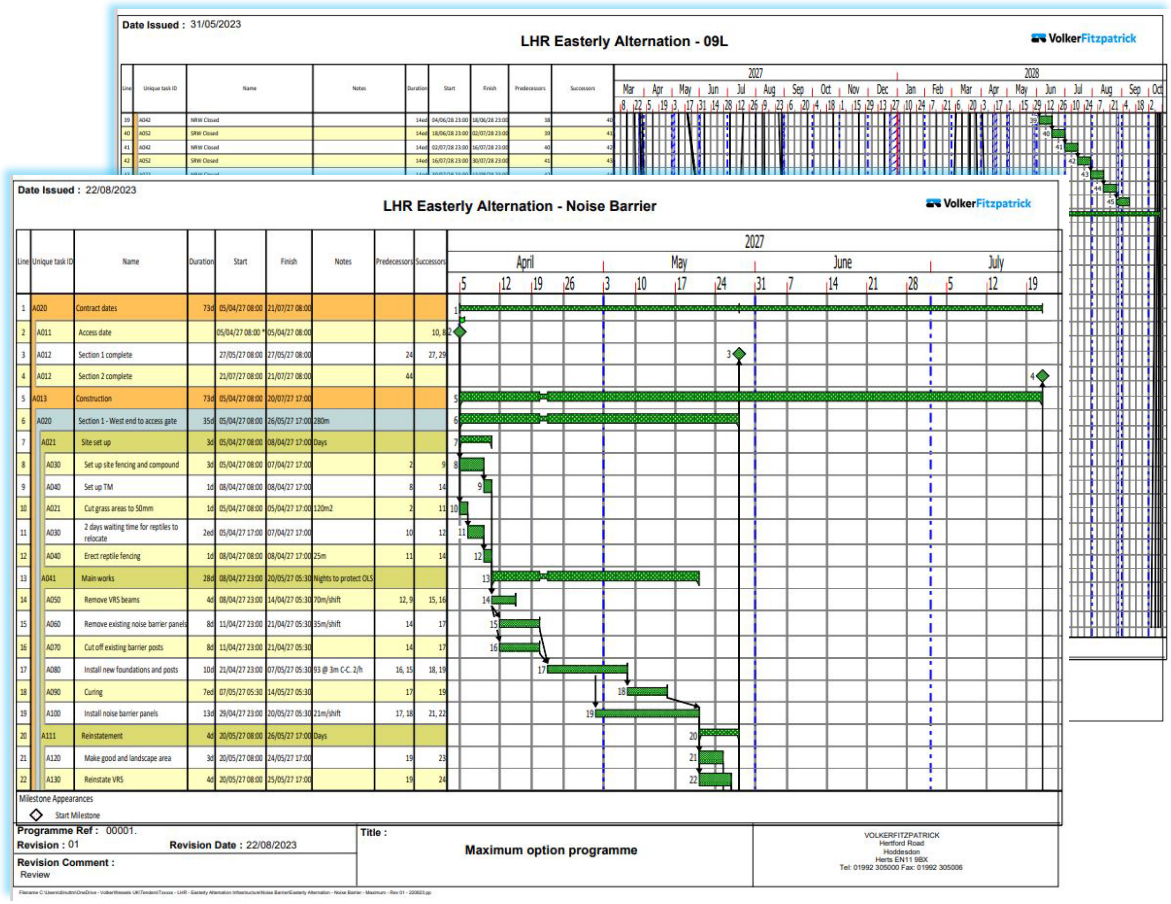
D - Outline Programme

9.1.6 Attached are copies of the Detailed Construction Programmes Ref;

- C15596 LHR Easterly Alternation – Noise Barrier - Programme Ref 00001 Rev 01
- C15596 LHR Easterly Alternation – 09L - Option 1 - Programme Ref 00001 Rev 04

9.1.7 Please note these are separate documents.

Graphic D; Outline Programmes



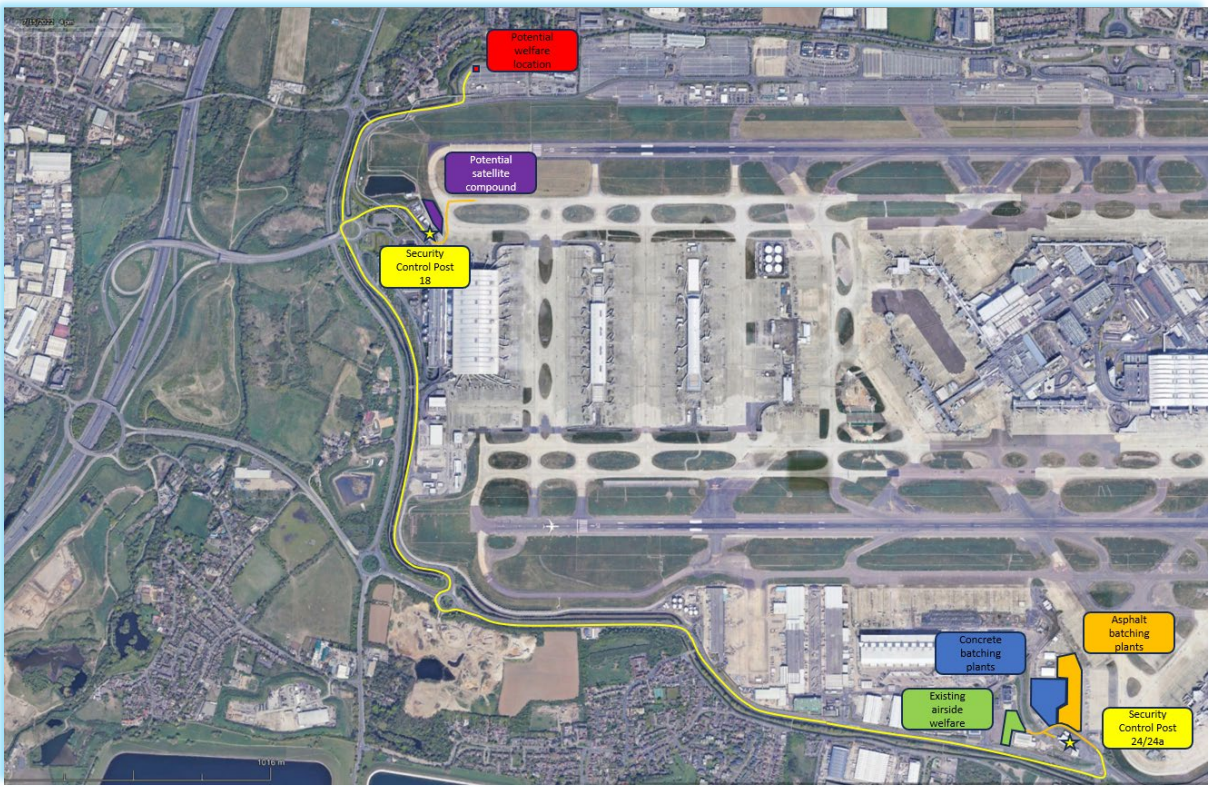
9.1.8 Note circa 50% of the Noise Barrier will be constructed during daytime hours and 50% during night-time working to ensure that the works and Plant Equipment do not infringe the Airfield OLS

E - Construction Offices, Compounds, Batching Plants and Vehicle Routeing

9.1.9 The drawing below indicates the proposed locations of

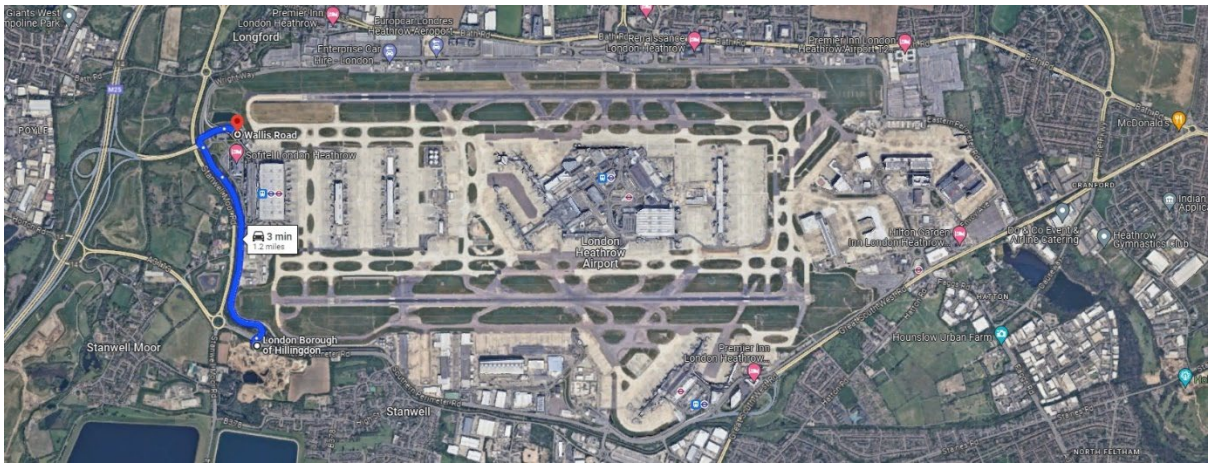
- Construction Offices,
- Compounds,
- Batching Plants and
- Vehicle Routeing

Graphic E1; Construction Offices, Compounds, Batching Plants and Vehicle Routeing



Graphic E2 Typical Traffic Routeing between Security Gates 25 to Recycling location at Cappagh Stanwell

Graphic E3 Typical Traffic Routeing between Security Gates 18 to Recycling location at Cappagh Stanwell



F - Primary Construction Plant

9.1.10 The following provides an indicative summary of the Primary Construction Plant & Equipment expected to be used on this project.

Table F; Primary Construction Plant & Equipment

Primary Construction Plant & Equipment
Articulated or rigid dump trucks
Asphalt paving machine
Cable drum carrying trailer and winch vehicles
Compressors
Concrete pumps
Concrete truck mixers
Excavators - tracked (with or without breaker or auger attachment)
Excavators – wheeled
Forklifts
Generators
Low-loader HGV transport
Line marking vehicles
Mobile cranes
Mobile crushing plant
Mobile work equipment platforms (MEWPs)
Road saws
Road sweepers
Slip form paver
Telescopic materials handlers
Tipper lorries – insulated
Tipper lorries – uninsulated
Tower lights
Vehicle mounted coring rigs
Vibrating or deadweight rollers
Volumetric concrete mixer trucks

G - Estimated Vehicle Numbers

9.1.11 The following tables indicate the approximate number of anticipated monthly HGV vehicle numbers spread over the timeline of the project.

9.1.12 These numbers are based on the premise that one delivery generates two vehicle movements, one vehicle movement in and one vehicle movement out.

9.1.13 The numbers assume that temporary compounds near to the works can be used as far as possible for storing plant equipment vehicle in between shifts to avoid the need for all vehicles to exit the works areas at the end of shifts and re-enter at the beginning.

Table G1; Average Numbers of HGV Movements related to the Airfield Paving Works

Vehicle Movements related to the Airfield Paving Works		
Month	**Average monthly numbers of HGV Movements**	**Average Numbers of Daily HGV Movements**
Nov 2025	1,200	60
Dec 2025	1,100	60
Jan 2026	1,050	70
Feb 2026	630	40
Mar 2026	300	20
Apr 2026	1,580	70
May 2026	1,300	70
Jun 2026	1,370	70
Jul 2026	1,910	80
Aug 2026	1,710	90
Sep 2026	630	70
Oct 2026	220	30
Nov 2026	1,620	90
Dec 2026	1,660	90
Jan 2027	2,280	120
Feb 2027	1,220	70
Mar 2027	2,320	120
Apr 2027	550	30
May 2027	220	30
Jun 2027	300	30
Total	23,170	

Table G2; Average Numbers of HGV Movements related to the Longford Noise Mitigation Barrier Works

Vehicle Movements related to the Longford Noise Mitigation Barrier		
Month	**Average monthly numbers of HGV Movements**	**Average Numbers of Daily HGV Movements**
Jul 2025	70	4
Aug 2025	60	3
Sept 2025	70	4
Oct 2025	60	3
Total	260	

The figures above are based on the following assumptions;

Earthworks materials (concrete for recycling, sub-base for recycling, soils for recycling, soils for disposal) arising from the works are assumed to be taken off-site. Each “load” will generate two vehicle movements – one vehicle in and one vehicle out.

Earthworks materials (concrete for recycling, sub-base for recycling, soils for recycling, soils for disposal) arising from the works that are not required by the new works but recycled into the local construction materials market have not been included in these figures.

Earthworks materials (sub-base or soils) required by the works are assumed to be brought in from an off-site location. Each “load” will generate two vehicle movements – one vehicle in and one vehicle out.

The vehicle numbers include for aggregates and other materials required by the concrete and asphalt batching plants. Each “load” will generate two vehicle movements – one vehicle in and one vehicle out.

Batched concrete and asphalt materials are planned to be transported between batching plants and the Eastern Alternation Infrastructure works within the operational airfield area to avoid the need for them to leave and re-enter the secure airfield area and travel on public roads.

H - Estimated Quantities of Recycling and Waste

9.1.14 The table below outlines quantities of materials derived from the project that are Surplus to the needs of the new construction – i.e. are not currently destined for re-use or recycling within the new construction areas;

Table H; Surplus Materials vs Materials re-used within the works.

Material	Quantity	Units
Excavated soils arising from the works		
Excavate soils & remove to stockpile for re-use	34,923	(m3)
Soils re-used for filling areas of redundant / removed paving		
Reinstatement Filling with Recovered Soils	-9,073	(m3)
Surplus	25,850	(m3)
Granular sub-base materials arising from the works		
Excavate & Crush Concrete	14,149	(m3)
Granular sub-base materials re-used within the works		
Crushed Concrete Re-Used as Granular Sub-Base (Type 1)	-8,676	(m3)
Crushed PQ Concrete Re-Used as Coarse and Fine Aggregate in Wet Lean Concrete	-3,039	(m3)
Surplus	2,434	(m3)

I - Primary Material Quantities (Estimate).

9.1.15 The following table is an indicative estimate of the quantities of primary materials required for the project.

Table I; Quantities of Primary Materials used within the works.

Materials	Quantity	Units
Airfield Easterly Infrastructure Works		
Excavate soils & remove to stockpile for re-use	34,724	(m3)
Excavate & Crush Concrete	14,149	(m3)
Granular Sub-Base (Type 1)	8,676	(m3)
Wet Lean Concrete	5,509	(m3)
Roller Compacted Concrete (RCC)	3,659	(m3)
H6 Pavement Quality Concrete (PQC)	20,564	(m3)
Asphalt – Base	1,745	(T)
Asphalt – Binder	793	(T)
Asphalt – Surface	793	(T)
Reinstatement Filling with Recovered Soils	9,073	(m3)
Airfield Ground Markings - Centreline	2,614	(m)
Airfield Ground Lighting	307	(Nr)
Longford Noise Barrier Works		
Excavate soils & remove to stockpile for re-use	199	(m3)
Reptile Fencing	215	(m)
Structural concrete foundations	199	(m3)
Structural Steel Posts	198	(Nr)
New Barrier Panels (timber / clear)	196	Nr

J - Site Clearance Drawings

9.1.16 Site Clearance Drawings – Site Clearance is limited to the areas shown on the construction drawings for";

- The removal of existing acoustic barrier and
- The removal of airfield pavement

9.1.17 The Phasing drawings (Appendix C) outline the extents of both airfield pavement and existing acoustic barrier planned to be removed.

K - Estimated Water Demand

9.1.18 Estimated Water Demand – has been included for concrete batching, which is the primary use on this project.

9.1.19 The water quantities associated with site accommodation and welfare are small when compared with the concrete batching usage.

L – Profile Of Workforce Numbers Over The Construction Period

9.1.20 The following provides an estimate of the Workforce Numbers over the construction period.

Graphic L – Histogram of Workforce Numbers