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London Luton Airport Expansion

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Volume 5 Environmental Statement and Related Documents
5.02 Appendix 15.1 Environmental Risk Record

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The Planning Act 2008

**The Infrastructure Planning (Applications: Prescribed Forms and Procedure)
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**London Luton Airport Expansion Development Consent
Order 202x**

**5.02 ENVIRONMENTAL STATEMENT APPENDIX 15.1
ENVIRONMENTAL RISK RECORD**

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1 INTRODUCTION

- 1.1.1 This Appendix sets out the results of the review process undertaken for major accidents and disasters (MA&D) summarised within **Chapter 15** of the Environmental Statement (ES) [TR020001/APP/5.01].
- 1.1.2 This Environmental Risk Record sets out potential hazards, with the identified hazard sources, pathways, and receptors. Study areas for each hazard were determined on the basis of the impact areas of past incidents of similar nature or on the basis of professional judgement. A description of the receptors within the study areas for the identified risk events is provided in **Chapter 15** of the ES [TR020001/APP/5.01].
- 1.1.3 A screening exercise of all identified hazards related to MA&D was first undertaken to identify which hazards have the potential to result in serious damage within the context of the Proposed Development without any mitigation. Each hazard was assigned a 'severity of harm' and 'duration' category on the basis of the criteria provided within Chemical and Downstream Oil Industries Forum (CDOIF) (Ref. 1) and CAP760 (Ref. 2) guidance, assuming the worst case consequence and no mitigation. A worst case consequence of the risk event was determined on the basis of the criteria set out within CDOIF guidance.
- 1.1.4 Risks potentially resulting in a MA&D were further assessed in order to determine whether the tolerability of the risk with mitigation in place is acceptable. To do this, the likelihood of the risk with mitigation in place was determined on the basis of the criteria set out in CAP760. Risk tolerability limits set out within CAP760 and CDOIF were adapted to derive, whether with mitigation in place the risk is tolerable, tolerable if As Low As Reasonably Practicable (TifALARP) or intolerable. The Environmental Risk Record summarises the mitigation relied upon.
- 1.1.5 All risks categorised as tolerable or TifALARP are considered as 'not significant', all risks categorised as 'intolerable' are categorised as 'significant'.

Identification of project risks

- 1.1.6 The following sources of information, current at the time of producing this appendix, have been reviewed:
- a. Construction, Design and Management (CDM) risk registers (live working documents);
 - b. Civil Aviation Authority (CAA) CAP 1036 Global Fatal Accident Review 2002 to 2011 (Ref. 3);
 - c. European Commission's Major Accident Reporting System (eMARS) website (Ref. 4);
 - d. Bedfordshire Community Risk Register (Ref. 5);
 - e. Hertfordshire Risk Register (Ref. 6); and
 - f. Cabinet Office National Risk Register of Civil Emergencies (Ref. 7).

Review of risks

- 1.1.7 The objective of this risk review is to determine whether additional mitigation measures may be required to manage the identified risks to the environment to be As Low As Reasonably Practicable (ALARP). This has been done in consultation with the project team.
- 1.1.8 A major accident, in the context of this assessment, means an uncontrolled event caused by a man-made activity or asset that may result in immediate or delayed serious damage to human health, welfare and/or the environment and requires the use of resources beyond those of Luton Rising (a trading name for London Luton Airport Limited) ('the Applicant'), London Luton Airport Operations Limited (LLAOL) ('the operator') or its lead contractor to manage. It should be noted that malicious intent is not accidental, however, the outcome e.g. aeroplane crash, may be the same and therefore the same mitigation measures will apply to both deliberate and accidental events.
- 1.1.9 A disaster in the context of this assessment, is a naturally occurring phenomenon such as an extreme weather event (e.g. storm, flood, extreme temperatures) or ground-related hazard events (e.g. subsidence, landslide, earthquake) with the potential to cause an event or situation that leads to immediate or delayed serious damage to human health, welfare and/or the environment and requires the use of resources beyond those of the Applicant, the operator or its lead contractor to manage.
- 1.1.10 Serious damage has been defined as the potential loss of life or permanent injury and/or permanent or long-lasting damage to an environmental receptor which cannot be restored through minor clean-up and restoration efforts.

1.2 Definitions for severity of harm

Table 1.1: Definitions for severity of harm

	Severity of Harm Categories				
	No serious Damage	Severe	Major	Catastrophic	Source of definition
Receptors	What this level of harm might be significant pollution, it is not considered to result in serious irrecoverable damage	The lowest level of harm that might be considered to result in serious damage.			
People (including passengers, workers, members of the public) Aircrafts and aerodromes	Significant incident involving circumstances indicating that an accident, a serious or major incident could have occurred, if the risk had not been managed within safety margins, or if another aircraft had been in the vicinity. Reduced ability of the flight crew or air traffic control to cope with the increase in workload as a result of	A major incident associated with the operation of an aircraft, in which safety of aircraft may have been compromised, having led to a near collision between aircraft, with ground or obstacles. Minor injury to occupants of the aircraft or staff/members of public at the	As defined in Council directive 94/56/EC for air traffic services (Ref. 8). For the aerodrome, an event where an accident nearly occurs. The outcome is not under control and could very likely lead to an accident.	As defined in Council directive 94/56/EC for air traffic services. Also includes loss of or substantial damage to major aerodrome facilities. Serious injury or death of multiple staff/ members of public at the aerodrome.	CAP760

	Severity of Harm Categories				
	No serious Damage	Severe	Major	Catastrophic	Source of definition
	the conditions impairing their efficiency. Nuisance to occupants of the aircraft or staff/members of public at the aerodrome.	aerodrome. Minor damage to aircraft or major aerodrome facilities may occur.	Damage to major aerodrome facilities. Serious injury to staff/members of public at the aerodrome.		
Designated Land/ Water Sites (Nationally important) (e.g. NNR, SSSI, MNR)	<0.5ha or <10%	>0.5ha or 10-50% of site area, associated linear feature or population	>50% of site area, associated linear feature or population	n/a	CDOIF
Designated Land/Water Sites (Internationally important) (e.g. SAC, SPA, Ramsar)	<0.5ha or <5% (<5% LF/Pop)	>0.5ha or 5-25% of site area or 5-25% of associated linear feature or population	25-50% of site area, associated linear feature or population	>50% of site area, associated linear feature or population	CDOIF

	Severity of Harm Categories				
	No serious Damage	Severe	Major	Catastrophic	Source of definition
Other designated Land (e.g. ESA, AONB, National Park, etc.)	<10ha or <10%	10-100ha or 10-50% of land	>100ha or >50% of land	n/a	CDOIF
Scarce Habitat	<2 ha or <10%	2-20ha or 10-50% of habitat	>20ha or >50% of habitat	n/a	CDOIF
Widespread Habitat - Non designated Land	<10ha	Contamination of 10-100ha of land, preventing growing of crops, grazing of domestic animals or renders the area inaccessible to the public because of possible skin contact with dangerous substances. Alternatively, contamination of 10ha or more of vacant land.	100-1000ha (applied as per text under 'Severe')	>1000ha (applied as per text under 'Severe')	CDOIF

	Severity of Harm Categories				
	No serious Damage	Severe	Major	Catastrophic	Source of definition
Widespread Habitat - Non designated Water	n/a	Contamination of aquatic habitat which prevents fishing or aquaculture or renders is inaccessible to the public.	n/a	n/a	CDOIF
Groundwater Source of Drinking Water	Interruption of drinking water supply <1000 person-hours or For England & Wales only <1ha SPZ	Interruption of drinking water supplied from a ground or surface source (where persons affected x duration in hours [at least 2] > 1,000) or For England & Wales only 1-10ha of SPZ where drinking water standards are breached	>1 x 10 ⁷ person-hours interruption of drinking water (a town of ~100,000 people losing supply for month) or For England & Wales only 10-100ha SPZ drinking water standards breached	>1 x 10 ⁹ person-hours interruption of drinking (~1 million people losing supply for 1 month) or For England & Wales only >100ha SPZ drinking water standards breached	CDOIF

	Severity of Harm Categories				
	No serious Damage	Severe	Major	Catastrophic	Source of definition
Groundwater – non Drinking Water Source	<1ha	1-100ha of aquifer where water quality standards are breached (or hazardous substance is discernible)	100-10,000ha	>10,000ha	CDOIF
Groundwater in unproductive strata	Groundwater not a pathway to another receptor.	<i>Where the groundwater is a pathway for another receptor assess against relevant criteria for the receptor.</i>	CDOIF	Groundwater in unproductive strata	Groundwater not a pathway to another receptor.

	Severity of Harm Categories				
	No serious Damage	Severe	Major	Catastrophic	Source of definition
Soil or sediment (i.e. as receptor rather than purely a pathway)	Contamination not leading to environmental damage (as per ELD), or not significantly affecting overlying water quality	Contamination of 10-100ha of land etc. as per Widespread Habitat; Contamination sufficient to be deemed environmental damage (Environmental Liability Directive)	Contamination of 100-1000ha of land, as per Widespread Habitat; Contamination rendering the soil immediately hazardous to humans (e.g. skin contact) or the living environment, but remediation available	Contamination of >1000ha of land, as per Widespread Habitat; Contamination rendering the soil immediately hazardous to humans (e.g. skin contact) or the living environment and remediation difficult or impossible.	Soil or sediment (i.e. as receptor rather than purely a pathway)

	Severity of Harm Categories				
	No serious Damage	Severe	Major	Catastrophic	Source of definition
Built environment <i>Under CDOIF, this is limited to Grade 1 / Cat A Listed buildings, scheduled ancient monuments, conservation area, etc</i>	Damage below a level at which designation of importance would be withdrawn.	Damage sufficient for designation of importance to be withdrawn.	Feature of built environment subject to designation of importance entirely destroyed.	n/a	Built environment <i>Under CDOIF, this is limited to Grade 1 / Cat A Listed buildings, scheduled ancient monuments, conservation area, etc</i>
Particular species (Note - these criteria apply nationally - i.e. England, Wales, Scotland)	Loss of <1% of animal or <5% of plant ground cover in a habitat.	Loss of 1-10% of animal or 5-50% of plant ground cover.	Loss of 10-90% of animal or 50-90% of plant ground cover.	Total loss (>90%) of animal or plant ground cover.	Particular species (Note - these criteria apply nationally - i.e. England, Wales, Scotland)

	Severity of Harm Categories				
	No serious Damage	Severe	Major	Catastrophic	Source of definition
Marine	<2ha littoral or sublittoral zone, <100ha of open sea benthic community, <100 dead sea birds (<500 gulls), <5 dead/significantly impaired sea mammals	2-20ha littoral or sublittoral zone, 100-1000ha of open sea benthic community, 100-1000 dead sea birds (500-5000 gulls), 5-50 dead/significantly impaired sea mammals	20-200ha littoral or sub-littoral zone, 100-10,000ha of open sea benthic community, 1000-10,000 dead sea birds (5,000-50,000 gulls), 50-500 dead/significantly impaired sea mammals	>200ha littoral or sublittoral zone, >10000ha of open sea benthic community, >10000 dead sea birds (>50000 gulls), >500 dead/significantly impaired sea mammals	Marine
Fresh and estuarine water habitats	Impact below that of Severe	WFD Chemical or ecological status lowered by one class for 2-10km of watercourse or 2-20ha or 10-50% area of estuaries or ponds. Plus interruption of drinking water supplies, as per DETR Table 6	WFD Chemical or ecological status lowered by one class for 10-200km of watercourse or 20- 200ha or 50-90% area of estuaries and ponds. Plus interruption of drinking water supplies, as per DETR Table 6	WFD Chemical or ecological status lowered by one class for >200km of watercourse or >200ha or >90% area of estuaries and ponds. Plus interruption of drinking water supplies, as per DETR Table 6	Fresh and estuarine water habitats

Source: CAA CAP760 Guidance on the conduct of Hazard Identification, Risk Assessment and the Production of Safety Cases: [REDACTED] (Ref. 1)

CDOIF Guideline - Environmental Risk Tolerability for COMAH Establishments: [REDACTED] (Ref. 2)

1.3 Definitions for Duration/Recovery Criteria

Table 1.2: Definitions for duration/recovery criteria

Description	Short term	Medium term	Long term	Very long term or permanent
	How with such short recovery is not considered a MA&D.			
Population	n/a	Recoverable injuries	Irrecoverable injuries	Death
Groundwater or surface water drinking water source (public or private)	n/a	n/a	Harm affecting drinking water source or SPZ < 6 years	Harm affecting drinking water source or SPZ >6 years
Groundwater (except drinking water sources):WFD Hazardous/Non Hazardous substances	WFD hazardous substances < 3 months	WFD hazardous subs > 3 months	WFD hazardous subs > 6yrs	WFD hazardous subs >20 years
	WFD non-hazardous substances < 1yr	WFD non-hazardous substances > 1yr	WFD non-hazardous substances >10 years	WFD non-hazardous substances >20 years
Surface water (except drinking water sources – see above)	< 1 year	>1 year	>10 years	>20 years
Land	< 3 years or < 2 growing seasons for agricultural land	> 3 years or > 2 growing seasons for agricultural land	>20 years	>50 years
Built environment	Can be repaired in < 3 years, such that its designation can be reinstated	Can be repaired in > 3 years, such that its designation can be reinstated	Feature destroyed, cannot be rebuilt, all features except world heritage site	Feature destroyed, cannot be rebuilt, world heritage site

Source: CDOIF Guideline - Environmental Risk Tolerability for COMAH Establishments: [REDACTED] (Ref. 1)

1.4 Definitions for likelihood and Tolerability

Table 1.3: Definitions for likelihood and tolerability

	Probability	Extremely improbable	Extremely remote	Remote	Reasonably probable	Frequent
	Quantitative definition	Should virtually never occur but is theoretically possible	Once in 1000 years to once in 100,000 years	Once in 10 years to once in 1000 years	Once per 40 days to once in 10 years	Once per hour to once in 40 days
	Qualitative definition	No further measures available to mitigate the risk any lower.	Very unlikely to occur	Unlikely to occur during the total operational life of the system	May occur once during total operational life of the system	May occur several times during operational life
Consequence (CDOIF definition)	Consequence CAP760 definition					
Category D	Accidents	TifALARP*	Intolerable	Intolerable	Intolerable	Intolerable
Category C	Serious incident	Tolerable	TifALARP*	Intolerable	Intolerable	Intolerable
Category B	Major incident	Tolerable	Tolerable	TifALARP*	Intolerable	Intolerable
Category A	Significant incident	Tolerable	Tolerable	Tolerable	TifALARP*	Intolerable
Not a MA&D	No effect immediately	Not within the scope of MA&D assessment				

*TifALARP = Tolerable if ALARP (As Low As Reasonably Practicable)
 Significant effect = unacceptable/ intolerable risks
 Not significant effect = acceptable (tolerable) and TifALARP risks

Sources:

CAA CAP760 Guidance on the conduct of Hazard Identification, Risk Assessment and the Production of Safety Cases: [redacted] (Ref. 1)
 CDOIF Guideline - Environmental Risk Tolerability for COMAH Establishments: [redacted] (Ref. 2)

1.5 Environmental Risk Record

Table 1.4: Environmental risk record

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Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
Construction														
Vulnerability of the Proposed Development to natural disasters during construction														
C1	Extreme rainfall events and subsequent flooding	Flooding of the construction site. Refer to ID C14 for consideration of contamination risk due to run-off from construction site.	On-site: Construction personnel and equipment, Sensitive environmental receptors on-site (e.g. groundwater and soils, refer to Chapter 15 of the ES [TR020001/APP/5.01] for further description); Existing airport infrastructure and aircraft; Artefacts of national or international importance during import/export;	On-site: Damage to construction equipment and risk of injury to construction personnel due to flooding; Release of contaminants into the environment, resulting in a major pollution incident due to run-off the construction site (see Risk ID C14); Damage to equipment and infrastructure within the existing airport, stopping airport operations; Damage to artefacts of national or international importance during import/export;	Yes	Catchment area within flood risk modelling	Major	Medium term	Category B	The CoCP, Appendix 4.2 [TR020001/APP/5.02] sets the requirement for a surface water management plan to be prepared to manage surface water runoff from the construction site prior to the installation of permanent drainage infrastructure. If the installation of permanent drainage impacts on the existing airport drainage network, a temporary drainage system may be required. Furthermore, a survey of the existing drainage system to inform design development would be undertaken. This will mitigate the risk of flooding at the site and downstream of the construction site before permanent drainage is installed. Furthermore, any construction works within areas at risk of flooding will be limited, as set out within the CoCP Appendix 4.2 [TR020001/APP/5.02] .	Remote	TifALARP *	Not Significant	Chapter 9 Climate Change Resilience [TR020001/A PP/5.01] ; Chapter 20: Water Resources and Flood Risk [TR020001/A PP/5.01] ; Drainage Design Statement, Appendix 20.4 [TR020001/A PP/5.02] ; Code of Construction Practice (CoCP) Appendix 4.2 [TR020001/A PP/5.02]

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										In assessment Phase 2a permanent drainage infrastructure would have been installed which can accommodate for surface water flows during 1 in 100 years storm event, accounting for an increase in precipitation of 40% due to climate change.				
C2	Strong winds, tornadoes	Debris from construction site during strong winds (Foreign Object Debris (FOD) hazard) Unsafe operation of lifting equipment	On-site: Construction personnel and equipment, Existing airport infrastructure and aircraft, Artefacts of national or international importance during import/export	On-site: Damage to construction equipment and risk of injury or death of construction personnel; Collision of aircraft with FOD from construction site; Damage to existing airport infrastructure; Damage to artefacts of national or international importance during import/export;	Yes	Site	Catastrophic	Very long term or Permanent	Category D	All materials and equipment stored on site will be covered and secured to minimise the risk of debris from site during strong winds. Furthermore, weather forecast will be monitored throughout construction to plan for extreme weather events. In line with the CoCP Appendix 4.2 [TR020001/APP/5.02] , dust suppression measures will be implemented to dampen down surfaces and minimise the risk of dust from the construction site. A safe system of work will be established for the operation of lifting equipment, including the fitting of lifting equipment with anemometers and stopping work during strong	Extremely improbable	TifALARP	Not significant	CoCP Appendix 4.2 [TR020001/A PP/5.02]

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										winds, if required, in line with the requirements of Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) (Ref. 9).				
C3	High temperatures, heat waves and drought	Heat Dust from construction site due to dry weather	On-site: Construction personnel and equipment, Existing airport infrastructure and aircraft, Artefacts of national or international importance during import/export	On-site: Heat exhaustion of construction personnel; Soiling of equipment; Reduced visibility at existing airfield due to dust from construction site; Damage to artefacts of national or international importance during import/export;	No – the effects are unlikely to result in serious damage as defined for the purposes of this assessment, effects due to dust emissions from the construction site and appropriate mitigation have been considered as part of Chapter 7 Air Quality [TR020001/APP/5.0 1] .	Site	No Serious Damage	Short term	Not a MA&D	n/a	N/A	N/A	N/A	Chapter 7 Air Quality [TR020001/A PP/5.01] ; CoCP Appendix 4.2 [TR020001/A PP/5.02]
C4	Snow and ice	Extreme cold weather including snowfall Cold weather resulting in icy surfaces Contaminated run-off from melting snow and ice is	On-site: Construction personnel and equipment;	On-Site Risk to the health of construction workers due to freezing temperatures; Failure of construction machinery; Reduced visibility, snow and ice on runway leading to	Yes	Site	Catastrophic	Very long term or Permanent	Category D	The lead contractor is required to comply with the provisions of the Health and Safety at Work Act 1974 (Ref. 10), ensuring occupational health and safety arrangements are in place; A safe system of	Extremely improbable	TifALARP	Not significant	CoCP Appendix 4.2 [TR020001/A PP/5.02]

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
		considered under ID C14.		an aircraft accident within the Main Application Site;						work will be established for the operation of construction machinery and for undertaking works, which will consider risks associated with adverse weather conditions, such as snow (e.g. risks associated with frozen machinery, as well as any increased risk of slips, trips and falls for work at height); The airport is required under Article 212 of the Air Navigation Order (ANO) (Ref. 11) to maintain an Aerodrome Manual containing among other things details of the airports safety management system. At the airport this safety management system includes various Airfield Operating Procedures which detail the procedural safety management for different adverse weather conditions. The airport will continue to use the Aerodrome Manual and all of its safety management procedures including a Winter Operations Plan to ensure all operations on the airfield are safe. Weather forecast will be monitored throughout				

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										construction to plan for extreme weather events, including snowfall and ice, as set out within the CoCP Appendix 4.2 [TR020001/APP/5.02] .				
C5	Lightning	<p>Tall equipment which may attract lightning (e.g. cranes).</p> <p>Fire hazard has been considered in risk ID C12.</p> <p>Loss of utilities has been considered in risk ID C17.</p> <p>No other hazard pathways to off-site receptors due to lightning striking the construction site have been identified.</p>	On-site: Construction personnel and equipment.	On-site: Damage to construction equipment and risk of injury or death of construction personnel;	Yes	Site	Major	Very long term or Permanent	Category D	A safe system of work will be established for the operation of equipment which may attract lightning or for any works at increased risk (e.g. roofing, pipework etc.). Furthermore, weather forecast will be monitored throughout construction to plan for extreme weather events, including thunderstorms, as set out in the CoCP Appendix 4.2 [TR020001/APP/5.02] .	Extremely improbable	TifALARP	Not significant	CoCP Appendix 4.2 [TR020001/APP/5.02]
C6	Reduced visibility, e.g. due to volcanic ash, sand, fog	<p>Volcanic eruptions overseas can produce ash clouds which may reach the UK and impact on the construction site.</p> <p>Reduced visibility due to weather.</p> <p>No hazard pathways to off-site receptors as a result of volcanic ash, sand or fog occurring on the construction site have been identified.</p>	On-site: Construction personnel and equipment.	On-site: Deposition of ashes, sand on construction areas and equipment Reduced visibility limiting construction works.	No - the effects are unlikely to result in serious damage as defined for the purposes of this assessment, assuming that any work would stop if visibility was seriously reduced.	Site	No Serious Damage	Short term	Not a MA&D	n/a	N/A	N/A	N/A	Bedfordshire Prepared Know Your Risks.

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
C7	Geological hazards, e.g. ground instability, landslides, ground collapse and sinkholes	Unstable ground conditions, landslides, sinkholes following heavy rainfall leading to ground collapse.	On-site: Construction personnel and equipment; Existing airport infrastructure and aircraft, Artefacts of national or international importance during import/export	On-site: Collapse and subsidence of ground can lead to damage to equipment and death or injury; Damage to artefacts of national or international importance during import/export.	Yes	Site	Catastrophic	Very long term or Permanent	Category D	The geotechnical design takes into account existing ground conditions which may affect the stability, settlement and integrity of the platform to ensure they do not impact the Proposed Development, including but not limited to ground improvement works, appropriate foundation design and slope stability analysis. Refer to Chapter 17 Soils and Geology [TR020001/APP/5.01] for further details.	Extremely improbable	TifALARP	Not Significant	Chapter 17 Soils and Geology [TR020001/APP/5.01]
C8	Seismic hazards, e.g. earthquakes, tremors	Earthquakes, tremors resulting in physical damage.	On-site: Construction personnel and equipment; Existing airport infrastructure, workers and passengers; Artefacts of national or international importance during import/export	On-site: Damage to construction equipment and existing airport infrastructure; Damage to artefacts of national or international importance during import/export; Risk of injury or death due to collapse of buildings:	No - Data collated by British Geological Survey (Ref. 12) and Musson and Sargeant (2007) (Ref. 13) demonstrate that the Main Application Site is located within an area with one of the lowest risks of seismic hazards in the UK.	Site	No Serious Damage	Short term	Not a MA&D	n/a	n/a	n/a	n/a	BGS UK Seismic Hazard Mapping ^{1,2}

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
C9	Space weather (e.g. geomagnetic storms, radiation storms and solar flares)	Disruption of telecommunications Increased radiation. No hazard pathways to off-site receptors as a result of electronic interference impacting on the construction site have been identified.	On site: Construction personnel and equipment;	Interference with radio and telecommunications systems Increase in ionising radiation (e.g. loss of primary navigation system or loss of communications);	No - the effects are unlikely to result in serious damage as defined for the purposes of this assessment, assuming that any work would stop if communications systems failed.	Site	No Serious Damage	Short term	Not a MA&D	n/a	N/A	N/A	N/A	n/a
C10	Wildfires	The Main Application Site is not located within an area at risk of wildfires. Therefore no hazard pathways have been identified.	On site: Construction personnel and equipment;	On-site: Damage to construction equipment and risk of injury or death of construction personnel;	Yes	Site	Catastrophic	Very long term or Permanent	Category D	Fire safety risks at the construction site will be managed in compliance with CDM Regulations 2015 (Ref. 14), Regulatory Reform (Fire Safety) Order 2005 (Ref. 15) and relevant good industry practice. A Fire Risk Assessment will be completed and implemented to manage the risks throughout construction, including emergency plans and procedures and measures for the safe storage and handling of fuel.	Extremely improbable	TifALARP	Not significant	n/a
C11	Sea level rise, tsunamis	The Main Application Site is not located within an area at risk of sea level rise or tsunamis.	n/a	n/a	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
		Therefore no hazard pathways have been identified.												
Vulnerability of the construction of the Proposed Development to major accidents from on-site sources and the potential major accidents resulting from its construction														
C1 2	Fire and/or explosion at the construction site	Cutting or drilling into unidentified utilities; Release of landfill gas as a result of construction activities; Unexploded Ordnance (UXO); Storage and handling of fuel or other flammable and combustible material; Explosion risk associated with fuel pipeline, e.g. due to leaks, over pressurisation, drilling, cutting, welding; Electrical faults and faulty wiring; Hot work operations (e.g. welding, smouldering, grinding etc); Smoking; Portable heaters; Temporary lighting and lamps; Arson (also refer to risk ID C26); Lightning (also refer to risk ID C5).	On-site: Construction personnel and equipment; Existing airport users, infrastructure and aircraft; Artefacts of national or international importance during import/export Off-site: General public; Properties; Agricultural land; Sensitive environmental and heritage receptors.	On-site: Damage to construction equipment and risk of injury or death of construction personnel; Risk of injury or death of the users and workers at the existing airport; Damage to existing airport infrastructure; Reduced visibility due to smoke from fire, affecting aircraft; Damage to artefacts of national or international importance during import/export; Off-site: Damage to property and risk of injury or death to the general public Indirect effects on human health, property, heritage assets and wildlife due to smoke and ash deposition.	Yes	2km radius of Main Application Site	Catastrophic	Very long term or Permanent	Category D	As set out in the CoCP, Appendix 4.2 [TR020001/APP/5.02] , control measures for earthworks have been specified, including a watching brief for UXO during construction; and a requirement for an UXO Emergency Response Plan and UXO Safety and Awareness briefings for workers. Gas protection measures will be incorporated into the design in compliance with the British Standard 8485, where required. Fire safety risks at the construction site will be managed in compliance with CDM Regulations 2015 and Regulatory Reform (Fire Safety) Order 2005 A Fire Risk Assessment will be completed and implemented to manage the risks throughout construction, including emergency plans and procedures and measures for	Extremely improbable	TifALARP	Not significant	ES Chapter 17 Soils and Geology [TR020001/APP/5.01] CoCP, Appendix 4.2 [TR020001/APP/5.02]

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										<p>the safe storage and handling of fuel.</p> <p>Any hot work operations will be completed under a Hot Work Permit.</p> <p>Fuel pipeline connection to the existing Fina pipeline will be constructed in compliance with Pipeline Safety Regulations 1996 (as amended).</p> <p>Any hazardous substances stored on site for construction (e.g. fuel, oils etc.) are to be located landside and at distance from hazardous substances stores associated with the operating airport to minimise the risk of a domino effect in case of fire or explosion.</p> <p>All works will be carried out in accordance with the guidance provided by the HSE in their document HSG47 'Avoiding Danger from Underground Services' (Ref. 16). Existing utility networks will be located through a utility survey in accordance with PAS128 (Ref. 17) (or equivalent standard applicable at the time), prior to start of intrusive</p>				

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										works, and appropriate clearances will be clearly demarcated on the ground.				
C13	Ground instability	Potential instability of excavations Platform with batters of up to 25m Settlement of proposed platform Construction over the landfill	On-site: Construction personnel and equipment; Existing airport users, infrastructure and aircraft; Artefacts of national or international importance during import/export. Off-site: General public; Properties; Agricultural land; Sensitive environmental and heritage receptors.	On-site: Collapse and subsidence of ground that can lead to damage to equipment and death or injury of construction personnel. Damage to existing airport infrastructure and death or injury of airport users and workers; Damage to artefacts of national or international importance during import/export; Off-site: Damage to property, agricultural land, heritage assets and risk of injury or death to the general public; Physical damage to sensitive environmental sites.	Yes	500m radius of Main Application Site	Catastrophic	Very long term or Permanent	Category D	An analysis of cut slopes has been undertaken as part of the earthworks design and slopes with a stable gradient have been specified in order to mitigate risks on and off-site. Where this is not possible, an engineered solution would be provided. A safe system work will be established by the lead contractor for earthworks and to secure any temporary slopes from collapse. Furthermore, earthworks sequence would be planned to avoid large vertical drops and unprotected edges. Work areas would be clearly identified to prevent access to workers in areas of excavation with the use of heavy plant machinery. Newly formed earthbanks will be seeded and/ or planted to secure slopes. In order to mitigate the risk of ground settlement, careful treatment of the formation materials will be essential and a starter layer of granular material overlaid by geotextile is	Extremely improbable	TifALARP	Not significant	Design, Construction Report CoCP, Appendix 4.2 [TR020001/A PP/5.02]

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										<p>proposed across the earthworks footprint as part of the geotechnical design. Construction over the landfill will require piling for any new buildings. A limited section of the proposed apron will be constructed over the landfill. Mitigation has been factored in the design to limit potential settlement, including overburden of the ground prior to development to precipitate consolidation and increased life cycle maintenance. Furthermore the design of hardstanding and road infrastructure would account for the potential settlement of landfill material. The need for short term mitigation measures (e.g. dynamic compaction) would be reviewed. Long term estimated settlement profile will be prepared and reviewed. It is considered that all practicable mitigation has been incorporated within the Proposed Development.</p>				
C1 4	Major leaks and spillages at the construction site	Handling and storage of hazardous	On-site: Construction personnel;	On-site: Risk of contact with hazardous	Yes	2km radius of the Main Application	Major	Long term	Category C	A set of pollution and contamination control measures,	Extremely remote	TifALARP	Not significant	Chapter 17 Soils and Geology

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
	resulting in contamination or release of hazardous substances	<p>substances, i.e. chemicals and fuels;</p> <p>Loss of containment;</p> <p>Contaminated run-off from site;</p> <p>During construction works it is possible that more leachate will be temporarily generated as areas of landfill waste are exposed;</p> <p>Works on landfill releasing landfill hazardous substances such as asbestos;</p> <p>Creation of new drainage pathways to sensitive receptors;</p> <p>Works on the Prax pipeline to establish connection.</p>	<p>Existing airport users and workers;</p> <p>Artefacts of national or international importance during import/export. Sensitive environmental receptors on-site (e.g. groundwater and soils).</p> <p>Off-site: General public; Agricultural land; Sensitive environmental receptors.</p>	<p>substances to construction personnel, airport users and workers;</p> <p>Damage to artefacts of national or international importance during import/export;</p> <p>Off-site: Risk of contact with hazardous substances by general public; Contamination of sensitive environmental receptors and agricultural land.</p>		Site, off-site highway improvement sites and construction traffic routes				<p>including a pollution incident response plan would be implemented as required by the CoCP, Appendix 4.2 [TR020001/APP/5.02] and in compliance with Control of Substances Hazardous to Health Regulations (COSHH) (Ref. 18).</p> <p>All hazardous substances would be double banded to at least 110% of the stored capacity and located away from drainage infrastructure.</p> <p>Temporary leachate collection sumps are proposed to be installed. These sumps will be regularly monitored during works and where significant quantities of leachate is collected in the wells, this will be pumped and disposed of off-site. Fuel pipeline connection to the existing Prax pipeline will be constructed in compliance with Pipeline Safety Regulations 1996 (as amended) (Ref. 19).</p> <p>All works will be carried out in accordance with the guidance provided by the</p>				<p>[TR020001/A PP/5.01];</p> <p>Chapter 20 Water Resources and Flood Risk [TR020001/A PP/5.01];</p> <p>CoCP Appendix 4.2 [TR020001/A PP/5.02]</p>

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										HSE in their document HSG47 'Avoiding Danger from Underground Services'. Existing utility networks will be located through a utility survey in accordance with PAS128 (or equivalent standard applicable at the time), prior to start of intrusive works, and appropriate clearances will be clearly demarcated on the ground.				
C15	Impacts on road safety caused by the construction traffic of the Proposed Development	Road traffic collisions involving Proposed Development's construction traffic Road traffic collisions due to temporary off-site highway works and the airport access road	Off-site: Motorised and non-motorised users of routes assigned for Proposed Development's construction traffic Properties	Off-site:Death or injury of road users;Damage to properties;	Yes	Construction traffic routes	Catastrophic	Very long term or Permanent	Category D	An assessment of the effects of construction traffic on road safety is provided within Chapter 18 Traffic and Transportation [TR020001/APP/5.01]. Construction traffic movements would be managed in line with a Construction Traffic Management Plan (CTMP) an outline of which is provided as Appendix 18.3 [TR020001/APP/5.02].	Extremely improbable	TifALARP	Not significant	Chapter 18 Traffic and Transportation [TR020001/APP/5.01] CTMP Appendix 18.3 [TR020001/APP/5.02] Transport Assessment [TR020001/APP/7.02]
C16	Accidents resulting from the interface of existing airport operations and the construction activities associated with the Proposed Development (under normal or emergency conditions)	Construction activities causing an aircraft accident due to infringement of clearance zones. Construction works causing electronic interference to airport radio and telecommunications systems.	On-site: Construction personnel and equipment; Aircraft passengers; Airport users and workers; Existing airport infrastructure; Artefacts of national or international importance during import/export.	On-site: Aircraft accident; Death or injury of aircraft passengers, airport users and workers, and construction workers; Damage to existing airport infrastructure and construction equipment. Disruption to the	Yes	Main Application Site	Catastrophic	Very long term or Permanent	Category D	A Construction Phase Plan will be established, which outlines construction methods and equipment that comply with restrictions, such as height of equipment, so that they do not infringe taxiway, apron or runway regulated clearances. These heights and safe	Extremely improbable	TifALARP	Not significant	CoCP, Appendix 4.2 [TR020001/APP/5.02]

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
		<p>Construction lighting disrupting visibility.</p> <p>Collision of aircraft or airport vehicles with construction traffic.</p> <p>Cut and cover tunnel box construction of Luton DART under live Taxiways Delta and Foxtrot.</p> <p>Construction work may affect the taxiway and runways by way of settlement or debris on the surface (see Risk ID C13 and C2).</p> <p>Aircraft accident or incident unrelated to construction activities may impact on the construction works.</p> <p>PVs and Glare – ongoing liaison with airport (view from the tower, surface movement radar assessments) – safeguarding issues picked up by Luton safeguarding team. Ongoing coordination</p>		<p>operation of the airport;</p> <p>Damage to artefacts of national or international importance during import/export;</p>						<p>working constraints will have regard to the Obstacle Limitation Surface (OLS) heights. Restrictions on working will also be implemented due to jet blast and required safety clearances form both parked and moving aircraft. For example the phasing of construction on the airfield apron has been proposed so that aircraft can manoeuvre at regulated safe working distances from construction. A full safety plan will be developed and implemented, setting out the appropriate distances for workforce and plant to operate.</p> <p>Procedures for safe traffic management would be specified during the detailed construction phasing planning. Phases of construction that are near to existing live taxiways and taxiing aircraft, such as on the additional taxiways, may require revised or curtailed taxiing routes to avoid being in close proximity to live construction areas. Alternatively, construction activities would be limited to reduced</p>				

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										<p>periods of time, typically overnight. Appropriate measures would be agreed during the construction planning phase with the airport's Air Navigation Service Provider (ANSP) in accordance with the Manual for Air Traffic Services Part 1 (Ref. 20) and with the CAA as part of the change approval process. The volume of airside traffic would be minimised, where possible. Security and vehicle cleanliness of construction traffic to airside areas would be tightly controlled. Furthermore, construction traffic would be segregated with separate entry and exit routes.</p> <p>Careful construction planning would be undertaken to allow the airport to remain operational throughout construction. This may include temporary taxiway diversions, for example for the construction of Luton DART extension to Terminal 2. Adequate signal interference risk assessment and control would be implemented.</p>				

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										Crane operations would be managed through the use of advance notifications and, if required, the fitting of aviation warning lighting. The detailed design of façade treatments and photovoltaic panels will be subject to a glint and glare assessment prior to their installation.				
C17	Loss of utilities	Unidentified utilities, including gas, electricity, water and broadband impacted by excavation, piling, cutting and drilling works.	On-site: Existing airport infrastructure; Off-site: Properties served by such utilities	On-site: Disruption of utilities can lead to an interruption of existing the airport communications and services which may increase another MA&D risk; Disruption of operability of emergency services at the airport; Off-site: Disruption of utilities for properties	Yes	500m radius of the Main Application Site and off-site highway improvements	No Serious Damage	Short term	Not a MA&D	Services critical to the airport operations would be protected at all times during the construction works. All works will be carried out in accordance with the guidance provided by the HSE in their document HSG47 'Avoiding Danger from Underground Services'. Existing utility networks will be located through a utility survey in accordance with PAS128 (or equivalent standard applicable at the time), prior to start of intrusive works, and appropriate clearances will be clearly demarcated on the ground.	N/A	N/A	N/A	CoCP, Appendix 4.2 [TR020001/A PP/5.02]
C18	Emergency response activities implemented on the Main Application Site	Water from fire extinguishing draining into environmentally sensitive areas	On-site: Groundwater Off site: Sensitive	Contamination and pollution of identified sensitive	Yes	500m radius of the Main Application Site	No Serious Damage	Medium term	Not a MA&D	Refer to mitigation summarised under Risk ID C14	N/A	N/A	N/A	Chapter 17 Soils and geology [TR020001/A PP/5.01];

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
	impacting on sensitive receptors	and/ or controlled waters	environmental receptors, controlled waters and agricultural land	environmental receptors										Chapter 20 Water Resources and Flood Risk [TR020001/A PP/5.01]; CoCP Appendix 4.2 [TR020001/A PP/5.02]
C19	Increased risk of bird strike	Increased risk of bird strike due to construction activities (e.g. exposure of landfill material)	Onsite: Aircraft and aircraft passengers; Artefacts of national or international importance during import/export.	On-site: Aircraft accident; Risk of injury or death; Damage to artefacts of national or international importance during import/export;	Yes	Main Application Site	Catastrophic	Very long term or Permanent	Category D	The lead contractor will be required to manage the risk of construction activities attracting birds, e.g. during the excavation and sorting of landfill materials.	Extremely improbable	TifALARP	Not significant	
C20	Absent or deficient safety/ environmental management systems (e.g. inadequate planning, resource provision, procedures)	Increased risk of MA&D hazards described within this register.	On-site: Construction personnel and equipment; Existing airport users and workers; Artefacts of national or international importance during import/export. Off-site: General public; Agricultural land; Sensitive environmental receptors.	As described within this register for all hazards relevant to the construction of the Proposed Development.	Yes	2km radius within Main Application Site, 1km of off-site car parks and off-site highway improvement works	Catastrophic	Very long term or Permanent	Category D	As set out in the CoCP Appendix 4.2 [TR020001/APP/5.02], the lead contractor will be required to set up and implement accredited safety and environmental management systems (e.g. certified to ISO 45001 and 14001 standards or equivalent). Regular audits will be undertaken to monitor compliance against the management systems. The existing airport environmental and safety management procedures will be followed.	Extremely improbable	TifALARP	Not significant	CoCP, Appendix 4.2 [TR020001/A PP/5.02]
C21	Absent or deficient security provision (e.g. inadequate planning, resource provision, procedures)	Increased risk of vandalism/ crime/ terrorism (see Risk ID C26)	On-site: Construction personnel and equipment; Existing airport users and	As described within this register for Risk ID C26	Yes	Main Application Site	Catastrophic	Very long term or Permanent	Category D	Security for the construction site will be provided with access only provided to those	Extremely improbable	TifALARP	Not significant	CoCP, Appendix 4.2 [TR020001/A PP/5.02]

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
			workers; Artefacts of national or international importance during import/export. Off-site: General public;							who have passed relevant induction and security clearance, if required. As set out in the CoCP, Appendix 4.2 [TR020001/APP/5.02] site hoarding will be provided around the construction site perimeter and regularly inspected.				
Vulnerability of the construction of the Proposed Development to major accidents from off-site sources														
C2 2	Fire at a neighbouring site	Fire at a neighbouring site impacting on the construction of the Proposed Development	On-site: Construction personnel and equipment; Existing airport users and workers; Artefacts of national or international importance during import/export. Off-site: General public; Agricultural land; Sensitive environmental receptors;	On-site: Damage to construction equipment and risk of injury or death of construction personnel; Risk of injury or death of the users and workers at the existing airport; Damage to existing airport infrastructure; Reduced visibility due to smoke from fire, affecting aircraft; Damage to artefacts of national or international importance during import/export; Off-site: Damage to property and risk of injury or death to the general public; Indirect effects on human health, property, heritage assets and wildlife	Yes	2km radius of Main Application Site	Catastrophic	Very long term or Permanent	Category D	Fire safety risks at the construction site will be managed in compliance with CDM Regulations 2015 and Regulatory Reform (Fire Safety) Order 2005. A Fire Risk Assessment will be completed and implemented to manage the risks throughout construction, including emergency plans and procedures and measures for the safe storage and handling of fuel.	Extremely improbable	TifALARP	Not significant	

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
				due to smoke and ash deposition.										
C2 3	Explosion and structural collapse at neighbouring sites	Explosion and structural collapse impacting on the construction of the Proposed Development	On-site: Construction personnel and equipment; Existing airport users and workers; Artefacts of national or international importance during import/export. Off-site: General public; Agricultural land; Sensitive environmental receptors;	Falling debris or collapse of infrastructure within the neighbouring area. Impeded access to the Main Application Site. Loss of utilities at the Main Application Site (considered under Risk ID C17). Damage to artefacts of national or international importance during import/export;	No – the effects are unlikely to cause serious damage, as defined for the purposes of this assessment.	Main Application Site and offsite highway works	No Serious Damage	Short term	Not a MA&D	n/a	N/A	N/A	N/A	n/a
C2 4	Contamination or release of hazardous substances by off-site sources;	Contamination or release of hazardous substances impacting on the construction of the Proposed Development	On-site: Construction personnel; Existing airport users and workers; Off-site: General public; Agricultural land; Sensitive environmental receptors.	On-site: Risk of contact with hazardous substances to construction personnel, airport users and workers. Off-site: Risk of contact with hazardous substances by general public; Contamination of sensitive environmental receptors and agricultural land.	Yes	2km radius of the Main Application Site, off-site highway improvement sites and construction traffic routes	Major	Long term	Category C	Refer to mitigation summarised under Risk ID C14	Extremely remote	TifALARP	Not significant	n/a
C2 5	External interference (e.g. lasers, fireworks, sky lanterns, drones, wind	No hazard pathways from external interference impacting on the	n/a	n/a	No	Main Application Site	No Serious Damage	Short term	Not a MA&D	n/a	n/a	n/a	n/a	n/a

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
	turbine interaction with radar)	construction works of the Proposed Development have been identified. See Risk ID C12 regarding fire hazard and Risk ID C26 regarding vandalism/ crime/ terrorism.												
C2 6	Vandalism/crime/terrorism leading to increased risk to the safety of members of public and site workers	Criminal damage/ vandalism; Theft; Terrorist acts; Hijacked aircraft; Unauthorised vehicles accessing the construction site.	On-site: Construction personnel and equipment; Existing airport users and workers, and infrastructure; Artefacts of national or international importance during import/export.	Death or risk of injury to construction personnel, airport users, workers and the general public Damage to construction equipment and airport infrastructure; Damage to artefacts of national or international importance during import/export;	Yes	Main Application Site	Catastrophic	Very long term or Permanent	Category D	Security for the construction site will be provided with access only provided to those who have passed relevant induction and security clearance, if required. As set out in the CoCP, Appendix 4.2 [TR020001/APP/5.02] site hoarding will be provided around the construction site perimeter and regularly inspected. The existing airport will continue to be policed by the Luton Airport Policing Unit.	Extremely improbable	TifALARP	Not significant	CoCP, Appendix 4.2 [TR020001/A PP/5.02]
C2 7	Civil unrest or protest	Members of the public protesting; Airport staff industrial action	On-site: Construction personnel and equipment;	Disruption to construction and airport operations; Damage of equipment or existing infrastructure.	No – no effects resulting in serious damage as defined for the purposes of this assessment are considered	Main Application Site	No Serious Damage	Short term	Not a MA&D	n/a	N/A	N/A	N/A	n/a

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
					likely to occur.									
C28	Disease outbreak and infestation	Disease outbreak or epidemics impacting the construction workers; Spread of Covid-19 or other contagious disease should any be present at the time of construction of the Proposed Development. Discharge from the construction site may spread biohazard due to contaminated runoff (see Risk ID C14)	On-site: Construction personnel; Existing airport users and workers; Off-site: General public; Agricultural land; Sensitive environmental receptors	Death or risk of injury to construction personnel, airport users, workers and the general public. Contamination of sensitive environmental receptors and agricultural land due to contaminated runoff from the construction site.	Yes	1km of the Main Application Site	Catastrophic	Very long term or Permanent	Category D	Construction workers will use appropriate Personal Protective Equipment suitable to the work activity and safe working practices. Government guidance on working safely during pandemics / epidemics will be implemented in the construction site to prevent spread of infectious disease. See Risk ID C14 for the management of contaminated runoff.	Extremely improbable	TifALARP	Not significant	Bedfordshire Prepared Know Your Risks.
C29	Cyber-attack and digital data security	Hackers Security breach of the construction site	On-site: Construction personnel;	Loss of data confidentiality and integrity; Unauthorised access to the airport or bypassed security systems; Risk of vandalism/ crime/ terrorism is considered under Risk ID C26	No – the effects are not considered to result in serious damage as defined for the purposes of this assessment. It is also noted that the Proposed Development	Main Application Site	No Serious Damage	Short term	Not a MA&D	n/a	n/a	n/a	n/a	n/a

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
					ent will not affect the existing airport's cyber security system.									
Construction of the Proposed Development impacting on the vulnerability of a receptor to a MA&D hazard														
C30	Limiting the ability of an emergency response plan to be implemented	Construction works impeding or obstructing the response of emergency services, e.g. highway improvement works or works within the operational airport Increased response time of emergency services Potential conflict between Luton DART emergency procedures and site development above	On-site: Construction personnel; Existing airport users and workers; Artefacts of national or international importance during import/export. Off-site: General public; Agricultural land; Sensitive environmental receptors	Full or partial obstruction to the operation of emergency services, leading to a slow response time and increased number of deaths/injuries, spread of contamination or damage to artefacts of national or international importance during import/export.	Yes	2km radius of the Main Application Site, offsite highways improvement works	Catastrophic	Very long term or Permanent	Category D	The lead contractor will liaise with emergency services and the airport operator to ensure that emergency access routes, muster points and parking for emergency services vehicles are not impeded during construction. Emergency access and safe evacuation routes will be maintained at the airport and construction site throughout the works. A Luton DART fire strategy will be developed with escape routes and refuge zones identified.	Extremely improbable	TifALARP	Not significant	CoCP, Appendix 4.2 [TR020001/A PP/5.02]
Operation														
Vulnerability of the Proposed Development to natural disasters during operation														
O1	Extreme rainfall events and subsequent flooding	Flooding of the site and properties downstream Run-off from site Creation of new drainage pathways	On-site: Sensitive environmental receptors on-site; Airport infrastructure and aircraft; Artefacts of national or international importance during	On-site: Release of contaminants into the environment, resulting in a major pollution incident due to run-off from the site (see Risk ID O14); Damage to equipment and infrastructure	Yes	Catchment area within flood risk modelling	Major	Medium term	Category B	The drainage strategy of the Proposed Development can accommodate for surface water flows during 1 in 100 years storm event, accounting for an increase in precipitation of 40% due to climate change. The new	Remote	TifALARP	Not significant	Chapter 9 Climate Change Resilience [TR020001/A PP/5.01]; Chapter 20 Water Resources and Flood Risk

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
			import/export. Of f-site: Properties; Agricultural land; General public; Sensitive environmental and heritage receptors off-site.	<p>within the existing airport, stopping airport operations; Damage to artefacts of national or international importance during import/export;</p> <p>Off-site: Damage to and evacuation of affected properties due to flooding; Damage to crops; Release of contaminants into the environment, resulting in a major pollution incident.</p>						<p>drainage system will be monitored in terms of levels of contamination and volume and will be diverted into storage tanks when trigger levels are reached – for either volume or contamination levels. From the storage tanks, the water will be treated by an Water Treatment Plant (WTP) before discharging into an infiltration basin. The new drainage system will also divert some of the existing drainage runs at the airport away from the current soakaways to ensure the collected surface water has the opportunity of being monitored and if required stored and treated before discharging into the infiltration basin. The infiltration basin has been located underground to reduce the risk of bird strikes. It is important to note that the infiltration basin has been sized such that it should remain dry in all but the most severe storms. The Fire Training Ground (to be located to the south of the runway) would be wholly self-contained and not drain to ground</p>				<p>[TR020001/A PP/5.01]</p> <p>Drainage Design Statement Appendix 20.4</p> <p>[TR020001/A PP/5.02]</p>

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										under any circumstance. Effluent generated from fire training activities (containing foam and hydrocarbon breakdown constituents) will be tankered away for treatment off-site, or subject to securing the necessary consents, discharged into the existing public foul sewerage systems. See Risk ID O14 for a description of mitigation measures incorporated within design for pollution prevention.				
O2	Strong winds, tornadoes	Aircraft accident due to adverse weather conditions	On-site: Existing airport users and workers, infrastructure and aircraft; Artefacts of national or international importance during import/export. Off-site: Properties; General public	On-site: Aircraft accident; Death or injury to airport users or workers; Damage to airport infrastructure; Damage to artefacts of national or international importance during import/export; Off-site: Damage to property and risk of injury to general public	Yes	500m radius of Main Application Site Public Safety Zone	Catastrophic	Very long term or Permanent	Category D	The airport is required under Article 212 of the Air Navigation Order (ANO) to maintain an Aerodrome Manual containing among other things details of the airports safety management system. At the airport this safety management system includes various Airfield Operating Procedures which detail the procedural safety management for different adverse weather conditions. The airport will continue to use the Aerodrome Manual and all of its safety management procedures to ensure all	Extremely improbable	TifALARP	Not significant	

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										<p>operations on the airfield are safe.</p> <p>An on-site rescue and firefighting service operates within the airport boundary and is available to provide emergency response 24/7.</p> <p>The PSZ has been established to restrict development off-site at either end of the runway, to minimise the number of people on ground at risk of death or injury in the event of an aircraft accident on takeoff or landing. Furthermore, Runway End Safety Areas are provided for the protection of the aircraft and passengers on board during take-off and landing, as well as runway strips along the sides of the paved runway. This is to minimise hazards in event of aircraft having a 'runway excursion' during extreme weather events, e.g. strong winds or snow and ice.</p>				
O3	High temperatures, heat waves and drought	Heat No hazard pathways from the operational airport to off-site	On-site: Existing airport users and workers;	On-site: Heat exhaustion; Overheating of equipment and buildings; Reduced visibility	No – the effects of high temperatures are unlikely to	Main Application Site	No Serious Damage	Medium term	Not a MA&D	n/a	n/a	n/a	n/a	Chapter 9 Climate Change Resilience [TR020001/A PP/5.01].

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
		receptors have been identified.		at existing airfield due to dust;	result in serious damage as defined for the purposes of this assessment. Refer to Chapter 9 [TR020001/APP/5.01] for a description of measures incorporated within design to prevent overheating.									
O4	Snow and ice	Extreme cold weather resulting in snow and ice on runway or taxiways	On-site: Existing airport users and workers; Artefacts of national or international importance during import/export.	On-site: Aircraft accident; Road traffic incident at the airport Contaminated run-off from melting snow and ice; Damage to artefacts of national or international importance during import/export;	Yes	Main Application Site Public Safety Zone	Catastrophic	Very long term or Permanent	Category D	The airport is required under Article 212 of the Air Navigation Order (ANO) to maintain an Aerodrome Manual containing among other things details of the airports safety management system. At the airport this safety management system includes various Airfield Operating Procedures which detail the procedural safety management for different adverse weather conditions. The airport will continue to use the Aerodrome Manual and all of its safety management procedures including a Winter	Extremely improbable	TifALARP	Not significant	

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										<p>Operations Plan to ensure all operations on the airfield are safe.</p> <p>An on-site rescue and firefighting service operates within the airport boundary and is available to provide emergency response 24/7.</p> <p>The PSZ has been established to restrict development off-site at either end of the runway, to minimise the number of people on ground at risk of death or injury in the event of an aircraft accident on takeoff or landing. Furthermore, Runway End Safety Areas are provided for the protection of the aircraft and passengers on board during take-off and landing, as well as runway strips along the sides of the paved runway. This is to minimise hazards in event of aircraft having a 'runway excursion' during extreme weather events, e.g. strong winds or snow and ice.</p> <p>Refer to Risk ID O14 on drainage strategy for pollution prevention measures.</p>				

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
O5	Lightning	Tall equipment which may attract lightning (e.g. radio or telecommunications masts) and aircraft. Fire hazard has been considered in risk ID O12. Loss of utilities has been considered in risk ID O17.	On-site: Existing airport users and workers; Existing airport infrastructure and aircraft; Artefacts of national or international importance during import/export.	On-site: Aircraft accident; Loss of telecommunications; Damage to artefacts of national or international importance during import/export;	Yes	Main Application Site Public Safety Zone	Catastrophic	Very long term or Permanent	Category D	<p>The airport is required under Article 212 of the Air Navigation Order (ANO) to maintain an Aerodrome Manual containing among other things details of the airports safety management system. At the airport this safety management system includes various Airfield Operating Procedures which detail the procedural safety management for different adverse weather conditions. The airport will continue to use the Aerodrome Manual and all of its safety management procedures to ensure all operations on the airfield are safe.</p> <p>An on-site rescue and firefighting service operates within the airport boundary and is available to provide emergency response 24/7.</p> <p>The Proposed Development has been designed in compliance with the Electricity at Work Regulations 1989 (Ref. 21) and BS EN/IEC 62305 (Ref. 22) for the installation of Lightning Protection systems.</p>	Extremely improbable	TifALARP	Not significant	

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										The PSZ has been established to restrict development off-site at either end of the runway, to minimise the number of people on ground at risk of death or injury in the event of an aircraft accident on takeoff or landing. Furthermore, Runway End Safety Areas are provided for the protection of the aircraft and passengers on board during take-off and landing, as well as runway strips along the sides of the paved runway. This is to minimise hazards in event of aircraft having a 'runway excursion' during extreme weather events, e.g. strong winds or snow and ice.				
O6	Reduced visibility, e.g. due to volcanic ash, sand, fog	Volcanic eruptions overseas can produce ash clouds which may reach the UK and impact on the construction site. Reduced visibility due to weather	On-site: Existing airport users and workers; Artefacts of national or international importance during import/export.	On-site: Deposition of ashes on airport infrastructure; Aircraft accident resulting in death or injuries; Damage to artefacts of national or international importance during import/export;	Yes	Main Application Site Public Safety Zone	Catastrophic	Very long term or Permanent	Category D	The airport is required under Article 212 of the Air Navigation Order (ANO) to maintain an Aerodrome Manual containing among other things details of the airports safety management system. At the airport this safety management system includes various Airfield Operating Procedures which detail the procedural safety management for different adverse	Extremely improbable	TifALARP	Not significant	

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										<p>weather conditions. The airport will continue to use the Aerodrome Manual and all of its safety management procedures including Low Visibility Procedures (LVP's) to manage low visibility conditions to ensure safe operations across the airfield.</p> <p>An on-site rescue and firefighting service operates within the airport boundary and is available to provide emergency response 24/7.</p> <p>The PSZ has been established to restrict development off-site at either end of the runway, to minimise the number of people on ground at risk of death or injury in the event of an aircraft accident on takeoff or landing. Furthermore, Runway End Safety Areas are provided for the protection of the aircraft and passengers on board during take-off and landing, as well as runway strips along the sides of the paved runway. This is to minimise hazards in event of aircraft having a 'runway excursion' during extreme weather</p>				

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										events, e.g. strong winds or snow and ice.				
O7	Geological hazards, e.g. ground instability, landslides, ground collapse and sinkholes	Ground instability at the Main Application Site due to existing geology has been considered under Risk ID C7.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Chapter 17 Soils and Geology [TR020001/A PP/5.01]
O8	Seismic hazards, e.g. earthquakes, tremors	Earthquakes, tremors resulting in physical damage	On-site: Airport infrastructure, workers and passengers; Artefacts of national or international importance during import/export. Off-site: Properties; General public; Agricultural land; Sensitive environmental receptors.	On-site: Damage to airport infrastructure; Risk of injury or death due to collapse of buildings; Damage to artefacts of national or international importance during import/export; Off-site Damage to property and risk of injury to general public; Physical damage to sensitive environmental receptors.	No - Data collated by British Geological Survey (Ref. 12) and Musson and Sargeant (2007) (Ref. 13) demonstrate that the Main Application Site is located within an area with one of the lowest risks of seismic hazards in the UK. Therefore, no MA&D hazards related to seismic activity are considered likely.	Site	No Serious Damage	Short term	Not a MA&D	n/a	n/a	n/a	n/a	BGS UK Seismic Hazard Mapping ^{1,2}

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
O9	Space weather (e.g. geomagnetic storms, radiation storms and solar flares)	Disruption of telecommunications Increased radiation. No hazard pathways to off-site receptors as a result of electronic interference impacting on the operation of the Proposed Development have been identified.	On site: Existing airport users and workers, infrastructure and aircraft; Artefacts of national or international importance during import/export.	Interference with radio and telecommunications systems (e.g. loss of primary navigation system or loss of communications); Aircraft accident; Damage to artefacts of national or international importance during import/export;	Yes	Main Application Site Public Safety Zone	Catastrophic	Very long term or Permanent	Category D	<p>The airport is required under Article 212 of the Air Navigation Order (ANO) to maintain an Aerodrome Manual containing among other things details of the airports safety management system. At the airport this safety management system includes various Airfield Operating Procedures which detail the procedural safety management for different adverse weather conditions. The airport will continue to use the Aerodrome Manual and all of its safety management procedures to ensure all operations on the airfield are safe.</p> <p>An on-site rescue and firefighting service operates within the airport boundary and is available to provide emergency response 24/7.</p> <p>The PSZ has been established to restrict development off-site at either end of the runway, to minimise the number of people on ground at risk of death or injury in the event of an aircraft accident on takeoff or landing.</p>	Extremely improbable	TifALARP	Not significant	

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										Furthermore, Runway End Safety Areas are provided for the protection of the aircraft and passengers on board during take-off and landing, as well as runway strips along the sides of the paved runway. This is to minimise hazards in event of aircraft having a 'runway excursion' during extreme weather events, e.g. strong winds or snow and ice.				
O10	Wildfires	Wildfire from off-site sources spreading to the Main Application Site or Off-site Car Parks.	On-site: Existing airport users, workers, infrastructure and aircraft; Artefacts of national or international importance during import/export.	On-site: Risk of injury or death of the users and workers at the existing airport; Damage to airport infrastructure; Reduced visibility due to smoke from fire, affecting aircraft; Fumes affecting T2 Luton DART Station.	Yes	Main Application Site and Off-site Car Parks	Catastrophic	Very long term or Permanent	Category D	The concept design of Proposed Development has been developed with due regard to the Building Regulations, Regulatory Reform (Fire Safety) Order, and BS7974 Application of fire safety engineering principles to the design of buildings. In line with legal requirements, a fire risk assessment will be undertaken, and a fire plan and evacuation strategy will be implemented on site, which sets out the emergency procedures and evacuation routes in case of fire. A fire stopping systems specification will be developed at detailed design stage. The airport layout has been	Extremely improbable	TifALARP	No	n/a

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										<p>developed in consultation with the existing airport fire safety and emergency resilience officers. A hydrant system will be provided during assessment Phase 2 to connect to all new aircraft stands and the existing number of emergency water tanks around the runway will be retained.</p> <p>An on-site rescue and firefighting service operates within the airport boundary and is available to provide emergency response 24/7. A three-minute response time across the airport will be maintained.</p>				
O1 1	Sea level rise, tsunamis	The Main Application Site is not located within an area at risk of sea level rise or tsunamis. Therefore no hazard pathways have been identified.	n/a	n/a	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Vulnerability of the operation of the Proposed Development to major accidents from on-site sources and the potential major accidents resulting from its operation														
O1 2	Fire and/or explosion at the operational site	Storage and handling of fuel or other flammable and combustible material; Aircraft accidents; T2 activities, e.g. restaurants;	On-site: Existing airport users, workers, infrastructure and aircraft; Artefacts of national or international importance during import/export.	On-site: Risk of injury or death of the users and workers at the existing airport; Damage to existing airport infrastructure; Reduced visibility	Yes	2km radius within Main Application Site and Off-site Car Parks	Catastrophic	Very long term or Permanent	Category D	The design of Proposed Development has been developed in accordance with Building Regulations, Regulatory Reform (Fire Safety) Order, and BS7974 Application of fire safety engineering	Extremely improbable	TifALARP	No	

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
		<p>Release of landfill gas;</p> <p>Fire/ explosion at the existing airport (e.g. T1 fuel farm) leading to a domino effect;</p> <p>Explosion risk associated with fuel pipeline, e.g. due to leaks;</p> <p>Static discharge;</p> <p>Equipment failure, electrical faults and faulty wiring;</p> <p>Smoking;</p> <p>Portable heaters;</p> <p>Arson (also refer to risk ID O28);</p> <p>Lightning (also refer to risk ID O5).</p>	<p>Off-site: General public; Properties; Agricultural land; Sensitive environmental and heritage receptors.</p>	<p>due to smoke from fire, affecting aircraft;</p> <p>Fumes affecting T2 Luton DART Station.</p> <p>Off-site:</p> <p>Damage to property and risk of injury or death to the general public;</p> <p>Indirect effects on human health, property, heritage assets and wildlife due to smoke and ash deposition;</p> <p>Existing airport users and workers, infrastructure and aircraft.</p>						<p>principles to the design of buildings. In line with legal requirements, a fire risk assessment will be undertaken, and a fire plan and evacuation strategy will be implemented on site, which sets out the emergency procedures and evacuation routes in case of fire. A fire stopping systems specification will be developed at detailed design stage.</p> <p>The airport layout has been developed in consultation with the existing airport fire safety and emergency resilience officers. A hydrant system will be provided during assessment Phase 2 to connect to all new aircraft stands and the existing number of emergency water tanks around the runway will be retained.</p> <p>Measures to minimise the risk of fire and explosion at the fuel farm include electrical bonding and earthing of equipment, installation of Remotely Operated Shut-Off Valves (ROSOV) in the fuel transfer pipelines/ storage tanks to isolate the equipment in an emergency, and</p>				

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										<p>installation of fire safe shut off valves, inclusion of high integrity independent tank overfill protection systems, leak-tight bunds and all bund penetrations would be fire resistant as well as being leak-tight. An emergency access road is allowed for within the design to allow direct access from the platform to the fuel storage facility. Ground gas protection measures are summarised under Risk ID C12.</p> <p>Storage and handling of fuels within the fuel farm will be carried out in accordance with its COMAH and Hazardous Substances Consents.</p> <p>An on-site rescue and firefighting service operates within the airport boundary and is available to provide emergency response 24/7. A three-minute response time across the airport will be maintained.</p>				
O1 3	Ground instability	Ground instability at the Main Application Site associated with the ground settlement of the built up platform and construction	n/a	n/a	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No	n/a

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
		on the landfill has been considered under Risk ID C13.												
O14	Major leaks and spillages at the Main Application Site resulting in contamination or release of hazardous substances	<p>Handling and storage of hazardous substances, i.e. chemicals and fuels;</p> <p>Loss of containment;</p> <p>Contaminated run-off from site;</p> <p>Creation of new drainage sources and pathways to sensitive receptors, i.e. connection to the existing pipeline.</p>	<p>On-site: Existing airport users and workers; Artefacts of national or international importance during import/export. Sensitive environmental receptors on-site (e.g. groundwater and soils).</p> <p>Off-site: General public; Agricultural land; Sensitive environmental receptors.</p>	<p>On-site: Risk of contact with hazardous substances to airport users and workers.</p> <p>Off-site: Risk of contact with hazardous substances by general public; Contamination of sensitive environmental receptors and agricultural land.</p>	Yes	10km radius within the Main Application Site	Catastrophic	Long term	Category D	<p>A number of pollution prevention measures are being considered for inclusion within the drainage design. These include the following:</p> <ul style="list-style-type: none"> • Full retention separators for all runoff from aprons, taxiways and the runway. Bypass separators would only be used in areas for short term parking or road ways that receive light contamination. • A WTP for the de-icing agents. • Automated and real time monitoring of volume and chemical content pre and post treatment that will control the actuated inlet valves to storage chamber upstream from the WTP to divert water above the contamination trigger levels to storage for treatment. • Emergency isolation valves have been positioned strategically for use in the event of severe pollutant spillages. If high levels of TOC (Total Organic Compound) have entered the storage tanks, access 	Extremely improbable	TifALARP	Not significant	<p>Chapter 17 Soils and Geology [TR020001/A PP/5.01].</p> <p>Chapter 20 Water Resources and Flood Risk [TR020001/A PP/5.01];</p> <p>Drainage Design Statement Appendix 20.4 [TR020001/A PP/5.02];</p>

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										points will be provided to allow the effluent to be tankered away, for treatment off site. <ul style="list-style-type: none"> • Permeable paving is proposed which will include a bio membrane that will treat the fuel and oils leaks and include storage in the paving build up. • Leachate from the area of landfill to be built on will be controlled by capping the area with a water proof membrane in order to prevent water ingress. Hence the area will be impermeable and surface water will be channelled towards the Thames Water sewer network or soakaways. • Effluent generated from fire training activities at the Fire Training Ground will be tankered away for treatment off-site, or subject to securing the necessary consents, discharged into the existing public foul sewerage systems. • The fuel farm will be surrounded by a bund. Surface water will drain through petrol interceptors with sensors to measure water quality. If contamination reaches high enough levels to trigger the actuated 				

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										<p>inlets valves, the water will be diverted away from the infiltration basin and towards the WTP. If a significant leak occurred from the tanks, the actuated inlet valves would close the drainage completely and the fuel spill would be tankered away for treatment off-site.</p> <ul style="list-style-type: none"> The pollution prevention strategy for the use of de-icers will include: <ul style="list-style-type: none"> - Improved controls and spill reporting, - All refuelling vehicles will carry spill kits to limit the amount from spills reaching the drainage system, - Improved controls and management of the application of ground de-icers, - Improved controls and management for application of de-icers to aircraft, - No products used for de-icing will be classified as hazardous. <p>Storage and handling of fuels within the fuel farm will be carried out in accordance with its COMAH and Hazardous Substances Consents and safety management system.</p>				

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
O15	Impacts on road safety due to an increase in traffic movements associated with the Proposed Development	On-site: Increased number of vehicular and aircraft movements at the airport Off-site: Increase in road traffic and changes to junction layouts;	On-site: Airport users, workers and aircraft Airport infrastructure; Artefacts of national or international importance during import/export. Off-site: Motorised and non-motorised users of the road network leading to the airport Properties	On-site: Death or injury of airport users, workers and aircraft passengers; Damage to airport infrastructure; Damage to artefacts of national or international importance during import/export; Off-site: Death or injury of road users; Damage to properties;	Yes	Main Application Site Road network assessed within the TA	Catastrophic	Very long term or Permanent	Category D	Improvements on the highway network have been carried out to minimise the effects of increased traffic derived from the increased airport capacity. Road Safety Audits of the junctions to be improved and the new Airport Access Road will be completed to inform detailed design development. Where applicable, the highway design of the Proposed Development will be developed to the standards set within the Design Manual for Roads and Bridges (DMRB). The Proposed Development includes a direct connection between the Fuel Storage Facility and the existing Prax fuel pipeline to the east of the site. This will provide the opportunity for fuel to be delivered to site via pipeline, reducing the need for fuel to be transported to the airport via road, and therefore, removing hazardous loads from the public road network. From Terminal 2 fuel storage facility, fuel would be transported to Terminal 1 fuel	Extremely improbable	TifALARP	Not significant	Chapter 18 Traffic and Transportation [TR020001/A PP/5.01]

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										storage facility via airport roads, and a pipeline connection between the existing Terminal 1 and Terminal 2 fuel storage facilities will be safeguarded. Further information on the assessment of the effects of operational traffic on road safety is provided within Chapter 18 Traffic and Transportation [TR020001/APP/5.01].				
O16	Aircraft accidents	Changes to the airport layout and surrounding areas; Increased number of aircraft using the airport; Failure of safety systems leading to aircraft failure, signalling failure, air traffic coordination failure	On-site: Airport users, workers, infrastructure, aircraft and passengers; Artefacts of national or international importance during import/export.	On-site: Aircraft accidents; Death or injury of airport users, workers, aircraft passengers; Damage to airport infrastructure; Refer to Risk ID O12 for risk of fire and explosion; Refer to Risk ID O14 for risk of major spills and leaks; Damage to artefacts of national or international importance during import/export;	Yes	Main Application Site Public Safety Zone	Catastrophic	Very long term or Permanent	Category D	The Proposed Development has been designed in compliance with CAA guidance and the UK aviation regulations. The airport is required under Article 212 of the ANO to maintain an Aerodrome Manual containing among other things details of the airports safety management system. At the airport, this safety management system. The airport will continue to use the Aerodrome Manual and all of its safety management procedures to ensure all operations on the airfield are safe. An on-site rescue and firefighting service operates within the airport boundary and is available to provide emergency response 24/7.	Extremely improbable	TifALARP	Not significant	

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										The PSZ has been established to restrict development off-site at either end of the runway, to minimise the number of people on ground at risk of death or injury in the event of an aircraft accident on takeoff or landing. Furthermore, Runway End Safety Areas are provided for the protection of the aircraft and passengers on board during take-off and landing, as well as runway strips along the sides of the paved runway. This is to minimise hazards in event of aircraft having a 'runway excursion'.				
O17	Loss / disruption of utilities	Shortage in generation availability to meet demand, technical failure, severe weather conditions, or any combination of the above	On-site: Airport infrastructure;	Loss of utilities can impact on the airport energy or water supply, and telecommunications, this can disrupt airport operations and emergency response, leading to an increased risk or ability to respond to a MA&D.	Yes	Main Application Site	Major	Medium term	Category B	Emergency water tanks located adjacent to the runway will store water for the rescue and firefighting service regardless of a disruption to water supply . The design of the Proposed Development incorporates uninterruptible power sources (UPS), which will provide emergency power for critical infrastructure, if mains power fails.	Extremely remote	Tolerable	Not significant	

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
O18	Emergency response activities implemented on the Main Application Site impacting on sensitive receptors	Runoff from the Fire Training Ground impacting on sensitive environmental receptors Smoke from the Fire Training Ground reducing visibility on runway	On-site: Aircraft and aircraft passengers; Artefacts of national or international importance during import/export. Off-site: Sensitive environmental receptors, Agricultural land.	On-site: Aircraft accidents; Death or injury of airport users, workers, aircraft passengers; Damage to airport infrastructure; Damage to artefacts of national or international importance during import/export; Off-site: Contamination and pollution of identified sensitive environmental receptors	Yes	500m radius of the Main Application Site Public Safety Zone	Catastrophic	Long term	Category D	Refer to risk ID O14 for a summary of the measures incorporated within the drainage strategy to mitigate the risk of contaminated run off from the site. The airport is required under Article 212 of the ANO to maintain an Aerodrome Manual containing among other things details of the airports safety management system. The airport, this safety management system. The airport will continue to use the Aerodrome Manual and all of its safety management procedures to ensure all operations on the airfield are safe.	Extremely improbable	TifALARP	Not significant	
O19	Increased risk of bird strike	Increased risk due to changes to the airport layout and surrounding areas attracting birds, and due to the increase in air traffic.	On-site: Aircraft and aircraft passengers; Artefacts of national or international importance during import/export.	On-site: Aircraft accidents; Death or injury of airport users, workers, aircraft passengers; Damage to airport infrastructure; Damage to artefacts of national or international importance during import/export;	Yes	Main Application Site Public Safety Zone	Catastrophic	Very long term or Permanent	Category D	Design of the Proposed Development has been developed not to attract birds in order to minimise the risk of bird strike, for example through the avoidance of open water features within the drainage design and via measures included within the landscape design. The airport is required under Article 212 of the ANO to maintain an Aerodrome Manual containing among	Extremely improbable	TifALARP	Not significant	

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										<p>other things details of the airports safety management system, including a Wildlife Strike Hazard Reduction Plan. The airport will continue to use the Aerodrome Manual and all of its safety management procedures to ensure all operations on the airfield are safe.</p> <p>An on-site rescue and firefighting service operates within the airport boundary and is available to provide emergency response 24/7.</p> <p>The PSZ has been established to restrict development off-site at either end of the runway, to minimise the number of people on ground at risk of death or injury in the event of an aircraft accident on takeoff or landing. Furthermore, Runway End Safety Areas are provided for the protection of the aircraft and passengers on board during take-off and landing, as well as runway strips along the sides of the paved runway. This is to minimise hazards in event of aircraft having a 'runway excursion'.</p>				

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
O20	Absent or deficient safety/ environmental management systems (e.g. inadequate planning, resource provision, procedures)	Increased risk of MA&D hazards described within this register.	On-site: Existing airport users and workers; Off-site: General public; Agricultural land; Sensitive environmental receptors.	As described within this register for all hazards relevant to the operation of the Proposed Development.	Yes	10km radius within Main Application Site and off-site highway improvement works	Catastrophic	Very long term or Permanent	Category D	The existing airport environmental and safety management procedures will be followed within the site of the existing airport. These are subject to regular audits and inspection by the CAA.	Extremely improbable	TifALARP	Not significant	
O21	Absent or deficient security provision (e.g. inadequate planning, resource provision, procedures)	Increased risk of vandalism/ crime/ terrorism (see Risk ID O27, O28 and O29)	On-site: Existing airport users and workers; Off-site: General public;	As described within this register for Risk ID O27, O28 and O29	Yes	Main Application Site	Catastrophic	Very long term or Permanent	Category D	The existing airport security management procedures will be followed within the site of the existing airport. These are subject to regular audits and inspection by the CAA. The existing London Luton Airport Policing Unit will continue policing the airport. New facilities will be provided for the police as part of the Proposed Development.	Extremely improbable	TifALARP	Not significant	
O22	Train derailment or accident at the extended Luton DART	Train derailment or accident	On-site: Existing airport users and workers; Airport infrastructure, property.	On-site: Death or injury of airport users, workers, passengers; Damage to airport infrastructure;	Yes	Main Application Site	Catastrophic	Very long term or permanent	Category D	Emergency means of egress from trains and station platforms will be provided. Emergency procedures for evacuation will be established prior to the operation of the trains.	Extremely improbable	TifALARP	Not significant	
Vulnerability of the Proposed Development to major accidents from off-site sources														

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
O2 3	Fire at a neighbouring site	Fire at a neighbouring site impacting on the construction of the Proposed Development	On-site: Existing airport users and workers; Artefacts of national or international importance during import/export. Off-site: General public; Agricultural land; Sensitive environmental receptors;	On-site: Risk of injury or death of the users and workers at the existing airport; Damage to existing airport infrastructure; Reduced visibility due to smoke from fire, affecting aircraft; Damage to artefacts of national or international importance during import/export; Off-site: Damage to property and risk of injury or death to the general public; Indirect effects on human health, property, heritage assets and wildlife due to smoke and ash deposition.	Yes	2km radius of Main Application Site	Catastrophic	Very long term or Permanent	Category D	Risk mitigation measures set out under Risk ID O12 will apply, if the fire was to spread to the airport. The airport rescue and firefighting service can also respond to incidents in the immediate vicinity of the airport.	Extremely improbable	TifALARP	Not significant	
O2 4	Explosion and structural collapse at neighbouring sites	Explosion and structural collapse impacting on the operation of the Proposed Development	On-site: Existing airport users and workers; Off-site: General public; Agricultural land; Sensitive environmental receptors;	Falling debris or collapse of infrastructure within the neighbouring area. Impeded access to the Main Application Site. Loss of utilities at the Main Application Site (considered under Risk ID O17).	Yes	Main Application Site and Offsite Car Parks	Severe	Medium term	Category A	Refer to mitigation summarised under Risk ID O12.	Remote	Tolerable	Not significant	n/a

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
O2 5	Contamination or release of hazardous substances by off-site sources;	Contamination or release of hazardous substances impacting on the operation of the Proposed Development	On-site: Existing airport users and workers;	On-site: Risk of contact with hazardous substances to airport users and workers.	Yes	Main Application Site, Off-site Car Parks	Major	Medium term	Category B	Refer to mitigation summarised under Risk ID O14	Extremely improbable	Tolerable	Not significant	n/a
O2 6	External aircraft interference (e.g. lasers, fireworks, sky lanterns, drones, wind turbine interaction with radar)	Drones, lasers, fireworks etc. interfering with aircraft or telecommunications See Risk ID O12 regarding fire hazard and Risk ID O29 regarding vandalism/ crime/ terrorism.	n/a	On-site: Aircraft incident; Risk of injury or death of the users and workers at the existing airport, passengers of aircraft; Damage to infrastructure; Damage to artefacts of national or international importance during import/export	Yes	Main Application Site	Catastrophic	Very long term or Permanent	Category D	The airport is required under Article 212 of the ANO to maintain an Aerodrome Manual containing among other things details of the airports safety management system. The airport will continue to use the Aerodrome Manual and all of its safety management procedures to ensure all operations on the airfield are safe. An on-site rescue and firefighting service operates within the airport boundary and is available to provide emergency response 24/7. The existing London Luton Airport Policing Unit will continue policing the airport.	Extremely improbable	TifALARP	Not significant	
O2 7	Cyber-attack and digital data security	Hackers Security breach of existing airport systems	On-site: Airport users and workers, Aircraft passengers;	Loss of data confidentiality and integrity; Unauthorised access to the airport or bypassed security systems; See Risk ID O29	No – the effects are not considered to result in serious damage as defined	Main Application Site	No Serious Damage	Short term	Not a MA&D	n/a	n/a	n/a	n/a	

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
				for vandalism/ crime/ terrorism	for the purposes of this assessment.									
O2 8	Civil unrest or protest	Members of the public protesting; Airport staff industrial action	On-site: Existing airport users and workers, and infrastructure; Artefacts of national or international importance during import/export.	Disruption to airport operations; Damage of existing infrastructure. See Risk ID O29 for vandalism/ crime/ terrorism Damage to artefacts of national or international importance during import/export.	No – the effects are not considered to result in serious damage as defined for the purposes of this assessment.	Main Application Site	No Serious Damage	Short term	Not a MA&D	n/a	n/a	n/a	n/a	
O2 9	Vandalism/ crime/ terrorism leading to increased risk to the safety of members of public and site workers	Criminal damage/ vandalism; Theft; Terrorist acts; Hijacked aircraft; Unauthorised vehicles accessing the airport.	On-site: Existing airport users and workers, and infrastructure; Artefacts of national or international importance during import/export. Off-site: General public	Death or risk of injury to airport users, workers and the general public Damage to construction equipment and airport infrastructure Damage to artefacts of national or international importance during import/export.	Yes	500m radius of Main Application Site	Catastrophic	Very long term or Permanent	Category D	Measures have been embedded within design in line with National Counter Terrorism Security Office's Crowded Places Guidance (2017) (Ref. 23) and DfT's Aviation Security in Airport Development (Ref. 24) to minimise threats to the Proposed Development. An isolation bay has been incorporated within the airfield design, where aircraft can be directed, if required. The airport is required under Article 212 of the ANO to maintain an Aerodrome Manual containing among other things details of the airports safety management system. The airport will continue to use the Aerodrome Manual and all of its safety	Extremely improbable	TifALARP	No	

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
										management procedures to ensure all operations on the airfield are safe. An on-site rescue and firefighting service operates within the airport boundary and is available to provide emergency response 24/7. The existing London Luton Airport Policing Unit will continue policing the airport. New facilities will be provided for the police as part of the Proposed Development.				

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
O30	Disease outbreak and infestation	Importation of biological agents/ biohazard/ disease/ pathogen, including by disembarking passengers and/ or flight with controlled disease or biohazard; Spread of Covid-19 or other contagious disease, if present. Disease outbreak or epidemics impacting airport users and workers. Discharge from the site may spread biohazard due to contaminated runoff (see Risk ID O14)	On-site: Existing airport users and workers; Off-site: General public; Agricultural land; Sensitive environmental receptors	Death or risk of injury to airport users, workers and the general public. Contamination of sensitive environmental receptors and agricultural land due to contaminated runoff from the construction site.	Yes	1km of the Main Application Site	Catastrophic	Very long term or Permanent	Category D	An isolation bay has been incorporated within the airfield design, where aircraft can be directed, if required. The existing airport environmental and safety management procedures will continue to be followed across the airport, including measures to minimise risks from biohazard or disease outbreaks. These are subject to inspection by the CAA. The airport will continue to have in place measures in line with up-to-date government advice to prevent spread of Covid-19 or any other contagious disease, should any be present during operation of the airport, applicable to airport staff and passengers operations.	Extremely improbable	TifALARP	Not significant	
Operation of the Proposed Development impacting on the vulnerability of a receptor to a MA&D hazard														
O31	Limiting the ability of an emergency response plan to be implemented	Layout of the Proposed Development reducing the response time of emergency services within	On-site: Existing airport users and workers; Artefacts of national or international importance	Insufficient access to emergency services, leading to a slow response time and increased number of deaths/	Yes	Main Application Site	Catastrophic	Very long term or Permanent	Category D	On-site emergency access routes to enable a suitable response time by the rescue and firefighting service and rendez-vous points, as required	Extremely improbable	TifALARP	Not significant	

Pre-mitigation										Post-mitigation				
ID	Hazard	Hazard source and/ or pathway	Receptor	Reasonable worst consequence if event occurred	Could the risk result in serious damage (i.e. could it result in a MA&D)?	Study area of potential impact	Worst Case Severity of Harm	Duration	Category of Consequence	Summary of mitigation	Likelihood	Tolerability	Significance of Risk	Sources of information
		the operational airport	during import/export. Off-site: General public; Agricultural land; Sensitive environmental receptors	injuries, spread of contamination or damage to artefacts of national or international importance during import/export.						by the CAA, have been established by the layout of the Proposed Development. These facilities have been designed in consultation with emergency services. Emergency plans and procedures, access and safe evacuation routes will be maintained throughout operation.				

GLOSSARY AND ABBREVIATIONS

Term	Definition
ALARP	As Low As Reasonably Practicable
AONB	Area of Outstanding Natural Beauty
CAA	Civil Aviation Authority
CDM	Construction, Design and Management
CDOIF	Chemical and Downstream Oil Industries Forum
DETR	Department of the Environment, Transport and the Regions
EC	European Commission
ELD	Environmental Liability Directive
eMARS	European Commission's Major Accident Reporting System
ES	Environmental Statement
ESA	Environmentally Sensitive Area
ha	Hectare
LLAOL	London Luton Airport Operations Limited
LNR	Local Nature Reserve
MA&D	Major Accidents and Disasters
NNR	National Nature Reserve
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SPZ	Source Protection Zone
TiALARP	Tolerable if ALARP (As Low As Reasonably Practicable)
WFD	Water Framework Directive

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- Ref 20. CAA (2021) CAP493 Manual of Air Traffic Services – Part 1.
- Ref 21. UK Statutory Instruments, 1989 No. 635 Electricity at Work Regulations 1989
- Ref 22. BS EN/IEC 62305 for the installation of Lightning Protection systems
- Ref 23. National Counter Terrorism Security Office (2017) Crowded places guidance.
- Ref 24. Department for Transport (DfT) (2017) Aviation security in airport development.