Wildlife Hazard Management Plan for Building 1071, Southampton Road East, Heathrow Airport
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BIRDSTRIKE MANAGEMENT Ltd.

Contents

1 The Objective of this Document

The aim of this document is to provide an effective Wildlife Hazard Management Plan (WHMP) for Tritax London Logistics Fund (the “Applicant”) in relation to the proposed re-development of the former Gate Gourmet site at Heathrow Airport (Building 1071, Southampton Road East, London Heathrow Airport, Hounslow, TW6 3AQ). The plan will, when implemented, ensure that the development does not adversely affect the wildlife strike risk at London Heathrow Airport (LHR). This is also to satisfy the Local Planning Authority that a WHMP that is acceptable to LHR Safeguarding Department is in place.

The commitments in the document relate both to the construction and operational phases of the development, and will be transferred to any subsequent owners, tenants or site managers in perpetuity.

2 Birdstrike Management Ltd.

Birdstrike Management Ltd (BML) is a specialist independent company that delivers research, consultancy and advisory services to airports, airlines, regulators and developers in relation to the prevention of bird and other wildlife strikes to aircraft. BML has advised and authored many of the guidance documents and aviation standards used for wildlife hazard management both on and off aerodromes and has decades of experience reviewing and advising on the safe implementation of developments adjacent to airports. BML has extensive experience working for both airports and developers and is therefore competent to advise on the safe and responsible delivery of wildlife hazard management standards applicable to aerodromes and their surroundings.

3 Hazards to Aircraft caused by Birds

Bird/Wildlife strikes are collisions between aircraft and wild animals (usually birds). Many of these have the potential to cause damage to aircraft or, in extreme but rare cases, catastrophic accidents. In the UK, over 1500 confirmed wildlife strike incidents are recorded each year. In the history of world civil aviation, at least 271 civilian aircraft have been destroyed following bird strikes, with several of those incidents involving loss of life. Countless other wildlife strikes have caused less significant damage, with the total cost of wildlife strikes estimated to exceed £1.5 billion per year in 2002. The aviation industry therefore invests millions of pounds every year in reducing the risk of bird strike, especially from large and/or flocking bird species. Gulls, Corvids, Starlings, Waterfowl, Pigeons and Raptors continue to represent the species groups most likely to result in higher risks to aviation safety. Reducing their presence on aerodromes is, therefore, essential, as is managing any increased wildlife strike risk from new developments in the vicinity of aerodromes.

4 Aerodrome Safeguarding Requirements

The UK, as a signatory to the Convention on International Civil Aviation, Chicago 1944, complies with the provisions published by the International Civil Aviation Organization (ICAO). Annex 14 of The Convention includes a series of Standards And Recommended Practices (SARPs) that address the potential for increases in the bird or wildlife strike risk that may be caused by new developments on, or in the vicinity of, an aerodrome (the term "in the vicinity" is stated to be land or water within 13 kms of the aerodrome reference point).

Annex 14, Edition 7, for example, states that: *when a bird/wildlife strike hazard is identified at an aerodrome, the appropriate authority shall take action to decrease the number of birds/wildlife constituting a potential hazard to aircraft operations by adopting measures for discouraging their presence on, or in the vicinity of, an aerodrome.*

Volume I then states that: *iii. Action shall be taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between birds/wildlife and aircraft.*

The UK Department of Transport follows these SARPS by setting out guidance on safeguarding of aerodromes in the Town and Country Planning Direction 2002 (safeguarding aerodromes, technical sites and military explosives storage areas), as updated, 22 December 2016. Annex 2; Arrangements for safeguarding aerodromes, technical sites and military explosives storage areas, states that:

1. *Birdstrikes are one of the major controllable hazards to aviation. Common birds have caused catastrophic accidents to all types of aircraft. Most birdstrikes occur on or near aerodromes but, because birds are very mobile, features far beyond an aerodrome boundary may increase the hazard. If a man-made development provides feeding, roosting or breeding opportunities, or shelter and security, it may, depending on the siting of the development and the species which it attracts, increase the number of birds visiting or overflying an aerodrome or the number of birds in the airspace used by aircraft. Gulls and starlings congregate in very large overnight roosts and travel long distances daily, while waterfowl are large and often fly in close formation. There is only limited scope for taking action on aerodromes to counter these hazards, and safeguarding may be the only effective means of reducing the risk to aircraft in flight.*

….

2. *The primary aim is to guard against new or increased hazards caused by development.*

…

3. *Planting trees and bushes normally creates a bird hazard only when it takes place relatively near to an aerodrome, but a potential starling roost site further away from an aerodrome can create a hazard.*

The UK Civil Aviation Authority (CAA) applies these requirements by ensuring all airports take appropriate action to deter hazardous birds on and around aerodromes. CAA guidance is therefore set out in a series of more detailed documents referred to as Civil Aviation Publications (CAPs) with CAP 772 relating to Wildlife Hazard Management at Aerodromes and CAP 738 to Safeguarding at Aerodromes.

CAP 772; Wildlife Hazard Management at Aerodromes, states that:

Virtually all land types and land uses (including natural habitats) attract wildlife in some way. Safeguarding should therefore address developments that could become wildlife attractants with the potential to increase the wildlife strike risk at a nearby aerodrome.

Safeguarding systems need to be put in place to guard against new or increased wildlife hazards caused by developments both on and in the vicinity of an aerodrome. They should include details of activities employed by the aerodrome operator to control or influence areas beyond the boundary of the airfield, in the vicinity of the aerodrome (up to 13 km and in some instances beyond, or less than 13km, as determined by risk and effectiveness of interventions), and where practicable, could include:

- *establishment of a process with the local planning authorities for consultation on proposed developments that have the potential to be wildlife attractant within 13 km of the aerodrome;*
- *means to influence land use and development surrounding the aerodrome such that the strike risk does not increase and, where practicable, is reduced;*
- *means to help encourage landowners to adopt wildlife control measures and support landowners' efforts to reduce wildlife strike risks, via land use agreements and;*
- *procedures to conduct and record the results of off-aerodrome site monitoring visits.*

CAP 738, Safeguarding at Aerodromes, states that:

The common aim of all safeguarding is to assess the implications of any development being proposed within the vicinity of an established aerodrome to ensure, as far as practicable, that the aerodrome and its surrounding airspace is not adversely impacted by the proposal, thus ensuring the continued safety of aircraft operating at the location.
…
Responsibility for all safeguarding activities at these aerodromes' rests with the aerodrome operator.
…
Safeguarding is the process by which the Aerodrome Operator can, in consultation with the Local Planning Authority (LPA) and within their capability, protect the environment surrounding the Aerodrome from developments and activities that have the potential to impact on the aerodrome's safe operation. Aerodrome safeguarding covers several aspects. Its purpose is to protect:
…
d) the aerodrome from any increased wildlife strike risk. In particular bird strikes, which pose a serious threat to flight safety.

The Airport Operators Association (AOA) published an Advice Note addressing Wildlife Hazards around Aerodromes. Page 3, paragraph 2 states that:

A *proposed development would need to either: increase the population of hazardous*[1] *birds; or to generate flight lines that enter critical airspace*[2]*, to increase the risk in order for it to be determined as unacceptable.*

LHR is an officially safeguarded aerodrome and is, therefore, a statutory consultee under the provisions of the Office of the Deputy Prime Minister (ODPM) Circular 1/2003 – The Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) Direction 2002 [46].

5 Requirements Summary

The regulatory and guidance material listed above requires proposed developments not to increase the presence of hazardous wildlife, or modify the movements of existing hazardous wildlife, in a way that is detrimental to flight safety at a nearby safeguarded airport. This will normally be achieved by removing features that may attract hazardous wildlife from the development design and/or agreeing to a Wildlife Hazard Management Plan. If hazardous wildlife is attracted, the WHMP must stipulate suitable provisions for dispersal, or to remove or modify the feature(s) that are attracting the wildlife concerned. Such a plan needs to meet the requirements of the airport operator as well as the Local Planning Authority and be applied in perpetuity at the development site.

The proposed development is located only 600m south of the southern runway at LHR. It lies within the 'Cargo Village' complex, which is known to have a history of problems with roof-nesting gulls. In recognition of this issue, the Applicant has commissioned this plan to ensure that the proposed development of the site will not adversely impact flight safety at LHR.

In order to assess the likely impacts, this document provides an outline of:

A. What wildlife attracting habitats may be created
B. What hazardous species may be attracted to the area as a consequence

[1] Large and / or flocking bird species capable of causing damage to aircraft if struck.

[2] Undefined, but widely understood to mean any area into which aircraft manoeuvre both on the runway and through the approach and departure corridors at altitudes that could be affected by hazardous bird species.

C. What changes in the movements of hazardous wildlife that could influence air safety may occur

and

D. If any of the above will result, or might result, in increases in the wildlife strike risk to aircraft, what measures would be implemented to manage that risk.

This review does not address any other aspects of the developments that may impact on the airport, such as the possible use of cranes, construction equipment, temporary lighting structures, etc. It only reviews the potential impact on, and management of, wildlife strike risks at LHR arising from this development.

6 Background

6.1 Site Location.

The proposed development lies approximately 600m south of the southern runway at LHR, just outside the airport perimeter fence. As such, it is very close to the runway, and birds either using the site itself, or moving to and from it, are likely to come into conflict with aircraft.

The proximity to the airfield also raises the issue of coordinating any bird dispersal actions that may be required with the airport's own bird controllers. If birds are dispersed from the development site, they could move onto the airport itself or fly up into the path of aircraft thus increasing risk. Similarly, if the airport bird controllers are in the process of dispersing birds and site staff are also dispersing birds from the Project site, conflicts could result in birds moving in unsafe directions. The need for full coordination of bird control on the Project site with the airport's Operations Unit is, therefore, recognised throughout this document.

The developer therefore accepts that it is essential to remove wildlife attracting features from the development design as far as possible, and to have a robust, and fully coordinated, plan in place to deal with any unforeseen wildlife attractions that do occur.

7 Design Review

The development of the site will involve the construction of a large industrial unit, car parking areas and associated amenity planting. There are a variety of features associated with a development of this sort that can attract hazardous birds and, because of the proximity to the runway at LHR, it is recognized that these will need to be rigorously managed. The various potential attractions are described below along with design commitments to eliminate those attractions as far as possible. Where potential attractions must remain, appropriate actions are identified, and techniques described, that should prevent any additional hazardous wildlife being present on the site.

7.1 Building and Roofscape Design

The main building proposed for the site will have a curved 'barrel roof' design with a number of curved sections separated by valleys. It is unlikely that birds, particularly gulls, will nest on the curved areas because they cannot secure their nests on the sloping surface. Gulls may, however, place nests against any protuberances in the roof, such as chimneys, vents etc. that provide them with a firm anchor site. The valleys between the curved sections do offer suitable nesting sites as well as shelter from the elements. If left un-managed these areas are likely to attract nesting gulls. Other large buildings in the cargo village have problems with roof nesting gulls that are difficult for the airport to manage because

the designs of the roofs do not permit easy and safe access to remove the nests. The developers acknowledge that it is essential that this problem is avoided in such a sensitive location.

All roofs in this proposal will have safe and easy access designed-in, so that staff can access roofs quickly and safely either to check for the presence of hazardous birds or to carry out bird dispersal or nest and egg removal should it prove necessary (see section 10.6.7).

7.2 Green and Brown Roofs

Green or brown roofs are defined as roofs with a covering of vegetation (green roof) or inert material such as gravel (brown roof). A recent review by BML (unpublished) suggests that there is no evidence that gulls are more likely to nest or roost on a green or brown roof compared to a conventional roof covering, such as metal cladding. Whilst it might be expected that gulls, or other birds, would prefer a more 'natural' roof covering, especially to nest on, it would seem that other factors, such as roof size and local food availability are more important in this regard.

There are no green or brown roofs in the current proposal but, if they were to be added, the same management will be used described for general metal-clad roofs (see section 10.5.1).

7.3 Sustainable Drainage Systems (SUDS)

The development proposals involve areas of impermeable surfaces for car parking etc. as well as the large roofscapes described above. This creates issues for management of rainwater run-off during heavy rainfall events. Modern SuDS often use swales or retention ponds to hold rainwater after storm events allowing controlled discharge into sewers or watercourses thus preventing downstream flooding. Holding water in ponds and swales also provides a level of bioremediation thus improving discharge water quality. SuDS are often also designed to provide increased biodiversity on a site by offering habitat for aquatic or wetland plant species, insects, invertebrates and, sometimes, birds and mammals. SUDS that involve the retention of water in surface swales or attenuation ponds may attract hazardous birds such as gulls and waterfowl.

All rainwater management in the proposal will be achieved by underground attenuation. This will not attract wildlife, and no further action is needed.

7.4 Retained Water Bodies

There are no water bodies present, or proposed, for the development

7.5 PV Panels

Solar PV arrays are not normally a major attraction for hazardous birds and, indeed, have been installed on a number of commercial airports in the UK in recent years without increasing risks. Roof mounted panels may provide shelter for nesting or roosting Feral Pigeons, Starlings or House Sparrows depending on how they are installed, and may also provide secure sites against which gulls can place a nest. This can be managed by the use of skirts, exclusion netting or nest and egg removal.

The proposed development includes the installation of PV panels on the roof area, but details of the final design of the panels and their supports are not currently available.

All solar PV panels will be fitted with bird exclusion skirts and the upper edge of any inclined panels will be fitted with bird repellent spikes to prevent perching. If birds build nests against

the or beneath the panels, nests and eggs will be removed, and appropriate additional bird exclusion fitted if necessary.

7.6 Amenity Planting

Amenity planting around developments has the potential to provide feeding, nesting and roosting habitat for a variety of hazardous bird species. The use of colourful berry-bearing species such as Rowan, Cotoneaster or Pyracantha is common around car parks, and Hawthorn, Blackthorn and similar fruit or berry-bearing native species are commonly used in hedgerow planting. All of these species will attract flocking species such as Starlings and wintering thrushes to feed on the berries and fruit. Taller trees, especially species with robust crowns, such as Oak or Scots Pine, provide suitable habitat for corvids or Woodpigeons to nest.

Groups of tall tree species will not be included in the planting scheme, and, because of the proximity to the airport, no fruit and berry-bearing species will be included in the planting palette.

7.7 Biodiversity Net Gain

This development is exempt from the normal requirements to deliver 10% Biodiversity Net Gain (BNG) as part of a new development. This means that there will be no requirement to include features in the design that support significant increased biodiversity and which might also attract hazardous wildlife.

The avoidance of any fruit of berry-bearing species in the amenity planting described in section 7.6 above can, therefore, be achieved without causing any issues in terms of BNG.

7.8 Food Retail and Staff Leisure Areas

Food sale outlets, especially if combined with the provision of areas for people to sit and consume food outdoors, can attract hazardous birds such as gulls, pigeons and corvids.

There are no food sales areas planned in the proposal and no further action is required in this regard

7.9 Waste management

Poorly managed waste disposal has the potential to attract scavenging birds, such as gulls, Starlings, Feral Pigeons and corvids. Especially if the site is used for airline catering or similar functions in the future.

All waste on the site will be stored in lidded bins, which will be designed so that they cannot be left open. Bin capacity and emptying of bins will be organized so that there is no possibility of waste being stored outside closed bins and becoming available to hazardous birds.

8 Construction Phase Issues

In addition to the design features that may attract birds, there are a number of aspects to the construction works themselves that have the potential to attract hazardous birds to the site. Appropriate staff will need to be identified to carry out monitoring on the site during construction, and they will need to be trained and equipped to disperse hazardous birds effectively should numbers build to over agreed threshold levels (see section 10.2). The likely attractions are listed below, and the appropriate management techniques are described in section 10.4.

The Applicants undertake to apply the appropriate management and dispersal techniques, always in consultation with LHR Airport Operations, to ensure that numbers of hazardous birds do not exceed agreed target levels throughout the construction phase of the development.

8.1 Large Open and Undisturbed Areas

In general, construction sites are highly disturbed, with staff and vehicles present throughout the day. There may be times, however, when a part of the site is cleared but, for whatever reason, is not scheduled for the next phase of development for some time. If the area is large and has an open aspect, it may provide a suitable loafing or roosting site for a number of bird species that rely on the early detection of predators for protection. Gulls may be particularly attracted to this type of habitat, especially if food resources are also available nearby (see sections 8.2 and 8.3 below).

These issues will be managed by regular site monitoring and bird dispersal or the deployment of visual barriers or other bird deterrents (see section 10.6).

8.2 Disturbed or Stockpiled Soils

The construction phase of any development that requires large areas of earthworks can result in areas of bare or recently disturbed soil, which can provide attractive feeding opportunities for hazardous bird species, such as corvids, gulls, Starlings and waders in the form of readily available soil invertebrates. Earthworks should, therefore, be carried out on a 'just in time' basis wherever possible, so that bare earth is not exposed for longer periods than necessary.

Temporarily compacting soils, or covering them with inert materials, will be used to prevent birds gaining access to food items. If this is not possible, bird deterrence measures will be deployed in consultation with the LHR Operations Department to manage the risk (see section 10.6).

8.3 Ponding and Drainage Issues

There is the potential for transient areas of shallow water and temporary puddling to form across construction sites. These can provide exploitable resources for hazardous species including gulls and corvids as well as ducks and waders which may come to bathe, feed or drink.

These sites will be drained if possible. If draining is not achievable, then bird dispersal will be carried out (see sections 10.6.1, 10.6.4 and 10.6.5).

8.4 Staff Food and Waste Management

For a large development site, there will need to be canteen facilities or other food provision for the staff working there. Staff consuming food outdoors may leave food waste or actively feed birds.

Provision of lidded bins for food waste, regularly emptying of bins to prevent overflowing, and education of staff including appropriate signage will be used to manage these issues.

9 Operational Phase Issues

Most of the operational phase issues will revolve around monitoring whether the site is attracting more than an agreed number of hazardous birds. If this occurs, appropriate management measures to

remove bird attractants, or to deploy dispersal measures if the attractive feature(s) cannot be removed, will be initiated.

As with the construction phase, the staff tasked with monitoring and managing the bird numbers on the site will be properly trained and equipped to carry out the task quickly and effectively using the techniques described in section 10.6.

Monitoring schedules for hazardous birds will be developed and agreed with LHR for the construction and operational phases. Details of the monitoring frequency proposed are provided in section 10.3 below.

10 The Bird Hazard Management Commitment

The developers of the Project commit to comply with the principles and standards in this WHMP. The WHMP will be submitted to the LHR Safeguarding Team (as statutory consultee) for their approval prior to initiation.

10.1 Species of Concern

The following lists the birds that are known to be hazardous to aircraft and which may be attracted to the site.

Species of concern:

- Black-headed Gull *Chroicocephalus ridibundus*
- Common Gull *Larus canus*
- Herring Gull *Larus argentatus*
- Lesser black-backed Gull *Larus fuscus*
- *Great Black-backed Gull* Larus marinus
- Rook *Corvus frugilegus*
- Carrion Crow *Corvus corone*
- Jackdaw *Corvus monedula*
- Starling *Sturnus vulgaris*
- *Feral Pigeon* *Columba livia*
- *Woodpigeon* *Columba palumbus*
- *Redwing* *Turdus Iliacus*
- *Fieldfare* *Turdus pilaris*

It is acknowledged that bird populations are not static, and this list may be amended with the agreement of LHR in due course.

10.2 Threshold Numbers to Trigger Action

The following number of each bird species or species group, if exceeded, will trigger management action using the techniques described below.

Prior to any bird dispersal action being taken, contact will be made with LHR Airfield Operations Department to ensure that any bird dispersal carried out does not impact flight safety or conflict with bird control in progress on the airport.

Bird Group	Number
Construction phase	
All gulls and corvids and pigeons, combined, on the construction site(s)	20
Starlings on the construction site	20
Operational Phase	
Starling and thrushes (all species) in the amenity planting	30
Starlings roosting overnight anywhere on the site	any
Rooks nesting anywhere on site	any
Corvids roosting anywhere on site	10
Gulls roosting on roofs at night (site-wide total)	any
Gulls nesting or prospecting for nest sites on roofs (site-wide total)	any
Birds of any species nesting under solar PV panels	any

In the event that threshold bird numbers are exceeded, the airport will be informed and, with their agreement, management actions as set out below will be implemented. Dispersal will only take place if authorised by the LHR Airfield Operations Department. A person suitably trained and equipped to carry out bird control using the techniques described in section 10.6 will be available to carry out these duties as required.

10.3 Monitoring Hazardous Bird Numbers

In order to determine whether thresholds for hazardous bird numbers are being exceeded, it will be necessary to set up an appropriate monitoring programme.

Weekly monitoring across the entire site will be carried out during the construction phase. In the event that target numbers are exceeded, and action is taken to disperse hazardous birds, monitoring frequency will be increased to daily until numbers return to below threshold levels for 3 consecutive days. Following any dispersal actions, hourly checks will be made for the remainder of the day to determine if birds are returning to the site, and additional dispersal carried out if required.

Operational Phase monitoring will consist of weekly checks of rooftops during the nesting season for gulls (April to June inclusive). Annual checks of tall trees and amenity planting will be carried out in early May to check for breeding birds. Monthly checks of rooftops after dark for roosting gulls will be carried out from December to February inclusive. If management action is carried out, monitoring frequency will increase to daily until threshold numbers are not exceeded for 3 consecutive days, after which monitoring will be weekly for the following 4 weeks.

10.4 Construction Phase Management

10.4.1 Open Areas

The security offered by any open areas left during construction work can normally be easily overcome by regular human disturbance. The attraction of an open area is not large, and numerous alternative loafing areas are likely to be nearby.

Simple human disturbance, i.e. approaching the birds on foot or in a vehicle and waving arms or sounding the horn will normally be sufficient to disperse loafing birds. This will be repeated (after contacting LHR Operations Department) whenever birds appear in numbers over the target threshold (see section 10.2).

Monitoring and dispersal frequency will be increased in response to the speed with which the birds return to the site, and, if repeatedly dispersed, they should soon find an alternative site to rest on. Unfortunately, one nearby large open site is the airfield at LHR. Coordination of any dispersal actions with the LHR wildlife controllers is, therefore, essential to avoid hazardous birds being displaced onto the airfield itself.

If the loafing site chosen by the birds is not accessible for any reason, either a bird deterrent laser, broadcast bird distress calls or pyrotechnic bird scaring cartridges will be used as an additional dispersal technique (see section 10.6). These techniques need to be deployed correctly to be effective, and pyrotechnics (and to a lesser extent lasers) have obvious safety issues associated with their use close to an airport.

Staff tasked with on-site wildlife management will be trained in advance in the safe and proper use of deterrent techniques and only deploy them with the agreement of the Airfield Operations Unit.

10.4.2 Exposed Soils

Where possible, exposed soils that are attracting birds to feed will be covered or compacted to reduce the availability of food items or removed from the site altogether. If this is not possible, the dispersal techniques proposed for open areas (see section 10.4.1 above) will be deployed until bird numbers fall to below threshold levels.

10.4.3 Ponding

Areas of ponding will be removed by draining in the first instance. If this is not possible, bird dispersal will be deployed as described in section 10.4.1 above

10.4.4 Staff Food and Waste Management

Although there will be no food retail on the site, construction staff may consume their own food outdoors during lunch breaks. **If birds are attracted to waste food, or by staff actively feeding them, observations will be made to determine where the food is being obtained by the birds and necessary action taken. This may include improving bin emptying frequency, better site clean-up and litter picking, or reminding staff to keep the site clean and not feed the birds. Observation frequency will be increased to daily at appropriate times (e.g. lunch breaks) to ensure that this is carried out.**

10.5 Operational Phase Management

10.5.1 Management of Birds on Rooftops

10.5.1.1 Roosting Birds

Gulls are the only species group that routinely roost on exposed rooftops in large numbers. Starlings and Feral Pigeons do roost in and on buildings, but more usually in areas with complex and sheltered structures such as city centers. Roofs will be designed so that staff can gain access easily and safely to check for the presence of roosting gulls and disperse them if needed.

If gulls are seen on the rooftops after dark in excess of threshold numbers, they will be dispersed with human presence, distress calls or a bird deterrent laser (see section 10.6). Monitoring and dispersal actions will then be carried out every evening at dusk until the roost is permanently dispersed.

10.5.1.2 Nesting Birds

Gulls are the only species group likely to nest on large flat roofs in significant numbers. If checks at the start of the breeding season detect birds showing signs of establishing territories, intensive disturbance using human presence, distress calls, pyrotechnics (if possible) or lasers (see section 10.6.5) will be used to dissuade them from nesting in that location. If birds are found to have already started building a nest, or have eggs or young present, then a license to remove the nest(s) will be obtained from Natural England. Consideration will be given to having a licence in place in advance on a precautionary basis. This is a part of the WHMP that may be contracted-out to a specialist pest control company who are experienced in dealing with licence applications and nest and egg removal.

10.5.2 Management of Green and Brown Roofs

There is currently no evidence to suggest that green and brown roofs are any more attractive to nesting or roosting gulls than conventional roofs. At present there are no plans to use green or brown roofs in the development. If any green or brown roofs are used on site, they will be designed with easy and safe access and will be checked and managed in the same way as conventional roofs under the same WHMP.

10.5.3 SUDS and Retained Water Features

There are no surface level water features planned for the site.

10.5.4 Landscaping and Amenity Planting

It is not generally practical to disperse birds from amenity planting on a large site as they will simply move from one part of the site to another. The exception to this is if a Starling roost were to develop on site, although this is unlikely given the limited extent of the amenity planting proposed. If a roost does establish dispersal by distress calls and pyrotechnics, in collaboration with the Airfield Operations Department, over several consecutive nights will be used to disperse the roost.

The key issue for amenity planting is the initial choice of plant and tree species that are used. For example, if trees such as Oak and Scots Pine and evergreens such as Laurels are used extensively, they can result in more attractive habitat for nesting or roosting, and berry and fruit bearing plants such

as cherries, Hawthorn, Strawberry Tree and Dogwood will result in an exploitable food resource for flocking birds such as Starlings, Wood Pigeons and winter thrushes.

The amenity planting on the site will not use fruit or berry-bearing species, and tree species with robust crowns that may support corvid or Woodpigeon nests will be avoided.

Tree species such as Birches, Acers and Eucalyptus, shrubs such as Hydrangea, grasses and perennials such as Valerian will not result in exploitable resources for hazardous birds and will be used more frequently in the planting palette.

In the event that hazardous birds are still attracted in numbers over the threshold levels, they will initially be dispersed using the techniques described in section 10.6. Observations will also be made as to which plants are attracting the birds, and those plants will be replaced with less attractive species.

10.5.5 Biodiversity Net Gain and Ecological Enhancement

The development is exempt from 10% Biodiversity Net Gain requirements.

There will be no additional wildlife attractions included in the design specifically for mandatory BNG purposes, and no requirement for on-going monitoring or management of these features in addition to the other management actions described in section 10.5.

10.5.6 Food Retail and Outdoor Eating Areas

There will be no food retail areas on the site. If there are areas for staff to consume food outdoors, or any other need to store or dispose of edible waste, lidded bins, designed to be impossible to leave open will be used. Bins will not be allowed to overflow and staff will be educated about the need to avoid feeding birds on the site.

10.5.7 PV Panels

Recent surveys (BML, unpublished) have shown that solar PV arrays on the ground are not particularly attractive to hazardous bird species, and they have been installed airside on a number of UK airports.

Roof-top solar panels may provide sheltered nesting sites for gulls and Feral Pigeons. This will be detectable by the routine roof checks that are described in section 10.5.1.2 and similar actions will be taken to either disturb birds before nesting or remove nests and eggs if they are already present. Bird exclusion netting will be fitted around the panels to exclude hazardous birds from the outset and spikes fitted to the highest side of any inclined panels to prevent nesting or perching by hazardous birds.

10.6 Dispersal Techniques To Be Used

10.6.1 Human Presence

In many situations, regular human presence is enough to disperse hazardous birds. This is especially true for birds roosting on large open areas where the lack of potential threats, combined with clear lines of sight, allow the birds to feel safe. In these cases, simply walking briskly towards the birds repeatedly raising and lowering arms, is often sufficient to make the birds disperse. This effect can be enhanced by holding a flag in each hand if required. Over larger areas, driving a vehicle towards the birds and

sounding the horn will also be effective. Repeating this process every time the birds return is normally sufficient to make them move elsewhere.

10.6.2 Visual Barriers

For large open areas with difficult access, or where an open area is to be left undeveloped for a long period of time, visual barriers can be erected to interrupt the bird's line of sight and remove the feeling of security. Plastic sheet fencing, about 1m high and supported by wooden or metal posts, will achieve the desired effect if placed across the site in a zigzag pattern to obstruct the view in any direction. This should also reduce the need for repeated checks of the site by staff tasked with bird management.

10.6.3 Static Bird Scarers

There are a wide variety of bird deterrent devices on the market, including traditional scarecrows, plastic predatory-bird effigies, flutter tapes, helium filled kites, rotating pyramid-shaped mirrors, gas cannons, sound generating units, robotic flying falcon-shaped drones and many others. These products are mostly designed for use in agriculture, where bird dispersal is often only required for a few weeks during seed-sowing or harvest. Most are only effective for a short period of time before birds habituate to them (i.e. they learn that they represent no real threat and begin to ignore them) and they are usually effective over relatively small areas. Devices that rely on startling birds, such as gas cannons, are not appropriate in this location because of the possibility that they might scare birds from the site across the airfield when an aircraft is present and thus increase the risk.

The Project developers are aware that there are some bird deterrent devices on the market that are not effective. Plastic owls, for example, do not deter species like gulls effectively, and ultrasonic bird scarers do not work because birds cannot hear ultrasound. Site managers will seek expert advice, possibly from the LHR bird control team, if they are uncertain about which techniques to use in a particular situation.

10.6.4 Distress Calls

Staff tasked with bird control may be equipped with a hand-held bioacoustic bird deterrent unit. The unit plays a variety of bird distress calls which can be used in daily bird deterrence. Distress calls (the cries made by a bird that has been caught by a predator) are the main tool used in bioacoustic bird control. It is understood that distress calls need to be used in a particular way to retain their effectiveness, and staff will be trained to use them properly before they are deployed. Distress calls will cause birds to fly up and circle looking for the predator that they think is present. It may, therefore, not be appropriate to use this technique if aircraft are passing low over the site. **Contact will be made with the LHR Airport Operations Unit to obtain their approval before this technique is used.**

10.6.5 Bird Deterrent Lasers

The use of specialist hand-held lasers to deter birds is now common on airfields. The units are specifically designed to avoid damaging the eyes of birds or humans and are extremely effective in low light or at night. They are silent and will not disturb staff working in nearby buildings. Because they have a range of over 1km, they are particularly suitable for use over large areas of ground or water or over rooftops. The laser is seen by the birds as a long green 'stick' of light and, if moved slowly about 1 meter above their heads, will cause them to take flight and disperse. Care must obviously be taken to avoid dazzling pilots, members of the public, drivers of vehicles or anyone operating machinery. Bird dispersal lasers may be an especially suitable tool for bird management across rooftops on the site. It is noted, however, that lasers are not effective in bright sunlight when they become effectively invisible and other dispersal methods will need to be used at those times.

10.6.6 Pyrotechnics

Airports make extensive use of hand-launched pyrotechnics in their bird control programmes. These take the form of a cartridge, similar to that fired from a shotgun, which is launched from a specially adapted pistol. When fired, a projectile is launched around 50m into the air which then explodes with a loud bang and flash. These tools are very effective in dispersing birds, but they are unlikely to be suitable for general use around the operational site because of the disturbance to staff and possible conflict with the bird control activities on the airport. Depending on the type of cartridge used, it may also be necessary to hold a firearms permit to use these devices and appropriate training to maintain staff safety is essential.

10.6.7 Nest and Egg Removal

For some species, such as gulls on rooftops, pigeons in buildings or Rooks in trees, the main method to prevent breeding will be the removal of nests and eggs. This is not difficult to achieve, and due care will be taken when working at height to ensure staff safety. It should also be expected that, once a nest is removed, the birds will re-build it almost immediately. Ideally, once a nest is removed, access to the area should be prevented e.g. by netting the areas to exclude the birds, or lopping trees to deter Rooks. If this is not possible, repeat visits will be made at weekly intervals and any new nests removed until the birds give up and move elsewhere. Nest and egg control for some species is permitted under a general licence. For other species, including gulls, a Natural England CL-12 licence will be registered for this purpose. Natural England will then supply the Registered Person with the numbers of each species (including fledged birds and their nests and eggs) that can be taken. Unless the site managers can operate under the airport's licence, they will need to register for the licence before the commencement of lethal measures and send in returns for any nests destroyed or birds culled at the end of the year. Care will be taken to check the licence annually as the species listed may change.

Consideration will be given to whether hiring a specialist pest control company, or collaborating with the airport's bird control programme to carry out work of this nature is the best option.

11 Record Keeping

Records must be kept which may be inspected by the airport or their nominated representatives. This will be in a dedicated logbook, or secure electronic equivalent, and will include: -

1. The dates, times and areas checked, and details of birds found (including species and numbers).
2. Hazardous bird activity, i.e. feeding, loafing, roosting, nesting.
3. Confirmation that the airport was contacted prior to any dispersal action being carried out.
4. Details of any action taken and the result of any such action.
5. Details of any nests removed or destroyed if relevant.
6. If further action is required by the airport, then full details of relevant additional checks, species and numbers seen, and control action carried out should be detailed.

12 Review and Failure of the Management Plan

Failure of the management plan will be defined as –

- Hazardous birds at the site are detected in excess of threshold numbers but cannot be dispersed within 30 minutes. [This does not apply to nesting birds, which will take longer to deal with. It also does not apply if the LHR Airport Operations Unit requests that dispersal actions are delayed for operational or other reasons.]
- Birds are regularly attracted to or utilising the site requiring multiple dispersal actions within a 24-hour period.
- Large gulls or Feral Pigeons nest successfully on the roof spaces.
- A Starling roost develops on the site.
- Failure to comply with any additional reasonable bird control requests that MAN may make as a result of recording a birdstrike hazard or risk linked to the site.

If the management plan is found to be ineffective and the development site is attracting hazardous birds resulting in a risk to aircraft, additional measures such as proofing (excluding hazardous birds by fitting specialist netting, wires or spikes) of the roof structure, improved site management during construction or more regular checks and further active bird deterrence will be carried out in order to mitigate the risk. **Should it be deemed necessary, a meeting between the airport and site managers will be convened at the earliest opportunity to discuss and agree how the situation can be resolved.**

13 Inspection and Site Access

LHR or their nominated representatives will be allowed access to the Site to evaluate the success of the WHMP and to review any remaining birdstrike hazard. They may call at short notice, subject to relevant Health and Safety and site induction requirements. Periodic inspections will be facilitated as necessary by the site managers.

14 Long-Term Management

The WHMP at the site will remain enforceable by LHR, the local planning authority, or any successor to these bodies throughout the existence of the development. These obligations will be passed to any subsequent owner or tenants on the site.

This management plan will be subject to review to reflect changes in nearby habitats or populations of local bird species. Should the airport deem it necessary, a meeting between MAN and the site managers will be convened to discuss and agree any changes which may be required.

15 Conclusion

This WHMP provides both a plan for both the Construction Phase and Operational Phase of the development.

The review of likely attractants, along with commitments to design modifications and implementation of bird management actions, shows that it is possible to manage any additional bird attraction generated by the development. Implementation of this plan will ensure that no additional flight safety risk at LHR arises from this development.

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16 Disclaimer

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