AIRPORT LANDSCAPE AS OPEN-ENDED HERITAGE
THE FUTURE OF CLASS A AIRFIELDS IN THE UK

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ABSTRACT

Widely distributed throughout the United Kingdom, Class A airfields have significant potential as open-ended spatial heritage. Given their geometric abstraction and physical patterns, the airfields could be interpreted in unexpected ways in the distant future, as their original technology and purpose become less well understood. To preserve and allow for the potential of such interpretation, the conservation of Class A airfields should focus on general landscape characteristics—with emphasis on scale, patterns, and spatial relationships—rather than original functions and material conditions. Also, alternative uses or development should be allowed on a limited basis. To help guide preservation efforts, a “toolkit” of scenario-based categories and a grading system is developed and described. Principles of preservation guidance for contemporary development are outlined through selected case studies, although the vision of Class A airfields as open-ended heritage is based on one of the distant future. This exploration of Class A airfields as open-ended spatial heritage is offered as a sort of proposal to Historic England, a government heritage agency, to develop guidelines for preserving historic airport landscapes. It also casts new light on the topic of airport landscape.
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Chapter 1. Overview of Airport Landscape

Over the last decade, the airport has emerged as the center case study of whom are interested in landscape urbanism. In practices, landscape has been found useful as a lens for reading the airport across a variety of medium (Harvard GSD, 2013). Charles Waldheim made that statement at the conference “Airport Landscape: Urban Ecologies in the Aerial Age,” held at the Harvard Graduate School of Design in November 2013. At that inspiring event, a multi-disciplinary panel, including but not limited to ecologists, engineers and anthropologists, discussed the ecologies of airport landscape beyond biology and geography. Airport landscape was described as systematic, ecological, and cultural (Tate, A., 2014). Lecturers argued that a wide range of understandings and values of airport landscape should be engaged, based on an essential premise that airports are no longer “non-places” (Auge, 1995) that cannot “communicate identity, social meaning and history” (Appold and Kasadar, 2011). In the age of “Aerotropolis” (Kasadar and Linsay, 2011), airports have occupied key positions in geography, economy, and the ecology of cities, and they will continue to shape the form and layout of the latter. Yet, in spite of that centrality, airports also occupy a kind of cultural blind-spot. Among landscape architects, the values of airports have been undertheorized, with only a few noteworthy practical attempts, such as the plan of Parc Downsview Park in Toronto (Lister, 2007) and the Schiphol Airport Development Plan in Amsterdam (Güller Güller architecture urbanism, 2002).

In most cases of redevelopment following airport closure, stakeholders feel an urgent need to program the site with specific functions so as to recoup their investment as quickly as possible. Addressing larger realties, redevelopment of former airports has also been practiced for economic stimulation, urban renewal, and/or community regeneration, such as the school-centered development on the site of the former Panama City–Bay County International Airport (PFN) in
Florida and neighborhood development on the site of the former Stapleton International Airport in Denver. Given their typically large site acreages, airport landscape can be considered from quite different perspectives. The redevelopment plan of Stapleton is a typical instance, in which much of the former airport landscape was treated merely as background context. According to the official Stapleton Development Plan, known as the “Green Book,” the patterns of parcel, street, open space, transportation, and history have become the structuring elements in the development plan (Webb et al., 1995). Obviously, the project was meant to revitalize the neighborhood by fostering development in ways determined by the plan. However, traces of the former airport got erased, bit by bit, by the urban fabric (Fig. 1.1).

Historical principles and patterns of urban development could be adequate to foster successful urbanization of former airport landscapes. But the distinctive characteristics of historic airport landscapes would then be ignored. As a type, the historic airport landscape would disappear if every former airport were transformed through development. Meanwhile, the loss of such landscapes would become a lost aspect of human culture—specifically, that of industrial modernism during the twentieth century. Recognizing values and risks, this study start to think about the potentials of former airport landscapes.

The value and potential of airport landscape are embodied in its physical characteristics. Airport landscape needs to be understood beyond the property lines of each instance. It is also about spatial relationship with surroundings, included but not limited to common urban or rural areas and restricted zones under the impact of aviation limits. Generally, airport landscape is unique in terms of its pattern and context. As shown in Figure 1.2, every arrangement of runways is unique, because the configuration of runways is determined by specific site conditions, such as
climate and airport models. Therefore, the specificity of scale, pattern, and alignment characterizes airport landscapes and contributes significantly to their significance.

FIGURE 1.1 Change of Stapleton International Airport 1999-2016
Source: Google Earth
Another distinctive characteristic of airport landscape is the overwhelming visual impact of spaces determined by the scale and arrangement of airport structures. As shown in Figure 1.3, the linearity and pattern of airports are strong gestures at large scale pertaining to both horizontal and aerial perspectives. The impact of airport landscape on its context is so dominant and distinct that it could barely blend in without changing its own texture. Also, the visual dimension of airport landscapes is fascinating but underemphasized, since such spaces are rarely experienced by members of the general public except as passengers inside airplanes and therefore without forward-facing views.
FIGURE 1.3 Horizontal and Aerial View of Schiphol Airport, Amsterdam
Source: Google Earth; http://www.airportsinternational.com/2013/07/schiphol-to-install-led-lighting-along-runways/14392

FIGURE 1.4 “Runways to Greenways”, Lateral Office
In short, the spatial characteristics of airport landscape have been generally ignored, although a few landscape architects have tried to respect and preserve them in redevelopment projects. For instance, Lateral Office attempted to blend the feature of former runways in their proposal “Runways to Greenways” for the Decommissioned Airport Vatnsmýri Masterplan Design Competition (Fig. 1.4). Yet, it could not be considered successful since the plan is still similar to a conventional urban design project within the physical frame of runways. The airport landscape is represented only by the shape of blocks, while the linearity has been filled in, and the parcels are too fragmentary; the distinctive spatial characteristics of airport landscape have been eliminated. While the values of airport landscape have not been totally neglected, Lateral Office’s design is not integrated with its distinct spatial perspective. This study is aimed at helping designers and others think beyond a superficial understanding of airport landscape, offering guidance to those considering airport landscape in master plans.

As noted above, airport landscape is inevitably site-specific, with unique characteristics in terms of scale, pattern, alignment, and context. Given widely divergent case studies such as Schiphol Aereotropolis, Amsterdam, and Stapleton Development, Denver, airport landscape resists generalization. The topic becomes more and more complicated when linked to concerns of planning, such as housing, population density, land uses, and other local economic and demographic issues. This thesis approaches the topic in a more specific yet generalizable way by focusing on a specific type of airport landscape: the “Class A” airfields constructed by the Royal Air Force (RAF) of Great Britain during World War II and largely abandoned after the war.
Chapter 2. Background of Class A Airfields

2.1 History and Presence

The Class A airfield standard was promulgated by the Air Ministry in 1942. During WWII, over 700 RAF stations were constructed based on the highly standardized “Class A” layout. Most of them were decommissioned after WWII. 70 are still in service. Current stations are not necessarily transformed from former ones. Excluding those that were removed and disappeared, at least 600 airfields are in abandoned condition or have been turned into other uses in Britain (Fig. 2.1). Generally, stations and airfields are owned by the Ministry of Defense or Air Ministry and remain under the operation of RAF. Some used to be share with or assigned to the United States Air Force Europe (USAFE) during WWII (“Class A airfield”, Wikipedia, 2015).

The abandoned airfields are currently used in different ways. Most have been repurposed all or in part for other uses such as industrial or residential complexes, warehouses, civilian buildings, motor racing, gliding clubs, and agriculture (“Class A airfield”, Wikipedia, 2015). It should be clarified that “abandoned” here means “not in original use,” rather than “non-used” or “non-owned.” In such cases, the RAF has released military control of the land in favor of alternative uses, but ownership is maintained. In some cases, the land is still under high military control or operated as a military-industrial site.
FIGURE 2.1. Abandoned RAF Airfield Locus in Britain
Source: http://www.anti-aircraft.co.uk/airfieldmap.htm
2.2 Geometry and Pattern

Class A is a type of airfield specifically categorized in terms of its unique geometric pattern and alignment. It was widely applied to construct or restructure airfields at the beginning of WWII. Similar to those of general airfields, the layout of Class A airfields consists of runways, taxiways, hangars, and other facilities with varying functions (“Class A airfield”, Wikipedia, 2015).

The main features of the Class A layout are the three airstrips “placed at 60 degree angles to each other in a triangular pattern” (Fig. 2.2). That layout in a triangle is part of the reason why it is named “Class A.” Each of the three strips contains a concrete runway for takeoffs and landings. Typically, the 150-foot wide runway is centered on the 600-footwide strip, and both are clearly graded and covered with tarmac. The longest strip is generally considered the main runway “with a minimum length of 6,000 feet.” Other strips are secondary runways with a minimum length of 4,200 feet. The sides of all strips were to be cleared of obstructions at an angle of fifteen degrees outward from each side on a rising imaginary plane to provide a flight way called a funnel. A perimeter track called a taxiway connects the runways, terminals, hangars, and other facilities. As a Class A specification, a minimum curve radius, measured from the center line, was set for taxiways at 150 feet for angles greater than 60 degrees and 200 feet for angles less than 60 degrees. In addition, buildings were prohibited within 150 feet of the edge of perimeter tracks (“Class A airfield”, Wikipedia, 2015).

Class A airfields also follow a uniform alignment (Fig. 2.3). Although specific arrangements would vary according to site-specific limits, main runways were supposed to align southwest to northeast whenever possible, allowing aircrafts to take-off and land into the prevailing winds (“Class A airfield”, Wikipedia, 2015).
FIGURE 2.2. Class A Airfield Layout Pattern
Source: Google Earth

FIGURE 2.3. Class A Airfield Main Strip Alignment
Source: Google Earth
Chapter 3. Open-Ended Heritage of Space

General research of former Class A military airbases shows that most of those created persist in abandoned condition because it is often found “more cost effective to just abandon the outdated base and build a new one elsewhere” and the cost of demolition is way too high for nothing (Dennis, 2012). The latter means that remnants are likely to be demolished only when feasible reuse could pay the demolition costs. Since the majority of abandoned airports remains open to reuse, and therefore to destruction, a plan or guidelines for preservation instead of costly restoration or generic reuse could protect both the unknown potentials and unique characteristics of airfield sites. If preservation is a way to retain or open possibilities for reuse while stimulating potential values in terms of culture, history, and anthropology, questions of how best to approach the preservation of airport landscape need to be addressed.

3.1 Class A Airfields as Heritage of Space

First, airport landscape is worth discussing in the context of “places of heritage,” an area of concern within heritage preservation (Harrison, 2010). According to the Oxford English Dictionary, “heritage” is not only “property that is or may be inherited,” “valued in things such as historic buildings,” and “relating to things of historic or cultural value that are worthy of preservation.” Those definitions emphasize “property,” “buildings,” or “things” that could be “inherited” (Harrison, 2010). As discussed above in the first chapter, airport landscape is not a category of “non-place” (Appold and Kasadar, 2011). As a specific type of airport landscape, Class A airfields with strong historical and cultural identity, inherited from the period of WWII, could be articulated as places of heritage (Harrison, 2010).

In fact, some Class A airfields have already been designated as conservation areas. For instance, RAF Bicester, a former Class A airfield at the northeast side of Bicester, England, has been reused
as a gliding club and was designated as conservation area by the Cherwell District Council (Fig. 3.1). In the late 1990s, RAF Bicester was proposed for housing and industry. However, the plan was abandoned under strong opposition from local people who valued the “historic nature of the site” (“RAF Bicester”, Wikipedia, 2015). That showed that local people do sometimes have emotional and cultural connections to airfields connected to WWII. Since that war happened in part on their homeland, emotional connections involve not only veterans and their families but citizens more widely who either lived through the war or are aware of living on or around war-related sites. In short, the identity of Class A airfields can be strong and significant to local communities, and they can be respected as places of heritage, at least locally.

FIGURE 3.1. Current Condition of RAF Bicester
Source: Google Earth

Generally speaking, Great Britain regards its wars as heritage, and British people see their wars as part of their national identity. Two RAF Museums—one in London and the other in Cosford (Fig. 3.2)—were established in the 1970s and are still popular destinations for visitors, with occasional exhibition updates. That patronage means that the cultural value of their historic
airfields is respected not only by local people who are directly exposed to Class A airfields, but also by the general public in the UK. Therefore, Class A airfields could be considered as places of heritage of significance to a wide range of public.

Before the discussion goes further, the idea of spatial heritage, as opposed to more familiar object-based heritage, needs to be explained, since Class A airfields—with the spatial characteristics of airport landscape—need be considered as heritage of space rather than as heritage of objects. The mainstream of preservation considers heritage as object-based, especially when it comes to historic buildings or landscapes (Harrison, 2010). There are countless examples all over the world, from Taj Mahal in the east to the Colosseum in the west. Many of those are well conserved in physical terms and are monumentalized in part through a “framing” space.

The core and spirit of heritage of space could be verbalized by instances. Just a few miles away from the Colosseum, the twenty-first century Piazza Navona, built on the ruins of the Circus Agnoalis, is a typical representative endorsing heritage of space. Comparing the model of Circus

FIGURE 3.2 Directory Map of RAF Museum Cosford
Source: http://wikimapia.org/12541999/RAF-Museum-Cosford

FIGURE 3.3 Outdated Conservation Guidance about Historic Military Aviation Site, published by Historic England (English Heritage), 2003
Source: https://historicengland.org.uk/images-books/publications/historic-military-aviation-sites/
Agnoalis and the image of Piazza Navona (Fig. 3.4), the largest plaza in Rome has preserved “almost identical shape and measurements of the ancient Circus Agonalis” (La Rocca, 2005). And the perimeter buildings embracing the plaza are built on the foundation of the auditorium (Fig. 3.5), while some ruins of seat could still be seen in some part of the existing building (La Rocca, 2005). Most importantly, the spatial structure of the ancient stadium has been preserved even though the physical structures and functions have changed. The long and narrow shape of the Circus Agonalis forms the linear space of the plaza. The feature of a “site” persists and is determining, even though the ancient buildings have long disappeared gone, and the site has been refashioned with a new name. The plaza is a well-known symbol of Rome, which would not have happened if it had simply become an avenue, which is neither a place nor destination (La Rocca, 2005).

Figure 3.4. From The Circus Agonalis (Stadium of Domitian) to Piazza Navona (Capitolivm, 2015)
Source: http://www.capitolivm.it/meraviglie-di-roma/lo-stadio-di-domiziano/
In short, the idea of preserving heritage as space aims to sustain the spatial characteristics of built structures rather than to conserve the physical conditions of objects. And the preservation of spatial heritage does not prioritize material restoration, which means that, so long as the merit of space remains, no budget is necessary to repair damage to physical structures.

Until now, historic military airfields have been envisioned as a heritage of objects following mainstream trends (Clark, 2001), which means that most of the attention has been concentrated on physical objects, such as authentic and model airplanes displayed in museums and listed buildings in airfields. The preservation of that heritage of objects is well developed, while the vision for heritage of space is not.

As a representative instance, English Heritage (aka, officially, the English Heritage Trust), published a leaflet called *Historic Military Aviation Sites Conservation Management Guidance* in 2003 (Fig. 3.3). Since April 2015, Historic England (aka, officially, the Historic Buildings and Monuments Commission for England) has inherited the position of English Heritage “as the UK government's statutory adviser and a statutory consultee” (“Historic England”, Wikipedia, 2015). Meanwhile the new English Heritage Trust is still working as “a charity that would operate the historic properties, and which took on the English Heritage operating name and logo” (“English
Heritage” Wikipedia, 2015). Although English Heritage is re-branding all its documents, it still promotes the leaflet as “the Commission’s current advice and guidance” — despite the fact, too, that it has not been revised for more than a decade. The guidance in the leaflet is concentrated mostly on the interiors, exteriors, and contexts of historic buildings. It does also explain forms of protection through planning processes when airfields come to new development. However, the “Landscaping” section is limited to hard surfacing, fencing, drainage infrastructure, signage, and vegetation management. “Historic pattern” is mentioned when the guidance refers to the replacement of appropriate species of trees. The leaflet advises readers to respect the original pattern of planting which is used to “break up the appearance of site” and “blend into the rural landscape” (English Heritage, 2003). That begins to touch, in a small way, on considering the preservation spatially, but the guidance generally fails to see historic aviation sites in terms of space.

RAF Boulmer is one of the cases where the original spatial condition has been well preserved, though unintentionally. Although the airfield has been turned into agriculture use, its geometry and spatial aspect remain virtually intact (Fig. 3.6). The runway strips form the basis of an agricultural field, and the taxiway is used as part of a circulation system connected to the context. From the perspective of a human visitor, the openness, flatness, and linearity of the site are powerful and unique, even haunting (Fig. 3.7). Thinking about the site of RAF Bicester (Fig. 3.1) once again, the local public considers it worthy of preservation, even though the pavement of runways is almost gone. That implies that the value of conservation is not based only on the objects of airfields but also on the spatial conditions and meanings behind them. Therefore, this thesis argues that Class A airfields should be preserved not only as heritage of objects but also as heritage of space—or perhaps not at all as heritage of objects but only as heritage of space. The unique
sense of space structured by airport landscape and embodied in the specificity of Class A airfields should be the priority in efforts to preserve those sites as heritage.

FIGURE 3.6 Current Site Condition of RAF Boulmer Airfield  
Source: Google Earth

FIGURE 3.7 Abandoned Runway of RAF Boulmer, original photo by Tom, 2012  
3.2 Characteristics of Open-Endedness

Heritage is historical, but it is not the same as history. Heritage can be exaggerated, and it “uses historical trace[s] to tell historical tales” (Lowenthal, 1998). In this regard, places become heritage depending on how people interpret the past and construct history. In other words, heritage is contingent and open-ended. Also, as David Lowenthal has argued, “heritage today is a popular cult” (Lowenthal, 1998). It relies more on faith than on rational proof, weighed not by “its claim to truth, but [by] its feeling that it must be right” (Lowenthal, 1998). Open-endedness comes along when heritage is considered sacred, as people might interpret heritage based on what they believe. This chapter argues that Class A airfields could be considered as open-ended heritage of space, since they could be interpreted as sacred in far future.

As illustrated in previous chapters, preservation of historic airport landscape, as exemplified by Class A airfields, could not be accomplished by conventional approaches. To envision a plan for the future of Class A airfields beyond existing conservation guidance, their potential and value need to be considered beyond the conventional cultural, social, and economic expectations (English Heritage, 2003). Class A airfields have the potential to allow audiences from wide-ranging cultural or religious backgrounds to interpret them in distinctly different way, including as sacred sites in the far future. That potential is reflected in the similarity between Class A airfields and ancient sacred sites such as the fields of stones around the village of Carnac, France, and Stonehenge in Wiltshire, England. Not only the physical patterns, such as geometry and alignment, but also the different interpretations of that specificity, based on ideas of meaning and logic, are characteristics of open-endedness that Class A airfields have embodied.

Dating back to the Neolithic period—that is, between 4500 BC and 2300 BC—the Carnac stones were organized in three major groups: Ménez alignments (Fig. 3.8), Kermario alignments,
and Kerlescan alignments (“Carnac stones,” Wikipedia, 2015). As the largest megalithic site in the world, Carnac comprises more than 3,000 prehistoric standing stones, which could be categorized as single standing stones, called menhirs, and multi-stone clusters, called dolmens (Holloway, 2013). The regular pattern has been summarized as follows: “the main group of stone alignments involves 12 converging rows of standing stones stretching more than a kilometer (0.6 mile) with the remains of a stone circle at either end. The largest stones, around 4 meters (13 feet) high, are at the western end and they become smaller along the length of the alignment reaching around 0.6 meter (2 feet) in height” (Holloway, 2013). Comparing the general alignment of the Carnac stones and Class A airfields (Fig. 3.9), some organizational similarities can be observed. Despite some variations, the Carnac stones align southwest to northeast in most cases. The general geometric pattern of the Carnac stones is a fan-like layout. Specifically, “some of the megaliths formed huge geometric shape, like triangles with 107 meters long diagonals and 5:12:13 side (Pythagorean triples) (“Carnac stones”, Wikipedia, 2015). Similarly, as introduced in Chapter 2, the geometry of Class A airfields is a triangle with approximately 60 degree angles. And the main strips also align southwest to northeast whenever possible, although the degree of orientation might differ among sites. In this regard, Class A airfields are qualified with physical premise to become a series of sacred sites.
FIGURE 3.8 Aerial View of Ménec alignments, Carnac stones
Source: http://www.chronoton.ru/past/enigma/karnakskie-kamny

FIGURE 3.9 Alignment of Carnac stones and Class A airfields
Source: http://menhirs.tripod.com/align.html
Coming to another instance, Stonehenge, the most visited and well-known of the British stone rings, is described as “a monumental circular setting of large standing stones surrounded by a circular earthwork (Pearson, 2015). According to the Encyclopedia Britannica (Pearson, 2015), “the monument consists of a number of structural elements, mostly circular in plan. On the outside is a circular ditch, with a bank immediately within it, all interrupted by an entrance gap on the northeast, leading to the Avenue.” Archaeologists believed that different structures were built in three periods, with the last divided in phases (Fig. 3.10). The alignment of Stonehenge is not only about the perpendicular axis, but also about astronomy of sun and moon (Fig. 3.11, 3.12). Similarly, the alignment of Class A airfields indicates the direction of parallel wind, which is more than a simple triangular geometry. To sum up, since Class A airfields share similar characteristics of monumental sacred sites such as the Carnac stones and Stonehenge in terms of physical patterns, it could be argued that Class A airfields have the physical precondition and potential to be interpreted in a way similar to sacred sites.

To describe historic monuments such as Carnac and Stonehenge, vocabulary including the terms “mysterious,” “religious,” and “sacred” is broadly used. The characteristic those sites have in common is a seemingly strong logic embodied in the specificity of physical pattern and the open-endedness of interpretive discussion. Potential disparity between original uses and modern interpretation is a key characteristic of open-endedness. For instance, it is believed that Stonehenge was “used to tell ancient civilizations the time of day and year” (StonehengeNews, 2012). However, there is no way to prove the original purpose and use of the setting, and the time-focused interpretation of Stonehenge was not developed until 1950 (Pearson, 2015). And interpretations vary according to background, discipline, and inclination. People who know little about Stonehenge might consider it a place of worship. In the twentieth century, astronomers such as Sir
Norman Lockyer and Gerald Hawkins made speculations that “the northeast axis aligned with the sunrise at the summer solstice,” and that “Stonehenge was a complicated computer for predicting lunar and solar eclipses” (Pearson, 2015). Accordingly, some scholars were led to suppose that the ancient builders were sun or moon worshipers. However, many Stonehenge archaeologists have argued that “Most of what has been written about Stonehenge is nonsense,” and that “no one will ever have a clue what its significance was” (Pearson, 2015). In this regard, one could argue that the essential characteristic of mysterious “sacred” sites in the modern age is the open-endedness of their interpretation, predicated on 1) uncertainty regarding their original purpose and logic and 2) their physical specificity. Therefore, with a shared specificity of physical pattern, Class A airfields could come to be seen as mysterious “sacred” sites in the future if their original purpose and logic are neglected in favor of open-endedness of interpretations.

FIGURE 3.10 Three Building Periods of Stonehenge
Source: http://menhirs.tripod.com/align.html

FIGURE 3.11 Astronomical Alignment of Stonehenge
Source: https://stonehengetrips.com/2012/02/29/stonehenge-calendar-and-leap-years/
As at Carnac and Stonehenge, visitors to Class A airfields might not be able to understand their original purpose and function, as people might have done closer to when they were built and despite their standardized physical layout and strong logic. The ways in which people interpret Stonehenge and Carnac differently would probably take place at Class A airfields as well, if the characteristics that support open-endedness remain in the far future. As Carnac and Stonehenge imply for civilization in Neolithic period, Class A airfields represent the highest technology and science during WWII. But, as time goes by and technology develops, knowledge is updated, and out-of-date forms can gradually become forgotten. Since knowledge of time can be easily determined by analog and digital clocks and watches, the ancient way to determine time of day and year would no longer be understandable nowadays. Similarly, the technology of flight will no doubt be further developed, and aspects now important, such as the way parallel wind has significantly influenced the alignment of runways, might no longer be a limit of designing airfields.
in far future. At that point, the logic of Class A airfields might not be discernable. Then, people would probably interpret the sites differently based on their own cultural background, as they do with Carnac and Stonehenge (Fig. 3.13).

<table>
<thead>
<tr>
<th>Physical Layout</th>
<th>Carnac Stone</th>
<th>Stonehenge</th>
<th>Class A Airfields</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Geometry</strong></td>
<td>Triangles with 5:12:13 sides</td>
<td>Circles with linear traits</td>
<td>Airstrips at 60 degree to each other in triangle</td>
</tr>
<tr>
<td><strong>Alignment</strong></td>
<td>East – West</td>
<td>Winter solstice sunset</td>
<td>SW – NE whenever possible</td>
</tr>
<tr>
<td><strong>Method</strong></td>
<td>NE – SW</td>
<td>Summer solstice sunrise</td>
<td>Aviation, engineering, meteorology</td>
</tr>
<tr>
<td><strong>Abstract</strong></td>
<td>Myths and legend, Sanctuary, Astronomical observatories</td>
<td>Monument, burial site, &quot;astronomical, spiritual or even supernatural meaning&quot;</td>
<td>• A wide range of possibilities • Culture value yet to be determined</td>
</tr>
<tr>
<td><strong>Interpretation</strong></td>
<td></td>
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FIGURE 3.13 Open-Ended Potential of Class A Airfields, comparing with Carnac Stones and Stonehenge

To summarize, Class A airfields embody both the significance of heritage of space and the characteristics of open-endedness. In other words, they are an ideal subject through which to explore an idea of open-ended heritage of space.
Chapter 4. Preservation Strategies

As noted in previous chapters, what matters to preserving heritage of space is the spatial pattern. In cases such as Carnac and Stonehenge, where most of the spatial pattern is formed by megaliths, objects still matter because the positions, dimensions, mass, and materiality of those stones are meaningful. However, in the case of Class A airfields, the spatial pattern could be sustained beyond original materials; indeed, many of the materials on those sites are no longer original. If it is not necessary to duplicate or protect the specific objects in Class A airfields, how might one achieve the preservation of open-ended heritage?

As explained above, formal specificity and openness to interpretation guarantee the longevity of heritage. Therefore, the objective of preserving Class A airfields should be, in part, to ensure their formal specificity, spatial pattern, and unique sense of linear space formed by alignment. In that regard, the function, purpose, and material does not matter anymore. Obviously, conventional preservation approaches would not satisfy the requirement of preserving Class A airfields as heritage of space. Again, as the leaflet Historic Military Aviation Sites Conservation Management Guidance makes clear, conservation management has been divided into separate areas based on the function or building types of airfields (English Heritage, 2003). According to the guidance, the value of military airfields is based on their cultural, social, and economic importance (English Heritage, 2003). However, that and other current approaches to heritage have failed to grasp the significance of landscape in envisioning the value of airfields. And, in many cases, “[o]nce significance has been defined, then that is the end of the role of discussions about it (the value)” (Clark, 2005). As illustrated by Kate Clark (2005), “[i]f we only protect what is designated [to be significant currently], then future generation[s] will inherit a heritage […] separated by nonsignificant wasteland […] or new housing estates can be built.” Therefore, heritage should be
considered as a dynamic process (Harrison, 2010). It is necessary to discuss the landscape value of Class A airfields in the long term and to allow changes to take place in the process.

Specifically, the tangible objectives of preserving Class A airfields include ensuring the spatial pattern formed by the standardized layout and the visual envelope conveying the sense of linear extension, both of which are important to the premise of open-ended heritage. The purpose is similar to, but distinct from, cases such as at English country houses. Of the houses that survived destruction and were listed as buildings of historic interest, many were repurposed as luxury hotels, schools, religious institutions, hospitals, museums, or prisons (“English country house”, Wikipedia, 2015). Similarly, the preservation of Class A airfields would allow changes in use, but the objective differs. The feeling about English country houses is expected to be maintained in relation to their original use despite notable changes to the programming. Yet, in the case of Class A airfields, new uses could blur the origin and become ambiguous in terms of interpretation, which would serve the vision of open-ended heritage.

Therefore, in this study, preservation strategies will not concentrate on protecting remnants from erosion or isolating the site from access. Preservation will instead be practiced by allowing potential uses limited by certain regulations and guidelines at the level of planning. The guidance would offer suggestions to guarantee the characteristic spatial experience of airport landscape and to prevent disruptive interventions from taking place in Class A airfields, such as occurred at RAF Burtonwood (Fig. 4.1), where a major roadway is cutting through the site, almost tracing the path of a runway (Fig. 4.2). In other words, preservation strategies would allow changed uses of Class A airfields for the near future but under the premise that new development should not undermine the characteristics of airport landscape and potential to be open-ended heritage.
FIGURE 4.1. Roadway Intervention in RAF Burtonwood

FIGURE 4.2. The Last Part of the Main Runway of RAF Burtonwood
Source: https://en.wikipedia.org/wiki/RAF_Burtonwood
Chapter 5. Categories of Class A Airfields

The more than 700 Class A airfields were the result of repeating a designated standard, but the specific layout of each site is unique. As noted, Class A airfields are site-specific because details of runways and taxiways vary in terms of dimension and orientation. Therefore, it would be unreasonable if a unified standard of preservation were applied to all of the surviving sites. In that regard, it is necessary to study Class A airfields typologically but also to offer guidance for decision making at the local level. In order to propose comprehensive preservation guidelines, 36 Class A airfields were studied. Based on observation of current physical and contextual condition, along with pressure concerning reuse in the near future, Class A airfields can be roughly categorized into six distinct scenarios. Those categories will help interested parties understand and approach the large number of sites in a meaningful way.

5.1 Typology of Categories

Each category in the typology is based on two factors: physical condition of the site and current land use pressure. The typology of physical conditions is divided into three levels in terms of the percentage of intactness. Again, the “physical condition” and “intactness” here are about the integrity of layout patterns in a sense of space, rather than of specific objects such as runway paving and hangers. The typology of land use pressure is divided into two levels: “no land use pressure” and “under reuse pressure.” Land use pressure could come from military control or civilian uses.

For the typology of physical condition, the first level is articulated as “remains almost intact,” which means that more than 80% of the airfield remains as at its origin. For instance, most runways and taxiways of RAF Attlebridge survive as relatively complete layouts with few modifications (Fig. 5.1). Despite the fact that some of the runways at RAF Attlebridge have been turned into
warehouses, some runway paving has been broken into pieces, and grass is invading pavement, it still falls into the first level as long as more than 80% of the spatial elements remain.

![RAF Attlebridge](image)

**FIGURE 5.1.** “Remain Almost Intact (>80%)”, RAF Attlebridge
Source: Google Earth

The second level of the physical condition is “partially demolished” with 30% to 80% of the site maintaining the characteristics of the original airport landscape. At this level, the majority of airfield layout is still visible, but a larger portion of the physical component has been demolished or obscured. Known as Beccles Airport today, RAF Beccles has been reused as an industrial complex, including factories and warehouses (“Beccles Airport,” Wikipedia, 2016). Some of the runways have been demolished and turned into buildings or agriculture areas. Also, two connected roadways are cutting through the airfield, with one running along the original path of a runway (Fig. 5.2). At Level 2, urbanized or industrial renovation to the airfields are more severe than cases in Level 1.
Last but not the least, level 3 of the physical condition criteria is “remains as palimpsest,” with less than 30% of physical aspect of the original landscape remaining. Airfields which fall in this level are mostly erased from local landscape, but traces of the original layout are still visible. Taking RAF Andrews as an example (Fig. 5.3), “all the buildings with the exception of the two T-2 hangars and most of the ground works (runways, etc.) were removed and the land reverted to agriculture” (“RAF Andrews Field,” Wikipedia, 2015). However, it did not totally lose its identity, while “a 915m grass strip along part of the line of the original main runway was constructed” in 1972. Currently, “the wartime runways are visible as disturbed earth in aerial photography” (“RAF Andrews Field,” Wikipedia, 2015). Also, there are two local memorials honoring people who built the airfield and who participated in the war (“RAF Andrews Field,” Wikipedia, 2015). Therefore, Class A airfields such as RAF Andrews, which has lost some structure and groundwork but still maintains the identity and visibility of physical patterns, could be counted as Level 3.
The other factor determining typological categories for preservation of Class A airfields is based on current land use pressure. Looking into site reuse conditions and general plans of contexts, Class A airfields can be divided into two conditions: “no land use pressure” and “under land use pressure.” “No land use pressure” means that urbanization or industrialization are unlikely to transform the site. Importantly, that consideration does not factor in potential agriculture use. For instance, the site of former RAF Atherstone is still owned by military department, but it is available for other uses. Since RAF Atherstone is in a semirural context and is surrounded by agricultural fields with a few warehouses, it will probably not be redeveloped in near future (Figure. 5.4). Given that most farmers in that region sign long-term rental leases for farmland instead of purchasing, one can agree that Class A airfields which have been turned into or are surrounded by farmland are under no land use pressure. If available, reviewing local planning documents is a more formal way to ensure that the site is not part of anticipated development.
The second level of land use pressure typology is “under land use pressure.” In contrast to “no land use pressure,” it references Class A airfields which are currently turned into other contemporary uses with buildings or infrastructure covering the site of former airfields, or where such uses seem imminent. Land use pressure could come from a variety stakeholders. On one hand, it could come from military departments, as when authorities decide to turn a former airfield to military-industrial use or light aircraft runways. For instance, RAF Aldermaston (Figure. 5.5) has been selected as the location of the Atomic Weapons Research Establishment (A.W.R.E.) (“RAF Aldermaston,” Wikipedia, 2016). Research buildings and other facilities subsequently moved in, and the surrounding landscape was changed to meet the requirement of atomic weapons research. On the other hand, land use pressure commonly comes from expansion of urban or industrial contexts, such as the case of RAF Ashbourne (Figure. 5.6), which is covered by an industrial complex that expanded from an area northwest of the airfield. It is necessary to understand Class A airfields under the control of different stakeholders, since preservation plans must take the interests of stakeholders into consideration.
The two criteria of physical condition and land use pressure, with sub-levels in each, are the essential factors constituting the scenario-based category of Class A airfields.

FIGURE 5.5. “Under Land Use Pressure”, RAF Aldermaston
Source: Google Earth

FIGURE 5.6. “Under Land Use Pressure”, RAF Ashbourne
Source: Google Earth
5.2 Scenario-Based Categories

Since the preservation plan would allow new uses to happen on the sites of Class A airfields, it is necessary to discuss the possibility of acceptable changes in different scenarios under distinct conditions. The scenarios are categorized based on overlaying the typologies of physical condition and land use pressure outlined above. As shown in Table 5.1, Scenarios 1 to 6 were ranked from the best to worst in terms of the preservation. Scenario 1 means that more potential use could be applied in the site of Class A airfields facing few obstacles, since the sites are in excellent condition with little to no land use pressure. As the worst case, Class A airfields under Scenario 6 would encounter many limits from land use pressure, and the spatial layout would be difficult to follow because the pattern is blurred by covering structures. For instance, the physical structure of RAF Bottisham is almost gone, with only a small segment of taxiway remaining (Figure 5.7). And a major roadway is cutting through the north side of airfield. The land use pressure there is mainly about transportation infrastructure, while the town to the north has barely grown since 2000.

<table>
<thead>
<tr>
<th>No Land Use Pressure</th>
<th>Partially demolished</th>
<th>Remain as palimpsest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1 (best case)</td>
<td>Scenario 2</td>
<td>Scenario 3</td>
</tr>
<tr>
<td>Under Reuse Pressure</td>
<td>Scenario 4</td>
<td>Scenario 5</td>
</tr>
</tbody>
</table>

TABLE 5.1. Category of Class A Airfields in Scenarios

Other scenario levels follow the order shown in Table 5.1, since the practical issue would primarily be the land use pressure from stakeholders, and physical condition is not as important as in conventional cases of preservation. The field of RAF Ashbourne (Figure. 5.6) is a typical example of Scenario 5. In this case, an industrial complex has spread from northwest to southeast and is now covering one of the runways. RAF Atherstone could be categorized as Scenario 3, since it remains as a palimpsest with no other redevelopment coming in besides agricultural use (Figure. 5.6).
5.4). And RAF Attlebridge is one of the best cases; only few stretches of taxiway have been demolished, and there is no land use pressure so far.

FIGURE 5.7. RAF Bottisham 1944 to 2016

The categorization of Class A airfields is a helpful device for investigating and understanding the numerous sites in a systematic and efficient way. However, it is not sufficient to support a site-specific conservation plan with reasonable limits of development. As a pair of examples, RAF Beccles (Figure 5.2) could be categorized as Scenario 5 while RAF Ashbourne (Figure 5.6) could fall into Scenario 6. They are categorized in different scenarios, but some details—for example, that both are currently under transportation and industrial use pressure, and parts of the physical condition would be difficult to be recover spatially— might lead to similar levels of restriction as preservation approaches. In this regards, a more precise measure would be required to assess site conditions specifically before making any practical suggestions.
Chapter 6. Measure of Grading and Conservation Area

As a reference, the current listing system of Historic England (known as English Heritage) includes but is not limited to listed buildings, scheduled monuments, registered park and gardens, registered battlefields, protected wreck sites, and local designations. According to the selection guides, registered parks and gardens and registered battlefields are categorized based on specific types of landscape and chronology in order to emphasize different interests embodied. Sites are graded “along the same line as listed building” (Historic England, 2015), but the principles of selection for listing focus more on their historical or archeological interest (English Heritage, 2013). Yet, the method of grading adopted by Historic England is not suitable in the case of Class A airfields. Thus, a new grading system pertinent to Class A airfields is needed to assess local site conditions before offering preservation-related guidance. The grading system would guide the selection of sites that are most worth preserving among the surviving Class A airfields.

6.1 Framework of Grading System

To support a comprehensive grading system for the preservation of Class A airfields as open-ended heritage, a primary grading system framework is proposed. The grading system would be structured based on factors constituting the scenario-based categories—meaning, in a way that is also consistent with the method of primary study. The measures consist of two major aspects: physical intactness of the airfields and land use pressure. Each aspect could be discussed in at least two ways. The grade goes lower, from Level A to C, when more obstacles to conserving the airport landscape features are found in a study context. Then, a final grade, from I to IV, would result from the assessment of each factor. In general, no cases under extreme duress and unlikely to persist or evolving with too much effort in restoration would be considered for further study, since it is not worthwhile to overturn something solid.
Intactness is measured by two factors: the physical condition of airfields and the influence of surroundings. The first consideration is about the spaces of Class A airfields. Similar to the typology of remnant percentage, those would be assessed in terms of how much of the airfield’s physical elements remain. But more specific description is supplied at each level (Table 6.1).

<table>
<thead>
<tr>
<th>Level</th>
<th>Remnant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&gt;80%</td>
<td>No more than one runway and one segment of taxiway is demolished; buildings almost intact (interior not considered).</td>
</tr>
<tr>
<td>B</td>
<td>80 – 30%</td>
<td>No more than two runways are partially demolished or completely demolished with visible trace; part of buildings are gone.</td>
</tr>
<tr>
<td>C</td>
<td>&lt;30%</td>
<td>More than two runways are partially demolished or completely demolished without visible trace; buildings are almost gone.</td>
</tr>
</tbody>
</table>

TABLE 6.1. Grading Aspect 1-1, Airfield Remnant

As the general categorization makes clear, the physical situation of surface cover on each site has a significant impact on its spatial aspect—and the latter is the primary concern. Thus, it is necessary to quantify the spatial influence given different surface covers (Table 6.2). The amount of coverage is not discussed, since what does the covering on the surface of Class A airfields does not matter, and it is open to any possible purposes.

Given the priority of linearity, the spatial impact of interventions such as roadways and channels is obviously different from that of buildings or vegetation. Since the objective of preservation is about spatial experience embodied in the physical layout of Class A airfields, whether the linear roadways or channels align with any original runways or taxiway, and the dimensions of elements crossing sites, would be considered when grading (Table 6.2). At this point, different coverage is roughly ranked with thresholds. With further study, a specific level could be given according to results of measurement. To illustrate with a real case, RAF Beccles is cut through by two connected roadways. A segment of the north-south roadway follows the original path of a former runway, while other parts seem arbitrary (Figure 6.1). In cases such as RAF
Beccles, a level would be graded based on the length and proportion of aligned roadway and run-throughs (Table 6.2).

<table>
<thead>
<tr>
<th>Level</th>
<th>Cover</th>
<th>Description</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - C</td>
<td>roadways or channels</td>
<td>along runways or taxiway</td>
<td>• length within study area (shortest level will be graded as A)</td>
</tr>
<tr>
<td>B - C</td>
<td>run through common areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B - C</td>
<td>vegetation (farmland/</td>
<td>cover on runways</td>
<td>• height-distance ratio (lowest ratio will be graded as A)</td>
</tr>
<tr>
<td></td>
<td>forest/ grass)</td>
<td></td>
<td>• visible pattern or texture difference (most obvious level will be</td>
</tr>
<tr>
<td>A - C</td>
<td></td>
<td>cover on common areas</td>
<td>graded as A)</td>
</tr>
<tr>
<td>B - C</td>
<td>buildings</td>
<td>cover on runways</td>
<td></td>
</tr>
<tr>
<td>A - C</td>
<td></td>
<td>cover on common areas</td>
<td></td>
</tr>
</tbody>
</table>

TABLE 6.2. Grading Aspect 1-2, Built-up or Vegetation Coverage

![FIGURE 6.1. Roadway Coverage in RAF Beccles](image)

Source: Google Earth

For vegetation and buildings covers, grading is based on height-distance ratio to ensure the spatial pattern of runways or taxiways regardless of their material condition. While “height (H)” means the maximum building height along the strips, “distance (D)” indicates the distance between the axis of strips and the nearest building facade or property boundary (Figure 6.2). Another measure would be the visual pattern or texture difference of vegetation, which could form
distinctly the spatial pattern of Class A airfields from an aerial perspective. For instance, the different colors and textures of farmland and forest could indicate the spatial pattern of original airfield structures (Figure 5.7). The lowest height-distance ratio and the most visible pattern, through color-based textural difference, would be graded as A (Table 6.2).

Another aspect of the grading framework is land use pressure. It can be assessed relative to needs for urbanization and distance between an airfield and the nearest settlement center. To evaluate the need for urbanization, the most effective and accurate way is to review local planning documents such as zoning, comprehensive plans, and transportation plans to find out if any development would cover the site of Class A airfields. The less an airfield area is claimed by development plans, the higher the site would be graded (Table 6.3).
For the cases of airfields in semirural and rural contexts, local planning documents might not be available. Another way to assess land use pressure is simply to measure the distance between airfields and the nearest downtown or urbanized area, in order to estimate the likelihood of future development. Also, reviewing development history is an important first step in analyzing the trend of urban sprawl. The farther an airfield is away from urban context or a sprawl trend, the higher the grade would be (Table 6.4).

<table>
<thead>
<tr>
<th>Level</th>
<th>Coverage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>not covered</td>
<td>Look up zoning, comprehensive plans, transportation plans, local development plans, check if any plans will cover airfield and buffer zone.</td>
</tr>
<tr>
<td>B</td>
<td>partially covered</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>completely covered</td>
<td></td>
</tr>
</tbody>
</table>

TABLE 6.3. Grading Aspect 2-1, Need of Urbanization

<table>
<thead>
<tr>
<th>Level</th>
<th>Distance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&gt;3 miles</td>
<td>Downtown or urban context could be found over 3 miles radius from the site.</td>
</tr>
<tr>
<td>B</td>
<td>1 – 3 miles</td>
<td>Downtown or urban context could be found within 1 – 3 miles radius from the site.</td>
</tr>
<tr>
<td>C</td>
<td>&lt;1 mile</td>
<td>Downtown or urban context could be found within 1 mile radius from the site.</td>
</tr>
</tbody>
</table>

TABLE 6.4. Grading Aspect 2-2, Distance From Nearest Downtown

After the assessment of factors from each aspect, a comprehensive grading of registered Class A airfields, mimicking the grading of listed buildings, would be classified as below:

Grade I airfields are in excellent condition with more than 3 factors in Level A, or with 2 in Level A and none in Level C.

Grade II airfields are in good condition with more than 2 factors in Level A or with more than 2 in Level B but none in Level C.

Grade III airfields are in fair condition with more than 2 factors in level B or no more than 2 in Level C.
Grade IV airfields are in bad condition with more than 2 factors in level C (adapted from Historic England, 2015).

The grading system is proposed to manage the registration of studied sites of Class A airfields. Accordingly, specific preservation plans could be proposed when development comes to registered sites. At this stage, the grading method has been applied within a rough and wide study context. Still, conservation areas remain to be determined as designated areas where a preservation plan would be practiced, although no plan should frame the site out of surrounding context.

6.2 Constitution of Conservation Area

Initially, the conservation area for historic airfields might be framed by the “perimeter track” (formally named as taxiways). As existing physical edges and circulation paths, taxiways could be seen as boundaries separating airfields from external development. Generally speaking, it is easy to define the limits of airfield sites in those conventional terms even when most of the taxiway pavement is gone (Figure 6.3). However, such an approach, in which the study context is limited to the former airfield area, is not sufficient, because landscape context is considered as an essential part of open-ended heritage of space. Thus, an area of concern, where construction could possibly influence the spatial characteristics of airport landscape, should supplement the immediate conservation area. The area of concern is proposed to serve as a “buffer zone” to prevent damage spatially, while the property of former airfield is articulated as the “core zone.” Every conservation area should consist of a “core zone” and a “buffer zone.”
The concept of “buffer zone” is not alien to the realm of heritage. It has been adopted in the revision of Operational Guidance since 1980 (Martin & Piatti, 2009). Recently, to explain the significance of buffer zones, the Rhaetian Railway in Switzerland was discussed as an example at the International Expert Meeting on World Heritage and Buffer Zones in 2008 (Martin & Piatti, 2009). There were intense debates on the issue of buffer zones and discussion specific to the Rhaetian Railway, a 122-kilometer-long line is claimed as “the most picturesque mountain route in the world” (Switzerland Tourism, 2016). It has been argued that “the landscape surrounding the railway supports the outstanding universal value of the object” because “travelers truly ‘experience’ the railway” and “the railway itself has become an integral part of landscape” (Martin & Piatti, 2009) (Figure 6.4). Although the discussion targeted the railway route as heritage of objects, the thinking about vistas and spatial relationships between the product of modern engineering and the surrounding landscape is inspiring relative to the case of Class A airfields.
Consideration of a “buffer zone” has also been important in the World Heritage site of Derwent Valley Mills, England. As shown in Figure 6.5, surrounding the core zone of the heritage site (in pink), a buffer zone (in purple) is designated to “protect the World Heritage site from negative influence” (Martin & Piatti, 2009). While the characteristics of a buffer zone around a Class A airfield might not be exceptional in and of themselves, they would influence the preservation act and should therefore be part of the process. Thus, measures for buffer zone designation are required to protect efficiently the significance of the core zone (Martin & Piatti, 2009).
The question then comes to the extent of buffer zones for Class A airfields, about which aspects of landscape context matter to the spatial characteristics of airport landscape. Given the spatial characteristics of airport landscape, the sense of linearity would be of great significance relative to buffer zones for Class A airfields. In that regard, the buffer zone could be measured by the need to maintain a visual envelope and the spatial structure of runways and perimeter taxiways. The idea of a “visual envelope” could be understood as “the extent of visibility” or “viewshed” (Watson, 2013). In the context of world heritage, a buffer zone is usually proposed based on the analysis of designated vistas, such as in the study of Studley Royal (Figure 6.6). However, vistas commonly refer to the narrow and visible paths of view connecting distant objects and often present in vista lines. Beyond single lines, the analysis of visual envelopes is a more suitable method to study buffer zones in this case, since Class A airfields have been argued to be heritage
of space rather than of objects, and landscape elements such as runways form a linear spatial experience more than a narrow view.

Theoretically, the conservation area of a Class A airfield should at least include both the core zone—the entire former airbase property area—and the buffer zone—the designated area based on visual envelop analysis. Accordingly, it is necessary for primary research to cover a broader study context than the designated conservation area where the grading system is applied.

FIGURE 6.6 Main Vistas of Studley Royal Designed Landscape
Source: National Trust and English Heritage, 2012
Chapter 7. Principles of Preservation Guidance

Building on the landscape significance of Class A airfields as open-ended heritage of space, scenario-based categorization assessment for grading, and the delimitation of conservation areas all serve an ultimate goal of proposing development guidance for contemporary contexts with thought to the far future. Referring to current official procedures for protecting heritage, primary research, evaluation, and recording are essential to guidance proposals (Historic England, 2015). To provide rationality, prior study of the significance and interests of conservation need to be executed before guidance documents with recommendations are ready to be proposed by Historic England. The study of a specific site could be conducted in four steps. First, local context and development trends need to be investigated in addition to airfield conditions. At this stage, study context needs to cover a chosen site regionally, including but not limited to the most adjacent downtown and surrounding land use pattern. A general idea about site condition would be acknowledged once the primary study categorizes the site in a designated scenario. Second, the area of concern could be outlined based on primary research according to spatial analysis of visual envelopes. At this point, a buffer zone could be designated to enhance the spatial relationship between the core zone (former airfield) and the surrounding context. Third, the grading system could be applied to the conservation area to determine the significance of the Class A airfield in site specific terms. Ultimately, guidance could be proposed based on local interests.

Carrying the discussion forward, two case studies of selected Class A airfields from different scenarios have been assessed in order to explain how the grading system might work in practice and to offer examples of preservation guidance. More cases could be studied following the instances.
The first case is RAF Bardney, which would fall under Scenario 2 (Figure 7.1). In the airfield area, almost half of the runways has been demolished and remain as palimpsest, but the taxiway is comparatively intact. Most of the airfield is covered by farmland with a few warehouses sitting on the edges of runways and an agriculture company right outside of the southeast taxiway. The site locates in a semirural context surrounded by agriculture and two major roadways, the B1202 and Henry Ln, with the small village of Bardney one mile away to the southwest. According to the censuses of 2001 and 2010, the population grew slightly from 1,643 to 1,848 in one decade (“RAF Bardney,” Wikipedia, 2016). No other urban context is located within five mile of the site. Potentially, Bardney village would grow slowly along the two major roadways, but there is no sign of development need currently, which leaves room for contemporary preservation guidance to be practiced.

As for the spatial conditions, vista lines along the runways are basically well-preserved, except that some thick vegetation is blocking further visual relationship outside of the core zone on the southwest and northeast sides. Thus, the buffer zone of RAF Bardney is delineated along with the loose edges of farmland to maintain the maximum possibility of visual relationship in the future, since the site is under no development pressure currently.

Matching up the description to the grading assessment, the site of RAF Bardney could be registered as Grade I, with 3 factors in level A and 2 in level B. Since the overall site conditions are excellent, the guidance for potential use could be looser on the development restriction within the buffer zone but should focus more on designated height and distance limits to form the spatial pattern consistent with the characteristics of RAF Bardney. Consequently, guidance could suggest that both short-term potential uses and long-term development plans could cover the buffer zone, but new structures should follow the spatial limits strictly, such as height-distance limits along
vista lines. Also, planting strategies could be applied in the whole conservation area to enhance the faded layout pattern spatially with visible texture or seasonal color difference.

Another case is RAF Ashbourne, which would fall under Scenario 5 (Figure 7.2). The site is located to the southeast of Ashbourne, a fine old market town in Derbyshire Dale. Seen in aerial perspective, it is obvious that urbanism has significantly influenced the airport landscape of the former airbase. Segments of runway have been removed and taken over by the Airfield Industrial Estate in the southwest part. Yet, the other parts of RAF Ashbourne remain visible and relatively intact. In the meanwhile, the spatial characteristics of airport landscape are at risk since 2009, as the industrial complex has been growing towards the southeast, along the former main airstrip. Consequently, vista lines along the north and the main runway and have been blocked by buildings. Also, a dense group of brushes and trees at the north side have become a visual barrier. Future

FIGURE 7.1. Site Analysis of RAF Bardney
development would possibly expand along the major roadways, A517 and A52, adjacent to the north and south sides of the site. Given current site conditions, it is unnecessary to overturn built elements or to recover lost runways. The buffer zone could be delineated compactly following the edge of building footprints while at least leaving adequate room for visual corridors tracing vista lines. On sides where the site is facing less reuse pressure, the buffer zone could be looser in order to maintain at least part of the spatial characteristics of airport landscape in as intact a form as possible.

Based on the designated conservation area and grading assessment, RAF Ashbourne could be recorded as Grade III, with 2 factors in Level B and 2 in Level C. Ideally, to avoid further damage, implementation of current development plans should be considered suspended. Lost spatial patterns of airport landscape could be restored if the opportunity presents itself. Since the buffer zone has already been compromised, spatial features within the conservation area, such as the openness of adjacent farmland, need to be preserved following the guidance strictly. Yet, given the obstacles and difficulty of conservation, part of the preservation principles could be secondary, if some might impede any necessary or inevitable development plans.

Each of the above cases was selected from distinct scenarios to offer reference to the process of primary study and to principles of preservation guidance. More case studies of Class A airfields could be performed accordingly to proposed prototypes of preservation guidance in other grades.
FIGURE 7.2. Site Analysis of RAF Ashbourne
Chapter 8. Discussion

Given previous arguments about the potentials of Class A airfields as open-ended heritage of space, the research here attempts to offer principles of guidance that local authorities and other stakeholders might reference and practice in contemporary development. The chosen case studies stake out a range of scenarios and could play a leading role in further study of the process on assessment, recording, and guidance. Also, study could go further in the detail of the grading system and test the justification of assessments, since they define the significance of a Class A airfield directly.

Besides the rationality of the grading system, the sample guidance presented above offers development principles to local planning and heritage management agencies, though detailed ordinance is not ready at this stage. For instance, further study about detailed figures about height-distance limits along vista lines could refer to local planning documents and aviation limits. Ideally, prototypes of potential uses are expected in general preservation guidance with more case studies done.

There might be different local perspectives concerning the topic in question, so it may be significant that the study has been undertaken outside of the United Kingdom. Visits to specific Class A airfield sites would no doubt be constructive for understanding the interests of planning agencies, heritage management departments, stakeholders, and community members. Also, the role that Class A airfield preservation guidance might play in planning or other practical procedures has not been determined and might be contested. For instance, historians might criticize the methods, arguing that other historical and cultural values should have priority over the landscape values of Class A airfields.
In conclusion, the topic of airport landscape has not been much discussed or theorized. In this thesis, an effort has been made to justify the value of Class A airfields as airport landscape and open-ended heritage of space. The argument might trigger more discussion of topics such as other standardized airfields or the cultural landscape of airports from other perspectives. The cultural landscape of former commercial airports, which have played a role in urbanism, could also be studied. In any event, Class A airfields in the United Kingdom present a rich opportunity to better understand landscape and preservation of the heritage of space.
References


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