

TREE REPORT SYDNEY AVENUE

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Executive summary

On behalf of Manchester Airport Ltd (MA), Jacobs UK Limited has carried out a tree survey in accordance with BS 5837:2012 'Trees in Relation to Design, Demolition and Construction- Recommendations' in October 2023 at Manchester Airport Sydney Avenue.

The survey records all trees within the project site and all those which may be affected by any development proposals within the site boundary, recording a number of parameters including species, crown spread and Root Protection Area (RPA).

The RPA of any given tree is the area of ground around that tree which should not be disturbed by excavation, compaction, changes in level or other construction/demolition operations. The extent of the RPA is calculated in accordance with BS 5837:2012, and is an important metric for understanding the impact a proposal will have on tree removal and retention and how to protect those trees retained.

The purpose of this report is to illustrate existing arboricultural constraints on project site with the intention to 'design out' adverse impacts to trees and woodlands in the first instance. Design proposals should take into account the findings of this Tree Constraints Report.

The survey recorded six tree groups and eight individual trees.

None of the trees are protected by Manchester City Council Tree Preservation Order (TPO). The project site is not located within a Conservation Area. The site contains no veteran trees, Ancient Woodland or registered ancient trees and none have been identified by this survey.

The below summarises the findings and conclusions of this Document:

- The development proposals on the project site require the removal of five trees, and the partial loss 2 groups, to be removed to facilitate construction.
- Within the small area subject of the planning application ('the application site'), no existing trees are present
- A competent arboriculturist should be present on site at suitable times to monitor the adoption of the AMS and ensure the appropriate protection of trees.

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1. Introduction

Jacobs UK Ltd. (Jacobs) were commissioned by Manchester Airport Ltd (MA) to undertake a BS5837:2012 Tree Survey Report for the Sydney Avenue scheme (hereafter known as the scheme). The Tree Report has been produced with reference to 'BS5837:2012 – Trees in relation to design, demolition and construction – Recommendations' (BSI, 2012).

The British Standard states, "The [Arboricultural Impact] assessment takes account of the effects of any tree loss required to implement the design, and any potentially damaging activities proposed in the vicinity of retained trees. Such activities might include the removal of existing structures and hard surfacing, the installation of new hard surfacing, the installation of services, and the location and dimensions of all proposed excavations or changes in ground level, including any that might arise from the implementation of the recommended mitigation measures. In addition to the impact of the permanent works, account [should be] taken of the buildability of the scheme in terms of access, adequate working space and provision for the storage of materials, including topsoil."

With reference to the above, this report will assess the proposed schemes impact on the arboricultural constraints present on site and summarise trees lost, trees at risk of removal and impacts on trees retained which may be compromised by activities on site.

1.1 Background

Manchester Airports Group (MAG) continues to invest in its airport infrastructure. MAG are close to completion of the Manchester Airport Transformation Programme (MAN-TP), a £1.3bn investment programme that will transform passenger experiences and help attract yet more of the world's leading airlines. The transformation was first announced in 2015 with a 10-year vision to revolutionise the customer experience at the Northern hub and unlock the potential of its two full-length runways. The programme involves an extension, doubling the size of Terminal 2 (T2) and refurbishing the original terminal, including the construction of two new aircraft piers, creation of a state of the art baggage hall, installing next generation scanners in a new security hall, additional retail and food and beverage outlets as well upgrading the airfield and taxiways to cater for next generation aircraft. It also includes the development of the landside road network to allow sufficient capacity and access to the terminal to drop off passengers, pick-up passengers as well as additional car parking.

In review of this landside road network, a traffic modelling exercise has been undertaken to review various parts of the road network and the impacts of increasing traffic numbers in the area following the opening of the full Terminal 2 following the completion of MAN-TP in 2025. This exercise has concluded the need for changes to the road network at the western end of T2. With the existing layout, the Sydney Avenue junction with Thorley Lane is anticipated to be over capacity with queues extending into the West End Roundabout and Palma Avenue, therefore blocking the forecourt exit. An optioneering exercise for solutions was undertaken and the option now progressed is for the closure of the existing short Sydney Avenue and construction of a new link road/carriageway from the western side of the existing West End roundabout and connecting into Thorley Lane via a new signal controlled junction. The proposed project includes the following:-

A new carriageway from the West End Roundabout (where Palma Avenue and Sydney Avenue meet) via the existing Staff West Car Park to Thorley Lane (including a 3.0m wide shared footway/cycleway)

- Widening of Thorley Lane to accommodate a signal-controlled junction between the new carriageway and Thorley Lane
- The upgrade of the existing Thorley Lane junction with Runger Lane to a signalised junction.
- Creation of a 3m wide shared footway/cycleway on Thorley Lane.
- Closure of the existing Sydney Avenue carriageway from the West End Roundabout to Thorley Lane and associated retention and realignment of the existing footpaths and cycleway
- Creation of a new exit from the West End Roundabout into the existing Staff West car park

The planning application is limited to seeking planning permission for the creation of a new access from the northern end of the new road to the Thorley Lane carriageway. The extent of the planning application boundary and the extent of the project boundary are shown on the plan in Appendix G.

The Project site boundary (the blue line) is shown in Appendix F (Tree Constraints Plan). Note the survey area may differ from the site boundary.

This report is based upon the most recent revision of the General Arrangement. The scheme is shown on the Tree Removal Plans, Appendix G.

1.2 Methodology and Scope

The tree survey was conducted in line with the methodology detailed within BS 5837:2012 (BSI, 2012) and involved the surveying of trees as individuals or groups of trees within an agreed study area (forming the survey area) supplied by the Jacobs design team. The information collected and methodology used is summarised in Appendix A (Tree Survey Methodology) of this document).

Trees are reported as individuals or groups. Tree locations were determined on site using digital survey software and hardware which use a combination of georeferenced topographical survey, aerial imagery and the devices inbuilt Global Position System (GPS). Trees plotted with the internal GPS can be assumed to have an accuracy of +/- 5 m.

Trees were categorised using BS 5837 (BSI, 2012) into four categories (A, B, C, U) and for trees in categories A-C, they also qualified under three subcategories (1, 2, 3). A summary of this classification can be seen in Appendix C.

The tree survey data is shown in Appendix E (Tree Survey Schedule) and was used to produce a Tree Constraints Plan (TCP) in Appendix F, which depicts the existing rooting area and canopy constraints posed by the trees within the Site Boundary.

1.3 Limitations and Assumptions

Limitations to the tree survey include the following key points:

- No soil survey data is included in this report. Due to the potential variances of soil type across a site it is considered to be more appropriate to obtain this information from a suitably qualified professional.
- Indicative Root Protection Areas (RPAs) have been calculated for tree groups based on the maximum stem diameter taken for each group.
- No data for individual trees within surveyed groups was recorded. An exception to this is when a tree was deemed notable within a group.
- First branch height and direction was not recorded for individual trees or groups. We do not consider this information necessary to inform design.
- Where access was restricted, tree measurement data has been estimated. This has been indicated within the Tree Survey Schedule (Appendix E) with the use of an '#' next to the tree number.
- The health and condition of trees can change rapidly and all trees, even healthy ones, are at risk from unpredictable climatic and man-made events. This report is based on the observed health and structural condition of the trees at the time of survey by suitably qualified inspectors. The health, condition and safety of trees should be checked on a basis commensurate with the level of risk and preferably on an annual basis, as recommended in Common Sense Risk Management of Trees (National Tree Safety Group, 2011). The tree survey conducted for this report is not a tree health and safety survey and should not be used as such.
- An RPA provides a notional circular buffer around a given stem based on the stem diameter taken at 1.5m. However, this is not necessarily representative of a tree root system e.g. the roots may extend beyond the RPA boundary on one side and remain inside it on the opposite. The root network extent is dependent on many factors including species, age, soil conditions, topography and exposure etc. The assessment has not

taken consideration of these above and shows RPAs as an indicative circular form as per the BS5837:2012 guidance.

- This document is prepared as an AIA to represent the impact on trees of the scheme. However, actual impacts on trees will not be fully known until a detailed design is proposed and mitigation is applied on site. This assessment is indicative and the results of which largely depend on the contractor's assumed working methods. Using this document as reference, the contractor(s) should re-assess the features on site and deliver site-specific mitigation as detailed in Section 5 (Conclusion and Recommendations) to ensure appropriate tree protection.

-

Ash Die Back

Ash die back (ADB) also known as Chalara or Chalara dieback of ash, is a disease of ash trees caused by a fungus called *Hymenoscyphus fraxineus*. ADB causes leaf loss, crown dieback and bark lesions in affected trees. Once a tree is infected the disease is usually fatal, either directly or indirectly by weakening the tree to the point where it succumbs more readily to attacks by other pests or pathogens, especially Armillaria fungi, or honey fungus.

It has caused widespread damage to ash populations in continental Europe, where experience indicates that it can kill young ash trees quite quickly, while older trees can resist it for some time, until prolonged exposure or another pest or pathogen attacking them in their weakened state, eventually causes them to succumb.

It is becoming increasingly difficult to assign ash trees a retention category using the BS5837:2012 standards. The general advice from public bodies is to retain ash trees and see how the disease develops within the local population. However, if clear signs of ADB are found on sites, it is likely that most of the ash trees on that site will succumb in a relatively short period. It would be unreasonable to consider an ash tree a significant constraint to a site, if it is to die within a short period of time.

Evidence from other parts of the country suggest that infected trees rapidly lose structural integrity and are more prone to branch shedding and total collapse. Furthermore, ash, as a species is known for its inability to retain even small deadwood, which it sheds regularly as it appears in the crown.

The Tree Council has produced a document giving guidance on how to deal with ADB to tree owners and managers. 'Ash dieback: an Action Plan Toolkit (Summer 2019)'¹. This excellent document gives guidance on assessing the danger posed by the trees infected by ADB. As suggested in the document, Jacobs have adopted the Suffolk County Council Ash Health Assessment System² below. The system categorises ash trees with the symptoms in 4 categories:

- Ash Health Class (AHC) 1 – 100 – 75% Canopy healthy (Vitality Class 0)
- Ash Health Class (AHC) 2 – 75% -50% Canopy healthy (Vitality Class 1)
- Ash Health Class (AHC) 3 – 50% - 25% Canopy healthy (Vitality Class 2)
- Ash Health Class (AHC) 4 – 25% - 0% Canopy healthy (Vitality Class 3)

Many local authorities have concluded that any trees which fall within AHC 3 and 4 require management and it seems reasonable to follow a similar system. The priority of that management depends on the severity of the tree's decline with trees progressing from AHC 2 into AHC 3 requiring work as part of a program of regular works. As the trees progress (decline) towards class 4, action becomes more urgent to abate any hazard, assuming the tree is in a high risk area.

This report has taken into account the number of infected ash trees on the site, and has assumed that none will survive longer than 10 years, at most. A number of the trees are showing significant signs of infection that they are recommended for removal and it may be pertinent to remove all ash at the pre-development stage while tree and site conditions allow for the safest working environment.

¹ <https://treecouncil.org.uk/what-we-do/science-and-research/ash-dieback/local-authority-ash-dieback-action-plan-toolkit/>

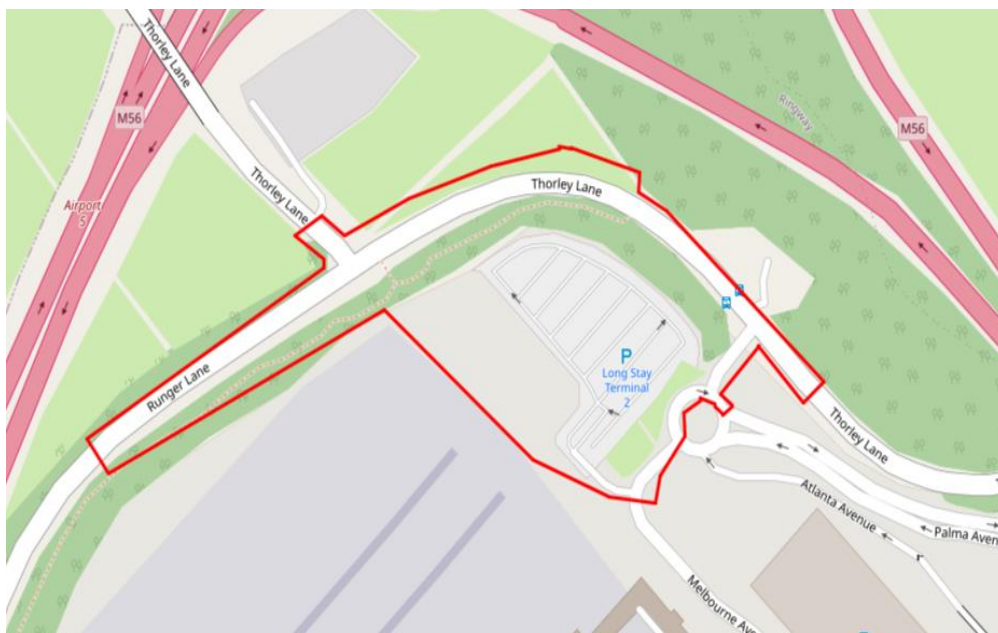
² <chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.suffolk.gov.uk/assets/planning-waste-and-environment/suffolks-countryside-and-wildlife/Chalara-Action-Kit.pdf>

2. Site Observations and the Tree Survey

2.1 Project Site Location

The Project site is located on the north-western corner of Manchester Airport. The nearest address for the site is Thorley Lane/Sydney Avenue, Altrincham, WA15 8UL, UK Grid reference for the centre of the site is SJ 81046 86079. The general location of the Project site is shown in Figure 2.1 below.

Figure 2.1 – General Location



General site location, Site boundary (not to scale) © OpenStreetMap contributors

2.2 Site Observations

The survey area is generally clear with a large expansive space developed as a car park, directly adjacent to the public carriageway. Individual tree specimens stand within the car park boundary to Sydney Avenue and are located in a row in the direct centre of the car park with small planting beds to indicate the end of car parking rows. The boundary of the airport car park is populated by mixed broadleaf woodland groups typical of highway boundary planting stock. These mixed groups follow Thorley Lane in both directions from the site with G6 located directly adjacent to the M56. G2 has an informal footpath running atop a bank within the group and has a shared use path running adjacent alongside Thorley Lane in both directions. The survey area is generally flat and urbanised, with highways both on the boundary and within the survey area.

2.3 Tree Preservation Orders and Conservation Areas

A Tree Preservation Order (TPO) and Conservation Area (CA) check was conducted contacting Manchester City Council on 19th October 2023 to identify the presence of TPOs or CAs within the scheme extents. Consultation with the Planning, Building Control & Licensing department confirmed there are no present within the Survey Area. The Survey Area is not covered by a CA.

2.4 Ancient Woodland

No part of the Project site is listed in the Ancient Woodland Inventory, as shown on the Multi-Agency Geographical Information for the Countryside (MAGIC) website (www.magic.defra.gov.uk). This is a spatial

dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance.

2.5 Ancient and Veteran Trees

The Ancient Tree Inventory (Woodland Trust, 2024) was checked on 15 January 2024 for the presence of verified veteran/ancient trees within the survey area. National Planning Policy Framework (Ministry of Housing, Communities & Local Government, 2021) refers to veteran trees as “*irreplaceable habitat*” which due to their “*age, size and condition, is of exceptional biodiversity, cultural or heritage value*”.

Jacobs arboriculturalists base their assessment of potential veteran (ancient and notable) trees on the guidance provided by the Ancient Tree Forum and the Woodland Trust, specifically the document *Practical Guidance, Ancient Tree Guide 4: What are ancient, veteran, and other trees of special interest, November 2008, Woodland Trust*³ and the species-specific guidance on the Ancient Tree Inventory website⁴.

No trees within the Project Site Boundary appeared within this inventory. Jacobs qualified arboriculturalists did not identify any trees, during survey, which they considered ancient or veteran.

2.6 Tree Survey Results and Plans

The site was visited and surveyed by a qualified Jacobs arboriculturalist on the 18th October 2023.

The full findings of the tree survey are presented in the Tree Survey Schedule, Appendix E and the Tree Constraints Plan, Appendix F

Table 2.1 below, summarises the total number of trees surveyed with the Project Site and their relative BS5837:2012 categories.

Table 2.1 Summary of arboricultural features included in the survey

BS5837:2012 Category	Trees	Tree Groups	SUB TOTALS
A	0	0	0
B	2	4	6
C	2	2	4
U	4	0	4
SUB TOTALS	8	6	14

- 'A' grade trees are of high quality and value and should be retained.
- 'B' grade trees are of moderate quality and value and should be considered for retention where possible, although care should be taken to avoid misplaced retention. Any scheme should consider the retention and protection of trees, but also the tree's future growth.
- The 'C' grade trees are of low quality and value and should not place a constraint on the proposals.
- From an arboricultural point of view, the 'U' grade trees cannot realistically be considered for retention as a living tree in the context of the current land use due to their low life expectancy of less than 10 years in their current poor condition.

³ <https://www.woodlandtrust.org.uk/media/1836/what-are-ancient-trees.pdf>

⁴ <https://ati.woodlandtrust.org.uk/how-to-record/species-guides/>

In recognition of the important ecological and ecosystem services performed by trees the default position when designing any forthcoming scheme should be the retention of all items, as so far as is practicable, regardless of category grading. All trees provide positive environmental and ecological contributions, irrespective of current condition.

2.7 General Tree Observations

The trees surveyed are typical of those found within urban planting areas such as car parks and carriageway boundaries. Ash (*Fraxinus excelsior*) and London plane (*Platanus x hispanica*) were surveyed as individual specimens, with the remainder of trees surveyed falling into mixed broadleaf groups throughout the survey area. The ash surveyed (T1-T4 T7/T8) are of category C or U and contributed little to the area. They had significant shoot dieback and were both structurally and physiologically fair to poor with notable decline. Ash dieback (*Hymenoscyphus fraxineus*) was noted across all the individual ash specimens surveyed. The plane trees within the car park (T5/T6) are of category B and provide a moderate contribution to the amenity and value within the survey area.

All trees surveyed as individuals within the survey area are early mature specimens which appear to have received poor or no management.

The groups surveyed are all mixed broadleaf woodland groups. Four of the groups are category B, and two are category C. These groups are all typical of highway boundary planting. Common ash (*Fraxinus excelsior*), common hazel (*Corylus avellana*), English oak (*Quercus robur*), field maple (*Acer campestre*) and sycamore (*Acer pseudoplatanus*) are just a few of the species prevalent within the group adjacent to Thorley Lane. Most trees within the category B groups had vigorous and expansive canopies, providing good cover within the woodland groups and contributed greatly to the surrounding environment. The footpath and shared use path situated alongside G1 and G2 benefit from having this natural barrier between the airport space and the road.

G4 and G5 are both classified as category C, they consist largely of low growing and young trees/shrubs acting as a boundary for the disused car park on the North side of Thorley Lane. They are of lower quality and value than the remainder of the groups within this survey and may only offer amenity in the form of local habitat utilisation.

3. Arboricultural Impact Assessment

3.1 Introduction

This Arboricultural Impact Assessment (AIA) has been prepared following site based observations, a desktop study of the survey data and consideration of the development proposals. In particular, it relates to the baseline arboricultural assessment and constraints information, which is overlaid onto the proposed development proposal for the Project Site. The resulting drawing, a Arboricultural Impact Assessment Plan and Tree Removal Plan), shows the impact on arboricultural features on the site.

Trees have a finite reserve of energy, made each year, throughout the spring/summer seasons, which is utilised for biological processes such as growth and defence against pests or diseases.

Any scheme in proximity to trees has the potential to cause harm to those trees unless control measures are identified and acted upon; as such it is essential to consider the relationship between the proposed scheme and the retained trees to identify what precautions are necessary and proportionate. The scheme has the potential to impact upon the above ground (canopy, stems and branches) and below ground (rooting environment) parts of the trees.

Whilst some clear and obvious physical damage can occur to trees during the construction phase, such as to stems and branches, other impacts are not always so immediately evident, such as damage to the soil structure by compaction and or changes in ground levels causing root damage, altering the water table and affecting moisture availability.

This AIA recognises that construction activities pose a real and significant threat to the subject trees and assesses the likely impacts of the proposals on the tree stock and where appropriate, provides mitigation with the view of achieving a harmonious relationship between the trees and the built form.

Assessment of the impact of the proposals has been determined following consideration of the constraints each surveyed item poses by virtue of its position, branch spread and designated RPA.

Consideration should be given to retaining all trees where possible; however, ultimately the removal of any tree is dependent on its proximity to the footprint of any proposal and associated landscaping.

Where trees are surveyed as groups individual stem locations are often not indicated on topographical surveys or it is impracticable to plot by other means. Therefore, when groups need to be partially removed it is not possible to accurately display the removals on a plan, as removals are dependent on a trees location within a group and its proximity to proposed works. Removal of trees from within groups should be marked up by the Arboricultural Clerk of Works onsite prior to site clearance works. This process is greatly assisted by the setting out of the development by the construction team.

3.2 Partial Removal of Groups

This report contains groups and woodlands plotted as per the guidance given in BS5837:2012 section 4.4.2.3;

Trees growing as groups or woodland should be identified and assessed as such where the arboriculturist determines that this is appropriate. However, an assessment of individuals within any group should still be undertaken if there is a need to differentiate between them, e.g. in order to highlight significant variation in attributes (including physiological or structural condition). NOTE The term "group" is intended to identify trees that form cohesive arboricultural features either aerodynamically (e.g. trees that provide companion shelter), visually (e.g. avenues or screens) or culturally, including for biodiversity (e.g. parkland or woodpasture), in respect of each of the three subcategories.

It is often not practical to plot individual trees due to size of area, accuracy of GPS below tree canopies or time constraints. Because individual stem locations are often absent from tree groups, the area of partial removal of a group canopy should be considered indicative.

The final refinement of retained canopy edges can only be achieved on site, between a topographical surveyor, arboricultural consultant and Principal contractor. Where access is agreed with the relevant owner(s) of third-

party land, the identification of individual trees within influencing distance of the site and capture of respective RPA should be completed, with trees for removal being clearly marked. The topographical surveyor should then set out the alignment of tree protection measures as per an approved Arboricultural Method Statement. The process of the identification of trees, tree removal and setting out of tree protection measures should be carried out before any construction works commence, including the delivery of materials, plant or installation of construction compounds.

Jacobs arboriculturalists attended site to review the constructability of the scheme and removals required. As a result the TRRPP indicate, to the best of our ability, the required tree removals and pruning. However, the points raised above remain true. The final marking of trees to be removed will need to be decided upon by the Project Arboriculturalist/Arboricultural Clerk of Works (AcoW) with the assistance of a topographical surveyor to set out the tree protection fencing alignment and footprint of any construction activity.

3.3 Impact Assessment

3.3.1 Trees Requiring Removal for Reasons of Sound Arboricultural Management

The BS5837:2012 compliant survey identified a total of 4 U category items within the Project Site, the condition of which was considered to be impaired to such an extent that they cannot be realistically retained as living trees in the context of the current land use for longer than 10 years. These are detailed in the Tree Survey Schedule, contained to the rear of this report. The U category items require removal irrespective of development and therefore are not included in the calculations to follow.

3.3.2 Tree, Group and Hedge Impacts

No trees were present within the Planning Application Site.

The 'Partial Removal' impact relates only to groups of trees and hedgerows requiring only some of the feature to be removed to facilitate the proposals.

The 'Encroached' impact relates to trees that can be retained during and after the implementation of the design proposals but may require protection/mitigation measures to be employed prior to the construction phase of the scheme.

It is the view of Jacobs arboriculturists that trees indicated as encroached are viable for retention (in most cases) if provided with adequate protection prior to and/or during construction. To ensure these trees are protected, it is recommended that contractors should submit a Site Specific Arboricultural Method Statement (SS-AMS) detailing how they intend to protect those trees within temporary working areas as part of the tendering process.

Tables 3.1 and 3.2 indicate the impacts within the Project Site. As no trees are present within the Planning Application site (a smaller area within the Project Site), no trees within the Planning Application Site are impacted by the proposed works.

–Table 3.1 – Individually surveyed tree impacts (AIA Results)

BS5837:2012 Grades	Removals	Encroached	No Impacts	SUB TOTALS
B	1	0	1	2
C	0	0	2	2
U	4	0	0	4
SUB TOTALS	5	0	3	8

Table 3.2 – Surveyed tree group impacts (AIA Results)

BS5837:2012 Grades	Removals	Partial Removal	Encroached	No Impacts	SUB TOTALS
B	0	2	0	2	4
C	0	0	0	2	2
SUB TOTALS	0	2	0	4	6

3.3.3 Facilitation Pruning

The trees, hedgerows and groups shown in Table 3.2 may require facilitation pruning to allow the successful delivery of the development proposals. If carried out to *BS3998:2010 Tree Work Recommendations* Jacobs consider these trees can be retained with no long term detrimental impact on health, form or life expectancy.

At this stage no facilitation works have been identified to allow the construction of the proposals.

3.4 Discussion of Removals

To facilitate the proposals the removal of one B category tree, and the partial removal of two B category groups is required with the Project Site. The composition of the groups requiring removal are considered typical of highways adjacent planting and the value is derived from the urban greening more so than the value of the individual trees. The age of this group, 20-30 years, would make it relatively straightforward to mitigate the loss of with compensatory planting. The removals have been reduced as far as is possible with the current design, keeping the retained edge of the trees as close to the working corridor as possible. This may prove detrimental to some stems along the edge and these should be monitored, going forward, to ensure the safe contribution to the area.

The single B category tree is a Plane (*Platanus hispanica*) within a planting bed within the carpark, and again provides much of its value as shade and urban greening. Its loss can be mitigated for with additional planting of individual trees within the adjacent landscaping surrounding the existing carpark and proposed road.

The four U category removals are proposed owing to the extensive dieback within the crowns of these trees from Ash Dieback, these trees are considered unlikely to recover from this pathogen and will continue to decline and become structurally unstable. These loss of these trees can be mitigated for with appropriate planting within the scheme

As no trees currently exist within the Planning Application Site (the red line on the Tree Removals Plan at Appendix G), no trees require removal to facilitate the new access junction proposed in the planning application.

4. Conclusions and Recommendations

The survey of the Project Site has identified no trees of A category quality, nor has it identified any trees which would have any legal protection from removal. In general, the value of the trees lies in the collective rather than the individual and limited tree removals could be compensated for with high quality new planting which is maintained and given space to develop into full canopied, quality specimens.

It is acknowledged that potential impacts are likely to change during detailed design and this AIA should be updated with this information when known. Opportunities to retain trees within the project Site at later stages of design should be fully explored. Consideration should be given to established trees of mature (or above) age class together with trees offering screening.

It is recommended that, in consideration of this AIA and the Tree Constraints Plan (Appendix F) and Tree Removals Plan (Appendix G.), the appointed contractor submit a Site-Specific Arboricultural Method Statement (AMS) as part of the tendering process to detail how they will protect existing trees within temporary working areas, as well as detailing their construction techniques to be used where construction activity is to occur within an RPA. The contractor should only remove trees within the Project Site that are absolutely necessary to facilitate the scheme, as shown on the Tree Removals Plan (Appendix G).

No trees are present within the Planning Application site (a smaller area within the Project Site).

A competent arboriculturist should be present on site at suitable times to monitor the adoption of the AMS and ensure the appropriate protection of trees.

Additional visits are recommended post construction to identify any physiological and/or structural defect that may have been caused by the works. This should occur on a yearly basis for four years, with each visit being conducted during a different season.

4.1 Arboricultural Action Required— Next Steps

Table 4.1, below, lists the standard elements, as referenced in BS 5837:2012 (BSI, 2012), recommended to satisfy planning concerns for this scheme and to ensure appropriate tree protection is considered and applied throughout the duration of the works.

Table 4.1 Follow up Arboricultural input relating to this scheme

Recommended arboricultural input	Purpose	Timing
Re-assessment of impacts to trees during detailed design and once construction information is available.	Technical advice provided during the detailed design phase to avoid tree impacts.	Following any major design changes or advance works design development.
Site specific Arboricultural Method Statement (AMS)	Work information package designed to provide contractors with details on how specific operations need to be performed to protect trees including use of ground protection.	Following final design agreement and usually as a part of planning conditions. Produced by the contractor for review by the client and/or Local Planning Authority following agreement.
Tree Protection Plan	Provide schematic details of how protective fencing shall be installed and any other pre-planned targeted tree protection.	Following final design agreement in conjunction with the site-specific AMS
AIA revisions	Further detail of impacts on key areas. OR	Following any change in the design. The process could be either desktop based or require further site visits, depending on the scope of the original survey.

Recommended arboricultural input	Purpose	Timing
	Whenever a design change/addition is finalized or proposed.	
On site monitoring	To ensure protection measures and the method statement are being implemented correctly.	At agreed intervals before and during the construction phase of the project.

It is recommended to maintain contact with the project arboriculturist throughout the planning and design stage for the relevant additional input to be addressed at the appropriate point.

Impacts to the trees, as outlined within this AIA report, could alter with any changes to the current design proposals. Tree impacts should therefore be reviewed as the design process progresses with all relevant parties informed of the changes, where appropriate.

5. Legal Considerations

5.1 Town and Country Planning Act

Prior to the removal of the trees or groups listed in this report, or any tree pruning works being undertaken, it is essential that the trees are assessed again for legal protected status. These include TPOs and Conservation Areas (CA), Sites of Special Scientific Interest, locally or nationally designated sites, designed landscapes and ancient woodland .

Works (either above or below ground) to trees protected by TPO or CA is an offence under the Town and Country Planning Act 1990 (as amended), and in the Town and Country Planning (Tree Preservation) (England) Regulations 2012 and Section 192 of the Planning Act 2008.

5.2 Felling Licence

The felling of trees is regulated in England by the Forestry Act 1967 (the Act). The Forestry Commission is the government regulator that enforces the provisions of the Act.

The felling of growing trees in England is restricted under section 9 of the Act. It requires that felling is either authorised by a felling licence issued by the FC or the felling activity is excepted from the need for a licence. There are many exceptions to the need for a licence, based on the type of the tree, the location of the tree, the size of the tree, the nature and scope of the felling activity and the person responsible for the felling. These are primarily set out in section 9 of the Act as well as the Forestry (Exceptions from Restriction of Felling) Regulations 1979.

The most relevant exemption is;

'Section 9— Requirement of licence for felling (1) A felling licence granted by the appropriate forestry authority shall be required for the felling of growing trees, except in a case where by or under the following provisions of this Part of this Act this subsection is expressed not to apply...

(d) is immediately required for the purpose of carrying out development authorised by planning permission granted or deemed to be granted under the Town and Country Planning Act 1990 or the enactments replaced by that Act, or under the Town and Country Planning (Scotland) Act 1997.

Advice from a suitably qualified arboriculturalist should be sought before any felling takes place onsite.

The granting of permission to remove trees covered by a TPO by the Local Planning Authority does not remove the need to obtain a felling licence from FC if more than 5 m³ of timber are to be felled in a calendar quarter and none of the exemptions apply.

5.3 Wildlife

Bats are afforded special protection by law. If a roost is discovered, all work in the vicinity should cease immediately and the appropriate authorities informed (Natural England). Roosts need to be inspected by a project Ecologist before work can recommence.

Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to take, disturb or destroy the nest or eggs of any wild bird during its breeding season.

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Appendix A. Survey Methodology

Parameters Recorded	Collection Methodology
Tree location	Handheld tablet with GPS functionality.
Crown spread, clearance and first branch break/direction	Metres measured with laser measure, direction with compass
Height and diameter	Clinometer and diameter tape at 1.5 meters above ground
Structural and physiological condition	External visual tree assessment (from the ground) – The Body Language of Trees, Research for Amenity Trees No 4 (Mattheck and Breloer, 1994)
Root Protection Area (RPA)	Calculation method in BS 5837:2012 (BSI, 2012)

Appendix B. Comprehensive Glossary of Arboricultural Terms

- AIA: Arboricultural Impact Assessment.
- AMS: Arboricultural Method Statement.
- Ancient tree: An ancient tree is exceptionally valuable attributed with great age/size/cultural heritage/biodiversity value as a result of significant wood decay and the habitat created from the ageing process. All ancient trees are veteran trees with very few trees of any species reaching the ancient life-stage.
- Bark: A term usually applied to all the tissues of a woody plant lying outside the vascular cambium.
- Buttress zone: The region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper side of their junction.
- Canker: A lesion formed by the death of bark and cambium often due to fungal or bacterial infection.
- Condition: An indication of the physiological vitality of the tree. Where the term 'condition' is used in a report, it should not be taken as an indication of the stability of the tree.
- Conservation Area: A designated area that requires notice (currently six weeks) to be given to the local planning authority prior to the commencement of any tree works.
- Construction exclusion zone: Area based on the Root Protection Area (in square metres) to be protected during development, by the use of barriers and/or ground protection.
- Crown/Canopy: The main foliage bearing section of the tree.
- Crown lifting: A term used to describe the removal of limbs and small branches to a specified height above ground level.
- Deadwood: Branch or stem wood bearing no live tissues. Retention of deadwood provides valuable habitat for a wide range of species and seldom represents a threat to the health of the tree. Removal of deadwood can result in the ingress of decay to otherwise sound tissues and climbing operations to access deadwood can cause significant damage to a tree. Removal of deadwood is generally recommended only where it represents an unacceptable level of hazard.
- Dieback: The death of parts of a woody plant, starting at shoot-tips or root-tips.
- Diameter at Breast Height (DBH): Stem diameter measured at a height of 1.5 metres (UK) or the nearest measurable point. Where measurement at a height of 1.5 metres is not possible, another height may be specified.
- Habit: The overall growth characteristics, shape of the tree and branch structure.
- Hazard beam: An upwardly curved part of a tree in which strong internal stresses may occur without being reduced by adaptive growth; prone to longitudinal splitting.
- Minor deadwood: Dead wood of a diameter less than 25mm and or unlikely to cause significant harm or damage upon impact with a target beneath the tree.
- Notable: Notable trees are usually mature trees which may stand out in the local environment because they are large in comparison with other trees around them
- Pollarding: is the removal of the tree canopy, back to the stem or primary branches. Pollarding may involve the removal of the entire canopy in one operation or may be phased over several years. The period of safe retention of trees having been pollarded varies with species and individuals. It is usually necessary to re-pollard on a regular basis, annually in the case of some species.
- Primary branch: A major branch, generally having a basal diameter greater than 0.25 x stem diameter.
- Pruning: The removal or cutting back of twigs or branches, sometimes applied to twigs or small branches only, but often used to describe most activities involving the cutting of trees or shrubs.
- Root protection area (RPA): An area of ground surrounding a tree that contains sufficient rooting volume to ensure the tree's survival, calculated with reference to Table 2 of BS5837 (2005).
- Snag/stub: In woody plants, a portion of a cut or broken stem, branch or root which extends beyond any growing-point or dormant bud; a snag usually tends to die back to the nearest growing point.
- Stem/s: The main supporting structure/s, from ground level up to the first major division into branches.
- Topping: In arboriculture it is the removal of the crown of a tree, or of a major proportion of it.
- Tree Preservation Order (TPO): Is an order made by the local authority and placed upon individual trees, groups of trees or areas of trees. The local authority must usually grant permission prior to any works undertaken to affected trees.
- Veteran tree: A loosely defined term for an old specimen that is of interest biologically, culturally or aesthetically because of its age, size or condition and which has usually lived longer than the typical upper age range for the species concerned.

Appendix C. Cascade Chart of Tree Quality Assessment (taken from BS 5837:2012)

Category and definition	Criteria (including subcategories where appropriate)		
Trees unsuitable for retention (see note)			
Category U			
Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)		
	Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline		
	Trees infected with pathogens of significance to health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality. NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve.		
Trees to be considered for retention			
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values including conservation
Category A			
Trees of high quality with an remaining estimated life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran or semi-formal arboricultural trees or wood-pasture)
Category B			
Trees of moderate quality with an remaining estimated life expectancy of at least 20 years	Trees that might be included in Category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such as they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value
Category C			
Trees of low quality with an remaining estimated life expectancy of at least 10 years, or younger trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value

Appendix D. Tree Survey Schedule Key

Column Header	Explanation
Tree ID	T – Tree G – Group/Hedgerow/Woodland H- Hedgerow
Diameter at breast height (DBH)	Tree stem diameter measured at 1.5m from the ground. This reported figure relates to either single stemmed trees or the calculated DBH for multi-stemmed trees. In some instances, DBH will be taken from a different height as specified in 'Observations'.
Canopy spread – N E S W	Canopy extents from main stem of individual tree will be shown using cardinal points in metres i.e. N (north) 7, E (east) 6, S (south) 5, W (west) 7. Single largest canopy extent reported for groups/woodland/hedgerows.
Crown Clearance	To inform on ground clearance.
Age Class	Young (Y) – A tree in the first quarter of its life span. Semi Mature (SM) – A tree in the latter stages of its first quarter, well established. Early Mature (EM) – A tree halfway through its life span, significant further growth potential. Mature (M) – A tree at or near its potential maximum size which is still growing vigorously in its third quarter of life span. Over Mature (OM) – A tree in decline in its final quarter of life span. Potential Veteran (V) – A tree which, because of its age, size, and condition, is of exceptional biodiversity, cultural or heritage value
Structural condition (S)	Good (G)– No signs of decay or structural weakness. Fair (F)– Minor defects not causing structural weakness. Poor (P)– Severe decay in the main stem or branches/structurally weak.
Physiological condition (P)	Good (G)– Showing no adverse risk of failure/defects. Fair (F)– Showing minor signs of deterioration. Poor (P)– Unlikely to recover to a good condition.
Estimated Remaining Contribution (ERC)	<10– Less than 10 years of normal life expectancy remaining. 10+ - Between 10 and 20 years of normal life expectancy remaining. 20+ - Between 20 and 40 years of normal life expectancy remaining. 40+ - Tree would normally expect to live for more than 40 more years.
Root Protection Area (RPA)	Root Protection Area dimensions as calculated using formulae in BS5837:2012. Applied as either radially from an individual tree stem (individually surveyed trees)

TREE SURVEY REPORT

	or as an offset from the canopy extents of a collective feature (tree group, hedgerow, or woodland).
--	--

Appendix E. Tree Survey Schedule

Client: Manchester Airport Ltd				Site: Sydney Avenue														
Date of Survey: 18/10/2023		Consultant: Thomas Cleeton																
Tagged: N/A		Weather: Overcast, Sunny Spells																
Reference No.	Species		Height (m)	Stem Diameter (mm)	Branch Spread (m)				Canopy Clearance (m)	Life Stage	Physiological Condition	Structural Condition	Comments / Notes	Management Recommendations (Priority)	Estimated Remaining Contribution (Years)	Category Grading	AIA	Root Protection Radius (m)
	Common	Latin			North	East	South	West										
T1	Common ash <i>Fraxinus excelsior</i>		6	200	3	3	3	3	0	Early-mature	Poor	Poor	Severe adb	No Work Recommended	<10	U	Complete Removal	2.4
T2	Common ash <i>Fraxinus excelsior</i>		6	200	3	3	3	3	0	Early-mature	Poor	Poor	Severe adb	No Work Recommended	<10	U	Complete Removal	2.4
T3	Common ash <i>Fraxinus excelsior</i>		6	200	3	3	3	3	0	Early-mature	Poor	Poor	Severe adb	No Work Recommended	<10	U	Complete Removal	2.4
T4	Common ash <i>Fraxinus excelsior</i>		6	200	3	3	3	3	0	Early-mature	Poor	Poor	Severe adb	No Work Recommended	<10	U	Complete Removal	2.4
T5	London plane <i>Platanus x hispanica</i>		8	200	3	3	3	3	0	Early-mature	Fair	Fair	Typical car park planting restricted access	No Work Recommended	20+	B1	Complete Removal	2.4
T6	London plane <i>Platanus x hispanica</i>		8	200	3	3	3	3	0	Early-mature	Fair	Fair	Typical car park planting restricted access	No Work Recommended	20+	B1	Retained	2.4
T7	Common ash <i>Fraxinus excelsior</i>		8	250	4	4	4	4	0	Early-mature	Fair	Fair	Typical car park planting restricted access adb2	No Work Recommended	10+	C1	Retained	3
T8	Common ash <i>Fraxinus excelsior</i>		8	250	4	4	4	4	0	Early-mature	Fair	Fair	Typical car park planting restricted access adb2	No Work Recommended	10+	C1	Retained	3
Groups																		
G1	Silver birch <i>Betula pendula</i> Sycamore <i>Acer pseudoplatanus</i> Elder <i>Sambucus nigra</i> Wild cherry <i>Prunus avium</i> Lawson's cypress <i>Chamaecyparis lawsoniana</i>		10	200	As Drawn				0	Early-mature	Fair	Fair	Typical highways boundary planting	No Work Recommended	20+	B1	Partial Removal	2.4
G2	Common ash <i>Fraxinus excelsior</i> Common hazel <i>Corylus avellana</i> English oak <i>Quercus robur</i> Field maple <i>Acer campestre</i> Silver birch <i>Betula pendula</i> Sycamore <i>Acer pseudoplatanus</i> Elder <i>Sambucus nigra</i> Rowan <i>Sorbus aucuparia</i> Wild cherry <i>Prunus avium</i> Dogwood sp. <i>Cornus sp.</i> Lawson's cypress <i>Chamaecyparis lawsoniana</i>		12	250	As Drawn				0	Early-mature	Fair	Fair	Typical highways boundary planting	No Work Recommended	20+	B1	Partial Removal	3
G3	Common ash <i>Fraxinus excelsior</i> Common hazel <i>Corylus avellana</i> English oak <i>Quercus robur</i> Field maple <i>Acer campestre</i> Silver birch <i>Betula pendula</i> Sycamore <i>Acer pseudoplatanus</i> Elder <i>Sambucus nigra</i> Rowan <i>Sorbus aucuparia</i> Wild cherry <i>Prunus avium</i> Dogwood sp. <i>Cornus sp.</i> Lawson's cypress <i>Chamaecyparis lawsoniana</i>		12	250	As Drawn				0	Early-mature	Fair	Fair	Typical highways boundary planting	No Work Recommended	20+	B1	Retained	3
G4	Common ash <i>Fraxinus excelsior</i> Common hazel <i>Corylus avellana</i> English oak <i>Quercus robur</i> Field maple <i>Acer campestre</i> Silver birch <i>Betula pendula</i> Sycamore <i>Acer pseudoplatanus</i> Elder <i>Sambucus nigra</i> Rowan <i>Sorbus aucuparia</i> Wild cherry <i>Prunus avium</i> Dogwood sp. <i>Cornus sp.</i> Lawson's cypress <i>Chamaecyparis lawsoniana</i>		5	200	As Drawn				0	Early-mature	Fair	Fair	Typical highways boundary planting	No Work Recommended	10+	C1	Retained	2.4
G5	Common ash <i>Fraxinus excelsior</i> Common hazel <i>Corylus avellana</i> English oak <i>Quercus robur</i> Field maple <i>Acer campestre</i> Silver birch <i>Betula pendula</i> Sycamore <i>Acer pseudoplatanus</i> Elder <i>Sambucus nigra</i> Rowan <i>Sorbus aucuparia</i> Wild cherry <i>Prunus avium</i> Dogwood sp. <i>Cornus sp.</i> Lawson's cypress <i>Chamaecyparis lawsoniana</i>		5	200	As Drawn				0	Early-mature	Fair	Fair	Typical highways boundary planting	No Work Recommended	10+	C1	Retained	2.4

TREE SURVEY REPORT SYDNEY AVENUE

Reference No.	Species		Height (m)	Stem Diameter (mm)	Branch Spread (m)				Canopy Clearance (m)	Life Stage	Physiological Condition	Structural Condition	Comments / Notes	Management Recommendations (Priority)	Estimated Remaining Contribution (Years)	Category Grading	AIA	Root Protection Radius (m)
	Common	Latin			North	East	South	West										
G6	Common ash <i>Fraxinus excelsior</i> Common hazel <i>Corylus avellana</i> English oak <i>Quercus robur</i> Field maple <i>Acer campestre</i> Silver birch <i>Betula pendula</i> Sycamore <i>Acer pseudoplatanus</i> Elder <i>Sambucus nigra</i> Rowan <i>Sorbus aucuparia</i> Wild cherry <i>Prunus avium</i> Dogwood sp. <i>Cornus</i> sp. Lawson's cypress <i>Chamaecyparis lawsoniana</i>		12	250	As Drawn				0	Early-mature	Fair	Fair	Typical highways boundary planting	No Work Recommended	20+	B1	Retained	3

Appendix F. Tree Constraints Plan



GENERAL NOTES:

- THE ORIGINAL OF THIS DRAWING WAS PRODUCED IN COLOUR - A MONOCHROME COPY SHOULD NOT BE RELIED UPON.
- TREE LOCATIONS ARE DETERMINED ON SITE USING A COMBINATION OF DIGITAL SURVEY SOFTWARE, AERIAL IMAGERY AND STEM LOCATIONS PROVIDED BY TOPOGRAPHIC SURVEY
- CATEGORY GRADING OF INDIVIDUAL TREE STEMS IS INDICATIVE OF ACTUAL SIZE OF STEM SURVEYED ON SITE. IN SOME INSTANCES, THE CATEGORY GRADING OF STEMS MAY NOT ALWAYS BE VISIBLE DUE TO SCALING
- CHECK ALL DIMENSIONS ON SITE
- DO NOT SCALE FROM THIS DRAWING.
- REPORT ANY DISCREPANCIES AND OMISSIONS TO JACOBS.

LEGEND

- ● ● Individual Tree Stem
- Category A Canopy
- Category B Canopy
- Category C Canopy
- Category U Canopy
- Root Protection Area
- Planning Application Boundary
- Project Boundary

1.0	ISSUED TO CLIENT FOR APPROVAL	01/12/23
2.0	ISSUED TO CLIENT FOR APPROVAL	25/01/24
3.0	FOR STAGE APPROVAL	30/04/24
Rev	Details	Date

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LEVEL C2 - INTERNAL

Airport

Manchester Airport

Project Name

MAG LANDSIDE - FI, SA & VCC

Title

TREE CONSTRAINTS PLAN
SYDNEY AVENUE

Discipline		Project Phase	
Environmental		Design - Phase 3 - GW 2	
Drawing Originator		Originator's Job No.	
JACOBS		MAG42040	
Drawn By	Drawn Date	Checked By	Checked Date
TC	30/04/24	PS	30/04/24
Approved By	Approved Date	Scale and sheet size	
SR	30/04/24	1:500 @ A1	

Manchester Airport Grid Reference

APX = 11291, APY = 11105

Project Number		Location Code		Origin	
MT2RSYDN		MAN.LG.00.RD		JAC	
Disc.	Doc. Type	ACC	Unique ID Number	Status	Rev.
G	GA	LANDRD	0001	S4	3.0

Appendix G. Tree Removal Plan



GENERAL NOTES:

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- TREE LOCATIONS ARE DETERMINED ON SITE USING A COMBINATION OF DIGITAL SURVEY SOFTWARE, AERIAL IMAGERY AND STEM LOCATIONS PROVIDED BY TOPOGRAPHIC SURVEY.
- CATEGORY GRADING OF INDIVIDUAL TREE STEMS IS INDICATIVE OF ACTUAL SIZE OF STEM SURVEYED ON SITE. IN SOME INSTANCES, THE CATEGORY GRADING OF STEMS MAY NOT ALWAYS BE VISIBLE DUE TO SCALING.
- CHECK ALL DIMENSIONS ON SITE.
- DO NOT SCALE FROM THIS DRAWING.
- REPORT ANY DISCREPANCIES AND OMISSIONS TO JACOBS.

LEGEND

- Individual Tree Stem
- Category A Canopy
- Category B Canopy
- Category C Canopy
- Category U Canopy
- Root Protection Area
- Planning Application Boundary
- Project Boundary
- Trees/Groups to be Removed

1.0	ISSUED TO CLIENT FOR APPROVAL	01/12/23
2.0	ISSUED TO CLIENT FOR APPROVAL	25/01/24
3.0	FOR STAGE APPROVAL	30/04/24
Rev	Details	Date

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LEVEL C2 - INTERNAL

KEY PLAN (N.T.S)

Airport
Manchester Airport

Project Name
MAG LANDSIDE - FI, SA & VCC

Title
**TREE REMOVAL PLAN
SYDNEY AVENUE**

Discipline		Project Phase	
Environmental		Design - Phase 3 - GW 2	
Drawing Originator		Originator's Job No.	
JACOBS		MAG42040	
Drawn By	Drawn Date	Checked By	Checked Date
TC	30/04/24	PS	30/04/24
Approved By	Approved Date	Scale and sheet size	
SR	30/04/24	1:500 @ A1	

Manchester Airport Grid Reference
APX = 11291, APY = 11105

Project Number		Location Code		Origin	
MT2RSYDN		MAN.LG.00.RD		JAC	
Disc.	Doc. Type	ACC	Unique ID Number	Status	Rev.
G	GA	LANDRD	0002	S4	3.0

Appendix H. Proposed Site Layout (Not To Scale)

