

Arboricultural Impact Assessment (AIA) Version 1

MIOC drive thru
Prepared for: Infinity MIOC

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Appendix

1 Tree Protection Plan

2 Survey sheets (updated as a result of AIA)

1.0 Introduction

1.1 Instruction, Scope, Methodology, Mitigation & Limitations

- 1.2 My name is Simon Brain, I am a chartered arboriculturist, with 25 years' experience holding the LANTRA Professional Tree Inspection certificate. I have been instructed by the client to prepare the following Arboricultural Impact Assessment for land at Manchester International Office Centre.
- 1.3 This Arboricultural Implications Assessment (AIA) is based on the proposed developments as shown on the Proposed Site GA Rev 4 as drawn by pozzoni, dated April 2021 and incorporated into the Tree Protection Plans (TPP) in Appendix 1 of this report.
- 1.4 The assessment will be carried out in line with the recommendations in BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* and will evaluate the direct and indirect impacts of the proposed design and where necessary recommend mitigation.
- 1.5 The AIA considers constraints posed above and below ground and where appropriate makes recommendations to mitigate impacts associated with development sites and retained trees.
- 1.6 Where specialist design, construction techniques or in areas where supervision of the works is required a Special Measure Area (SMA) has been shown on the TPP for the study areas.
- 1.7 Below ground constraints are influenced by the root protection area and are determined in line with the recommendations set out in BS 5837:2012. These recommendations quantify the root protection area based on a measured stem diameter in accordance with Annex C, and the root protection area determined from Annex D.
- 1.8 It is important to understand that when considering the Root Protection Area (RPA) with regards to the circular plot as delineated on the TPP

that a number of site factors can influence root morphology and disposition of tree roots.

- 1.9 Above ground constraints are considered above and below ground and in line with the recommendations in BS 5837:2012 to include shade, dominance, current and future crown spread as well as the ultimate height of those retained trees.
- 1.10 Impacts associated with development sites and retained trees can be associated with single or multiple site operations that can subject trees to multiple impacts (*root severance, compaction, loss of photosynthetic material*), where this is applicable it will be highlighted in the AIA.
- 1.11 The mitigation measures proposed in this report are essential to ensure that trees marked for retention are adequately protected during the period of post/preconstruction.

2.0 Arboricultural Impact Assessment

2.1 Area for proposed development

2.2 The proposed development has been embedded within the Tree Constraints Plan which indicates the following developments associated with this site to have an arboricultural impact:

- New surfacing in the vicinity of retained tree RPA
- Installation of proposed development infrastructure requiring tree removal.

2.3 The arboricultural impacts of these items have been identified below.

2.3.1 New surfacing in the vicinity of retained trees.

A new car park surface in the RPA of T1 and T7 is within a designated Special Measure Area (SMA) and construction of this can only be proposed as 'no dig' construction if the following items can be achieved:

- A cross section of the existing and proposed ground levels is submitted for arboriculture review.
- A detailed engineer-based drawing specification of the no dig driveway is produced for arboriculture review
- The California Bearing Ratio and soil structure are acquired and have undergone arboriculture review.
- Future maintenance, water interception, pollution potential and deformation potential of the new surface is assessed.
- A full AMS is needed when these matters have been managed to support a planning application which will detail sequencing, methods, materials, tree protections, personnel, and a detailed supervisory timetable with the provision of compliance reporting at regular intervals.

These items are required as the trees require this level of protection and the information is needed to demonstrate the acceptability of the proposal for new surfacing in RPA/SMA.

A typical no dig construction specification can consist of:

- Establishment of the California Bearing Ratio of the land in question order to inform engineers of type and capacity of load bearing cellular confinement system to be used.
- Appoint and confirm engineer for design and supply of a suitable load bearing geo cellular confinement system requiring no >100mm excavations
- Driveway is constructed and finished to the agreed specifications before any other general building activity commences on site.
- The cellular confinement system shall be guaranteed by the supplier so as not to cause subsequent compaction for a period of ten years.
- Typically, a 'no dig' approach (based on APN12 Driveways close to trees) will be taken with the confinement system being laid directly onto the existing ground level; where local cuts and fills are required this shall be no more than 75-100mm in depth.
- Typically, a confinement system of 150mm in depth is used.
- Edge restraints shall be required, and they shall be secured by means of small metal ties approximately 50cm+ long at appropriate intervals.
- The cellular confinement system shall be laid by pedestrian means under the consultant's on-site supervision. Small excavators can be used on the surface when it is newly laid and when ground boarding is provided.

- The system shall be filled with granular material that retains porosity and maintain a porous finished wearing surface such as pea gravel or resin bonded gravel. Proprietary surface coverings that may be suitable for some surfaces include Flexipave and Permadrive.
- All surface construction when complete shall be covered in on ground boarding throughout the SMA for the remainder of the build period.
- All surface construction if acceptable will be located with Special Measure Areas (SMA) which is designated on the Tree Protections Plan (TPP). All construction shall be supervised on site by a qualified arboricultural consultant who shall record all progress and oversee all new surface installations in the RPA's affected and document the installation in the event of any future third party claims.

NOTE: The chronological order of events shall be as follows.

Following installation of the CEZ access is installed under supervision to no dig specification provided and all new surfacing's are protected by on ground boarding such as scaffold boards prior to any other construction activity commencing in the vicinity. It is however critical that ground boarding is proportionate to the load anticipated to be exerted on the surface. Therefore, in areas of proposed driveway where vehicular (car) and pedestrian traffic is anticipated during / post construction scaffold boarding is enough above the newly laid surface. However, heavier construction related deliveries may be required and ground boarding shall be upgraded to bog mat or similar which must bear the anticipated load. Both types of on ground boarding are required for the construction duration.

2.3.2 Installation of proposed development requires the removal of the following tree references:

- T8-T29, T39-T41.

However, to improve visual amenity associated with this site it is suggested that those trees removed are replanted.

Cat U trees T26, T30 and T39 are required to be removed for safety.

3.0 Tree Preservation Orders

3.1 I have not checked with Manchester City Council over Conservation Area or Tree Preservation Order and if they apply to this site.

4.0 Trees to be removed and retained

4.1 The following trees have been identified for removal due to their condition (Category U): T26,30 and 39

4.2 Excluding the 3no. Category U trees, a total of 22 trees are identified to be removed for this development, 21 of the trees to be removed are category C trees whose replacement would better serve visual amenity and one is a category B tree.

4.3 The remaining trees are the principle arboricultural assets on this site and they are due to be retained and protected as outlined on the TPP and by methodology needed in an AMS.

5.0 Root Protection Areas (RPA)-modifications

5.1 Root Protection Areas have been plotted in line with the guidance given in BS 5837: 2012 where ground constraints have had or are likely to affect the root morphology of trees e.g. where underground utilities or building foundations have obstructed root growth this shall require formal confirmation by excavation to establish presence or absence of significant rooting material. No RPA modifications have been shown for this scheme.

6.0 Post construction considerations

- 6.1 Not applicable as no trees are present on the western boundary that would cause significant post construction tree resentment.

7.0 Tree pruning to facilitate development and future pruning

- 7.1 There are no requirements for minor levels of tree pruning to facilitate the proposed development.

8.0 New surfacing and ground level modifications

- 8.1 New surfacing is required in RPA of retained trees. Old surfacing requires potential removal in the RPA of T1-9. Refer to section 2.3.1.

9.0 Construction Exclusion Zones and Special Measure Areas

- 9.1 The Construction Exclusion Zone has been shown as a black fenced polyline on the TPP in Appendix 1 and shall be constructed using heras panels and rubber feet securely staked to the ground.
- 9.2 The CEZ is purposefully located within proposed new surfacing near TPO trees to prompt site supervision and wider protective measures when new surfacing is installed.
- 9.3 The CEZ must be installed as signed off as fit for purpose before any other works commence on site.

10.0 Site supervision and monitoring

- 10.1 Where a tree has been delineated on the TPP as requiring retention there will be a requirement to oversee construction operations in these areas to ensure that no damage occurs to the retained tree.
- 10.2 To ensure that there is an auditable system of site monitoring, reports will be compiled by an appointed arborist and following site visits they issued to the site manager and design team, copies of which will be

always available on site for inspection by a Council planning/Tree officer.

11.0 Installation of below ground infrastructure

- 11.1 No detailed plans have been provided specifying the location of site utilities.
- 11.2 Specialist advice with regards to the position of utilities will need to be sought from engineers and must be reviewed by the consulting arboriculturist prior to commencement on site.
- 11.3 The usual construction techniques for installing site utilities within an RPA will be unacceptable due to the level of root severance that would occur. The impact of root severance will have a detrimental effect on tree health as trees require a healthy root system in order to maintain water and mineral uptake from the soil. Trees need to maintain a balance between shoot and root growth to ensure that the resources supplied by each can meet the demand of the other. Severance of tree roots caused by trenching can lead to reduced water uptake which in turn impacts on the trees ability to supply water to the canopy, resulting in desiccation. A further complication associated with root severance can be problems associated with tree stability. The tree relies on an intact root system in order to maintain stability; this stability will be compromised by root severance.
- 11.4 The use of trenchless techniques can be acceptable provided the depth of service run that is excavated is below the anticipated root depth.

12.0 Design change requirements

- 12.1 Design change requirements have not been necessary.

13.0 Amenity Value

The retention of all significant arboricultural assets has been achieved by the design and principal assets are retained (T34-38).

It is considered that the successful establishment of replacement trees referred to in section 4.4. shall mean an improvement in the long term wider visual public amenity associated with the trees on this site.

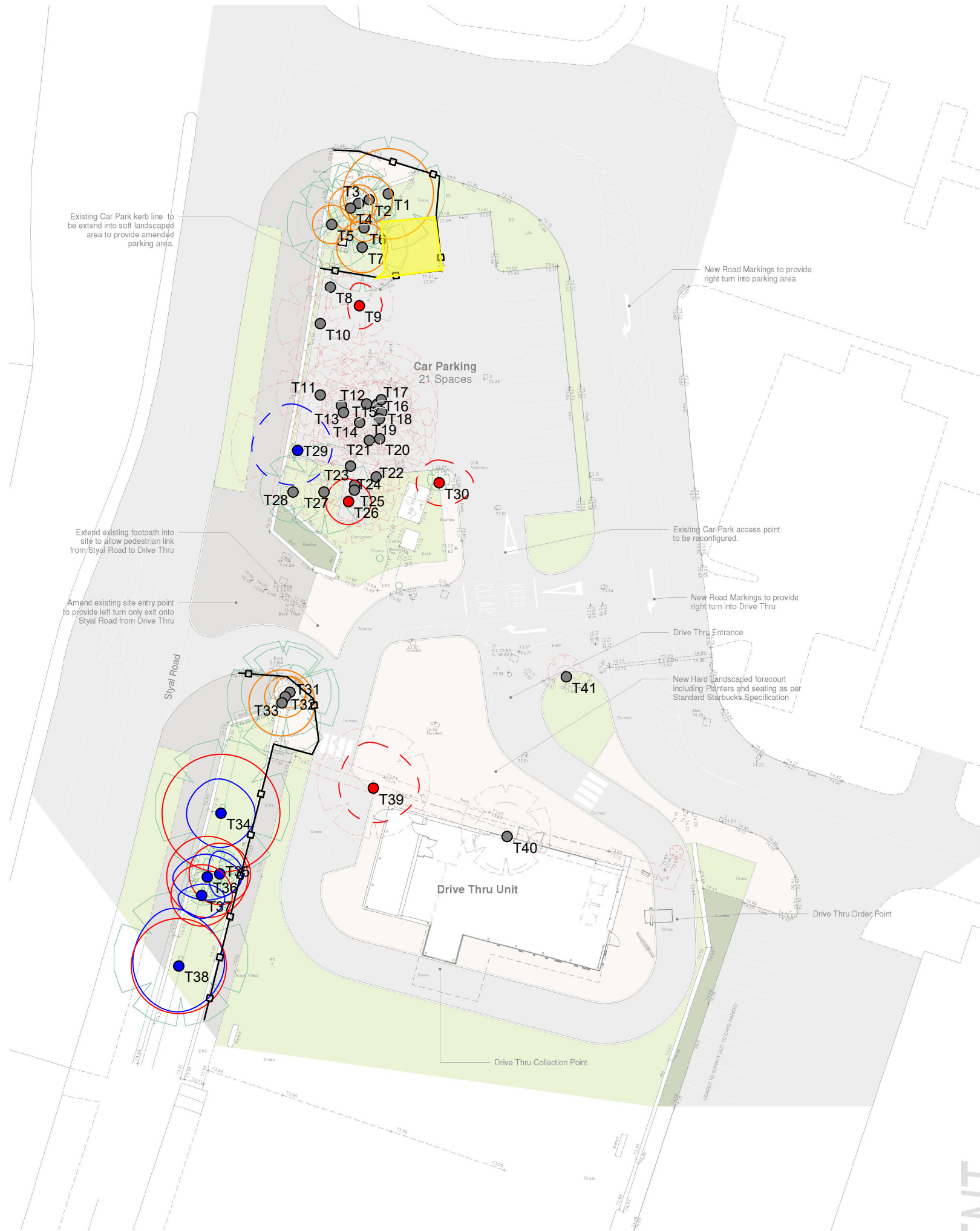
14.0 Concluding statement

- 14.1 The proposed scheme was assessed in line with guidance provided in BS 5837:2012 *Trees in relation to design demolition and construction – Recommendations* with the aim to achieve a harmonious relationship between trees and structures that can be sustained in the long term. Design change has previously occurred because of arboriculture advice in relation to the location of new hard surfacing.
- 14.2 The theoretical acceptability for the installation of no dig surfacing is established in Arboricultural Practice Note 12 (APN12) but the practice note also defines the potential impact on tree health and limitation of no dig surfacing.
- 14.3 Whilst it is my professional opinion as an arboriculturist that this design has achieved a harmonious balance of retained and removed trees the acceptability of the hard standing proposal must be demonstrated in a site-specific manner to ensure no damage occurs to retained trees and its construction will require an AMS to demonstrate to the LPA that no damage to retained trees will occur.
- 14.4 It is considered that a significant improvement in the longer-term visual amenity associated with the site will materialise through the suggested re plantings indicated in section 4.4 which can only occur if category C trees are removed to facilitate a long term planting programme that can deliver sustained amenity in the local landscape.

Appendix 1 Tree Protection Plan

Tree No.	Common Name	Life Stage	Diameter(mm)	Stems	Height(m)	Crown Height(m)	North(m)	South(m)	East(m)	West(m)	Category	Remaining Life Expectancy	Comments	Recommendations following AIA	RPR(m)	RPA(m)
T1	Ash	SM	330	1	8	2	4	4	4	2	C1	<10		Retained within CEZ and SMA for no dig new surfacing, refer to AIA.	4	49
T2	Ash	Y	170	1	5	2	2	2	1	1	C2	<10		Retained within CEZ and SMA for no dig new surfacing, refer to AIA.	2	13
T3	Ash	Y	135	1	6	2	2	1	1	1	C2	<10		Retained within CEZ and SMA for no dig new surfacing, refer to AIA.	1.6	8
T4	Ash	Y	160	1	8	2	2	2	1	1	C2	<10		Retained within CEZ and SMA for no dig new surfacing, refer to AIA.	1.9	12
T5	Ash	Y	140	1	6	2	2	2	1	3	C2	<10		Retained within CEZ and SMA for no dig new surfacing, refer to AIA.	1.7	9
T6	Hawthorn	Y	100	1	4	0	1	1	1	1	C2	40+		Retained within CEZ and SMA for no dig new surfacing, refer to AIA.	1.2	5
T7	Silver Birch	Y	185	1	8	2	2	3	4	1	C2	40+		Retained within CEZ and SMA for no dig new surfacing, refer to AIA.	2.2	15
T8	Holly	Y	141	2	4	0	1	1	2	1	C2	40+		Lost for development, replace within landscape plan	1.7	9
T9	Laburnum	Y	173	3	4	2	2	2	2	1	U	<10	Standing dead tree.	Lost for development, replace within landscape plan	2.1	14
T10	Midland Hawthorn	Y	220	1	4	2	3	2	3	2	C2	40+		Lost for development, replace within landscape plan	2.6	22
T11	Ash	Y	165	1	7	2	2	1	1	2	C2	<10		Lost for development, replace within landscape plan	2	12
T12	Ash	Y	175	1	7	2	2	1	2	1	C2	<10		Lost for development, replace within landscape plan	2.1	14
T13	Ash	Y	180	1	7	2	1	1	2	2	C2	<10		Lost for development, replace within landscape plan	2.2	15
T14	Ash	Y	145	1	7	2	1	1	1	2	C2	<10		Lost for development, replace within landscape plan	1.7	10
T15	Ash	Y	210	1	9	2	3	3	1	3	C2	<10		Lost for development, replace within landscape plan	2.5	20
T16	Ash	Y	130	1	5	2	4	1	1	1	C2	<10		Lost for development, replace within landscape plan	1.6	8
T17	Ash	Y	175	1	6	2	3	1	3	1	C2	<10		Lost for development, replace within landscape plan	2.1	14
T18	Ash	Y	185	1	8	2	1	1	3	1	C2	<10		Lost for development, replace within landscape plan	2.2	15
T19	Ash	Y	135	1	8	2	1	1	2	1	C2	<10		Lost for development, replace within landscape plan	1.6	8
T20	Ash	Y	170	1	8	2	2	2	3	1	C2	<10		Lost for development, replace within landscape plan	2	13
T21	Ash	Y	195	1	8	2	2	2	1	2	C2	<10		Lost for development, replace within landscape plan	2.3	17
T22	Ash	Y	180	1	9	2	2	3	3	2	C2	<10		Lost for development, replace within landscape plan	2.2	15
T23	Ash	Y	220	1	10	2	3	3	3	3	C2	<10		Lost for development, replace within landscape plan	2.6	22
T24	Ash	Y	180	1	10	2	1	1	2	2	C2	<10		Lost for development, replace within landscape plan	2.2	15
T25	Ash	Y	145	1	10	2	1	1	2	2	C2	<10		Lost for development, replace within landscape plan	1.7	10
T26	Ash	Y	190	1	9	2	2	2	2	2	U	<10		Lost for development, replace within landscape plan	2.3	16
T27	Ash	Y	175	1	5	2	1	1	1	3	C2	<10		Lost for development, replace within landscape plan	2.1	14
T28	Holly	SM	200	1	5	2	2	2	2	3	C2	40+		Lost for development, replace within landscape plan	2.4	18
T29	Cherry	M	425	1	7	2	4	3	3	4	B2	10+	Low leaf density throughout the tree crown.	Lost for development, replace within landscape plan	5.1	82

Tree No.	Common Name	Life Stage	Diameter(mm)	Stems	Height(m)	Crown Height(m)	North(m)	South(m)	East(m)	West(m)	Category	Remaining Life Expectancy	Comments	Recommendations following AIA	RPR(m)	RPA(m)
T30	Ash	M	150	1	7	2	2	2	3	2	U	<10	The tree is infected with Ash Dieback and is in significant decline.	Fell The tree to ground level.	1.8	10
T31	Ash	Y	115	1	7	2	2	1	1	1	C2	10+		Unaffected retain within CEZ	1.4	6
T32	Swedish Whitebeam	Y	150	1	7	2	1	1	2	1	C2	10+		Unaffected retain within CEZ	1.8	10
T33	Ash	Y	240	2	8	2	2	3	3	3	U	<10	The tree is infected with Ash Dieback and is in significant decline.	Fell The tree to ground level.	2.9	26
T34	Laburnum	Y	430	1	6	2	3	3	3	3	B1	20+		Lost for development, replace within landscape plan	5.2	84
T35	Yew	Y	224	5	4	0	2	2	2	1	B2	40+		Lost for development, replace within landscape plan	2.7	23
T36	Yew	Y	295	1	7	2	2	2	3	3	B2	40+		Lost for development, replace within landscape plan	3.5	39
T37	Yew	Y	224	5	4	0	1	2	2	2	B2	40+		Lost for development, replace within landscape plan	2.7	23
T38	Cherry	EM	346	3	5	2	5	4	4	4	B1	40+		Lost for development, replace within landscape plan	4.2	54
T39	Ash	Y	300	1	8	2	4	3	4	3	U	<10	The tree is infected with Ash Dieback and is in significant	Fell The tree to ground level.	3.6	41
T40	Ash	Y	275	1	8	2	3	3	3	3	C1	40+		Lost for development, replace within landscape plan	3.3	34
T41	Holly	Y	167	2	3	1	1	1	1	1	C1	40+		Lost for development, replace within landscape plan	2	13



TREE PROTECTION PLAN

Retention value key

(RETENTION VALUE A)

(RETENTION VALUE B)

(RETENTION VALUE C)

Root Protection Areas (RPA) & Construction Exclusion Zones (CEZ)

Root Protection Areas (RPA's) have been identified and are based on BS5837:2012. RPA's and Construction Exclusion Zones (CEZ) have been shown as detailed below. The CEZ shall act as the protective barrier for retained trees.

CEZ (Protective barrier)

RPA

Canopy extent

CEZ The CEZ's will require installation as shown on the TPP.

Special Measure Areas (SMA)

Special Measure Areas (SMA's) have been identified for construction in these areas and they have been shown as detailed below.

SMA. New permanent hard surfacing proposed. All surfacing to be no dig and installed under arboricultural supervision.

Refer to Arboricultural Implications Assessment (AIA) for details of recommended construction in SMA's.

NOTES

This drawing shall not be reproduced in black and white.
This drawing is produced for Planning and Construction

AMENITY
TREE CARE
Ltd

Client:

Infinity MIOC

Project:

MIOC Drive thru

Detail:

TREE CONSTRAINTS PLAN

Drawn By:

Date:

Scale:

SS

16.06.21

1/400@A3

Drg No:

Revision:

TR01

V1

4	Amended to suit Highways comments	JW	28.01
3	Amended to suit Topographical survey and Tenant feedback	JW	25.01
2	Starbucks Layout indicated	JW	13.01
1	Layout amended to suit Highways comments	JW	26.01
Rev	Description	By	Dt
Client	Infinity (MIOC) LLP		
Proj	Proposed Drive Thru, MIOC		
Eng	Planning - Proposed G		