

Arboricultural Impact Assessment (AIA)

MAG 401

Report prepared for Prepared for: Threadneedle
Curtis Ltd

Prepared by Simon Brain *Chartered arboriculturist*

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- 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 Manchester Airport Building 401.
- 1.3 This Arboricultural Implications Assessment (AIA) is based on the proposed developments as shown on the Proposed Site General Arrangements (AECOM) 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:

- Rising main connection to Wilmslow Old Road in the vicinity of retained trees, require tree removal (to support the stated aims of the woodland management plan)
- Installation of proposed development infrastructure requiring tree removal

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

2.3.1 Rising main connection to Wilmslow Old Road in the vicinity of retained trees, require tree removal (to support the stated aims of the woodland management plan).

The rising main connection for this scheme shall connect to Wilmslow Old Rd through the woodland having a direct and indirect impact on the trees located within the excavation easement.

A number of trees in G5 (3no.) are required to be removed for the direct impact of the drainage position. 4no. trees are located in such proximity to the works that excavations are likely to render these trees vulnerable to windthrow and therefore they are due to be pollarded for nature conservation thereby supporting the woodland management aim of creation of standing deadwood, they are: 3no trees in G5 and T34. In addition to these trees T35 and T33 (Cat U) are currently standing dead and hence they represent a safety concern to site users. It is considered that if they were to be pollarded to 6m stems the safety risk to site users would be acceptable and the stated woodland management aims are also supported.

Due to the potential impact on retained trees RPA a designated Special Measure Area has been provided throughout the entire excavation easement and all works in this area shall be monitored by an Arboricultural Clerk of Works to assess any potential adverse impacts on safety of those trees currently proposed for retention for example G5/G6/G7. A combination of air spade and hand excavation is needed in the RPA / SMA areas.

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

- T1-T5, T6, T18, T19, T20, G1 (9no trees), G5 (3no trees)

The following trees require pruning works (pollarding and bat box installation):

T7, T16, T17, T21, T22, T33-35.

A total of 21 trees removed and 8 to be pruned / pollarded.

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. The woodland is protected by the NERC Act as priority habitat designated by the Secretary of State.

4.0 Trees to be retained

4.1 The following trees have been identified for retention:

T8-T15, T23-32, T36, (G1 remaining trees not removed for works), G2, G3, G4, G5 (remaining trees not removed for works), G6, G7, G8.

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 effect 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 due to nature of commercial scheme

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 No new surfacing is required.

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 excavations near retained trees in order to prompt site supervision and wider protective measures when excavations are installed. The CEZ must be installed as signed off as fit for purpose before any other works commence on site.

- 9.3 SMA applies for the monitoring of the excavations required for the drainage and the works in the SMA must be overseen by an Arboricultural Clerk of Works.

10.0 Site supervision and monitoring

- 10.1 Where a tree has been delineated on the TPP as requiring retention in SMA there will be a requirement to oversee construction operations in these areas.
- 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 available on site at all times 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 significant arboricultural assets will be needed as the site is protected by Natural Environment and Rural Communities Act 2006.

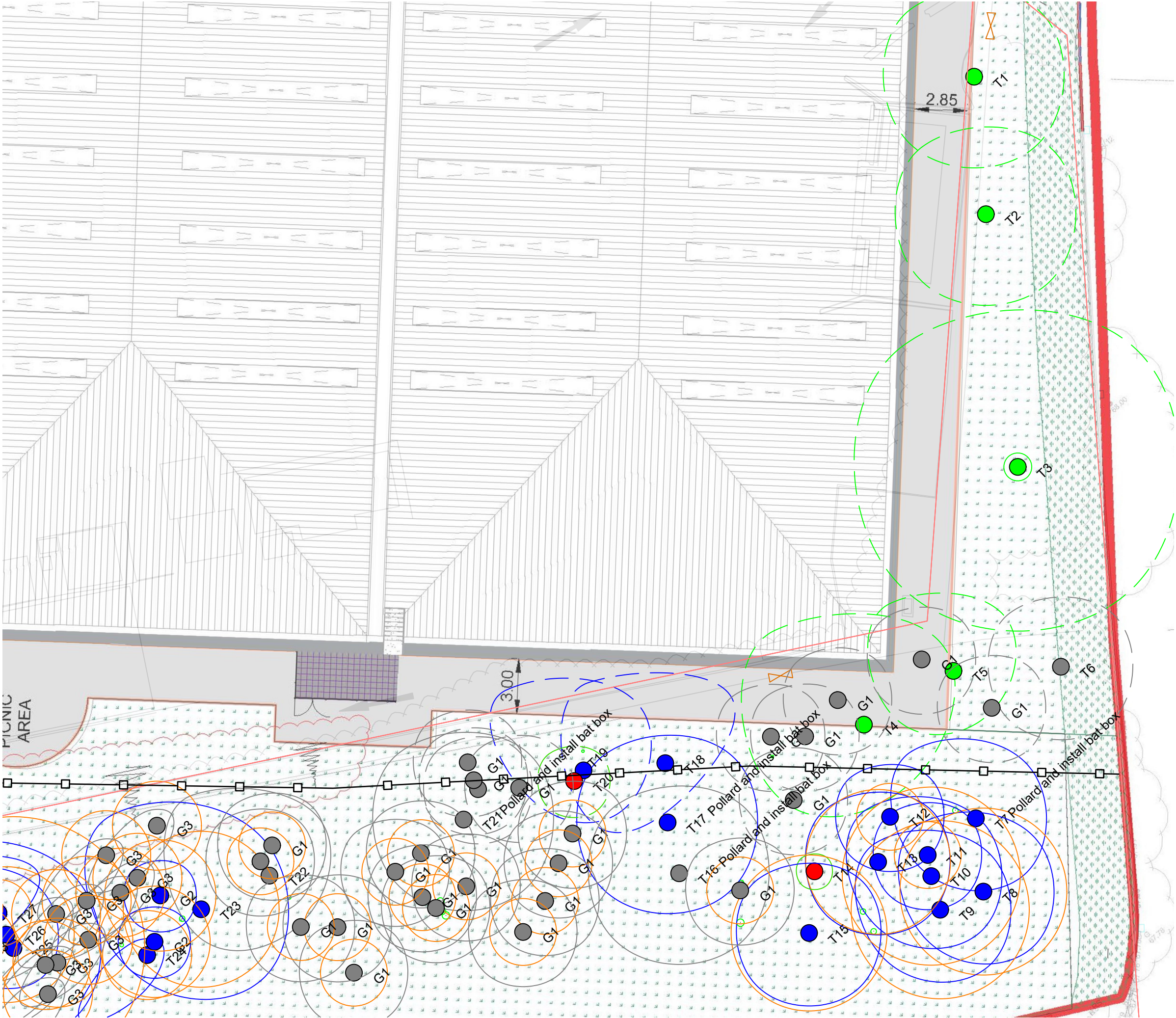
It is considered that the successful establishment of replacement trees referred to in the Woodland Management Plan shall mean an improvement in the long term wider visual public amenity associated with the trees on these sites.

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.

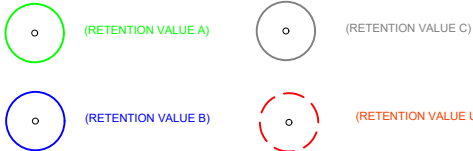
- 14.2 It is my professional opinion as an arboriculturist a harmonious balance of retained and removed trees has been achieved and that balance contributes to the stated aim of woodland management which.
- 14.3 A significant improvement in the long term condition of the woodland has been demonstrated through the Biodiversity Assessment, use of DEFRA biodiversity metric and supported by the Woodland Management Plans for this site.

Appendix 1 Tree Protection Plans



TREE PROTECTION PLAN

Retention value key



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

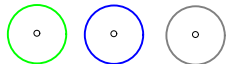
Root Protection Areas (RPA's) have been identified and are based on BS5837:2012. RPA's and Construction Exclusion Zones (CEZ) have been shown as detailed below. The CEZ shall act as the protective barrier for retained trees.

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

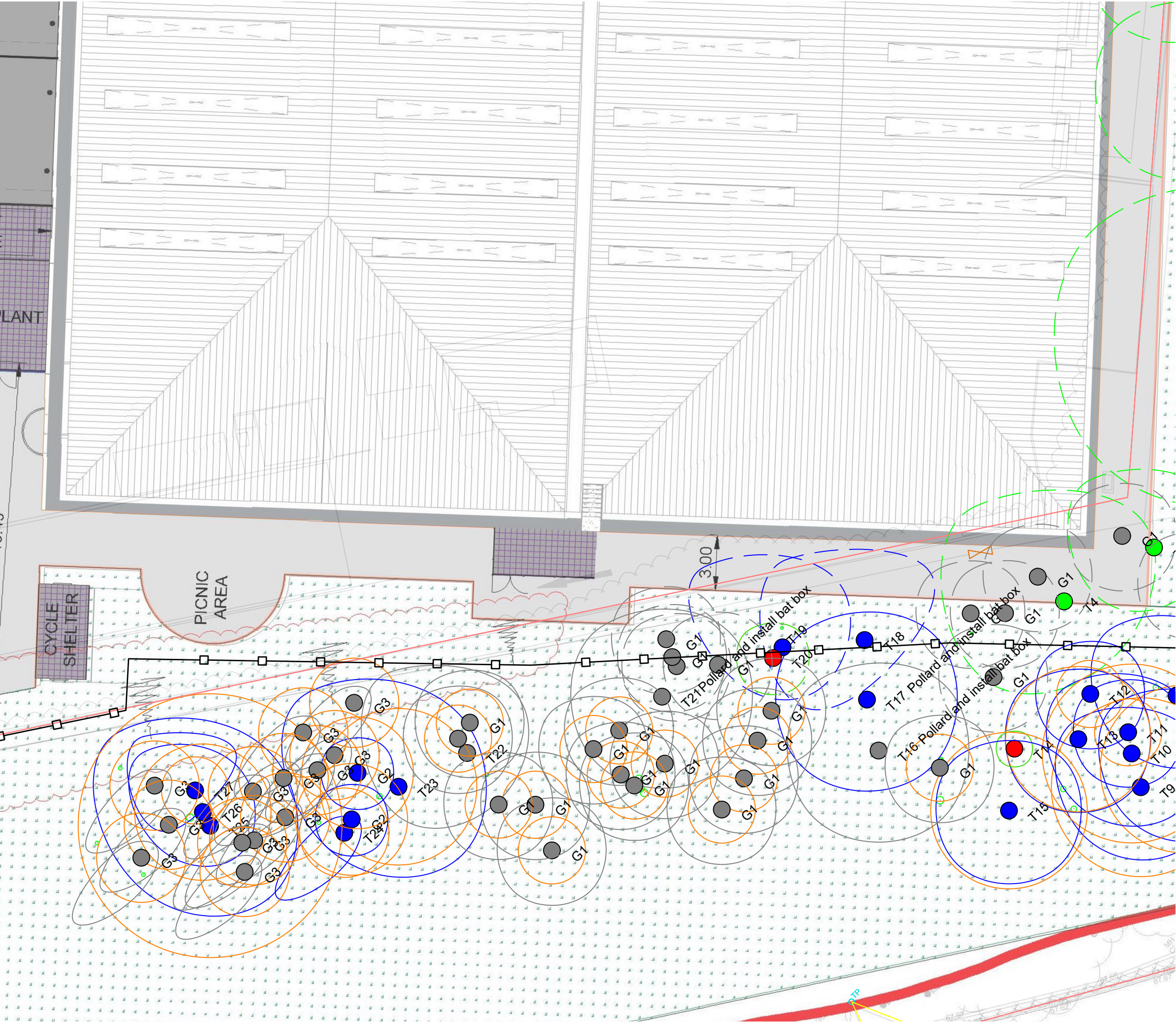
REMOVED TREES SHOWN DASHED



POLLARDED TREES SHOWN SOLID (NO RPA)
Bat Boxes required

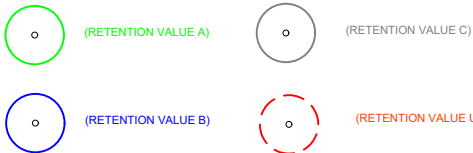


Client:			
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Project:			
MAG 401			
Detail:			
TREE PROTECTION PLAN - Overview			
Drawn By:	Date:	Scale:	
SB	25.08.2022	1:100@A3	
Drg No:	Revision:		
TR-01	V1		



TREE PROTECTION PLAN

Retention value key



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

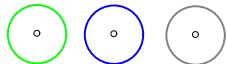
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CEZ The CEZ's will require installation as shown on the TPP.

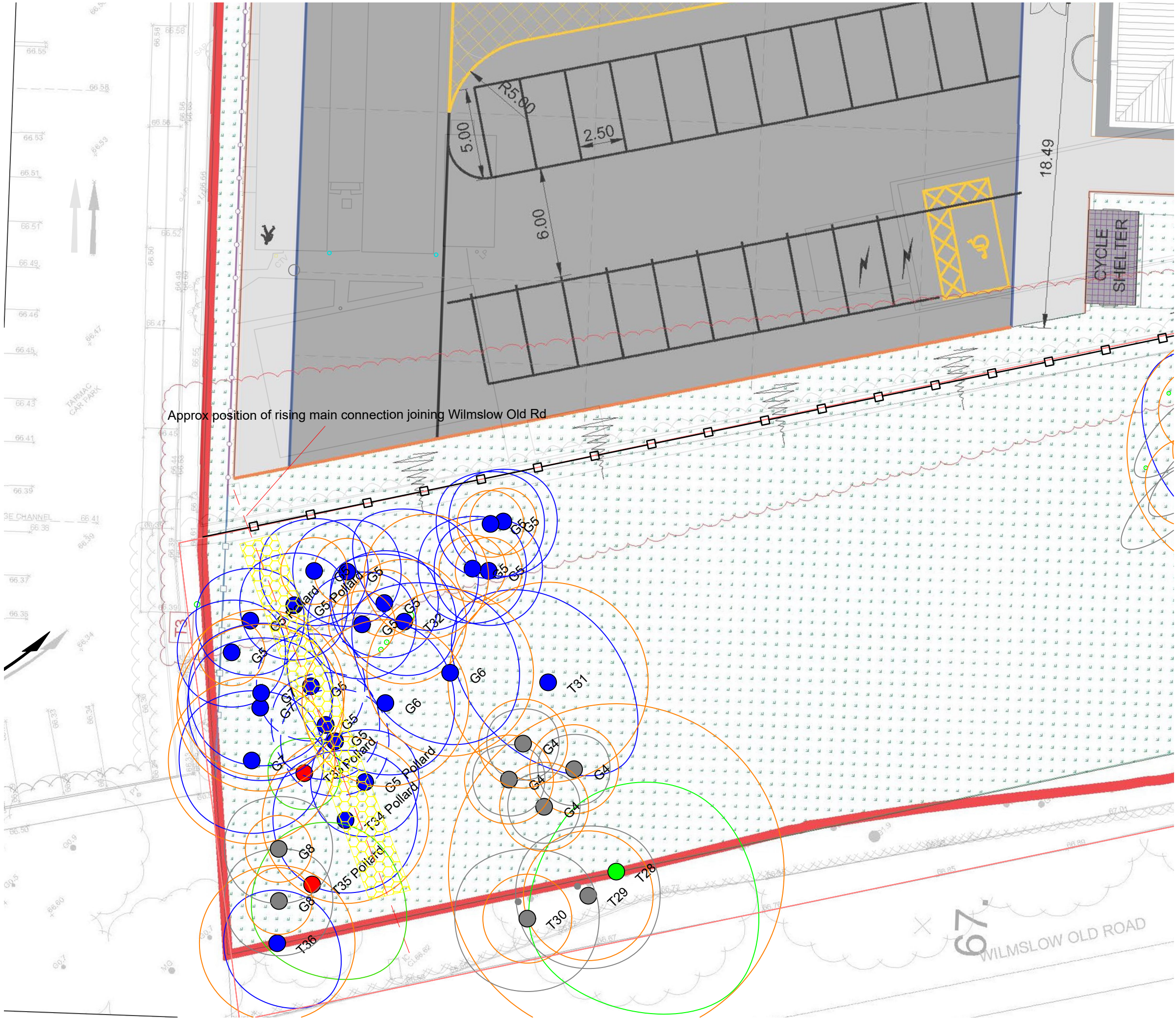
REMOVED TREES SHOWN DASHED



POLLARDED TREES SHOWN SOLID (NO RPA)
Bat Boxes required



Client:			
MAG			
Project:			
MAG 401			
Detail:			
TREE PROTECTIONS PLAN - Overview			
Drawn By:	Date:	Scale:	
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Drg No:		Revision:	
TR-01		V1	



TREE PROTECTION PLAN

Retention value key

(RETENTION VALUE A)

(RETENTION VALUE C)

(RETENTION VALUE B)

(RETENTION VALUE U)

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

REMOVED TREES SHOWN DASHED

POLLARDED TREES SHOWN SOLID (NO RPA)
Bat Boxes required

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

SMA. All excavations to be monitored on site by Arb. Clerk of Works.

Client:

MAG

Project:

MAG 401

Detail:

TREE PROTECTIONS PLAN - Overview

Drawn By:	Date:	Scale:
SB	25.08.2022	1:100@A3

Drg No:	Revision:
TR-01	V1

Tree No.	Common Name	Life Stage	Diameter(mm)	Stems	Height(m)	Crown Height(m)	North(m)	South(m)	East(m)	West(m)	Category	Estimated Remaining Life Expectancy (yrs)	Comments	Recommendations	RPA-R	RPA(m)
T1	Common Oak	M	620	1	12	3	5	5	5	5	A1	40+		Remove due to development impact	7.4	174
T2	Common Oak	M	580	1	12	3	5	5	5	5	A1	40+		Remove due to development impact	7	152
T3	Ash	M	683	4	15	3	9	9	9	9	A1	40+		Remove due to development impact	8.2	211
T4	Common Oak	M	670	1	15	3	7	4	6	6	A1	40+		Remove due to development impact	8	203
T5	Common Oak	M	336	2	15	3	5	3	4	4	A1	40+		Remove due to development impact	4	51
T6	Crataegus spp.	M	220	1	7	3	4	4	4	4	C1	40+		Remove for construction access and condition related reasons	2.6	22
T7	Ash	M	400	1	16	3	5	4	4	4	B2	40+		Pollard to create standing deadwood and fix bat box to tree stem	4.8	72
T8	Ash	M	375	1	16	3	5	4	4	4	B2	40+		Retain within CEZ	4.5	64
T9	Ash	M	400	1	16	3	5	4	4	4	B2	40+		Retain within CEZ	4.8	72
T10	Ash	M	400	1	16	3	5	4	4	4	B2	40+		Retain within CEZ	4.8	72
T11	Ash	Y	150	1	9	3	3	3	3	3	B2	40+		Retain within CEZ	1.8	10
T12	Ash	Y	150	1	9	3	3	3	3	3	B2	40+		Retain within CEZ	1.8	10
T13	Ash	M	325	1	17	3	4	4	4	4	B2	40+		Retain within CEZ	3.9	48
T14	Unknown	M	284	2	5	3	1	1	1	1	U	40+		Retain within CEZ	3.4	36
T15	Ash	M	350	1	15	3	4	4	4	4	B2	40+		Retain within CEZ	4.2	55
T16	Ash	M	450	1	15	3	5	5	5	5	C2	40+	Dieback in crown.	Pollard to create standing deadwood and fix bat box to tree stem	5.4	92
T17	Ash	M	400	1	15	3	5	5	5	5	B2	40+		Pollard to create standing deadwood and fix bat box to tree stem	4.8	72
T18	Common Oak	M	450	1	10	3	6	2	5	5	B2	40+		Remove due to development impact	5.4	92
T19	Crack Willow	M	325	1	12	3	6	3	4.5	3	B2	40+		Remove due to development impact	3.9	48
T20	Unknown	M	150	1	5	3	2	2	2	2	U	<10		Remove for safety reasons	1.8	10
T21	Ash	M	375	1	16	3	5	5	5	5	C2	<10	Dieback in crown.	Pollard to create standing deadwood and fix bat box to tree stem	4.5	64
T22	Crack Willow	M	718	4	15	3	6	3	4	5	C2	10+		Pollard to 8m for nature conservation reasons	8.6	233
T23	Crack Willow	M	350	1	16	3	7	5	5	5	B2	20+		Retain within CEZ	4.2	55
T24	Crack Willow	M	200	1	10	3	1	1	1	5	B2	20+		Retain within CEZ	2.4	18
T25	Crack Willow	M	590	3	16	3	7	5	5	5	B2	20+		Retain within CEZ	7.1	157
T26	Ash	M	305	2	10	3	4.5	3	3	3	B2	20+		Retain within CEZ	3.7	42
T27	Ash	Y	150	1	9	3	4	1	3	3	B2	20+		Retain within CEZ	1.8	10
T28	Common Oak	M	755	2	12	3	4	9	6	6	A2	20+		Rising main located outside RPA, install CEZ as shown on TPP	9.1	258
T29	Crataegus spp.	M	292	2	5	3	4	4	4	4	C1	20+		Unaffected, install CEZ	3.5	39
T30	Crataegus spp.	M	200	1	5	3	4	4	4	4	C1	20+		Unaffected, install CEZ	2.4	18
T31	Crack Willow	M	450	1	13	3	6	6	4	4	B2	20+		Unaffected, install CEZ	5.4	92
T32	Ash	M	280	1	10	3	4.5	3	3	3	B2	20+		Unaffected, install CEZ	3.4	35
T33	Crack Willow	M	375	1	15	3	2	2	2	2	U	<10		Pollard for nature conservation reasons	4.5	64
T34	Ash	M	375	1	15	3	4	4	4	4	B2	20+		Pollard for nature conservation reasons	4.5	64
T35	Ash	M	350	1	15	3	3	6	4	4	U	<10	Dieback in crown. Low bud/leaf density.	Pollard for nature conservation reasons	4.2	55
T36	Common Alder	M	350	1	15	3	3	4	3	3	B2	20+		Unaffected, install CEZ	4.2	55
G1	Ash Common Oak	Y	150	1	5	3	3	3	3	3	C2	10+		Remove 9no. Trees as shown on TPP	1.8	10
G2	Silver Birch	M	250	1	10	3	2	2	2	2	B2	20+		Retain within CEZ	3	28

Tree No.	Common Name	Life Stage	Diameter(mm)	Stems	Height(m)	Crown Height(m)	North(m)	South(m)	East(m)	West(m)	Category	Estimated Remaining Life Expectancy (yrs)	Comments	Recommendations	RPA-R	RPA(m)
G3	Crack Willow Silver Birch Common Oak Ash	Y	200	1	10	3	1	1	1	5	C2	20+		Retain within CEZ	2.4	18
G4	Crataegus spp. Hazel	Y	200	1	7	3	2	2	2	2	C1	20+		Unaffected, install CEZ	2.4	18
G5	Crack Willow Crataegus spp.	Y	150	1	6	3	3	3	3	3	B2	20+		3no. Trees on route drainage route require removal and 3no. Just off route requier pollarding. Remaining trees unaffected directly, install CEZ, arborist to supervise and document excavtions to monitor safety as RPA losses apply	1.8	10
G6	Crack Willow	M	375	1	15	3	6	4	4	4	B2	20+		Unaffected directly, but potentially indirectly affected by excavation therefore arborist to supervise and monitor on site excavations	4.5	64
G7	Ash Aspen	M	375	1	15	3	4	4	4	4	B2	20+		Unaffected directly, but potentially indirectly affected by excavation therefore arborist to supervise and monitor on site excavations	4.5	64
G8	Common Alder	Y	150	1	8	3	3	3	3	3	C2	20+		Unaffected, install CEZ	1.8	10