

Arboricultural Impact Assessment (AIA)

Report prepared for
Tramell Crow

NAME OF SITE:	Heywood, Tramell Crow
PROJECT No:	12363
CLIENT NAME:	Tramell Crow
SPECIALIST:	Amenity Tree Care Ltd
DATE PREPARED:	19.12.2024
PREPARED BY:	Paul Springett
REVIEWED BY:	Chris Gaughan
DATE REVIEWED:	19.12.2024
VERSION CONTROL:	Version 2

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1.0 Introduction

1.1 Instruction, Scope, Methodology, Mitigation & Limitations

- 1.2 My name is Paul Springett with 17 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 Heywood, Tramell Crow.
- 1.3 This Arboricultural Implications Assessment (AIA)v2 is based on the updated proposed developments as shown on the Proposed Site 21157-ASA-00-ZZ.ZZ-D-A-0043_(S3-P09)_PROPOSED SITE LAYOUT as drawn by Ashton Smith 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:

- Access arrangements and new surfacing (including existing surface removal) in the vicinity of retained trees.
- Installation of proposed development infrastructure requiring tree removal.
- Installation of retaining walls requiring tree removal.
- installation of attenuation ponds requiring tree removal.

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

2.3.1 Access alignments and new surfacing (including existing surface removal) in the vicinity of retained trees.

- A new highways access road is in the RPA of T27, T28, T29, T30, T31, T32, G14, T35, T36, T37, T38, T39, T40, and T41 as shown in Fig1 below.

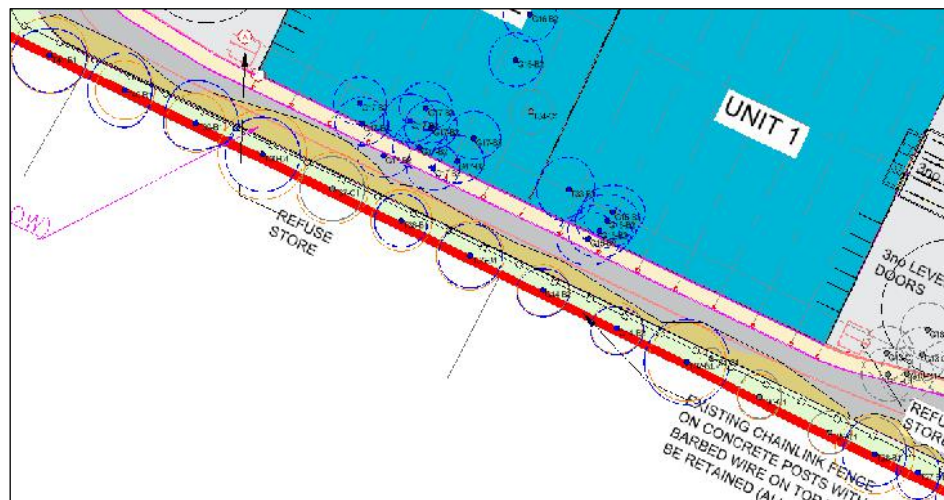


Fig.1

- A 5m high acoustic fence, including level changes and boundary treatment works is in the RPA of G28 and sections of G33 as shown in Fig 2 and Fig 3 below. Tree removals are required and are to be determined in full under ACOW (Arboricultural Clerk Of Works).

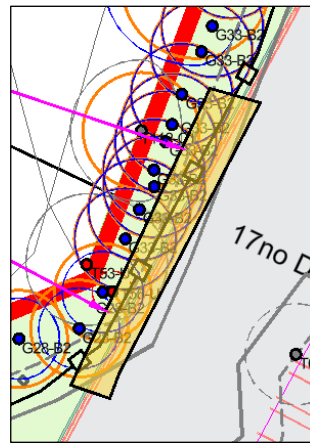


Fig.2

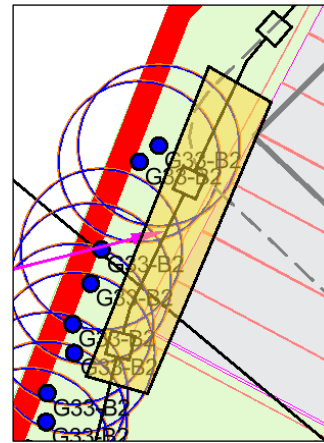


Fig.3

- A new retaining wall in the RPA of G38 as shown in Fig 4 below.

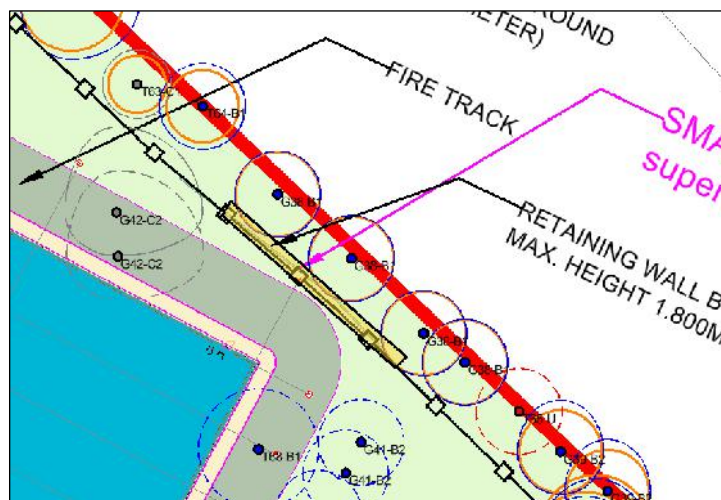


Fig.4

All of the above are designed within a designated Special Measure Area (SMA) and construction activities should be undertaken under ACOW supervision. The following will need to be reviewed for these areas-

- 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.

Typical no dig construction types 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 more than 25cm of excavation for top soil preparation only.
- Vehicle access routes are constructed and finished where possible to the agreed specifications before any other general building activity commences on site.
- Cellular confinement systems 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 where achievable.
- Typically, a confinement system of a minimum 150mm in depth is used.
- Should edge restraints be required, they shall be secured by means of small metal ties approximately 50cm+ long at appropriate intervals.
- Cellular confinement systems 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 whom 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 specifications if 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 vehicle access routes where plant 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 access requires the removal of the following tree references:

- T3, T4, T5, T6, G5, T14, T15, T17, G9, G12, T18, T19, T20, T21, T22, T23, T26, G13, G15, T33, T34, G16, G17, T51, G31, T59, G32, T60, G35, T67, G41, T68, G42, T69, T70, T71, T72, T73, T74, G43, T76, T77, T78, T79, T80, T81, T82, T83, T84, T85, T86, T87, T88, T89, T90, T91, T92, T93, T94, T95, G23 (partial removal), G44 (partial removal), G45, G46, G49, G50, T103, G51, G52, T104, G53, T105, G54, G56, G57, G58, T107, G59, G60, T108, T109, T110, G61, T111, T114.

Tree No.	Latin name	Life Stage	Diameter (cm)	Stem Count	Height (m)	North	South	East	West	Category	Estimated Remaining Life Expectancy	Pick Comments	Comments	Recommendations Following AIA	RPN (m)	RPA (m)
T1	Acer pseudoplatanus (Sycamore)	M	470	1	14(3)	5	5	5	4	61	40+		Minor crown deadwood over the public path.	Remove for highway access	5.6	95.95
T4	Acer pseudoplatanus (Sycamore)	M	500	1	10(1)	6	6	7	6	61	40+		Included bark present in the main urban at 3m above ground level.	Remove for highway access	7.08	137.5
T5	Acer pseudoplatanus (Sycamore)	M	320	1	10(2)	7	5	3	9	61	40+			Remove for highway access	6.64	244.62
T6	Acer pseudoplatanus (Sycamore)	M	630	1	14(3)	7	8	8	7	61	40+			Remove for highway access	7.32	108.36
T7	Prunus padus (Sweet Birch)	M	300	1	8(2)	7	6	3	7	61	40+		Four chips & form. Included in crown.	Remove for highway access	3.84	40.29
T14	Chamaecyparis lawsoniana (Lawson Cypress)	M	300	7	10(1)	4	4	4	4	61	20+		Stem divides below 1.5m. Included bark present in fork.	Remove for highway access	9.53	285.36
T15	Chamaecyparis lawsoniana (Lawson Cypress)	M	750	1	10(2)	6	4	4	5	61	20+			Remove for attenuation pond	9	254.5
T17	Sorbus aucuparia (Rowan)	DM	200	1	7(2)	3	3	3	3	61	20+			Remove for highway access	2.4	16.1
G9	Prunus betula (Silver Birch), Salix caprea (Goat Willow)	DM	320	4	10(2)	3	3	3	3	61	20+			Remove for highway access	2.4	16.1
G12	Acer pseudoplatanus (Sycamore)	M	480	1	10(1)	5	5	5	5	61	20+			Remove for development	5.88	108.63
T18	Salix purpurea (Weeping Willow)	DM	200	1	7(2)	1	4	2	2	61	20+		Leaning South.	Remove for development	2.52	19.95
T19	Arcutia hypocaustum (Horse Chestnut)	M	750	1	10(2)	7	7	8	7	61	20+			Remove for development	6.76	245.11
T20	Corylus heterophylla (Hazel)	DM	400	1	10(2)	4	4	4	4	61	20+			Remove for development	4.8	72.39
T21	Prunus sylvatica (Scots Pine)	DM	350	3	10(1)	4	1	5	3	61	20+		Leaning East.	Remove for development	3.12	26.39
T22	Acer platanoides (Norway Maple)	DM	400	1	10(2)	5	5	5	5	61	40+			Remove for development	5.52	95.76
T23	Corylus heterophylla (Hazel)	DM	400	1	10(2)	4	4	4	4	61	40+			Remove for highway access	4.8	72.39
T26	Acer pseudoplatanus (Sycamore)	M	600	1	10(2)	8	6	7	7	61	40+			Remove for highway access	5.88	245.32
T27	Acer pseudoplatanus (Sycamore)	M	400	1	14(3)	5	5	4	4	61	40+			Remove for highway access	5.28	87.59
T28	Acer pseudoplatanus (Sycamore)	M	600	1	14(2)	7	6	6	6	61	40+			Remove for highway access	7.44	175.82
G13	Fraxinus excelsior (Ash), Corylus betulus (Horsebean)	M	500	1	10(2)	5	5	5	5	61	20+		Mixed species group with Ash and Horsebean. Ash trees have deadwood present throughout the canopy.	Remove for development	6	113.11
T29	Acer pseudoplatanus (Sycamore)	DM	300	1	10(2)	4	4	4	4	61	20+		Columnar stem at 2.5m from ground level. Historical pruning wounds which have not included situated around the main union.	Remove for development	4.08	52.3
T30	Acer pseudoplatanus (Sycamore)	SM	350	1	10(2)	5	4	4	4	61	20+		Deadwood present throughout the crown.	Remove for development	4.2	55.42
T31	Prunus avium (Wild Cherry)	DM	170	1	4(1)	2	2	2	2	61	10+		Tree not picked up on the tips, plotted by eye by the surveyor on site.	Remove for development	2.04	11.08
T32	Acer pseudoplatanus (Sycamore)	M	600	1	10(2)	8	8	8	8	61	20+		Deadwood present throughout the crown.	Remove for development	7.32	108.36
G14	Acer pseudoplatanus (Sycamore)	M	400	1	10(2)	4	5	5	5	61	20+		K2 Sycamore with deadwood present throughout the crown.	Remove for development	4.8	72.39
G15	Corylus betulus (Horsebean)	M	500	1	10(2)	5	5	6	6	61	20+		Horsebean group with one Ash tree present.	Remove for development	6.6	136.87
T33	Acer platanoides (Norway Maple)	DM	400	1	10(2)	5	5	5	5	61	20+			Remove for development	5.76	108.36
T34	Corylus betulus (Horsebean)	SM	380	1	10(2)	4	4	4	4	61	10+		Decay present on stem.	Remove for development	4.56	65.33
T35	Corylus betulus (Horsebean)	M	500	1	14(2)	5	5	5	5	61	20+		Linear group of Horsebeans. DBH ranges from 100mm-150mm.	Remove for development	6.6	146.87
G17	Maple (Fraxinus excelsior (Ash), Corylus betulus (Horsebean), Fagus sylvatica (Beech))	M	500	1	14(2)	5	4	5	5	61	40+		Mixed species group. DBH Ranges from 220mm-700mm.	Remove for development	6	113.11
T36	Acer pseudoplatanus (Sycamore)	M	500	1	10(2)	6	6	6	6	61	40+			Remove for development	6.36	127.09
T38	Acer pseudoplatanus (Sycamore)	M	480	1	10(2)	5	5	5	5	61	40+			Remove for development	5.76	104.24
T37	Acer pseudoplatanus (Sycamore)	M	500	1	10(2)	6	6	6	6	61	10+		Declining.	Remove for development	6.72	145.89
T38	Acer pseudoplatanus (Sycamore)	M	700	1	14(3)	7	7	7	7	61	40+			Remove for development	8.4	221.7
T39	Acer pseudoplatanus (Sycamore)	M	400	1	14(3)	8	5	8	6	61	40+			Remove for development	5.52	95.76
T40	Acer pseudoplatanus (Sycamore)	M	400	1	10(2)	7	7	7	7	61	40+			Remove for development	5.52	95.76
T41	Acer pseudoplatanus (Sycamore)	M	600	1	10(2)	5	7	7	7	61	40+		Optimistic on stem.	Remove for development	7.2	160.88
T51	Corylus betulus (Horsebean)	M	400	1	10(2)	5	4	4	4	61	40+			Remove for development	5.88	108.63
G13	Acer pseudoplatanus (Sycamore), Salix caprea (Goat Willow)	DM	250	3	9(1)	4	4	4	4	61	20+		Partial removal of group for the new proposed retaining wall. Install C2 as per T20 for remainder of group.	Remove for development	5.2	84.96
G16	Salix caprea (Goat Willow)	M	400	4	10(2)	8	8	6	8	61	20+		Stem divides at ground level, included bark present in fork.	Remove single tree from the group as shown on T20. Install C2 as per T20 for remainder of the group.	0.6	288.27
G18	Prunus sylvatica (Scots Pine)	M	400	1	10(2)	4	4	4	4	61	40+			Remove for development	4.8	72.39
G19	Acer pseudoplatanus (Sycamore)	M	400	1	14(2)	6	6	6	6	61	40+			Remove for development	4.8	72.39
T52	Acer platanoides (Norway Maple)	M	400	1	14(2)	6	6	6	6	61	40+			Remove for development	7.32	175.82
G22	Betula pendula (Silver Birch), Salix caprea (Goat Willow)	DM	150	3	7(1)	4	4	4	4	61	20+			Remove for development	3.12	30.39
T60	Acer pseudoplatanus (Sycamore)	DM	300	1	10(2)	5	5	5	5	61	40+			Remove for development	3.6	45.72
G23	Prunus sylvatica (Scots Pine)	M	400	1	10(2)	5	5	5	5	61	40+			Remove for development	5.04	79.81
G25	Salix caprea (Goat Willow)	DM	200	3	6(1)	4	4	4	4	61	20+			Remove for development	4.15	54.11
T67	Arcutia hypocaustum (Horse Chestnut)	DM	750	1	10(2)	7	7	7	7	61	20+		Carly on stem. Included bark present in fork.	Remove for development	8.52	228.08
G41	Acer platanoides (Norway Maple)	SM	320	1	10(2)	5	5	5	5	61	40+			Remove for development	3.96	49.27
T68	Arcutia hypocaustum (Horse Chestnut)	M	600	1	10(2)	7	7	7	7	61	20+			Remove for development	7.8	195.15
G42	Populus tremula (Alder)	M	600	1	17(3)	10	5	10	6	61	10+		Leaning North. Decay present on stem.	Remove for highway access	7.8	195.15
T69	Betula pendula (Silver Birch)	M	400	1	10(2)	8	7	8	9	61	20+			Remove for highway access	5.4	91.62
T70	Populus tremula (Alder)	M	600	1	10(2)	10	3	6	9	61	10+		Leaning South. Decay present on stem.	Remove for highway access and attenuation pond	7.32	108.36
T71	Fraxinus excelsior (Ash)	SM	300	3	10(2)	4	6	4	4	61	10+		Leaning South. Stem divides at ground level. Included bark present in fork.	Remove for development	5.82	108.63
T72	Betula pendula (Silver Birch)	M	400	1	14(2)	6	8	8	1	61	10+		Leaning North-East. Decay present on stem.	Remove for development	4.8	72.39
T73	Fraxinus excelsior (Ash)	M	400	1	14(2)	4	6	7	5	61	40+		Decay in crown.	Remove for development	4.8	72.39
T74	Betula pendula (Silver Birch)	M	400	1	10(2)	7	5	5	5	61	20+		Decay in crown.	Remove for development	4.82	76.36
G43	Fraxinus excelsior (Ash)	M	400	1	10(2)	4	6	4	4	61	20+		Decay in crown.	Remove for development	4.82	76.36
T76	Acer pseudoplatanus (Sycamore)	DM	380	1	9(2)	6	6	6	6	61	40+		Decay in crown.	Remove for development	4.56	65.33
T77	Acer pseudoplatanus (Sycamore)	DM	300	1	9(2)	4	4	4	4	61	40+		Decay in crown.	Remove for development	4.2	44.42
T78	Acer pseudoplatanus (Sycamore)	DM	380	1	9(2)	2	1	2	2	61	40+		Decay in crown.	Remove for development	2.34	14.86
T79	Acer pseudoplatanus (Sycamore)	DM	300	1	9(2)	2	1	2	2	61	40+		Decay in crown.	Remove for development	2.34	14.86
T80	Fraxinus excelsior (Ash)	M	400	1	14(2)	5	6	4	6	61	20+			Remove for development	5.52	95.76
T81	Arcutia hypocaustum (Horse Chestnut)	M	500	1	10(2)	7	4	6	6	61	20+			Remove for development	6.72	145.89
T82	Acer pseudoplatanus (Sycamore)	DM	300	1	10(2)	5	5	5	5	61	20+			Remove for development	4.8	65.39
T83	Acer pseudoplatanus (Sycamore)	SM	300	1	9(2)	3	5	5	3	61	20+			Remove for development	3.6	45.72
T84	Acer pseudoplatanus (Sycamore)	DM	200	1	7(1)	3	4	3	3	61	20+			Remove for development	2.4	30.1
T85	Acer pseudoplatanus (Sycamore)	M	320	1	9(2)	4	4	4	4	61	20+		Tree not picked up on the tips, plotted by eye by the surveyor on site.	Remove for development	2.52	19.95
T86	Sorbus aucuparia (Rowan)	DM	300	1	6(2)	3	3	3	3	61	20+			Remove for development	2.16	14.86
T87	Sorbus aucuparia (Rowan)	SM	120	2	5(1)	2	2	2	2	61	20+			Remove for development	2.04	13.08
T88	Acer platanoides (Norway Maple)	M	400	1	14(2)	6	6	6	6	61	20+			Remove for development	7.32	87.59
T89	Prunus avium (Wild Cherry)	SM	380	1	8(2)	6	5	5	5	61	20+			Remove for development	4.68	68.82
T90	Acer pseudoplatanus (Sycamore)	DM	300	1	7(1)	5	6	5	5	61	20+			Remove for development	3.36	35.47
T91	Acer pseudoplatanus (Sycamore)	M	400	1	14(2)	7	7	7	7	61	20+			Remove for highway access	5.28	87.59
T92	Fraxinus excelsior (Ash)	DM	300	1	9(2)	5	7	7	6	61	20+		Decay in crown.	Remove for highway access	2.46	38.59
T93	Acer pseudoplatanus (Sycamore)	M	400	1	10(2)	7	6	4	7	61	20+			Remove for highway access	5.76	108.24
T94	Acer pseudoplatanus (Sycamore)	M	500	1	10(2)	5	7	7	6	61	20+			Remove for highway access	6	113.11
T95	Acer platanoides (Norway Maple)	M	500	1	14(3)	8	6	8	8	61	40+			Remove for highway access	6.24	122.34
G44	Populus alba (White Poplar), Acer pseudoplatanus (Sycamore)	M	500	1	10(2)	6	6	6	6	61	20+			Partial removal of group install C2 for highway access. Install C2 as per T20 for remainder of the group.	6	113.11
G45	Acer pseudoplatanus (Sycamore)	DM	470	1	12(1)	5	5	5	5	61	40+			Remove for development	5.64	98.95
G46	Acer pseudoplatanus (Sycamore), Fraxinus excelsior (Ash), Betula pendula (Silver Birch)	DM	380	1	10(2)	4	4	4	4	61	40+		DBH Range from 200mm-300mm.	Remove for development	4.68	68.82
G49	Acer pseudoplatanus (Sycamore), Betula pendula (Silver Birch), Corylus betulus (Horsebean)	SM	400	1	10(2)	5	5	5	5	61	20+			Remove for development	5.4	91.62
G50	Fraxinus excelsior (Ash), Corylus betulus (Horsebean)	M	400	1	10(2)	5	5	5	5	61	20+			Remove for development	5.4	91.62
T100	Acer pseudoplatanus (Sycamore), Fagus sylvatica (Beech), Arcutia hypocaustum (Horse Chestnut)	M	400	1	7(1)	5	5	5	5	61	20+			Remove for development	4.32	58.64
G52	Acer pseudoplatanus (Sycamore)	DM	300	1	10(2)	4	4	4	4	61	20+		DBH Range 100mm-400mm.	Remove for development	4.8	72.39
G53	Acer pseudoplatanus (Sycamore)	SM	300	1	10(2)	4	4	4	4	61	20+		DBH Range 200mm-300mm.	Remove for development	4.2	55.42
T104	Betula pendula (Silver Birch)	SM	270	1	9(2)	3	3	3	3	61	20+			Remove for development	4.44	61.36
G54	Fraxinus excelsior (Ash)	M	400	1	14(2)	6	6	3	6	61	20+			Remove for development	5.52	88.66
T105	Corylus betulus (Horsebean)	M	740	1	14(2)	7	7	7	7	61	20+			Remove for development	8.88	247.76
G54	Acer pseudoplatanus (Sycamore), Corylus betulus (Horsebean)	SM	400	1	10(2)	4	4	4	4	61	20+			Remove for development	5.04	79.81
G56	Acer platanoides (Norway Maple), Acer pseudoplatanus (Sycamore), Arcutia hypocaustum (Horse Chestnut), Fraxinus excelsior (Ash)</															

4.1 The following trees have been identified for removal due to their condition (Category U):

- T13, G8, T53, T55, T56, T58, T65, T75

Tree No.	Latin name	Life Stage	Diameter(mm)	Stem Count	Height(m) / Crown Height (m)	North(m)	South(m)	East(m)	West(m)	Category	Estimated Remaining Life Expectancy (yrs)	Pick Comments	Comments	Recommendations Following AIA	RPA(m)	RPA(m)
T13	Prunus padus (Bird Cherry)	EM	200	1	6(1)	2	2	2	2	U	<10	Major deadwood in crown.	The tree is displaying significant signs of decline.	Remove for condition	2.4	18.1
G8	Sorbus aucuparia (Rowan)	EM	180	1	6(2)	2	1	3	1	U	<10	Declining.		Remove for condition	2.85	14.65
T53	Acer pseudoplatanus (Sycamore)	M	450	1	13(2)	7	6	8	6	U	20+		Decay present on the West side of main stem.	Remove for condition	5.4	91.62
T55	Pinus sylvestris (Scots Pine)	M	300	1	4(1)	1	1	4	1	U	<10			Remove for condition	3.6	40.72
T56	Pinus sylvestris (Scots Pine)	M	250	1	7(1)	2	2	2	2	U	<10			Remove for condition	3	28.28
T58	Populus serotina (Hybrid Black Poplar)	DM	750	1	6(1)	8	1	7	6	U	<10	Decay present on stem.	Failed at ground level. Split out stems leaning in pine group and neighbouring field.	Remove for condition	9	254.5
T65	Acer pseudoplatanus (Sycamore)	SM	400	1	8(2)	5	5	5	5	U	<10			Remove for condition	4.8	73.39
T75	Populus tremula (Alder)	M	510	1	14(2)	7	2	10	4	U	<10		Rootplate has lifted and the main stem has fractured. Leaning heavily to the North East.	Remove for condition	6.12	117.68

4.2 A total of 56 trees and 27 groups and 2 partial groups are identified to be removed for the direct impact of development as listed in section 2.3.2.

4.3 The remaining trees are due to be retained and protected as outlined on the TPP 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 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 There will be a requirement for a post construction management and maintenance plan for newly planted trees, and post construction monitoring of those trees which have SMA's. This could be conditioned at reserved matters stage.

7.0 Tree pruning to facilitate development and future pruning

7.1 There are requirements for minor pruning works to G33 to accommodate the boundary treatment and parking bays.

8.0 New surfacing and ground level modifications

8.1 New surfacing is required in RPA of trees. Refer to section 2.3.1 and appendix 3 for details of construction.

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 a combination of scaffold poles driven into the ground, rubber feet securely staked to the ground and panels secured in place with scaffold clamps. The CEZ will include signage conformant to BS5837 Standard in order to prompt site supervision where required and to ensure wider protective measures are undertaken.

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 in order 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 available on site at all times for inspection by a Council planning/Tree officer, or as required via planning condition.

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

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

4.0 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 that to achieve a harmonious balance of retained and removed trees that would be considered acceptable by the LPA.

Appendix 1 Survey sheets (updated as a result of AIA)

Tree No.	latin name	Life Stage	Diameter(mm)	Stem Count	Height(m) / Crown Height (m)	North(m)	South(m)	East(m)	West(m)	Category	Estimated Remaining Life Expectancy (yrs)	Pick Comments	Comments	Recommendations Following AIA	RPR(m)	RPA(m)
T1	Acer pseudoplatanus (Sycamore)	M	560	1	15(2)	7	6	7	4	B1	40+		Minor crown deadwood present over the public footpath.	Not affected by the development, install CEZ as per TPP.	6.72	141.89
T2	Acer pseudoplatanus (Sycamore)	M	430	1	14(3)	5	5	5	3	B1	40+		Minor crown deadwood over the public footpath.	Not affected by the development, install CEZ as per TPP.	5.16	83.66
T3	Acer pseudoplatanus (Sycamore)	M	470	1	14(3)	5	5	5	4	B1	40+		Minor crown deadwood over the public path.	Remove for highway access	5.64	99.95
T4	Acer pseudoplatanus (Sycamore)	M	590	1	15(3)	6	6	7	6	B1	40+		Included bark present in the main union at 3m above ground level.	Remove for highway access	7.08	157.5
T5	Acer pseudoplatanus (Sycamore)	M	720	1	15(3)	7	6	7	9	B1	40+			Remove for highway access	8.64	234.55
T6	Acer pseudoplatanus (Sycamore)	M	610	1	14(3)	7	8	8	7	B1	40+			Remove for highway access	7.32	168.36
G1	Acer pseudoplatanus (Sycamore)	EM	150	3	13(2)	4	4	4	4	C2	20+		Average DBH 150mm. 2 trees growing through the chain mailed fence line.	Not affected by the development, install CEZ as per TPP.	3.12	30.59
T7	Acer pseudoplatanus (Sycamore)	M	450	1	9(3)	6	6	4	5	B1	20+		Deadwood present throughout the canopy. Historical limb damage throughout the Eastern side of the canopy over the highway.	Not affected by the development, install CEZ as per TPP.	5.4	91.62
T8	Acer pseudoplatanus (Sycamore)	M	600	1	15(1)	8	8	8	8	B1	20+	Ivy on tree.	Measurements estimated due to no access.	Not affected by the development, install CEZ as per TPP.	7.2	162.88
T9	Acer pseudoplatanus (Sycamore)	M	700	1	16(4)	8	7	7	7	B1	40+			Not affected by the development, install CEZ as per TPP.	8.4	221.7
T10	Acer platanoides (Norway Maple)	EM	270	1	10(2)	5	2	5	5	C1	20+	Poor shape & form. Leaning North.		Not affected by the development, install CEZ as per TPP.	3.24	32.98
T11	Fraxinus excelsior (Ash)	M	690	1	17(3)	6	8	6	8	B1	20+	Dieback in crown.		Not affected by the development, install CEZ as per TPP.	8.28	215.41
T12	Acer pseudoplatanus (Sycamore)	M	550	1	15(2)	6	4	4	8	B1	40+			Not affected by the development, install CEZ as per TPP.	6.6	136.87
G2	Crataegus monogyna (Hawthorn),Cotoneaster frigidus (Cotoneaster),Chamaecyparis lawsoniana (Lawson Cypress)	EM	200	2	9(1)	3	1	3	3	C2	20+			Minor RPA incursion, Install CEZ as per TPP	3.4	36.32
G3	Chamaecyparis lawsoniana (Lawson Cypress)	M	750	1	16(3)	5	3	4	4	B2	40+	Included bark present in fork.		Not affected by the development, install CEZ as per TPP.	9	254.5
G4	Fraxinus excelsior (Ash)	M	500	1	15(3)	5	5	5	5	B2	20+		Ash group with deadwood present through out the canopies. DBH Range from 390 - 640.	Not affected by the development, install CEZ as per TPP.	6	113.11
T13	Prunus padus (Bird Cherry)	EM	200	1	6(1)	2	2	2	2	U	<10	Major deadwood in crown.	The tree is displaying significant signs of decline.	Remove for condition	2.4	18.1
G5	Prunus padus (Bird Cherry)	EM	320	1	8(2)	2	4	2	4	C2	20+	Poor shape & form. Dieback in crown.		Remove for highway access	3.84	46.33
T14	Chamaecyparis lawsoniana (Lawson Cypress)	M	300	7	16(1)	4	4	4	4	C1	20+	Stem divides below 1.5m. Included bark present in fork.		Remove for highway access	9.53	285.36
T15	Chamaecyparis lawsoniana (Lawson Cypress)	M	750	1	16(2)	6	4	4	5	C1	20+	Stem divides above 1.5m. Included bark present in fork.		Remove for attenuation pond	9	254.5
T16	Prunus padus (Bird Cherry)	EM	200	1	7(1)	2	2	4	1	C1	20+	Leaning East.		Not affected by the development, install CEZ as per TPP.	2.4	18.1
G6	Fraxinus excelsior (Ash),Acer pseudoplatanus (Sycamore),Sorbus aucuparia (Rowan),Aesculus hippocastanum (Horse Chestnut)	SM	500	1	12(1)	4	4	4	4	C2	20+		Mixed species group. DBH Ranges from 200 - 500 mm.	Not affected by the development, install CEZ as per TPP.	6	113.11
G7	Acer pseudoplatanus (Sycamore)	SM	500	1	13(4)	4	4	4	4	C2	20+		Historically pollarded at 7m above ground level.	Not affected by the development, install CEZ as per TPP.	6	113.11
T17	Sorbus aucuparia (Rowan)	EM	200	1	7(2)	3	3	3	3	C1	20+			Remove for highway access	2.4	18.1
G8	Sorbus aucuparia (Rowan)	EM	180	1	6(2)	2	1	3	1	U	<10	Declining.		Remove for condition	2.16	14.66
G9	Prunus lusitanica (Portugal Laurel),Salix caprea (Goat Willow)	EM	100	4	5(0)	3	3	3	3	C2	20+			Remove for highway access	2.4	18.1
G10	Acer pseudoplatanus (Sycamore)	M	450	1	12(2)	4	4	4	4	C2	20+		Historically pollarded at 7m. Ivy clad stems.	Not affected by the development, install CEZ as per TPP.	5.4	91.62
G11	Fraxinus excelsior (Ash),Crataegus monogyna (Hawthorn)	EM	150	2	6(1)	3	2	2	2	C2	20+		Mixed species ivy clad group consisting of ash and hawthorn.	Not affected by the development, install CEZ as per TPP.	2.54	20.27
G12	Acer pseudoplatanus (Sycamore),Fraxinus excelsior (Ash)	M	490	1	15(2)	5	5	5	5	B2	20+		Ash group with one sycamore present. DBH range 380-490mm.	Remove for development	5.88	108.63
T18	Crataegus monogyna (Hawthorn)	EM	210	1	7(2)	1	4	2	2	C1	20+	Leaning South.		Remove for development	2.52	19.95
T19	Aesculus hippocastanum (Horse Chestnut)	M	730	1	15(2)	7	7	8	7	B1	20+		Co dominant stem at 2m from ground level. Decay cavity situated on the southern side of the Eastern leaning stem at 3m from ground level.	Remove for development	8.76	241.11
T20	Cedrus libani atlantica (Atlantic Cedar)	EM	400	1	12(2)	4	4	4	3	B1	40+			Remove for development	4.8	72.39
T21	Pinus sylvestris (Scots Pine)	EM	150	3	10(2)	4	1	5	3	C1	20+	Leaning East.		Remove for development	3.12	30.59
T22	Acer platanoides (Norway Maple)	M	460	1	13(2)	5	5	5	5	B1	40+			Remove for development	5.52	95.74
T23	Cedrus libani atlantica (Atlantic Cedar)	SM	400	1	14(2)	4	4	4	4	B1	40+			Remove for highway access	4.8	72.39
T24	Acer pseudoplatanus (Sycamore)	M	650	1	15(2)	7	6	7	6	B1	40+	Ivy on tree.		Not affected by the development, install CEZ as per TPP.	7.8	191.16
T25	Fraxinus excelsior (Ash)	EM	210	1	12(2)	4	4	2	2	C1	20+			Not affected by the development, install CEZ as per TPP.	2.52	19.95
T26	Acer pseudoplatanus (Sycamore)	M	820	1	16(2)	8	8	7	7	B1	40+			Remove for highways widening	9.84	304.23
T27	Acer pseudoplatanus (Sycamore)	M	440	1	14(3)	5	5	4	4	B1	40+			SMA - Removal of existing road under arboricultural supervision (AcOW)	5.28	87.59
T28	Acer pseudoplatanus (Sycamore)	M	620	1	14(2)	7	6	6	6	B1	40+			SMA - Removal of existing road under arboricultural supervision (AcOW)	7.44	173.92
G13	Fraxinus excelsior (Ash),Carpinus betulus (Hornbeam)	M	500	1	15(2)	5	5	5	5	C1	20+		Mixed species group with Ash and Hornbeam. Ash trees have deadwood present throughout the canopies.	Remove for development	6	113.11

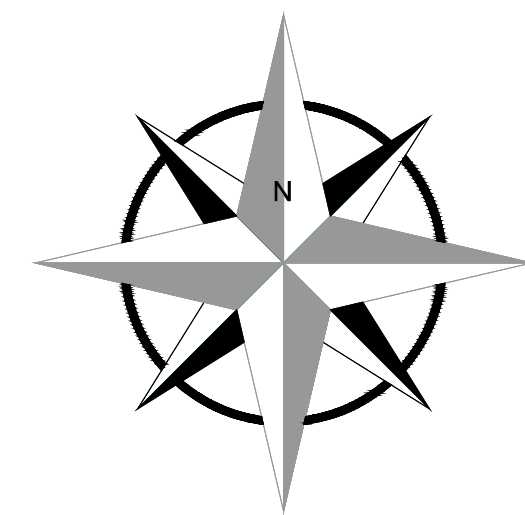
Tree No.	latin name	Life Stage	Diameter(mm)	Stem Count	Height(m) / Crown Height (m)	North(m)	South(m)	East(m)	West(m)	Category	Estimated Remaining Life Expectancy (yrs)	Pick Comments	Comments	Recommendations Following AIA	RPR(m)	RPA(m)
T29	Acer pseudoplatanus (Sycamore)	EM	340	1	12(2)	4	4	4	4	C1	20+		Codominant stem at 2.5m from ground level. Historoical pruning wounds which have not occluded situated around the main union.	SMA - Removal of existing road under arboricultural supervision (AcOW)	4.08	52.3
T30	Acer pseudoplatanus (Sycamore)	SM	350	1	13(2.5)	5	4	4	4	C1	20+		Deadwood present throughout the crown.	SMA - Removal of existing road under arboricultural supervision (AcOW)	4.2	55.42
T31	Prunus avium (Wild Cherry)	EM	170	1	4(1)	2	2	2	1	C1	10+	Tree not picked up on the topo, plotted by eye by the surveyor on site.		SMA - Removal of existing road under arboricultural supervision (AcOW)	2.04	13.08
T32	Acer pseudoplatanus (Sycamore)	M	610	1	16(2)	8	8	8	8	B1	40+		Deadwood present throughout the crown.	SMA - Removal of existing road under arboricultural supervision (AcOW)	7.32	168.36
G14	Acer pseudoplatanus (Sycamore)	M	400	1	13(3)	4	5	5	5	B2	20+		X2 Sycamores with deadwood present throughout the crown.	SMA - Removal of existing road under arboricultural supervision (AcOW)	4.8	72.39
G15	Carpinus betulus (Hornbeam)	M	550	1	13(2)	5	5	6	6	B2	20+		Hornbeam group with one Ash tree present.	Remove for development	6.6	136.87
T33	Acer platanoides (Norway Maple)	SM	480	1	12(2)	6	6	5	6	B1	40+			Remove for development	5.76	104.24
T34	Carpinus betulus (Hornbeam)	SM	380	1	11(2)	4	4	4	4	C1	10+	Decay present on stem.		Remove for development	4.56	65.33
G16	Carpinus betulus (Hornbeam)	M	550	1	13(1)	5	5	5	5	B2	20+		Linear group of hornbeams.DBH Ranges from 500mm-560mm.	Remove for development	6.6	136.87
G17	Acer platanoides (Norway Maple),Fraxinus excelsior (Ash),Carpinus betulus (Hornbeam),Fagus sylvatica (Beech)	M	500	1	14(2)	5	4	5	5	B2	40+		Mixed species group. DBH Ranges from 220mm-760mm.	Remove for development	6	113.11
T35	Acer pseudoplatanus (Sycamore)	M	530	1	13(2)	6	6	6	6	B1	40+			SMA - Removal of existing road under arboricultural supervision (AcOW)	6.36	127.09
T36	Acer pseudoplatanus (Sycamore)	M	480	1	12(3)	5	5	5	5	B1	40+			SMA - Removal of existing road under arboricultural supervision (AcOW)	5.76	104.24
T37	Acer pseudoplatanus (Sycamore)	M	560	1	13(3)	6	6	6	6	C1	10+	Declining.		SMA - Removal of existing road under arboricultural supervision (AcOW)	6.72	141.89
T38	Acer pseudoplatanus (Sycamore)	M	700	1	14(3)	7	7	7	7	B1	40+			SMA - Removal of existing road under arboricultural supervision (AcOW)	8.4	221.7
T39	Acer pseudoplatanus (Sycamore)	M	460	1	14(3)	8	5	8	6	B1	40+			SMA - Removal of existing road under arboricultural supervision (AcOW)	5.52	95.74
T40	Acer pseudoplatanus (Sycamore)	M	460	1	13(2)	7	7	5	7	B1	40+			SMA - Removal of existing road under arboricultural supervision (AcOW)	5.52	95.74
T41	Acer pseudoplatanus (Sycamore)	M	600	1	12(2)	5	7	7	7	B1	40+	Epicormics on stem.		SMA - Removal of existing road under arboricultural supervision (AcOW)	7.2	162.88
T42	Acer pseudoplatanus (Sycamore)	M	510	1	12(2)	5	6	6	6	B1	20+			Not affected by the development, install CEZ as per TPP.	6.12	117.68
T43	Acer pseudoplatanus (Sycamore)	M	450	1	13(2)	5	5	3	5	B1	40+			Not affected by the development, install CEZ as per TPP.	5.4	91.62
T44	Acer pseudoplatanus (Sycamore)	M	430	1	13(2)	6	5	4	6	B1	40+			Not affected by the development, install CEZ as per TPP.	5.16	83.66
T45	Acer pseudoplatanus (Sycamore)	M	460	1	12(2)	5	5	5	5	B1	40+			Not affected by the development, install CEZ as per TPP.	5.52	95.74
T46	Alnus glutinosa (Common Alder)	M	300	3	11(2)	4	5	4	2	B1	20+		Tree situated behind chain mail fence. Multi stemmed. Included bark present at the main unions 1m above ground level	Not affected by the development, install CEZ as per TPP.	6.24	122.34
G18	Crataegus monogyna (Hawthorn)	EM	200	1	5(1)	3	3	3	3	C2	20+	Tree not picked up on the topo, plotted by eye by the surveyor on site.		Not affected by the development, install CEZ as per TPP.	2.4	18.1
T47	Acer pseudoplatanus (Sycamore)	M	640	1	15(2)	7	7	7	7	B1	40+			Not affected by the development, install CEZ as per TPP.	7.68	185.32
G19	Acer pseudoplatanus (Sycamore),Chamaecyparis lawsoniana (Lawson Cypress)	M	250	1	10(1)	4	4	4	4	C2	40+		Prodominantly a conifer group with x1 Sycmore and Hawthorns.	Not affected by the development, install CEZ as per TPP.	3	28.28
T48	Acer pseudoplatanus (Sycamore)	M	710	1	14(2)	7	7	7	7	B1	40+			Not affected by the development, install CEZ as per TPP.	8.52	228.08
G20	Chamaecyparis lawsoniana (Lawson Cypress),Acer pseudoplatanus (Sycamore)	M	300	1	11(1)	4	4	4	4	C2	40+			Not affected by the development, install CEZ as per TPP.	3.6	40.72
T49	Chamaecyparis lawsoniana (Lawson Cypress)	M	300	1	1(1)	4	4	4	4	C1	40+			Not affected by the development, install CEZ as per TPP.	3.6	40.72
G21	Chamaecyparis lawsoniana (Lawson Cypress)	M	300	1	10(1)	4	4	4	4	C2	40+			Not affected by the development, install CEZ as per TPP.	3.6	40.72
T50	Acer pseudoplatanus (Sycamore)	M	360	1	1(1)	4	4	3	4	C1	40+			Not affected by the development, install CEZ as per TPP.	4.32	58.64
T51	Carpinus betulus (Hornbeam)	M	490	1	12(2)	5	4	4	4	B1	40+			Remove for new proposed retaining walll	5.88	108.63
G22	Acer pseudoplatanus (Sycamore)	M	480	1	12(2)	5	5	5	5	B2	40+			Not affected by the development, install CEZ as per TPP.	5.76	104.24
G23	Acer pseudoplatanus (Sycamore),Salix caprea (Goat Willow)	EM	250	3	9(1)	4	4	4	4	C2	20+			Partial removal of group for the new proposed retaining wall. Install CEZ as per TPP for remainder of group	5.2	84.96
G24	Salix caprea (Goat Willow)	EM	120	3	8(1)	3	3	3	3	C2	20+	Tree not picked up on the topo, plotted by eye by the surveyor on site.		Not affected by the development, install CEZ as per TPP.	2.5	19.64
G25	Pinus sylvestris (Scots Pine)	SM	430	1	14(1)	5	4	2	2	B2	40+		DBH Range 260-450mm.	Not affected by the development, install CEZ as per TPP.	5.16	83.66
G26	Salix caprea (Goat Willow)	M	400	4	13(1)	8	8	6	8	C2	20+	Stem divides at ground level. Included bark present in fork.		Remove single tree from the group as shown on TPP, install CEZ as per TPP for the remainder of the group	9.6	289.57
G27	Pinus sylvestris (Scots Pine)	M	400	1	13(2)	4	4	4	4	B2	40+			Not affected by the development, install CEZ as per TPP.	4.8	72.39
T52	Acer pseudoplatanus (Sycamore)	M	450	1	12(2)	5	3	3	6	B1	40+			Not affected by the development, install CEZ as per TPP.	5.4	91.62

Tree No.	latin name	Life Stage	Diameter(mm)	Stem Count	Height(m) / Crown Height (m)	North(m)	South(m)	East(m)	West(m)	Category	Estimated Remaining Life Expectancy (yrs)	Pick Comments	Comments	Recommendations Following AIA	RPR(m)	RPA(m)
G28	Pinus sylvestris (Scots Pine)	M	400	1	15(2)	4	4	4	4	B2	40+			SMA for RPA incursion for level change and boundary treatment works to be undertaken under supervision by AcOW. Trees with major roots affected will need to be removed. Patrial loss of G28 may be required. Install CEZ as perTPP to remainder of group	4.8	72.39
T53	Acer pseudoplatanus (Sycamore)	M	450	1	13(2)	7	6	8	6	U	10+		Decay present on the West side of main stem.	Remove for condition	5.4	91.62
T54	Prunus avium (Wild Cherry)	M	350	1	14(2)	7	6	6	8	B1	40+			Not affected by the development, install CEZ as per TPP.	4.2	55.42
T55	Pinus sylvestris (Scots Pine)	M	300	1	4(1)	1	1	4	1	U	<10			Remove for condition	3.6	40.72
T56	Pinus sylvestris (Scots Pine)	M	250	1	7(1)	2	2	2	2	U	<10			Remove for condition	3	28.28
T57	Acer pseudoplatanus (Sycamore)	M	590	1	14(2)	7	7	4.5	8	B1	40+	Ivy on tree.		Not affected by the development, install CEZ as per TPP.	7.08	157.5
G29	Acer pseudoplatanus (Sycamore),Fraxinus excelsior (Ash)	M	400	1	13(2)	4	4	4	4	B2	40+			Not affected by the development, install CEZ as per TPP.	4.8	72.39
T58	Populus serotina (Hybrid Black Poplar)	OM	750	1	6(1)	8	1	7	6	U	<10	Decay present on stem.	Failed at ground level. Split out stems leaning in pine group and neighbouring field.	Remove for condition	9	254.5
G30	Acer pseudoplatanus (Sycamore)	M	600	1	14(2)	4	4	4	4	B2	40+			Not affected by the development, install CEZ as per TPP.	7.2	162.88
G31	Acer pseudoplatanus (Sycamore)	M	400	1	14(2)	6	6	6	6	B2	40+			Remove for development	4.8	72.39
T59	Acer platanoides (Norway Maple)	M	630	1	14(3)	6	6	6	6	B1	40+			Remove for development	7.56	179.58
G32	Betula pendula (Silver Birch),Salix caprea (Goat Willow)	EM	150	3	7(1)	4	4	4	4	C2	20+			Remove for development	3.12	30.59
T60	Acer pseudoplatanus (Sycamore)	EM	300	1	10(2)	5	5	5	5	C1	40+			Remove for development	3.6	40.72
G33	Pinus sylvestris (Scots Pine)	M	420	1	13(2)	5	5	5	5	B2	40+			SMA for RPA incursion for level change and boundary treatment, works to be undertaken under supervision of AcOW. Trees with major roots affected will need to be removed. Patrial loss of G33 may be required. Install CEZ as perTPP to remainder of group. Crown lifting works required to install boundary treatment and parking bays.	5.04	79.81
G34	Fraxinus excelsior (Ash),Acer pseudoplatanus (Sycamore)	M	420	1	16(2)	5	5	5	5	B2	40+			Not affected by the development, install CEZ as per TPP.	5.04	79.81
G35	Salix caprea (Goat Willow)	EM	200	3	6(1)	4	4	4	4	C2	20+			Remove for development	4.15	54.11
G36	Acer pseudoplatanus (Sycamore),Tilia X europaea (Common Lime)	M	450	1	12(2)	6	6	6	6	B1	40+			Not affected by the development, install CEZ as per TPP.	5.4	91.62
G37	Acer pseudoplatanus (Sycamore),Tilia X europaea (Common Lime)	M	300	1	10(1)	5	5	5	5	C2	40+			Not affected by the development, install CEZ as per TPP.	3.6	40.72
T61	Betula pendula (Silver Birch)	SM	280	1	12(2)	5	5	2	5	C1	20+		Off site tree.	Not affected by the development, install CEZ as per TPP.	3.36	35.47
T62	Fraxinus excelsior (Ash)	M	500	1	12(2)	8	7	8	6	B1	40+			Not affected by the development, install CEZ as per TPP.	6	113.11
T63	Betula pendula (Silver Birch)	SM	280	1	11(1)	4	4	4	4	C1	20+	Tree not picked up on the topo, plotted by eye by the surveyor on site.		Not affected by the development, install CEZ as per TPP.	3.36	35.47
T64	Betula pendula (Silver Birch)	SM	350	1	12(2)	5	5	5	5	B1	20+	Tree not picked up on the topo, plotted by eye by the surveyor on site.	Off site tree.	Not affected by the development, install CEZ as per TPP.	4.2	55.42
G38	Acer pseudoplatanus (Sycamore)	SM	410	1	11(2)	5	5	5	5	B1	40+			SMA for installation of retaining wall Not affected by the development, install CEZ as per TPP.	4.92	76.06
T65	Acer pseudoplatanus (Sycamore)	SM	400	1	8(2)	5	5	5	5	U	<10			Remove for condition	4.8	72.39
G39	Acer pseudoplatanus (Sycamore)	SM	400	1	13(2)	6	5	5	5	B2	40+			Not affected by the development, install CEZ as per TPP.	4.8	72.39
G40	Pinus sylvestris (Scots Pine)	M	540	1	16(2)	6	7	6	6	B2	40+			Not affected by the development, install CEZ as per TPP.	6.48	131.93
T66	Acer pseudoplatanus (Sycamore)	SM	350	1	12(3)	4	4	4	3	C1	40+			Not affected by the development, install CEZ as per TPP.	4.2	55.42
T67	Aesculus hippocastanum (Horse Chestnut)	M	710	1	12(2)	7	7	7	4	B1	20+	Cavity on stem. Included bark present in fork.		Remove for level change and landscaping	8.52	228.08
G41	Acer platanoides (Norway Maple)	SM	330	1	13(2)	5	5	5	5	B2	40+			Remove for level change and landscaping	3.96	49.27
T68	Aesculus hippocastanum (Horse Chestnut)	M	650	1	13(2)	7	7	7	7	B1	20+			Remove for highways access	7.8	191.16
G42	Populus tremula (Aspen)	M	650	1	17(3)	10	5	10	6	C2	10+	Leaning North. Decay present on stem.		Remove for highways access	7.8	191.16
T69	Betula pendula (Silver Birch)	M	450	1	15(2)	9	7	8	9	B1	20+			Remove for highways access	5.4	91.62
T70	Populus tremula (Aspen)	M	610	1	16(2)	10	3	6	9	C1	<10	Leaning North. Decay present on stem.		Remove for highways access and attenuation pond	7.32	168.36
T71	Fraxinus excelsior (Ash)	SM	280	3	13(2)	4	6	4	4	C1	10+	Leaning South. Stem divides at ground level. Included bark present in fork.		Remove for attenuation pond	5.82	106.43
T72	Betula pendula (Silver Birch)	M	400	1	14(2)	6	8	8	1	C1	<10	Leaning North-East. Decay present on stem.		Remove for attenuation pond	4.8	72.39
T73	Fraxinus excelsior (Ash)	M	400	1	14(2)	4	6	7	3	B1	10+	Dieback in crown.		Remove for attenuation pond	4.8	72.39

Tree No.	latin name	Life Stage	Diameter(mm)	Stem Count	Height(m) / Crown Height (m)	North(m)	South(m)	East(m)	West(m)	Category	Estimated Remaining Life Expectancy (yrs)	Pick Comments	Comments	Recommendations Following AIA	RPR(m)	RPA(m)
T74	Betula pendula (Silver Birch)	M	410	1	13(1)	7	5	5	5	C1	20+			Remove for attenuation pond	4.92	76.06
T75	Populus tremula (Aspen)	M	510	1	14(2)	7	2	10	4	U	<10		Rootplate has lifted and the main stem has fractured. Leaning heavily to the North East.	Remove for condition	6.12	117.68
G43	Fraxinus excelsior (Ash)	M	410	1	10(2)	5	6	6	5	C2	10+	Dieback in crown.		Remove for development	4.92	76.06
T76	Acer pseudoplatanus (Sycamore)	EM	380	1	9(2)	6	6	6	6	C1	40+			Remove for development	4.56	65.33
T77	Acer pseudoplatanus (Sycamore)	SM	350	1	8(2)	4	4	4	4	C1	20+			Remove for development	4.2	55.42
T78	Acer pseudoplatanus (Sycamore)	EM	180	1	6(2)	2	1	2	2	C1	40+			Remove for development	2.16	14.66
T79	Acer pseudoplatanus (Sycamore)	SM	210	2	10(2)	5	5	5	5	C1	40+			Remove for development	3.56	39.82
T80	Fraxinus excelsior (Ash)	M	460	1	14(2)	5	6	4	6	B1	20+			Remove for development	5.52	95.74
T81	Aesculus hippocastanum (Horse Chestnut)	M	560	1	13(2)	7	4	6	6	B1	20+			Remove for development	6.72	141.89
T82	Acer pseudoplatanus (Sycamore)	EM	380	1	11(2)	5	5	5	5	C1	20+			Remove for development	4.56	65.33
T83	Acer pseudoplatanus (Sycamore)	SM	300	1	9(2)	3	5	5	3	C1	20+			Remove for development	3.6	40.72
T84	Acer pseudoplatanus (Sycamore)	EM	200	1	7(2)	3	4	3	3	C1	20+			Remove for development	2.4	18.1
T85	Acer pseudoplatanus (Sycamore)	EM	210	1	8(2)	4	4	4	4	C1	20+	Tree not picked up on the topo, plotted by eye by the surveyor on site.		Remove for development	2.52	19.95
T86	Sorbus aucuparia (Rowan)	EM	180	1	6(2)	3	3	3	3	C1	20+			Remove for development	2.16	14.66
T87	Sorbus aucuparia (Rowan)	SM	120	2	5(1)	2	2	2	2	C1	20+			Remove for development	2.04	13.08
T88	Acer platanoides (Norway Maple)	M	440	1	12(2)	6	4	6	6	B1	20+			Remove for development	5.28	87.59
T89	Prunus avium (Wild Cherry)	SM	390	1	8(2)	6	5	5	5	C1	20+			Remove for development	4.68	68.82
T90	Acer pseudoplatanus (Sycamore)	EM	280	1	7(2)	5	6	5	5	C1	40+			Remove for highways access	3.36	35.47
T91	Acer pseudoplatanus (Sycamore)	M	440	1	14(2)	7	7	7	7	B1	20+			Remove for highways access	5.28	87.59
T92	Fraxinus excelsior (Ash)	EM	290	1	9(2)	5	2	4	4	C1	<10	Dieback in crown.		Remove for highways access	3.48	38.05
T93	Acer pseudoplatanus (Sycamore)	M	480	1	13(2)	7	6	4	7	B1	20+			Remove for highways access	5.76	104.24
T94	Acer pseudoplatanus (Sycamore)	M	500	1	12(2)	5	7	7	6	B1	20+			Remove for highways access	6	113.11
T95	Acer platanoides (Norway Maple)	M	520	1	14(3)	8	6	8	8	B1	40+			Remove for highways access	6.24	122.34
T96	Acer pseudoplatanus (Sycamore)	M	620	1	15(3)	7	8	7	7	B1	40+			Not affected by the development, install CEZ as per TPP.	7.44	173.92
T97	Acer pseudoplatanus (Sycamore)	M	550	1	13(4)	8	6	8	8	B1	40+			Not affected by the development, install CEZ as per TPP.	6.6	136.87
T98	Acer pseudoplatanus (Sycamore)	M	480	1	14(3)	7	6	6	6	B1	40+	Ivy on tree.		Not affected by the development, install CEZ as per TPP.	5.76	104.24
T99	Acer pseudoplatanus (Sycamore)	M	510	1	15(3)	6	7	6	6	B1	40+			Not affected by the development, install CEZ as per TPP.	6.12	117.68
G44	Populus alba (White Poplar),Acer pseudoplatanus (Sycamore)	M	500	1	16(2)	6	6	6	6	B2	20+			Partial removal of group outside CEZ for highways access. Install CEZ as per TPP for remainder of the group.	6	113.11
G45	Acer pseudoplatanus (Sycamore)	EM	470	1	2(2)	5	5	5	5	C2	40+			Remove for development	5.64	99.95
G46	Acer pseudoplatanus (Sycamore),Fraxinus excelsior (Ash),Betula pendula (Silver Birch)	EM	390	1	10(2)	4	4	4	4	C2	40+		DBH Range from 290mm-390mm.	Remove for development	4.68	68.82
T100	Acer pseudoplatanus (Sycamore)	M	400	1	11(2)	5	5	5	5	B1	40+	Ivy on tree.		Not affected by the development, install CEZ as per TPP.	4.8	72.39
T101	Betula pendula (Silver Birch)	SM	380	1	12(2)	4	4	4	4	B1	20+			Not affected by the development, install CEZ as per TPP.	4.56	65.33
G47	Acer pseudoplatanus (Sycamore)	EM	390	2	6(2)	3	3	3	3	C2	20+		Historically pollarded at 5 m above ground level	Not affected by the development, install CEZ as per TPP.	6.62	137.7
T102	Alnus glutinosa (Common Alder)	M	400	1	13(4)	6	6	6	6	B1	40+			Not affected by the development, install CEZ as per TPP.	4.8	72.39
G48	Acer pseudoplatanus (Sycamore)	M	390	1	12(2)	4	4	4	4	C2	20+	Ivy on tree.	Historically pollarded at 5m above ground level.	Possible minor RAP incursion for disabled parking bays. Install CEZ as Per TPP	4.68	68.82
G49	Acer pseudoplatanus (Sycamore),Betula pendula (Silver Birch),Carpinus betulus (Hornbeam)	SM	450	1	12(2)	5	5	5	5	B2	20+			Remove for development	5.4	91.62
G50	Fraxinus excelsior (Ash),Carpinus betulus (Hornbeam)	M	450	1	12(2)	5	5	5	5	B2	20+			Remove for development	5.4	91.62
T103	Acer pseudoplatanus (Sycamore)	EM	360	1	7(2)	5	5	5	5	C1	40+			Remove for highways access	4.32	58.64
G51	Acer pseudoplatanus (Sycamore),Fagus sylvatica (Beech),Aesculus hippocastanum (Horse Chestnut)	M	400	1	12(2)	4	4	4	4	C2	20+		DBH Range 230mm-400mm	Remove for development	4.8	72.39
G52	Acer pseudoplatanus (Sycamore),Aesculus hippocastanum (Horse Chestnut)	SM	350	1	12(2)	4	4	4	4	C2	20+		DBH Range 200mm-350mm.	Remove for development	4.2	55.42

Tree No.	latin name	Life Stage	Diameter(mm)	Stem Count	Height(m) / Crown Height (m)	North(m)	South(m)	East(m)	West(m)	Category	Estimated Remaining Life Expectancy (yrs)	Pick Comments	Comments	Recommendations Following AIA	RPR(m)	RPA(m)
T104	Betula pendula (Silver Birch)	SM	370	1	9(2)	3	3	3	3	C1	20+			Remove for development	4.44	61.94
G53	Fraxinus excelsior (Ash)	M	430	1	14(2)	6	6	3	6	B2	20+			Remove for development	5.16	83.66
T105	Carpinus betulus (Hornbeam)	M	740	1	14(2)	7	7	7	5	B1	20+			Remove for development	8.88	247.76
G54	Acer pseudoplatanus (Sycamore),Carpinus betulus (Hornbeam)	SM	420	1	12(1)	4	4	4	4	B2	20+			Remove for development	5.04	79.81
T106	Acer pseudoplatanus (Sycamore)	M	460	1	11(2)	5	6	5	5	B1	20+				5.52	95.74
G55	Acer pseudoplatanus (Sycamore)	M	450	1	12(2)	4	4	4	4	B2	20+				5.4	91.62
G56	Acer platanoides (Norway Maple)	SM	400	1	4(2)	4	4	4	4	B2	20+			Remove for highway access and attenuation pond	4.8	72.39
G57	Acer platanoides (Norway Maple),Acer pseudoplatanus (Sycamore),Aesculus hippocastanum (Horse Chestnut),Fraxinus excelsior (Ash)	M	400	1	12(2)	4	4	4	4	B2	20+			Remove for highway access and attenuation pond	4.8	72.39
G58	Acer pseudoplatanus (Sycamore)	SM	390	1	9(2)	4	4	4	4	C2	20+		Owl box present in one tree.	Remove for highways access and attenuation pond	4.68	68.82
T107	Fraxinus excelsior (Ash)	M	490	1	11(3)	3	5	6	6	C1	<10	Dieback in crown. Major deadwood in crown.		Remove for development	5.88	108.63
G59	Aesculus hippocastanum (Horse Chestnut)	M	590	1	12(2)	6	4	6	6	B2	20+			Remove for development	7.08	157.5
G60	Acer pseudoplatanus (Sycamore)	SM	350	1	10(2)	5	5	5	5	C2	20+			Remove for development	4.2	55.42
T108	Acer pseudoplatanus (Sycamore)	SM	350	1	11(2)	5	4	4	4	C1	20+			Remove for development	4.2	55.42
T109	Acer pseudoplatanus (Sycamore)	SM	350	1	11(2)	6	5	5	5	C1	20+			Remove for development	4.2	55.42
T110	Acer pseudoplatanus (Sycamore)	SM	380	1	12(2)	4	6	4	6	C1	40+			Remove for development	4.56	65.33
G61	Fraxinus excelsior (Ash)	M	520	1	12(2)	5	5	5	5	C1	<10	Dieback in crown.		Remove for development	6.24	122.34
T111	Betula pendula (Silver Birch)	M	620	1	14(1)	7	4	7	5	B1	20+			Remove for development	7.44	173.92
T112	Acer pseudoplatanus (Sycamore)	M	480	1	14(3)	7	7	4	7	C1	20+	Included bark present in fork.	Main union at 1.8m above ground level. Included bark present.	Not affected by the development, install CEZ as per TPP.	5.76	104.24
T113	Acer pseudoplatanus (Sycamore)	M	610	1	15(2)	8	8	5	9	B1	20+			Not affected by the development, install CEZ as per TPP.	7.32	168.36
T114	Betula pendula (Silver Birch)	M	460	1	12(3)	6	5	5	5	B1	20+	Tree not picked up on the topo, plotted by eye by the surveyor on site.		Remove for development	5.52	95.74

Appendix 2 Tree Protection Plan



TREE PROTECTION PLAN

Retention value key

Retention Value	Retention Value	Retention Value	Retention Value
1	2	3	4

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's) have been shown as detailed below. The CEZ shall act as the protective barrier for retained trees.

CEZ (Protective barrier)

RPA

Canopy extent

CEZ and re-positioning during build period

The CEZ's will require installation as shown on the tpp. The CEZ shall be repositioned only under ACOW

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: Works to be undertaken under arboricultural supervision

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

NOTES

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

Sheet Key

Sheet 1

Sheet 4

Sheet 3

Sheet 2

AMENITYTREE
ENVIRONMENTAL PLANNING CONSULTANTS

The Annexe, Willow Hill Cottage, School Lane,
Burwardsley, Chester. CH3 9NX
Tel. 01829 770075

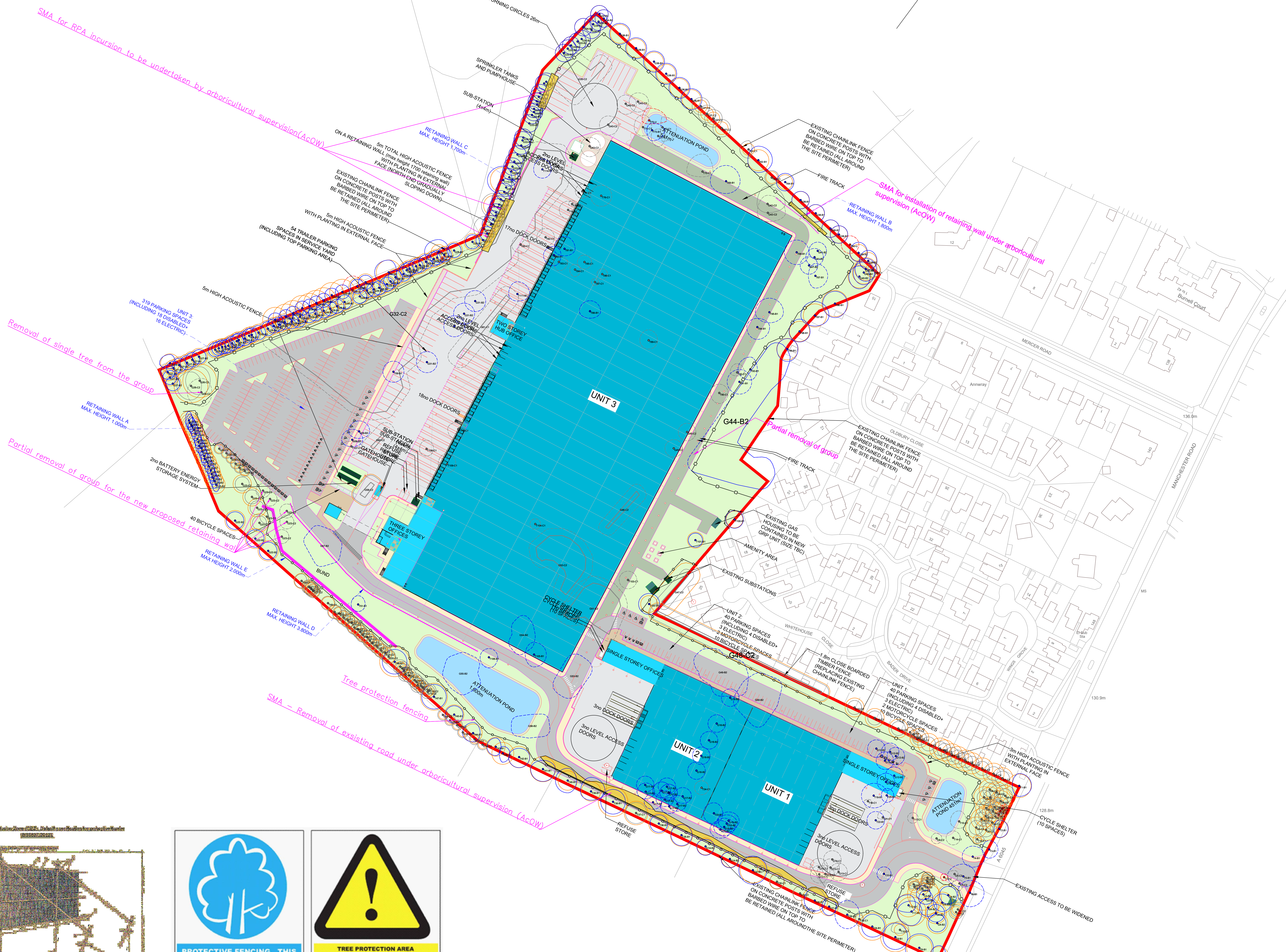
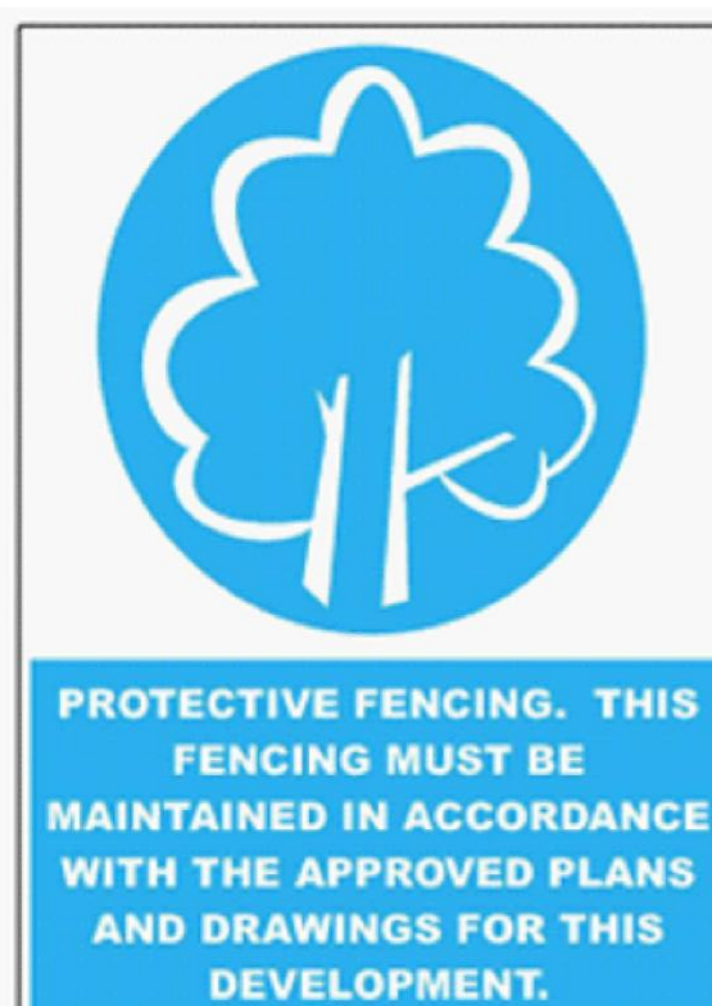
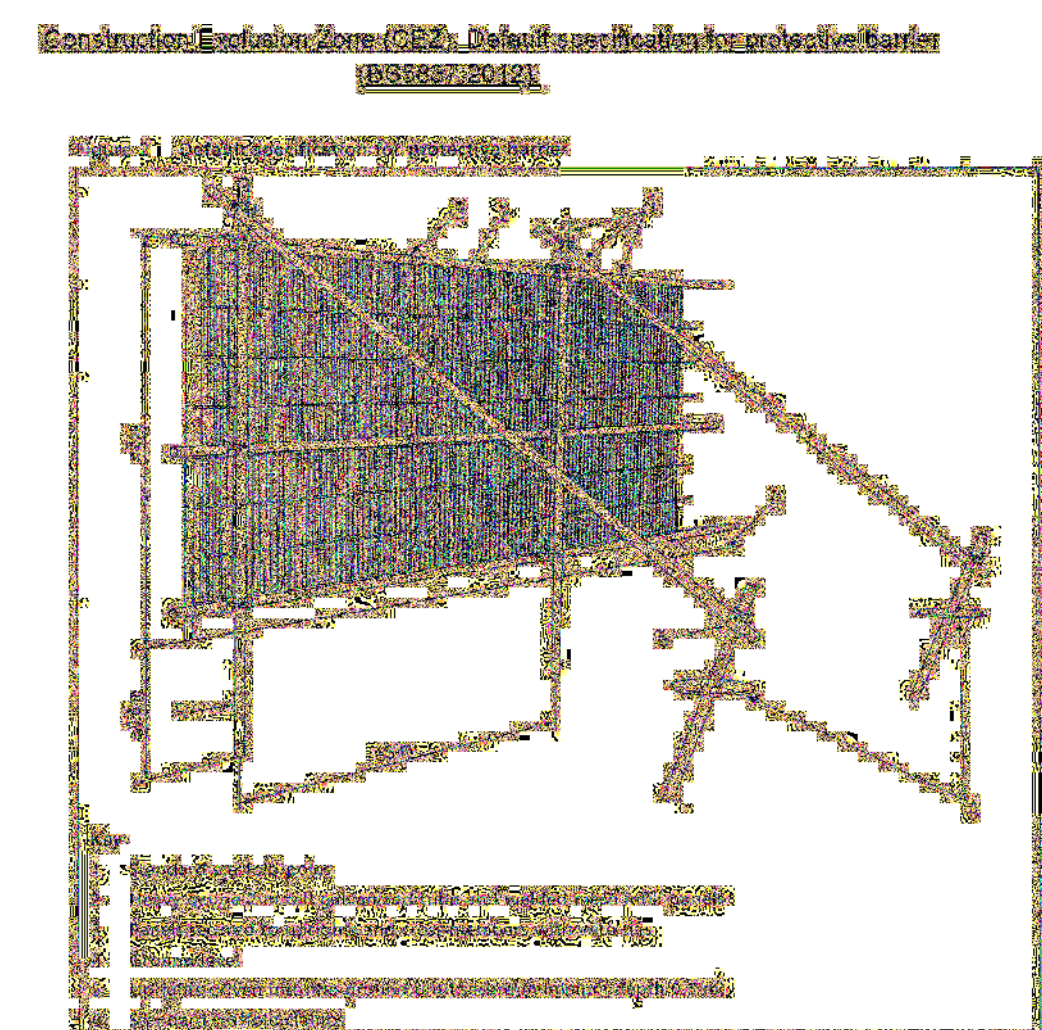
Client:
Tramell Crow

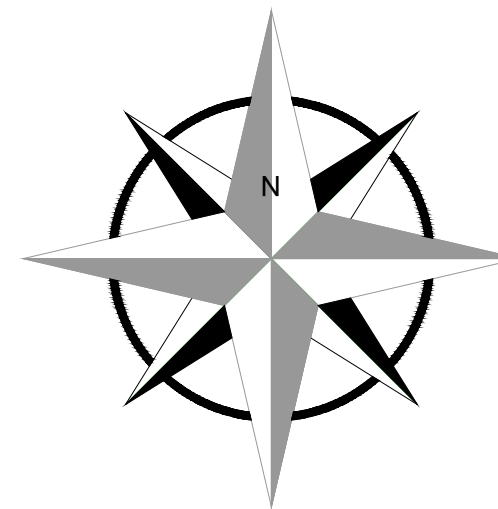
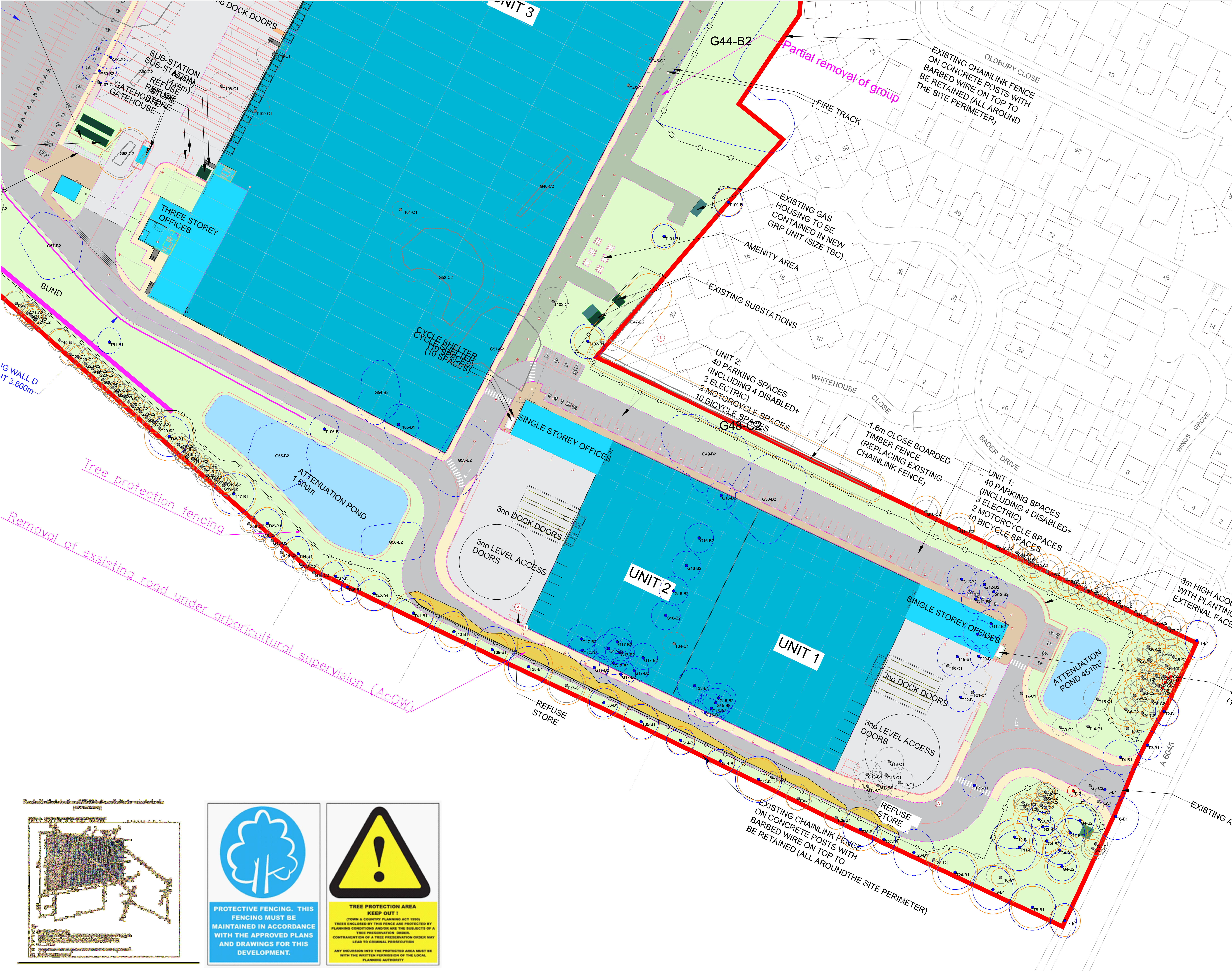
Project:
**Heywood, Tramell Crow
12363**

Detail:
**TREE PROTECTION PLAN
Overview (Sheet 1)**

Drawn By: PS Date: 19.12.2024 Scale: 1:750 - AO

Orig No: TR-01-Sheet 1 Revision: V2





TREE PROTECTION PLAN

Retention value key

- RETENTION VALUE A
- RETENTION VALUE B
- RETENTION VALUE C
- RETENTION VALUE D
- RETENTION VALUE E

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

Root Protection Areas (RPA) 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 and re-positioning during build period

The CEZ's will require installation as shown on the TPP. The CEZ shall be repositioned only under ACOW.

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.

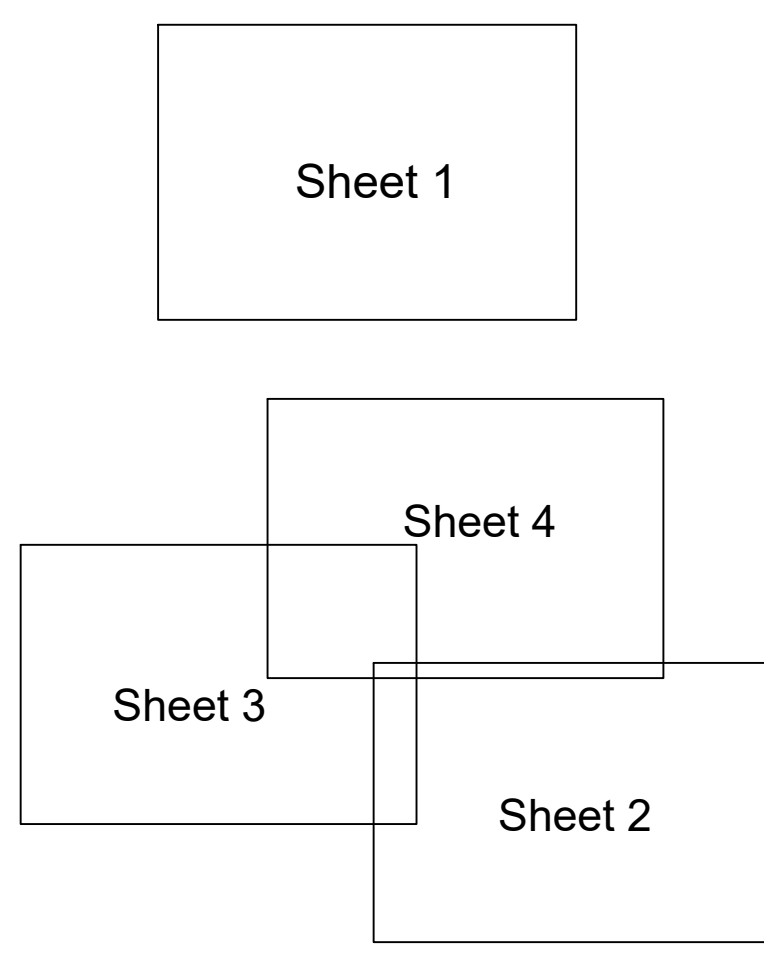
SMA1: Excavation under arboricultural supervision.

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

NOTES

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

Sheet Key



AMENITYTREE

The Annexe, Willow Hill Cottage, School Lane,
Burwalsley, Chester, CH3 9NX
Tel: 01829 770075

Client:
Tramell Crow

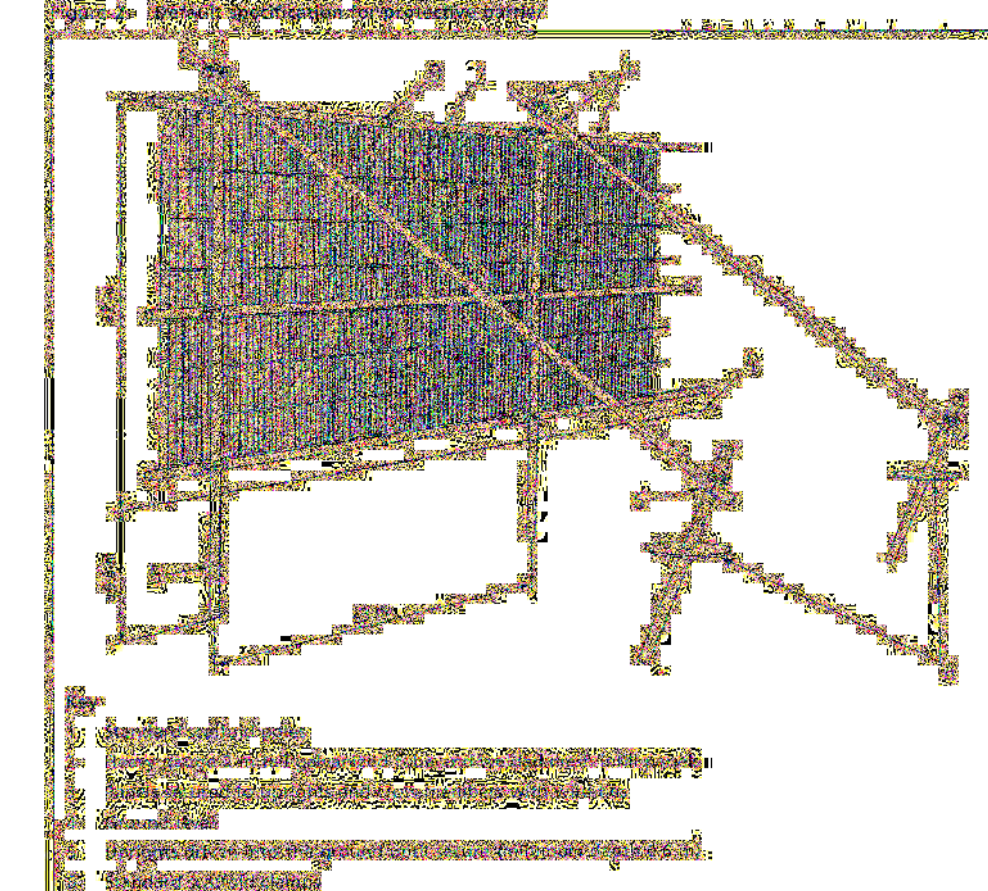
Project:
Heywood, Tramell Crow
12363

Detail:
TREE PROTECTION PLAN
Sheet 2

Drawn By: PS Date: 19.12.2024 Scale: 1:400 - AO

Dwg No: TR-01-Sheet 2 Revision: V2

Construction Exclusion Zones (CEZ) and Root Protection Areas (RPA) under construction



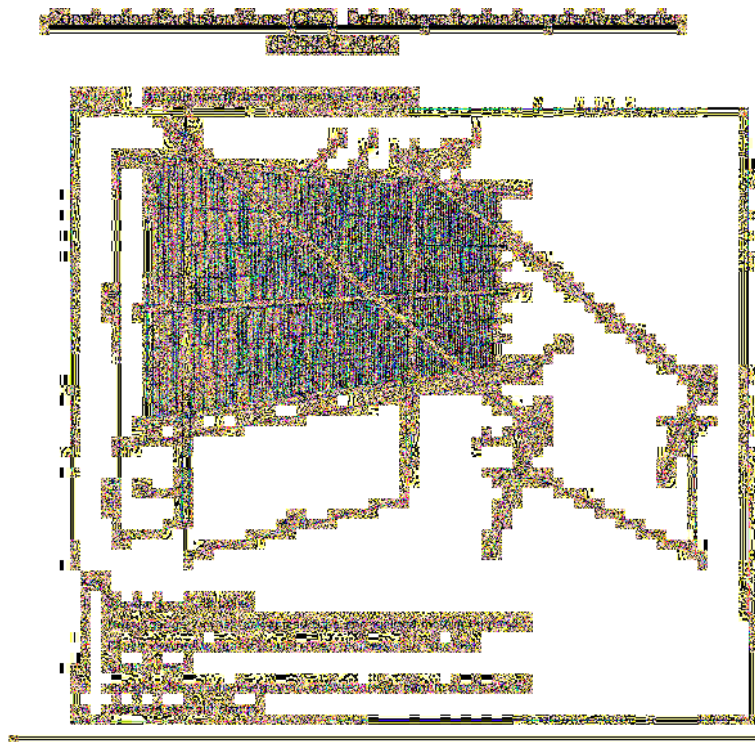
PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.

TREE PROTECTION AREA KEEP OUT!

(TOWN & COUNTRY PLANNING ACT 1990)

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER. CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION.

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY



5m HIGH ACOUSTIC FENCE WITH PLANTING IN EXTERNAL FACE

4 TRAILER PARKING IN SERVICE YARD (5 PARKING AREA)

5m HIGH ACOUSTIC FENCE

UNIT 3: PARKING SPACES (INCLUDING 18 DISABLED+ 16 ELECTRIC)

2no LEVEL ACCESS DOORS

TWO STOREY HUB OFFICE

18no DOCK DOORS

SUB-STATION (4x4m) REFUSE STORE GATEHOUSE

THREE STOREY OFFICES

2no BATTERY ENERGY STORAGE SYSTEM

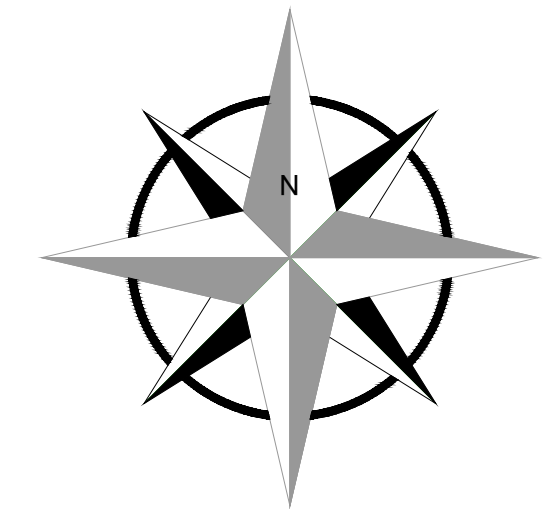
40 BICYCLE SPACES

RETAINING WALL E MAX HEIGHT 2.000m

BUND

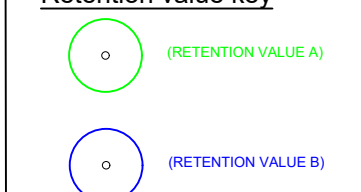
RETAINING WALL D MAX. HEIGHT 3.800m

CYCLE SHELTER (10 SPACES)



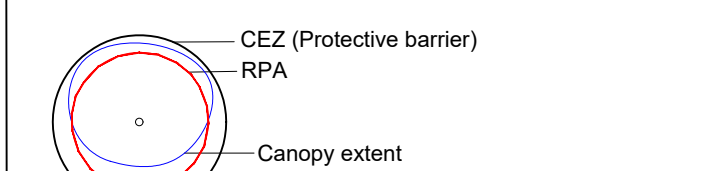
TREE PROTECTION PLAN

Retention value key



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

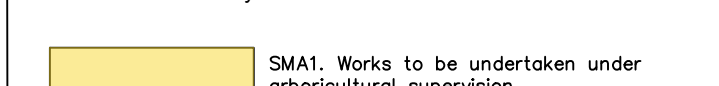
Root Protection Areas (RPA) have been identified and are based on BS5837:2012. RPA's and Construction Exclusion Zones (CEZ) have been shown as detailed below. The CEZ shall act as the protective barrier for retained trees.



CEZ and re-positioning during build period
The CEZ's will require installation as shown on the TPP. The CEZ shall be repositioned only under ACOW

Special Measure Areas (SMA)

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



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

Sheet Key

Sheet 1

Sheet 4

Sheet 3

Sheet 2

AMENITYTREE
ENVIRONMENTAL, PLANNING CONSULTANTS

The Annexe, Willow Hill Cottage, School Lane,
Burwardsley, Chester, CH3 9NX
Tel. 01829 770075

Client:
Tramell Crow

Project:
**Heywood, Tramell Crow
12363**

Detail:
**TREE PROTECTION PLAN - Overview
Sheet 3**

Drawn By: Date: Scale:
PS 19.12.2024 1:300 - AO

Dwg No: Revision:
TR-01-Sheet 3 V2