

ARBORICULTURAL SURVEY -

ARBORICULTURAL SURVEY BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations

Prepared by Parks and Countryside – Forestry Section

Report No: A660 Headingley

Date: 28th November 2022



Department of Communities and Environment

Farnley Hall, Hall Lane, Farnley, Leeds LS12 5HA 0113 395 7400

TABLE OF CONTENTS

1.	TERMS OF REFERENCE	3
2.	SITE VISIT AND OBSERVATIONS.....	4
3.	SUMMARY.....	5
4.	SURVEY	6-8
5.	COMMENTS.....	9-10
6.	TREE CONSTRAINTS... ..	11-12
7	RECOMMENDATIONS.....	13-17
8	GLOSSARY.....	18
9.	APPENDIX 1	19
10.	APPENDIX 2	20
11	APPENDIX 3	21
12	APPENDIX 4.....	22
13	APPENDIX 5.....	23

1. TERMS OF REFERENCE

1.1 Kathryn Coleman, Transport Planner has instructed Leeds City Council Forestry Section to inspect and provide a report for the existing trees alongside the A660 from B6157 (St Anne's Road) to St Mark's road/Woodhouse Lane.

This report has been produced to reflect the recommendations of BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations, to provide arboriculture advice on the trees present, identify tree constraints and Root Protection areas.

1.2 The Survey will:

- Identify all trees that will be potentially affected by the potential development.
- Identify all Root Protection Areas/Radii that will need full protection during any future development.
- Identify possible planting locations alongside the A660

1.3 The Author: Jane Crowther – Forestry Manager

2. Site Visit and Observations

2.1 Site Visit

Several site visits were carried out on 15th, 21st and 27th September and 11th October. Observations of the trees were from ground level only and no aerial inspections were undertaken. The weather during the survey was mostly warm, clear, dry, and light breeze, with good visibility.

2.1 Site Description:

The A660 is a major and busy thoroughfare into the University campus in Leeds and is well used by pedestrians, cyclists, motor vehicles and buses. The route is lined by a mix of residential and commercial properties to the northwest and abutted by Woodhouse, Monument and Cinder moor to the southeast.

2.2 Topography

The site is generally flat

2.3 Identification and location(s) of the trees

The approximate locations of the significant trees are shown on the topographic site survey. Significant trees have a stem diameter greater than 150mm, measured 1.5m above ground level. Smaller trees have not been included but could be transplanted if of a suitable quality and necessary. Alternatively, they could be replaced.

The plans included in this report are for illustrative purposes only and should not be used for directly scaling measurements: all measurements should be checked on site. All the relevant information on them is contained within this report, the topographic site survey and the documents submitted with the planning application.

3 Summary

3.1 Purpose of the report

Leeds City Council Forestry section has undertaken a tree survey that follows the recommendations laid down in BS 5837:2012 Trees In Relation To Design, Demolition and Construction Recommendations at Royal Park, Leeds to provide a pre-development (feasibility and planning stage) report on the arboricultural constraints for any proposed development.

- Locate, asses and report on the condition of each tree within the site boundary as indicated on the site plan.
- Locate, asses and report on the condition of each tree outside the Site Boundary that may be impacted upon by the development the site.
- Make comments on the physiological & structural condition of each tree.
- Calculate the root protection area for each tree.
- Estimate each trees remaining contribution to the site (in years) and assign a retention category.

4 SURVEY

4.1 Name of inspector: Jane Crowther

4.2 Date & time: 28/11/2022

4.3 Weather Conditions: warm and Sunny with light breeze.

4.4 Methodology:

Visual Tree Assessment (VTA) techniques were used to survey all the trees included in this report. All assessments were carried out from ground level and following the guiding principles of British Standard 5837:2012. (full details regarding the survey methodology are included within (**Appendix 1 and 2**).

4.5 Tree Location.

For tree locations please refer to the tree constraints plans

Survey Forms

Tree ref. no.	Species	Height (m)	DBH	Crown spread				Age class	Physi condition	Struct condition	Condition Comments	Preliminary management rec.	RPA	rec con years	Cat. grade
			(CM)	(m)											
T1	<i>Tillia spp. (lime)</i>	9	50	5	5	5	5	SM	Good	Bifcated stem at 2m, potentially an old pollard, dense epicormic growth	Good leaf size colour and vigour	Remove epicormic growth	600	40+	B
	(OS Bowery café)														
T2	<i>Tillia spp. (lime)</i>	12	54	5	5	5	56	SM	Good	Cavity at base of tree on south side, further investigation ideally required. Minor cracking of resin bonding surface due to root expansion	Good – under private management and part of dining forecourt	Remove epicormic growth	648	40+	B
P	(OS Heaney and Mill)														
T4	<i>Alnus cordata (Italian alder)</i>	6	25	3	3	3	3	Y	Good	Typical for age, species and highway location	Tip reduce branches to give visibility to highways sign	Christmas lights present in tree, ideally need adjusting to prevent bark damage	300	40+	B

T5	<i>Alnus cordata</i> (Italian alder)	4	20	3	3	3	3	Y	Good	Typical for age, species and highway location, birds nest at 4m, possibly topped	Good	Christmas lights present in tree, ideally need adjusting to prevent bark damage	240	40+	B
T6	<i>Alnus cordata</i> (Italian alder)	7	26	3	3	3	3	Y	Good	Kink in main stem at 4m, not significant	Tip reduce from street lamp 100/0244	Christmas lights present in tree, ideally need adjusting to prevent bark damage	312	40+	B
T7	<i>Platanus x hispanica</i> (London plane)	7.5	24	4	3	3	3	Y	Good	Minor bark damage at 1.5m south side, not significant	Tip reduce from lamp column by 1.5m, 100/0244	Christmas lights present in tree, ideally need adjusting to prevent bark damage	288	40+	B
T8	<i>Platanus x hispanica</i> (London plane)	7.5	23	4	3	3	3	Y	Good	Minor crossing branches, trip hazard evident at ground level around the pit, yellow barrier present	Good	Lights- Tip reduce branches from traffic lights to give 2m clearance	288	40+	B
	OS Greggs/TRAD collective														
T9	<i>Platanus x hispanica</i> (London plane) OS Costa coffee	7.5	25	5	3	3	3	Y	Good	Good	Good	Christmas lights present in tree, ideally need adjusting to prevent bark damage. Minor pavement lifting.	300		B

T1 0	<i>Quercus robur</i> (common oak)	16m	56	6	6	7	6	SM	Good	Small broken branch north side (<25mm), congested crown break at 4m, some crossing limbs	Leaf mould present	Crown lift to 3m over the pavement and 5m over the road	672		B
T1 1 ***	<i>Acer pseudoplatanus</i> (sycamore)	18m	71	7	4	7	6	SM	Good	Cavity at ground level to 0.5m requires detailed inspection, significant buttress flair	Squirrel damage throughout crown	Remove Elder and epicormic growth	852	40+	C
T1 2	<i>Quercus cerris</i> (turkey oak)	20m	90	10	10	10	10	EM	Good	Bifurcates at 2m, deadwood over footpath, soil mounding around base, Exudate evident on limb underside (6m from ground) angular limb from this point – see photo	Soil compaction	Remove deadwood	1080	10-20	B
T1 3	<i>Acer pseudoplatanus</i> (sycamore)	6m	29	3	2.5	2.5	2.5	SM	Poor	Close to bus shelter, suggest some root disturbance, trunk bifurcates at 1m, bark missing 0.2-1m	Deadwood on north side and dieback evident on north side of crown, slight lean	No work required	348		C
T1 4	<i>Acer pseudoplatanus</i> (sycamore)	18m	55	10	5	7	5	SM	Poor	Girling roots, compact soils, potentially altered soil levels	Close to bus shelter (>1m), crown sparse and leaf size small	No work required	660	40+	C

T1 5	<i>Acer pseudoplatanus</i> (sycamore)	16m	55	9	6	6	6	SM	Good	Bifurcates at 2m, squirrel damage evident in mid crown and deadwood resulting, epicormic on stem	Exudates on stem MONITOR Squirrel damage, ground compaction, crossing branches in lower crown	No work required	660	<10	B
T1 6	<i>Acer pseudoplatanus</i> (sycamore)	8m	55	5	5	5	5	SM	Good	Good	Good	No work required	660		B
T1 7	<i>Acer pseudoplatanus</i> (sycamore)	8m	47	5	5	5	5	SM	Good	Good	Good	No work required	564		B
T1 8	<i>Acer pseudoplatanus</i> (sycamore)	8m	49	5	5	5	5	SM	Good	Good	Good	No work required	588	40+	C
T1 9	<i>Acer pseudoplatanus</i> (sycamore)	8m	66	6	6	6	6	SM	Good	Good	Good	No work required	792		B
T2 0	<i>Acer pseudoplatanus</i> (sycamore)	8m	64	8	8	8	8	SM	Good	Good	Good	No work required	768	40+	B
T2 1	<i>Acer pseudoplatanus</i> (sycamore)	18m	115	1 2	12	12	12	M	Good	Bifurcates at 2m, spreading form, squirrel damage evident with resulting DW, Bark damage around base	Fair	No work required	1380	40+	B

T2 2	<i>Sorbus Spp.</i> (rowan)	MS	3	4	4	4	4	Y	Good	Fair	Multi-stemmed form, 8-10 stems more like a shrub than tree	Remove stake and tie (in centre)	36	20-40	C
T2 3	<i>Sorbus Spp.</i> (rowan)	4	4	2.5	2.5	2.5	2.5	Y	Fair	Fair	Sparse foliage cover, tree struggling, strimmer damage at base	No work required	48	20-40	C
T2 4 ***	<i>Acer pseudoplatanus</i> (sycamore)	15	50 (average)	8	9	9	9	M	Fair	Bifurcates at 1m, good union, damage at ground to 0.6m, slightly sparse crown	Ground compaction	revisit tree in next 12 months to monitor condition	600	20	C
											Squirrel damage				
T2 5	<i>Acer pseudoplatanus</i> (sycamore)	15	63	8	9	9	9	SM	Good	Bifurcates at 3m, kink in stem at 3m, moderate deadwood >25mm, slight stem lean to south		Remove deadwood	756	20-40	C
T2 6	<i>Acer pseudoplatanus</i> (sycamore)	16	62	6	4	8	6	SM	Good	Query ground level changes, squirrel damage evident	Moderate DW	Remove deadwood	744	20+	C
T2 7	<i>Tilia spp</i> (lime)	16	54	6	6	6	6	SM	Good	Good		Remove deadwood	648	20-40	B

28	<i>Acer pseudoplatanus</i> (sycamore)	16	54	6	6	6	6	SM	Good	mower damage at base of tree, tar spot on leaves	Minor deadwood	No work required	648	20-40	C
29	<i>Tilia spp. (lime)</i>	10	95	5	5	5	5	M	poor	Possibly old pollard	Small leaf size, stag headed in upper crown and dieback	Remove epicormic growth to enable full inspection	1140	20-40	C
										Unable to inspect base at this time tree retrenching		Remove deadwood			
30	<i>Acer pseudoplatanus</i> (sycamore)	14	50	6	6	6	6	SM	good	Minor trimmer damage at base,	Lovely conical form to tree, birds nest present	Crown lift to 5m	600	40+	A
31	<i>Tilia cordata</i> (small leaved lime)	10	44	7	7	7	7	SM	good	Crossing branches, low spreading form, 1 st branch at 1.5m, tight central union at 2.5m	Fair	Remove 1 st large limb, crown lift to 5/3	528	40+	B
32	<i>Crataegus monogyna</i> (hawthorn)	4	38	3.5	4	3.5	4	M	fair	Co-dominant stems crossing at 2m, inward rib from ground 2 central stems helicy wrap, small compact form	Fair	Remove epicormic growth	456	40+	C

33	<i>Acer pseudoplatanus</i> (sycamore)	12	58	8	4	5	4	M		Co-dominant stems from 3m, wide central union no significance, v minor deadwood in understorey	Good	No work required	696	40+	B
34	<i>Acer pseudoplatanus</i> (sycamore)	16	73	7	4	6	7	M	good	Low branches over the road, slight lean into road	U shaped union, crown break at 2.5m, bark damage on underside of 1 st limb	Crown lift to 5m	876	40+	C
35	<i>Prunus Kanzan</i> (Japanese cherry)	3.5	33	4	4	4	4	EM	good	Crown break at 1.5m, crossing branches in mid crown, small squat tree	CL3m low over footpath	Tip reduce from road	396	40+	C
36	<i>Crataegus monogyna</i> (hawthorn)	6	43	3	3	3	3	EM	poor	Bifcates at 1.6m, bark wound on north side 30cm long good wound wood, bark damage at base likely strimmer damage	Revisit tree, possibly in decline, defoliating early	Monitor condition	516	20-40	C
37	<i>P.amanagowa m/s</i> (Lombardy Poplar cherry)	5	8	2	2.5	2	2	Y	good	Surface roots visible in planter	Tree growing in raised planter	Remove old stake	96	20-40	C

38	<i>P.amanagowa</i> <i>m/s (Lombardy</i> <i>Poplar cherry)</i>	6	12	2	3	3	2	Y	good	Fair, typical for species	Tree growing in raised planted	No work required	144	20	C		
39	<i>Hedge group</i> <i>alternate elm-</i> <i>hornbeam</i> <i>(private)</i>	3.5 m	10	2	2	2	2	Y	Mixed	Most Elms in the roq are dead, some are growing directly out of the wall, individuals at 0.3-0.5m spacings	Manage Hornbeams as hedge (0.3m from wall)	Remove dead elms	120	<10	Elms U		
														10-20	Hornbeam C		
40	<i>Ulmus spp.</i> <i>(elm) (private)</i>	9	40	4	4	4	4	SM	Dead	Dead	Dead	fell to ground level and grind stump	480	<10	U		
41	<i>Platanus x</i> <i>hispanica</i> <i>(London plane)</i> <i>- university tree</i>	10	40	3	6	6	6	Y	Good	Good	Good	Crown lift over paths to give 3m clearance	480	>40	A		

42	<i>Acer saccharinum</i> (silver maple)	8	42	6	6	6	6	EM	Good	Crown break at 2m, bark cavity at 1.5m not significant	Good	Crown lift to give 5.3m road clearance and 3m pavement	504	20-40	A		
43	<i>Tillia spp. (lime)</i>	18	50 est	7	5	5	7	SM	Good	Codominant stems from 5m	Dieback in crown, fairly significant, high surface roots visible in planter, east side patches of bark missing at ground level to 3m, minor decay at 0.2m, flairing of buttress roots, tree in decline.	Remove epicormic growth	600	20-40	B		
G 44	Group of Ash (2), Cherry, Sycamore and Lime	11	30 average	n/a	n/a	n/a	n/a	SM	Good	LCC owned	Differs between species	No work required	360	<10 elms, >40 hornbeam	C		
45	<i>Tillia cordata</i> (small-leaved lime)	12	58	7	7	7	7	SM	Good	Included bark union, torsional twisting of main stems	Good	Crown lift to 5m over the road and 3m over the pavement, tip reduce from bus	696	dead tree	B		

												stop and remove lowest limb			
46	<i>Tillia cordata</i> (small-leaved lime)	12	47	7	7	7	7	SM	Good	Root girdling evident	Good, minor epicormic growths	Crown lift to 3m	564	40 +	A
47	<i>Tillia cordata</i> (small-leaved lime)	12	40	6	6	6	6	EM	Good	Root girdling, included union at 5m	Good	Remove epicormic growth	480	40+	B
48	<i>Tillia cordata</i> (small-leaved lime)	15	73	6	6	6	6	M	Good	Crown break at 5m, three central limbs, very minor deadwood in upper crown, some crown dieback	Good	Remove epicormic growth	876	40+	B
49	<i>Tillia spp.</i> (lime)	12	55	6	6	6	6	SM	Good	Unable to inspect base due to epicormic growth, small hanger at 3m (dead), tree has a spreading form	Fair	Remove epicormic growth	660	40	C

50	<i>Tillia spp. (lime)</i>	15	67 est	6	6	6	6	M	Good	Unable to inspect base due to epicormic growth, slight kink in main stem and bukge at base of trunk	Fair	Remove epicormic growth to enable full inspection	804	40+	C
51	<i>Tillia spp. (lime)</i>	18	66	7	7	7	7	M	Good	Slight lean on main stem	Good	Remove epicormic growth to enable full inspection	792	40+	B
52	<i>Acer pseudoplatanus (sycamore)</i>	17	51	3	6	6	6	M	Good	Supressed kink in stem at 2m,		No work required	612	40+	B
53	<i>Tillia spp. (lime)</i>	18	71	3	6	6	6	M	Good	Good	Good	Remove deadwood	852	40+	C
54	<i>Tillia spp. (lime)</i>	12	30	4	4	4	4	Y	Good	Good	Good	No work required	360	40+	B

55	<i>Acer pseudoplatanus</i> (sycamore)	16	64	4.5	6.5	6	6.5	SM	Good	Strimmer damage on bark at base of tree, damage on underside of 1 st limb, 2m long woundwood	Good	Remove lowest limb	768	40+	B		
56	<i>Acer pseudoplatanus</i> (sycamore)	18	71	4	7	8	7	SM	Good	Graffiti on trunk, minor deadwood over path, hanger over grass verge	Good	Remove deadwood and hanger	852	40+	C		
57	<i>Acer pseudoplatanus</i> (sycamore)	7	31	6	4	4	4	Y	Good	Slight lean on trunk, slightly suppressed by adjacent larger trees, strimmer damage at base	Good	No work required	372	20-40	C		
58	<i>Acer pseudoplatanus</i> (sycamore)	7	60	3	3	5	5	SM	Good	Supressed, bifurcates at 2.5m, leaning form	Good	No work required	720	20-40	C		

59	<i>Tillia cordata</i> (small-leaved lime)TAG00474	16	65	5	4.5	6	5	SM	Good	Unable to inspect due to epicormic growth	Good	Remove epicormics	780	40+	C
60	<i>Tillia cordata</i> (small-leaved lime)	7	39	4	4	4	4	Y	Good	Good	Good	Crown lift over the pavement to 3m	468	40+	A
61	<i>Tillia cordata</i> (small-leaved lime)	5	26	2.5	2.5	2.5	2.5	Y	Good	Supressed slight bend in upper crown, small wound on trunk at 2.5m	Fair	Crown lift to 3m	312	10-20	C
62	<i>Acer pseudoplatanus</i> (sycamore)	18	81	3	6	6	6	M	Good	Good	Good	No work required	972	20+	C
63	<i>Acer pseudoplatanus</i> (sycamore)	16	45 est	3	6	6	6	M	Fair	Good	Good	No work required	540	20+	C

64	<i>Tilia europea</i> (european lime)	16	62	5.5	6	6	6	M	Good	Good	Good	No work required	744	20-40	B	
65	<i>Tilia europea</i> (european lime)	12	55	2	5	5	5	SM	Fair	Good	Good	No work required	660	20-40	C	
66	<i>Tilia europea</i> (european lime)	12	45	3	3	3	3	SM	Good	Typical form for species	Good	No work required	540	20+	C	
67	<i>Acer pseudoplatanus</i> (sycamore)	13	33	2	2	3	2	SM	Poor	Poor	Good	No work required, tree to be monitored	396	20+	C	
68	<i>Acer pseudoplatanus</i> (sycamore)	14	54	6	6	6	6	SM	Poor	bifurcates at 3.5m, structurally sound union, squirrel	Monitor tree, likley in decline	Remove deadwood	648	20+	C	

										damage in crown, dieback in crown, slight kink in stem and exudates on main stem. Tree in small round planter with cobbled surrounds.					
69	<i>Tilia spp. (lime)</i>	16	52	4	6	6	5	SM	Poor	Poor, tree in small round planter with cobbled surrounds.	Giant polypore at base	Remove tree and stump grind	624	<10	U
70	<i>Tilia spp. (lime)</i>	16	45	4	5	5	7	SM	Fair	Fair, tree in small round planter with cobbled surrounds.	approximate 15 degree lean over road, minor dieback over road	Monitor condition	540	20+	C
71	<i>Acer pseudoplatanus (sycamore)</i>	16	45	3.5	3	4.5	3.5	SM	Poor	Poor, tree in small round planter with cobbled surrounds.	Dieback in crown, fairly significant, high surface roots visible in planter, east side patches of bark missing at ground level to 3m, minor decay at 0.2m, flaring of buttress roots, tree in decline.	No work required	540	10-20	C
72	<i>Fraxinus excelsior (common ash)</i>	18	73	9	8	9	8	M	Poor	poor	Ash dieback present tree in declining condition	Remove tree and stump grind	876	20+	C
73	<i>Fraxinus excelsior (common ash)</i>	18	95	7	7	7	6	M	Poor	poor	Ash dieback present tree in declining condition	Remove tree and stump grind	1140	20+	C

5. Comments

5.1 Legal Considerations

Protected Trees

Where Tree Protection Orders (TPO) protect the trees, located within a conservation area, or protected by planning permission it is necessary to obtain permission from the local planning authority before carrying any work out.

Wildlife Conservation Legislation

Nesting Birds have legal protection as do bats and their roosts whether in use or not. An ecology report may be required to highlight the potential of disturbing any such habitat on site through development.

Forestry Legislation

Felling Licence exemptions: Felling tree immediately required for the purpose of carrying out development authorised by planning permission (granted under the Town and Country Planning Act 1990) or for work carried out by certain providers of gas, electricity and water services and which is essential for the provision of these services.

In any calendar quarter*, you may fell up to 5 cubic meters on your property without a licence as long as no more than two cubic meters area sold. (*1 Jan to 31 March, 1 April to 30 June, 1 July to 30 September and 1 October to 31 December).

Felling necessary for the prevention of danger or the prevention or abatement of nuisance (e.g. which may involve threat of danger to a third party).

*This exemption will only apply if there is a real rather than a perceived danger. We may be able to give advice that would minimise the danger without felling the trees. **We strongly recommend that you contact us if you are considering felling a tree or trees in these circumstance.** You may be prosecuted for illegal felling if it is shown that the tree did not present a real or immediate danger.*

(Forestry Commission Tree Felling Getting Permission).

5.2 Planting opportunities

Planting opportunities have been identified within the tree plans on the wide grass verges alongside the A660. Additional opportunity maybe available in the adjacent Woodhouse, Cinder and Monument Moor. The planting of native species is encourages with consideration towards trees with longevity.

6.0 Tree Constraints

Tree Retention Category – BS 5837 (2012)

Using the guidance given in Table 1 of BS 5837 (2012), I have assessed the quality of the trees for retention and recorded the results in the schedule at Appendix 5. Appendix 3 contains a copy of Table 1 from BS 5837 (2012).The following colour scheme represents the tree retention categories on the Plans:

Red:	Retention Category U –	Those trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years
Green:	Retention Category A –	Trees of high quality with an estimated remaining life expectancy of at least 40 years
Blue:	Retention Category B –	Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
Grey:	Retention Category C –	Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm

Where it is desirable to retain trees within the site and to the side of the site, any future developments should take into account that said trees will require to be protected as shown in the tree protection plan. (**Appendix 6**).

Above Ground – The tree constraints plan shows the existing site layout, the location of their crowns. If retained, tree canopies are the vertical constraints to development. Pruning in accordance with good arboricultural practice (BS3988) can sometimes provide adequate clearance to implement the development proposals.

Below Ground – The tree constraints plan shows the root protection areas (RPAs) of the trees. This is the minimum area of soil required by the roots to maintain healthy growth and is a development constraint.

Root damage through severance, soil alteration/compaction is often not visible from the surface and can create safety issues with tree stability. Root damage can also lead to a reduction in the trees ability to acquire enough moisture and nutrients to remain healthy.

7.0 Recommendations

7.1 General Precautions

The following general precautions should ensure the health and longevity of the trees. I suggest enforcing these general precautions within the RPAs during the construction phase and in locations where new trees are to be established:

- No soil disturbance, including compaction
- No change in the soil level, by stripping or filling
- No excavation, without prior discussion with the Arboricultural Consultant and/or the Local Planning Authority
- No redirection of surface water runoff into or out of the RPA
- No temporary buildings, sheds, or offices, without prior discussion with the Arboricultural Consultant and/or the Local Planning Authority
- No storage of materials or fuel
- No dumping of materials, whether into a skip or onto the ground
- No fires within 10m of the RPA or tree canopy, whichever is greater
- No vehicles, including parking
- No operation of plant equipment, without prior discussion with the Arboricultural Consultant and/or the Local Planning Authority
- No refuelling of mechanical equipment
- No storage or mixing of cement
- No washing of cement mixers within or uphill of the RPA

-
- Follow the guidance contained within the National Joint Utilities Group Volume 4 (Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2, 2007); www.njug.org.uk) when installing underground services within the RPA of a tree.

If necessary, Leeds can provide a site monitoring role to ensure adequate tree protection measures are employed at critical stages of the construction process and in accordance with BS 5837 (2012).

7.2 Poor Quality Trees – Trees in Retention Category U

Where trees have been categorized as U unsuitable for retention. It may be desirable to remove these trees before development however they have potential to have conservation value and may be desirable for retention.

7.3 Temporary tree protection

Recommended pruning works may be advisable to lift the crowns of trees being retained prior to implementation of tree protection to prevent potential damage to there lower crown.

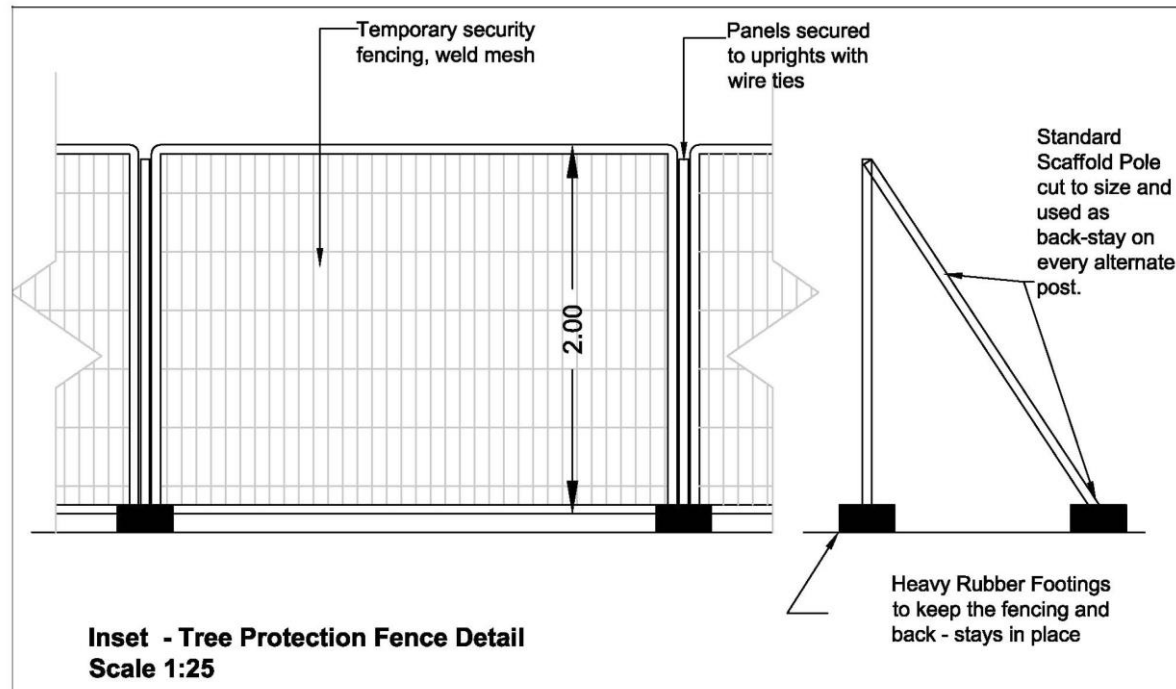
Storage of material and equipment close to trees increase the likelihood of physical damage to trunks and branches. Fuel spillages and cement-mixer washings are detrimental to the soil and root systems. Therefore storage of material and plant equipment should be on existing hard standings areas no with tree protection areas. If there is no alternative, adequately protect any nearby trees and soil to minimise any harmful impacts as per paragraph 8.8.2 and Annex A.2.1 & A.2.2 of BS 5837:2012.

Temporary tree protection barriers should be erected at least 2m from the edge of the canopies of all hedgerows within the site, the Trees Protection Plan shows suggested locations of temporary tree protection barriers. These barriers must be robust enough to withstand impacts from machinery and plant that will operate close to them. If relatively small plant is to be used I recommend that the barriers should be constructed using:

Temporary tree protection barriers should be erected outside the RPA,s and canopies of retained trees, the Trees Protection Plan shows suggested locations of temporary tree protection barriers. These barriers must be robust enough to withstand impacts from machinery and plant that will operate close to them. If relatively small plant is to be used I recommend that the barriers should be constructed using:

-
- 75-100mm diameter, by 1.8m long, wooden posts firmly inserted 300mm into the ground 2m apart.
 - The posts should be spanned by 30mm x 100mm x 2m wooden rails between their tops and bottoms: and
 - 1.5m high chestnut paling should be attached to both the top and bottom rails at 300-500mm intervals.

If large machines will operate on site I recommend the barrier design depicted in BS 5837 (2012)



(picture to scale).

The protective barriers should be should be erected prior to any other development activity taking into place and remain in-situ for the duration of the construction phase. They should not be moved without the written consent of the LPA.

Temporary tree protection barriers should be erected at least 2m from the edge of the canopies of all hedgerows within the site, the Trees Protection Plan shows suggested locations of temporary tree protection barriers. These barriers must be robust enough to

withstand impacts from machinery and plant that will operate close to them. If relatively small plant is to be used I recommend that the barriers should be constructed using:

7.4 Temporary ground protection

If construction activity is to take place within the RPA's of retained trees the soil should be protected against compaction and contamination. The following suggestions may be appropriate:

- For heavy construction vehicles (<2), use reinforced concrete slabs, the three dimensional cellular confinement system
- For lighter machinery (2t), use inter-linked ground protection boards placed on 150mm depth of woodchip, laid on a geotextile membrane.
- For pedestrian traffic, use a single thickness of scaffold boards placed either on a driven scaffold frame, so as to form a suspended walkway, or placed on top of 100mm depth of woodchip, laid onto a geotextile membrane.

7.5 Implementing tree work

On Implementing recommended Tree Work a suitably qualified, competent, experienced, and insured contractor should carry out the recommended tree work. The contractor should carry out their work in accordance with the recommendations contained in the British Standard – BS 3998, *Tree work – Recommendations* (2010) – as modified by research that is more recent.

7.6 Design and construction considerations

Proposed buildings should be designed to take into account retained trees, proposed trees on site the ultimate height/spread and density of foliage as per paragraph 5.3.4 of BS 5837:2012 in relation to the amount of shading cast, privacy and screening, direct damage, future pressure for removal and seasonal nuisance.

7.7 Material Storage

Storage of material and equipment close to trees increase the likelihood of physical damage to trunks and branches. Fuel spillages and cement-mixer washings are detrimental to the soil and root systems. Therefore storage of material and plant equipment should be on existing hard standings areas no with tree protection areas. If there is no alternative, adequately protect any nearby trees and soil to minimise any harmful impacts as per paragraph 8.8.2 and Annex A.2.1 & A.2.2 of BS 5837:2012.

8 GLOSSARY

1. Tree Number/ tags
Individual tree = T+ Number
Group of trees = G+ Number
2. Species
Common and or scientific names where appropriate
3. Diameter at breast height
Measurement of stem @1.5m
4. Height
Over all tree height
5. Canopy Spread
Extent of tree branches taken at each compass point (Eg N,S,E,W)
6. Age Class
(Y =Young) (SM= Semi mature) (M=Mature)
(OM=Over Mature) (V= Veteran)
7. Physiological condition
(E.g Good, Fair, Poor, Dead)
8. Structural Condition
(E.g Collapsing, the presence of decay and physical defects)
9. Preliminary management recommendation

(Including further investigation of suspected defects that require more detailed assessments and potential for wildlife habitat ;)

10. Root Protection Area + Root Protection Radius

B.s 5837 section 5 it is recommend that the stem diameter taken @ 1.5m x 12 for single stemmed trees & 10 x the basal diameter for Multi stemmed trees is used to calculate the root protection area

11. Estimated remaining contribution in years

E.G Less than 10, 10-20, 20-40, More than 40 years

12. R or A to C Category grading

13.

(See Bs 5837 table 1 4.3.1 For details of each Category

R = Red, A= Green, B = Blue, C= Grey

Appendix 1

Tree survey technique

The survey was undertaken with reference to British Standard 5837;2012 Tree in relation to design, demolition and construction – Recommendations. The trees were surveyed from the ground using 'Visual Tree Assessment' (VTA) methodology as defined by N Matheny & J Clark in 1994, objectively and without reference to any proposed site layout.. All assessments were carried from ground level. Details of the assessment were recorded on standard inspection forms. A key to coding is including in the Glossary. Measurements are obtained using a diameter tape, clinometer, loggers tape and trundle wheel but where it was not practical to obtain measurements either the measurement was estimated or the largest stem in the ground was measured.

Tree groups have been identified in instances as defined in BS 5837 (2012). Shrubs and insignificant trees may have been omitted from survey.

This report represents a BS5837 tree survey and should not be accepted as a detailed tree safety inspection, however tree related hazards have been reported and commented upon where noted but no guarantees can be given as to the absolute safety of the trees in this report.

Appendix 2

British Standard: BS 5837 (2012) Trees in Relation to Design, Demolition and Construction – Recommendations: Tree Categorisation Table

Trees Unsuitable For Retention (see Note)			
<p>Category U</p> <p>Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years</p>	<ul style="list-style-type: none"> • Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <p>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7 below.</p>		
TREES TO BE CONSIDERED FOR RETENTION			
Category and Definition	1. Mainly arboricultural qualities	2. Mainly landscape qualities	3. Mainly cultural values, including conservation
<p>Category A</p> <p>Trees of high quality with an estimated remaining life expectancy of at least 40 years</p>	<p>Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)</p>	<p>Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features</p>	<p>Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)</p>
<p>Category B</p> <p>Trees of moderate quality with an estimated remaining life expectancy of at least 20 years</p>	<p>Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation</p>	<p>Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality</p>	<p>Trees with material conservation or other cultural value</p>
<p>Category C</p> <p>Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm</p>	<p>Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories</p>	<p>Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits</p>	<p>Trees with no material conservation or other cultural value</p>

BS 5837 (2012) Section 4.5.7 states: 'Where trees would otherwise be categorized as U, but have identifiable conservation, heritage or landscape value, even though only for the short term, they may be upgraded, although they might be suitable for retention only where issues concerning their safety can be appropriately managed.'

APPENDIX 3

BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations Paragraph 8.8.2 Working within the root protection area (RPA)

8.8.2.1 Care should be taken to ensure during tree removal or remedial work that damage to the retained trees and/or disturbance to the RPA is avoided. Precautions should include dismantling techniques to reduce the risk of accidental damage, and ground protection measures where excessive pedestrian movements or use of plant and machinery might lead to compaction.

8.8.2.2 If temporary access is required for plant or vehicles within the RPA, this should be provided by means of temporary ground protection (see 6.2)

NOTE In all cases, the objective is to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain undamaged.

8.8.2.3 To avoid adverse impact on retained trees, stumps to be removed within RPA,s should not be dug or pulled out but should be ground out.

Appendix 5

BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations Annex 2.1 and 2.2

A.2.1 General

Trees that have good health and stability are well adapted to their surroundings. Any development activity which affects the adaptation of trees to a site could be detrimental to their health, future growth and safety. Tree species differ in their ability to tolerate change, but all tend to become less tolerant after have reached maturity or suffered previous damage or physiological stress. Planning and subsequent site management aims need to minimize the effect of change.

The part of a tree most susceptible to damage is the root system, which, because it is not immediately visible, is frequently ignored. Damage to, or death of, the root system affects the health, growth, life expectancy and safety of the entire tree. The effects of such damage might only become evident several years later. Damage can be the result of a number of minor but compounding factors that accumulate over time. Materials such as uncured concrete, diesel oil and vehicle washing can all damage roots and lead to adverse impacts on the tree.

Damage to the stem and branches of a tree is not usually sufficient to kill the tree directly, but can make it unsafe by affecting the dynamics and growth of the tree, or by initiating long term decay. Such damage can also be disfiguring. The attachment of notice boards, cables and other utility apparatus can all damage trees, as can using trees as anchors for winching.

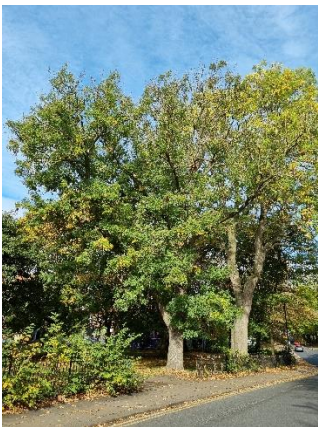
Appendix – photographs



T71



T71



T72/T73



G39 and T40



T32



T29



T11



T1 and T2



T9



T14



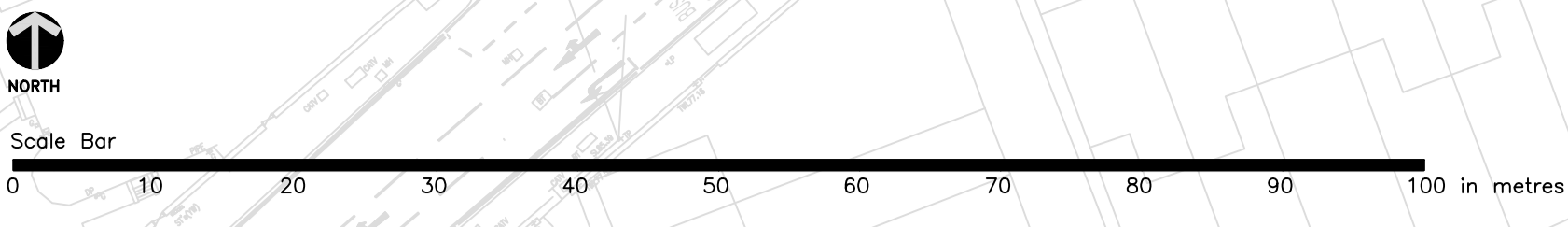
T14



Woodhouse Moor Ash (off site)



T69 fungus



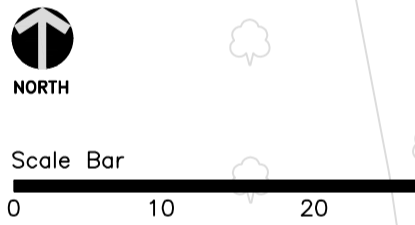
- Key**
- Category A trees and shrubs - High quality and value
 - Category B trees and shrubs - Moderate quality and value
 - Category C trees and shrubs - Low quality and value
 - Category U trees and shrubs - Require felling because of condition

A660
Tree Survey

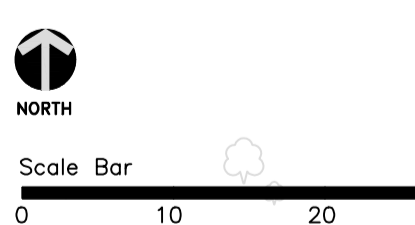
"You are not permitted to copy, sub licence, distribute or sell any of this data to third parties at anytime"

Revision number	Date	Description

Communities, Housing and Environment Parks & Countryside 7th Floor West Merrion House 110 Merrion Centre Leeds LS2 8DT			
Leeds CITY COUNCIL			
Project: A660 -			
Title: Tree Survey			
Drawn: CAJ	Scale: 1:500@A0	Date: 18.11.22	Checked: JC
Drawing Number: LD.1254.01A	Revision: 0		



- Key**
- Category A trees and shrubs - High quality and value
 - Category B trees and shrubs - Moderate quality and value
 - Category C trees and shrubs - Low quality and value
 - Category U trees and shrubs - Require felling because of condition



- Key**
- Category A trees and shrubs - High quality and value
 - Category B trees and shrubs - Moderate quality and value
 - Category C trees and shrubs - Low quality and value
 - Category U trees and shrubs - Require felling because of condition

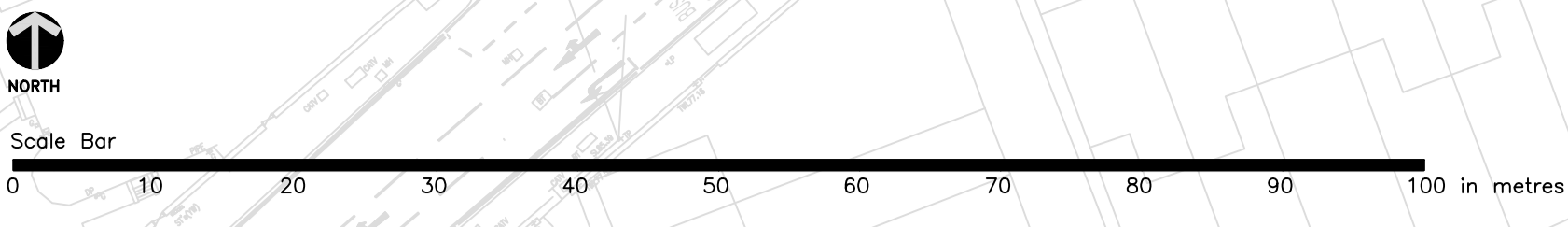
St George's Fields
(formerly Leeds General Cemetery)

A660
Tree Survey

"You are not permitted to copy, sub licence, distribute or sell any of this data to third parties at anytime"

Revision number	Date	Description

Communities, Housing and Environment Parks & Countryside			
Leeds CITY COUNCIL			
7th Floor West Merrion House 110 Merrion Centre Leeds LS2 8DT			
Project A660 -			
Title Tree Survey			
Drawn CAJ	Scale 1:500@A0	Date 18.11.22	Checked JC
Drawing Number LD.1254.01B		Revision 0	



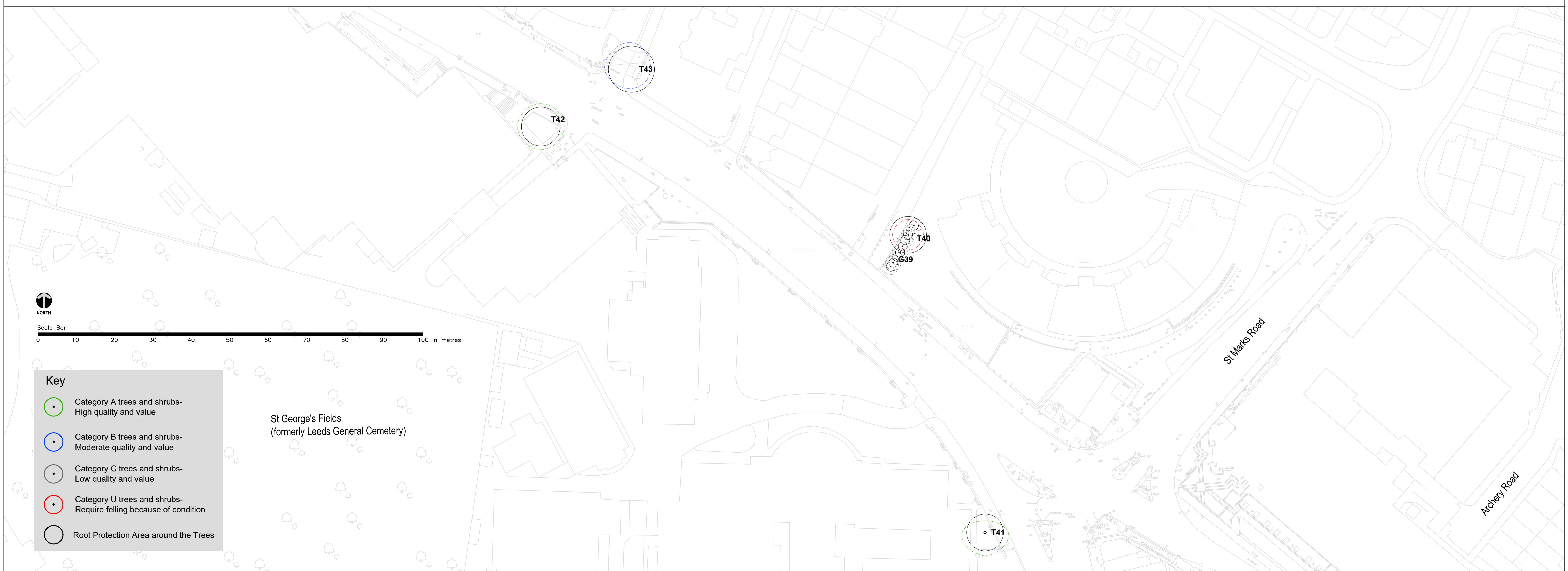
- Key**
- Category A trees and shrubs - High quality and value
 - Category B trees and shrubs - Moderate quality and value
 - Category C trees and shrubs - Low quality and value
 - Category U trees and shrubs - Require felling because of condition
 - Root Protection Area around the Trees

A660
Tree Constraints Plan

"You are not permitted to copy, sub licence, distribute or sell any of this data to third parties at anytime"

Revision number	Date	Description

Communities, Housing and Environment Parks & Countryside 7th Floor West Merrion House 110 Merrion Centre Leeds LS2 8DT			
Leeds CITY COUNCIL			
Project: A660 -			
Title: Tree Constraints Plan			
Drawn: CAJ	Scale: 1:500@A0	Date: 18.11.22	Checked: JC
Drawing Number: LD.1254.02A			Revision: 0

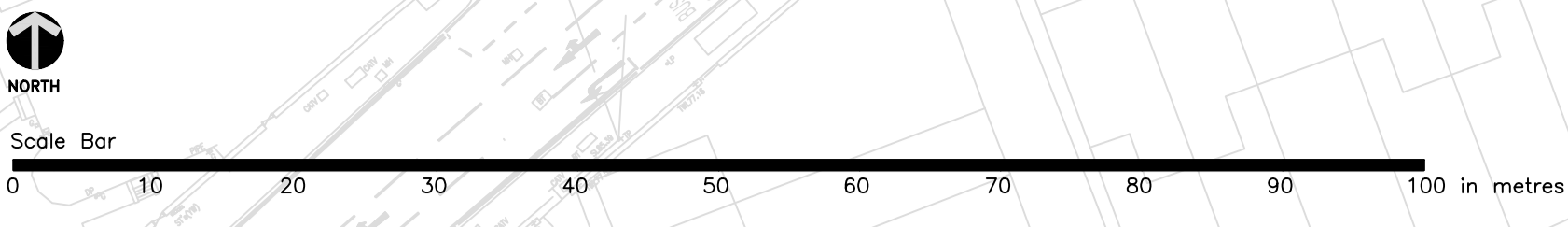


A660
Tree Constraints Plan

"You are not permitted to copy, sub licence, distribute or sell any of this data to third parties at anytime"

Revision number	Date	Description

Communities, Housing and Environment Parks & Countryside Leeds CITY COUNCIL 7th Floor West Merrion House 110 Merrion Centre Leeds LS2 8DT			
Project: A660 -			
Title: Tree Constraints Plan			
Drawn: CAJ	Scale: 1:500@A0	Date: 18.11.22	Checked: JC
Drawing Number: LD.1254.02B		Revision: 0	



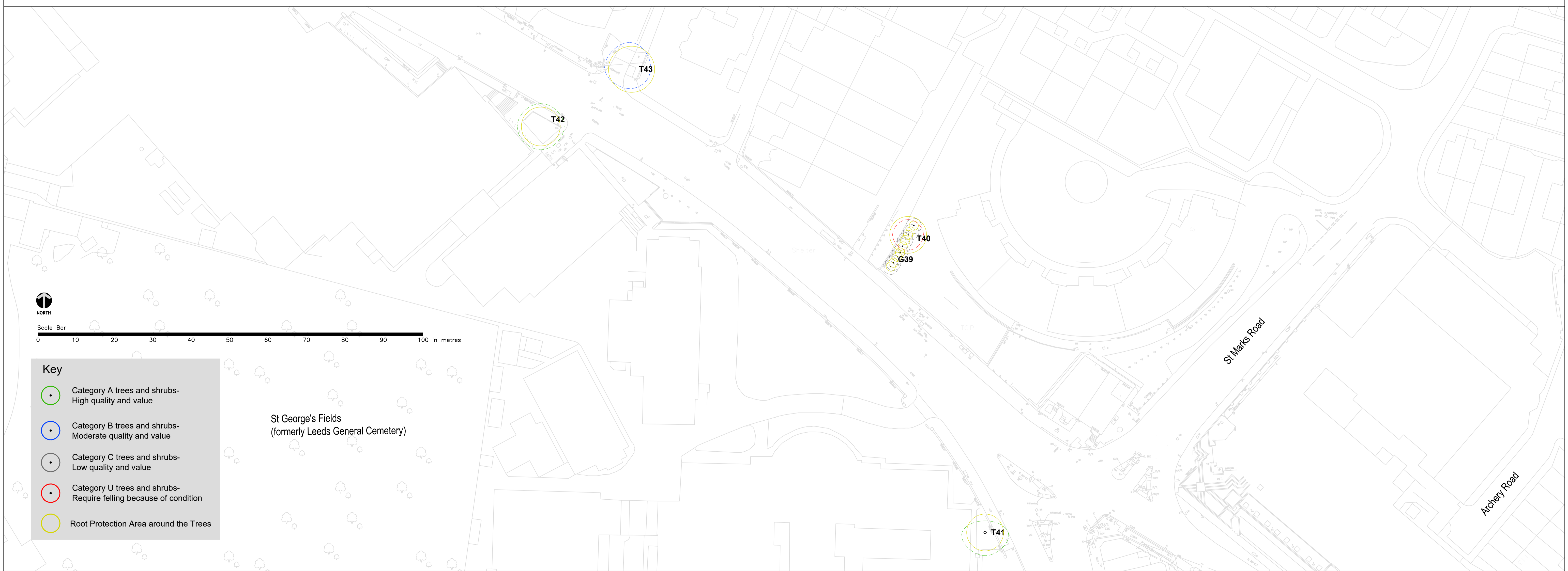
- Key**
- Category A trees and shrubs - High quality and value
 - Category B trees and shrubs - Moderate quality and value
 - Category C trees and shrubs - Low quality and value
 - Category U trees and shrubs - Require felling because of condition
 - Root Protection Area around the Trees

A660
Tree Constraints Plan - Yellow

"You are not permitted to copy, sub licence, distribute or sell any of this data to third parties at anytime"

Revision number	Date	Description

Communities, Housing and Environment Parks & Countryside 7th Floor West Merrion House 110 Merrion Centre Leeds LS2 8DT			
Leeds CITY COUNCIL			
Project: A660 -			
Title: Tree Constraints Plan - Yellow			
Drawn: CAJ	Scale: 1:500@A0	Date: 18.11.22	Checked: JC
Drawing Number: LD.1254.03A	Revision: 0		

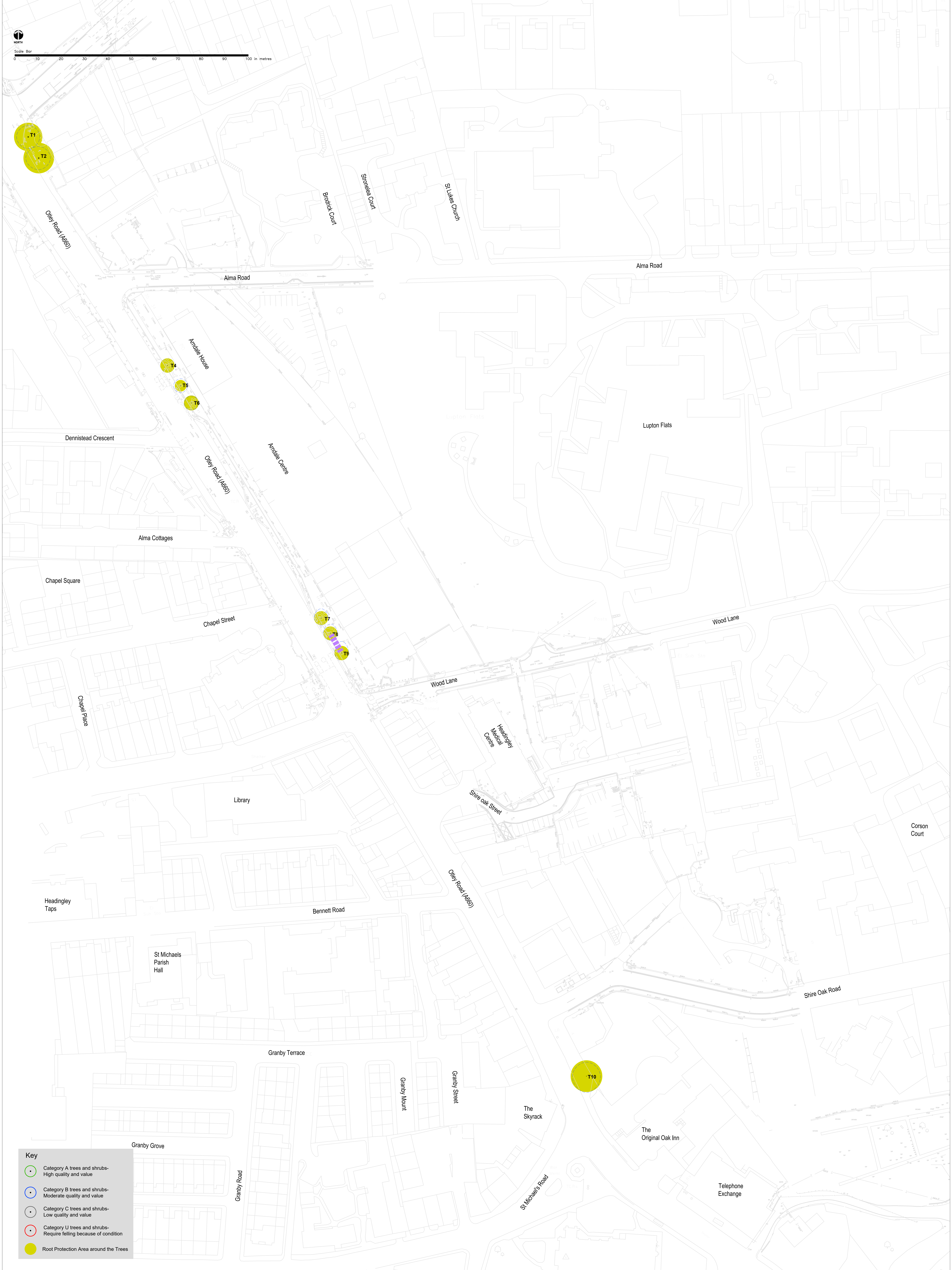
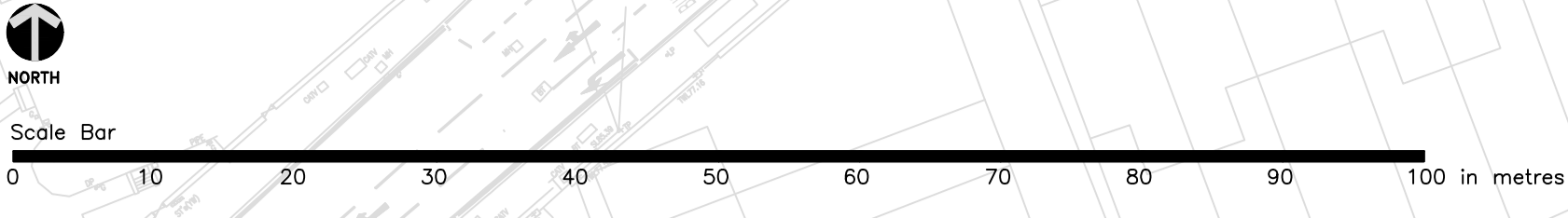


A660
Tree Constraints Plan - Yellow

"You are not permitted to copy, sub licence, distribute or sell any of this data to third parties at anytime"

Revision number	Date	Description

Communities, Housing and Environment Parks & Countryside			
7th Floor West Merrion House 110 Merrion Centre Leeds LS2 8DT			
Project A660 -			
Title Tree Constraints Plan - Yellow			
Drawn CAJ	Scale 1:500@A0	Date 18.11.22	Checked JC
Drawing Number LD.1254.03B		Revision 0	



Key

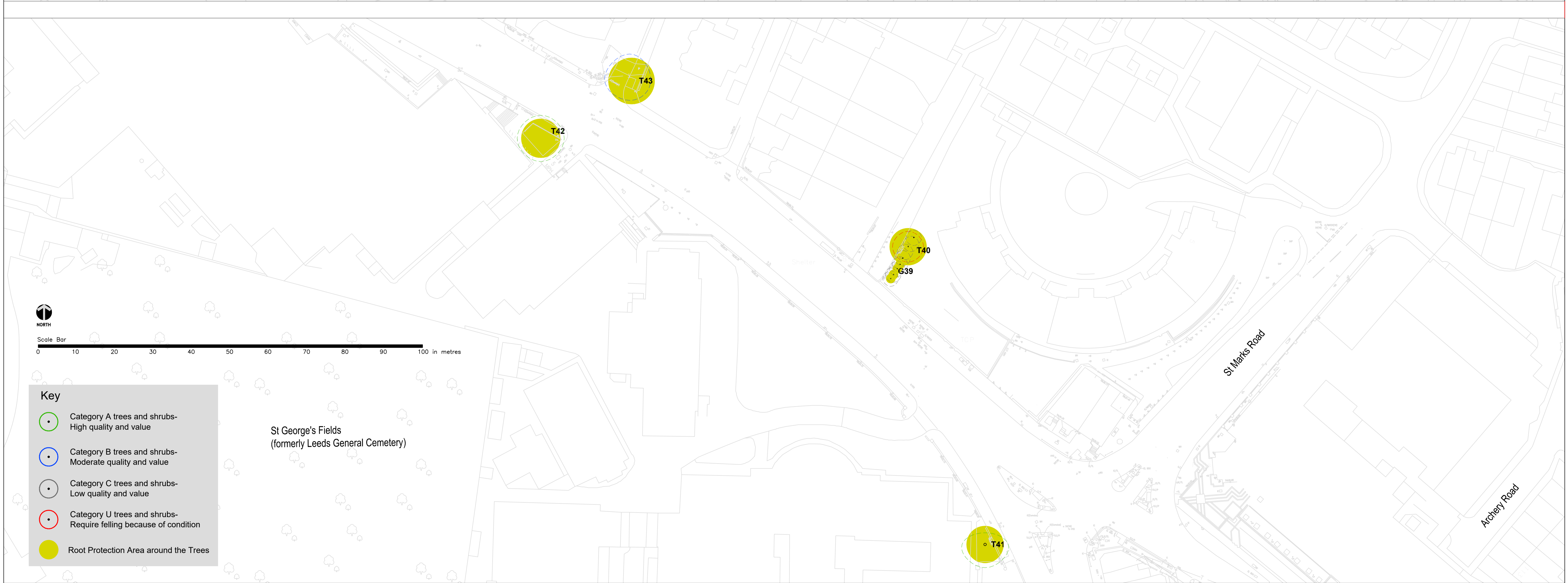
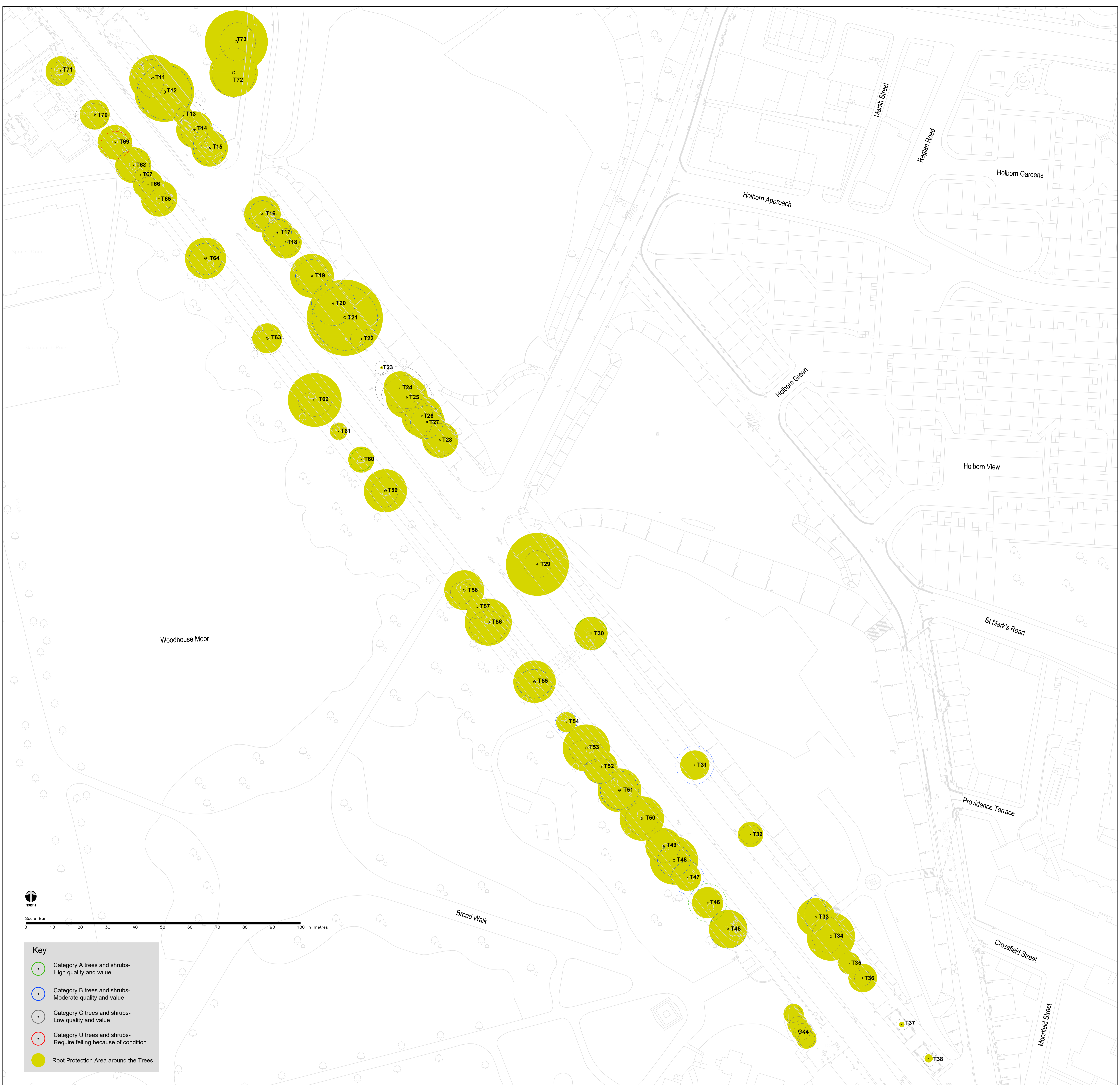
- Category A trees and shrubs - High quality and value
- Category B trees and shrubs - Moderate quality and value
- Category C trees and shrubs - Low quality and value
- Category U trees and shrubs - Require felling because of condition
- Root Protection Area around the Trees

A660
Tree Constraints Plan - Shaded

"You are not permitted to copy, sub licence, distribute or sell any of this data to third parties at anytime"

Revision number	Date	Description

Communities, Housing and Environment Parks & Countryside 7th Floor West Merrion House 110 Merrion Centre Leeds LS2 8DT			
Leeds CITY COUNCIL			
Project: A660 -			
Title: Tree Constraints Plan - Shaded			
Drawn: CAJ	Scale: 1:500@A0	Date: 18.11.22	Checked: JC
Drawing Number: LD.1254.04A	Revision: 0		

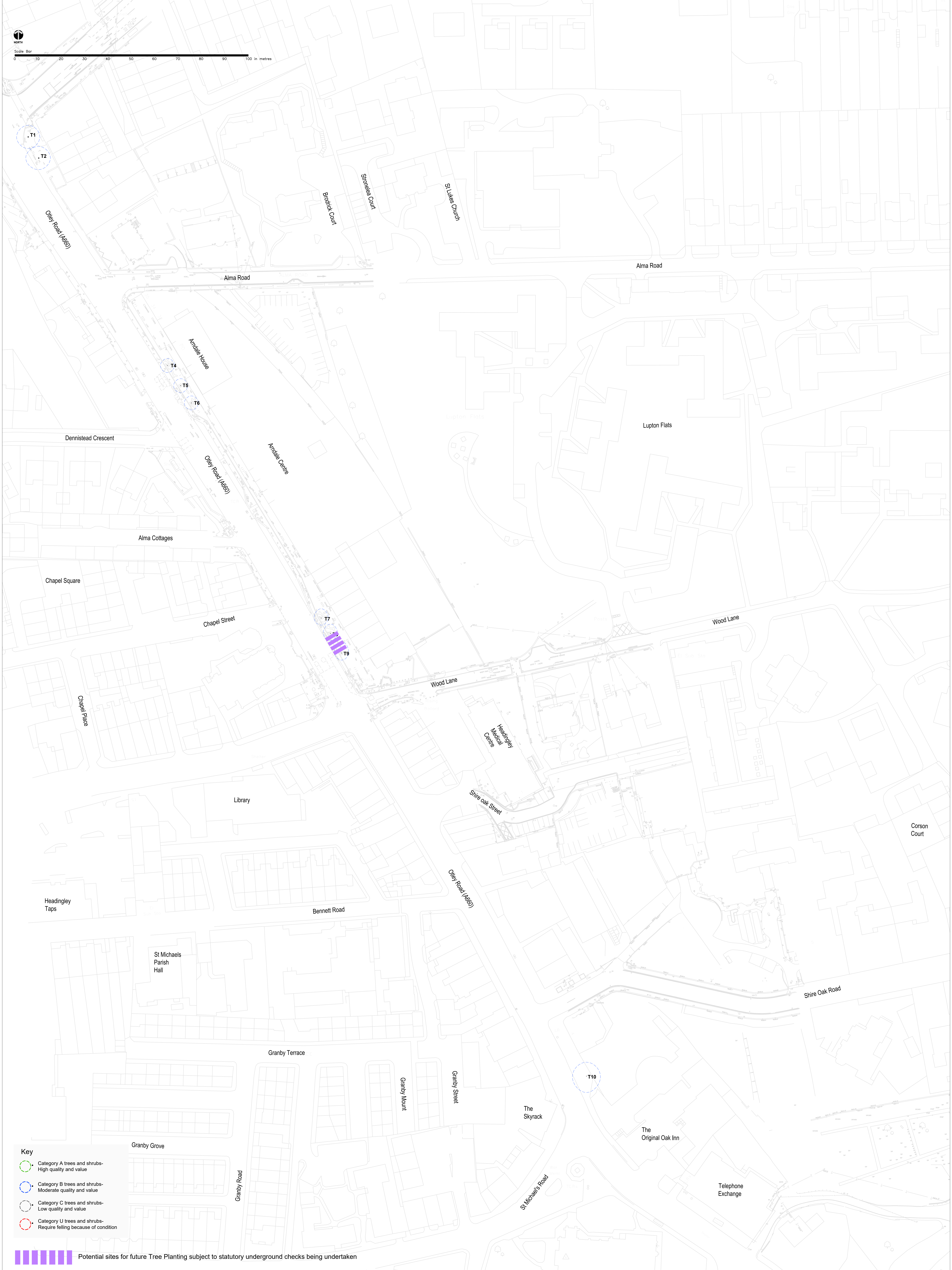
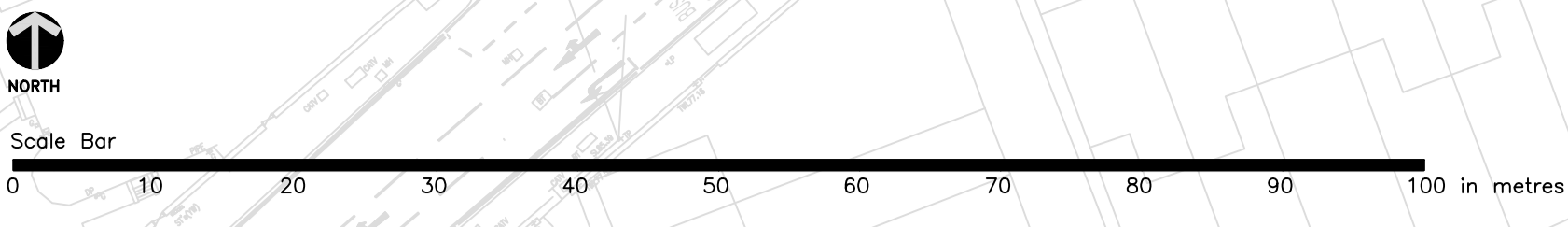


A660
Tree Constraints Plan - Shaded

"You are not permitted to copy, sub licence, distribute or sell any of this data to third parties at anytime"

Revision number	Date	Description

Communities, Housing and Environment Parks & Countryside			
7th Floor West Merrion House 110 Merrion Centre Leeds LS2 8DT			
Project A660 -			
Title Tree Constraints Plan - Shaded			
Drawn CAJ	Scale 1:500@A0	Date 18.11.22	Checked JC
Drawing Number LD.1254.04B		Revision 0	



- Key**
- Category A trees and shrubs - High quality and value
 - Category B trees and shrubs - Moderate quality and value
 - Category C trees and shrubs - Low quality and value
 - Category U trees and shrubs - Require felling because of condition

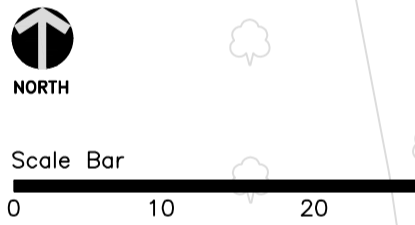
Potential sites for future Tree Planting subject to statutory underground checks being undertaken

A660
Proposed Tree Planting - Areas

"You are not permitted to copy, sub licence, distribute or sell any of this data to third parties at anytime"

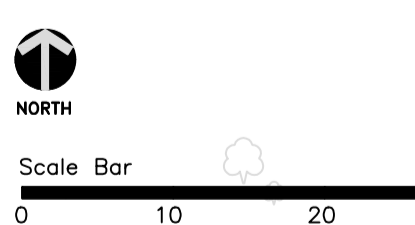
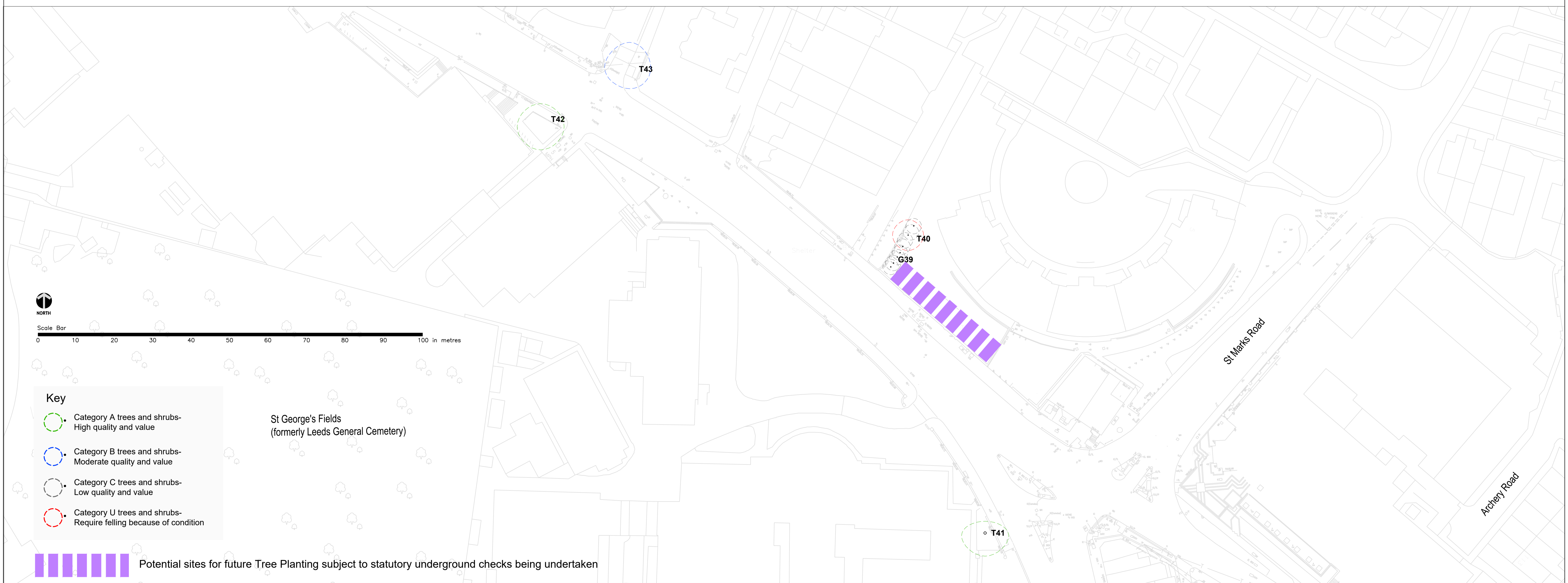
Revision number	Date	Description

Communities, Housing and Environment Parks & Countryside 7th Floor West Merrion House 110 Merrion Centre Leeds LS2 8DT			
Leeds CITY COUNCIL			
Project A660 -			
Title Proposed Tree Planting - Areas			
Drawn CAJ	Scale 1:500@A0	Date 24.11.22	Checked JC
Drawing Number LD.1254.05A	Revision		0



- Key**
- Category A trees and shrubs - High quality and value
 - Category B trees and shrubs - Moderate quality and value
 - Category C trees and shrubs - Low quality and value
 - Category U trees and shrubs - Require felling because of condition

Potential sites for future Tree Planting subject to statutory underground checks being undertaken



- Key**
- Category A trees and shrubs - High quality and value
 - Category B trees and shrubs - Moderate quality and value
 - Category C trees and shrubs - Low quality and value
 - Category U trees and shrubs - Require felling because of condition

St George's Fields (formerly Leeds General Cemetery)

Potential sites for future Tree Planting subject to statutory underground checks being undertaken

A660
Proposed Tree Planting Sites

"You are not permitted to copy, sub licence, distribute or sell any of this data to third parties at anytime"

Revision number	Date	Description

Communities, Housing and Environment Parks & Countryside			
Leeds CITY COUNCIL			
7th Floor West Merrion House 110 Merrion Centre Leeds LS2 8DT			
Project: A660 -			
Title: Proposed Tree Planting Sites			
Drawn: CAJ	Scale: 1:500@A0	Date: 24.11.22	Checked: JC
Drawing Number: LD.1254.05B		Revision: 0	