



Blacker Road, Huddersfield (Area A)

Arboricultural Impact Assessment

June 2021

Waterman Infrastructure & Environment Limited

Bradshaw House, 31 Waterloo Lane, Bramley, Leeds, LS13 2JB

www.watermangroup.com

Client Name: Kirklees Metropolitan Borough Council
Document Reference: WIE14496-100-R-4-6-2-AIA
Project Number: WIE14496-100

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS EN ISO 45001:2018)

Issue	Date	Prepared by	Checked by	Approved by
First	October 2018	Robyn Ablitt Senior Arboriculturalist 	Richard Harris Principal Consultant 	Joanna Bagley Senior Associate Director 
Second	November 2018	Richard Harris Principal Arboriculturalist 	Joanna Bagley Senior Associate Director 	Joanna Bagley Senior Associate Director 
Third	June 2020	Robyn Ablitt Senior Arboriculturalist 	Richard Harris Principal Consultant 	Joanna Bagley Senior Associate Director 
Fourth	July 2020	Robyn Ablitt Senior Arboriculturalist 	Richard Harris Principal Consultant 	Joanna Bagley Senior Associate Director 
Fifth	January 2021	Robyn Ablitt Senior Arboriculturalist 	Richard Harris Principal Consultant 	Joanna Bagley Senior Associate Director 
Sixth	11 June 2021	Richard Harris Principal Consultant	Joanna Bagley Senior Associate Director	Joanna Bagley Senior Associate Director 

Comments

Second	Trees T35A and T135-T140 added and positions of T32, G33, T34 and T35 amended due to receipt of updated topographical survey.
Third	Updated to include trees T141-T173 and an assessment of scheme fix information.
Fourth	Updated to include enabling works and trees T174 to T181
Fifth	Updated to revise title and include revised landscape drawings.
Sixth	Updated to include revised landscape drawings.

Disclaimer

This report has been prepared by Waterman Infrastructure & Environment Limited, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

Contents

1. Introduction	1
2. Tree Survey Methodology	3
3. Results	6
4. Arboricultural Impact Assessment	11
5. Summary	17

Tables

Table 1: Category Grading of Existing Trees	8
Table 2: Trees Covered by TPO or Conservation Area Designations	10
Table 3: Trees to be Removed	11

Figures

Figure 1: Tree Preservation Orders and Conservation Area Designations	9
---	---

Drawings

Drawing 1: Arboricultural Constraints Plan Sheet 1 of 2 (ref.14496-WIE-ZZ-XX-SU-L-77001)	1
Drawing 2: Arboricultural Constraints Plan Sheet 2 of 2 (ref.14496-WIE-ZZ-XX-SU-L-77002)	1
Drawing 3: Blacker Road Junction General Arrangement (ref.Kirkees Council TF5/Area A/P/GA-1)..	1
Drawing 4: Tree Retention and Removal Plan Sheet 1 of 2 (ref.14496-WIE-ZZ-XX-DR-L-77011)	1
Drawing 5: Tree Retention and Removal Plan Sheet 2 of 2 (ref.14496-WIE-ZZ-XX-DR-L-77012)	1
Drawing 6: Area A Tree Mitigation and Landscape Proposals sheet 1 of 2 (ref.Kirklees Metropolitan Borough Council TF5/AREA-A/P/LSC-1	1
Drawing 7: Area A Tree Mitigation and Landscape Proposals sheet 2 of 2 (ref.Kirklees Metropolitan Borough Council TF5/AREA-A/P/LSC-2	1

Appendices

- A. Cascade Chart for Tree Quality Assessment (extract from BS5837:2012)
- B. Tree Survey Schedule
- C. Tree Protection Signage (Example)
- D. Tree Protection Fencing (Examples)

Contents

1. Introduction

- 1.1. Waterman Infrastructure & Environment Ltd (Waterman) was commissioned by Kirklees Metropolitan Borough Council to undertake a an Arboricultural Impact Assessment (AIA)) of the Halifax Road Phase 5 Improvement Scheme (hereafter referred to as 'the Scheme').
- 1.2. West Yorkshire Combined Authority is developing a programme of transport schemes that increase housing, employment and economic growth across the Leeds City Region. Successful projects will reduce journey times, alleviate congestion and improve air quality. The Combined Authority's Delivery team is working in partnership with the officers in the five West Yorkshire districts and York to deliver the wide range of schemes.
- 1.3. As part of the 'City Deal' between West Yorkshire, York and central government, a transport fund, known as the West Yorkshire Plus Transport Fund has been created. This identified a Core 10-year package of measures that would enable change and deliver economic growth in the short to medium-term. The A629 Halifax to Huddersfield Corridor has been prioritised for delivery within the first five years of the West Yorkshire Plus Transport Fund. Kirklees Metropolitan Borough Council and Calderdale Council are jointly developing a range of interventions proposed along the corridor which will be delivered in a number of phases.
- 1.4. Kirklees Metropolitan Borough Council is responsible for delivering Phase 5 (the Scheme), which covers three key junctions between Huddersfield Town Centre and Ainley Top Roundabout (known as Areas A, B and D) together with the provision of a new off-road residents' parking area (Area C). The Phase 5 proposals will improve access to the M62 from Huddersfield by relieving known congestion issues at the A629 junctions of 'Cavalry Arms' (Area B) and 'Blacker Road' (Area A) and its approach to and from Ainley Top (Area D). The overarching aim of the Scheme is to improve journey times for all road users between Huddersfield Ring Road and Ainley Top roundabout.
- 1.5. This report pertains to Area A, Blacker Road only. Area A is hereafter referred to in this report as the 'Site'. The proposals for the Site, hereafter referred to as the 'Development', include;
 - Road widening to create extra capacity by providing new traffic lanes at Edgerton Road, Blacker Road and New North Road;
 - Repositioning of footways to allow more traffic lanes along Edgerton Road, Blacker Road, Edgerton Grove Road and New North Road;
 - Road and footway resurfacing along existing roads within Area A boundary;
 - A new Garden of Rest and associated parking area in Edgerton Cemetery;
 - Repositioning of existing signal-controlled crossing points on all junctions;
 - A no-parking restriction zone to allow traffic flow; and
 - Cycle stop boxes at each junction to allow safe navigation for cyclists.
- 1.6. The Site is centred on ordnance survey grid reference SE 13482 17443 and comprises the junction of Edgerton Road, Blacker Road, New North Road and Edgerton Grove Road and adjacent land uses (predominantly private residential gardens). All arboricultural features on and directly adjacent to the Site (hereafter referred to as the 'Survey Area') are located within privately owned gardens, verges or soft landscape areas.
- 1.7. This AIA documents the findings of an arboricultural survey at the Site. It then evaluates the direct and indirect effects of the Development on the tree stock present on or directly adjacent to the Site.



Details of mitigation and compensation, where required, are also included.

2. Tree Survey Methodology

- 2.1. The arboricultural survey was based upon existing topographical information relating to the Site (Surveys Operations drawing no. 18IO73 dated October 2018) and was otherwise conducted in accordance with the principles outlined within BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations¹ (BS5837).
- 2.2. The initial survey was undertaken on 11th July 2018, with additional redline boundary areas surveyed on 22nd October 2018 (trees T35A, and T135-T140 inclusive), 7th May 2020 (trees T141-173 inclusive) and 2nd July 2020 (trees T174 to T181). The surveys comprised a non-intrusive, visual survey undertaken at ground level, during which dimensional data and observational information were collected, where required. A DBH tape measure and Leica Disto™ laser distance meter was used in the collection of data presented in this report.
- 2.3. Each feature surveyed has been assigned a category grade in accordance with the assessment criteria in **Appendix A**. A schedule of existing trees is present in **Appendix B**.

Root Protection Area

- 2.4. The Root Protection Area (RPA), as shown on **Drawing 1**, defines the minimum area around a tree that contains sufficient root volume to ensure the future well-being of the tree in the event of nearby soil disturbance. For a single stem tree, it is based on a calculation relating to the girth of the tree at 1.5m above ground level (assuming suitable rooting material surrounding the tree being 1m in depth). BS5837 outlines the calculation of RPA as follows:

$$RPA(m^2) = \left(\frac{\text{stem diameter (mm) @ 1.5 m} \times 12}{1\,000} \right)^2 \times \pi (3.142)$$

- 2.5. Trees with more than one stem below 1.5m above ground level are given an aggregate stem diameter using either of the following two calculations as outlined in BS5837. This diameter is then used in the above calculation to estimate RPA:

- a) For trees with two to five stems:

$$\sqrt{(\text{stem diameter 1})^2 + (\text{stem diameter 2})^2 \dots + (\text{stem diameter 5})^2}$$

- b) For trees with more than five stems:

$$\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$$

- 2.6. The RPA of existing tree stock is an important material consideration when considering Site constraints and planning development activities.
- 2.7. Construction activities, materials storage or changes in level should generally be avoided within the RPA of a tree to be retained. This is because these operations have the potential to damage or kill the tree, the safe retention of which may be a condition of planning permission. This is significant when considering construction in proximity to off-Site / third party land. Special construction techniques such as no-dig construction / permeable surfacing may be considered for light loadings,

¹ BS5837:2012 Trees in relation to design, demolition and construction – Recommendations, 2012, British Standards Institution.

e.g. pedestrian footpaths etc., within the RPA.

- 2.8. The RPA often varies in size to the physical area occupied by the canopy spread (due to particular tree species or management practices to artificially alter the canopy size). This is of particular importance when integrating new development in proximity of existing trees. Similarly, the canopy heights (as identified in the schedule of existing trees in **Appendix B**) should be considered as the usable space below a low branching tree will be severely restricted without specific arboricultural works to raise the canopy (which may not always be appropriate).
- 2.9. It should also be noted that BS5837 states that although RPAs should be plotted as a circle centred on the base of the stem, pre-existing site conditions (e.g. roads, buried structures, underground services, tree pits) or other factors (soil type, topography and drainage) may influence the morphology of roots so that rooting has occurred asymmetrically and as such, the RPA may instead be represented as a polygon of equivalent area. On this Site, potential barriers to root growth include roads, pavements, retaining walls and potential foundation structures pertaining to the building(s) adjacent to trees, where present. It is unlikely that roots are absent in all of these areas, however, where such unfavourable conditions exist, the potential for root growth to be impeded is possible and as such, actual root morphology may differ from that indicated by the RPAs in **Drawings 1** and **2**.

Limitations

- 2.10. All trees were visually inspected from ground level with no climbing, boring or sampling undertaken. All measurements are metric and where qualified, approximate. The comments made are based on observable factors present at the time of inspection, including weather, seasonality and access.
- 2.11. Where direct access for canopy/trunk measurements was not available (i.e. due to dense vegetation, locked gates or canopies which overhang live carriageways), the spread has been estimated and identified by '*' in the schedule.
- 2.12. Trees T40 and T152-T172 inclusive were not included on the topographical survey provided and as such, the locations of these trees on the accompanying Drawings has been estimated based on a combination of aerial imagery and site triangulation during the inspections.
- 2.13. Baseline survey information of trees T90-T123, located within woodland W89, has been limited to species, age class and category grading only, in accordance with the agreed scope of works. As such, given the lack of dimensional data collected for these features, canopies and root protection areas of these trees have not been plotted on **Drawing 2**.
- 2.14. Features H175-T181 inclusive have been surveyed from a combination of aerial imagery and Site photographs due to access restrictions relating to Covid-19. However, proposed Development works in the vicinity of these trees comprise minor landscape operations only, and as such, this is not considered a constraint to this report.
- 2.15. Off-Site trees located directly adjacent to the redline boundary to the south of G144 on Edgerton Grove Road (**Drawing 2**) were not surveyed as part of this assessment due to a lack of proposed works in this location.
- 2.16. This report is intended to assist with the planning and management of the proposed Development under current best practice.
- 2.17. The Arboricultural Survey and this report does not constitute a tree risk assessment. This report is not intended to confirm the safety, (or otherwise) of surveyed trees. References to defects or

potential safety issues are not exhaustive and intended as a guide only to inform the provision of further resources / more detailed investigations. The person(s) responsible for the management of the trees surveyed within this report are recommended to commission a separate tree condition survey by a suitably qualified and experienced person in order to manage the Health and Safety aspects of trees under their control and discharge their reasonable 'Duty of Care' owed under the Occupiers' Liability Act 1984².

- 2.18. Owing to the changing nature of trees as living, dynamic features and other Site circumstances, the baseline survey results detailed within this report are representative of the arboricultural features on the date of survey only and are subject to change.

² Occupiers' Liability Acts 1957 and 1984. HMSO

3. Results

- 3.1. A total of 154No. individual trees, 23No. tree groups, 4No. hedgerows and 1No. woodland were recorded within the Survey Area as shown on **Drawings 1 and 2** and detailed in **Appendix B**.
- 3.2. The majority of recorded features are located within private residential gardens bordering Blacker Road, Edgerton Grove Road, Edgerton Road and New North Road (**Photographs 1-5**). A smaller number of self-sown trees within informal soft landscaped areas and trees within commercial property boundaries were recorded.



Photograph 1 – trees along the southern flank of Edgerton Road (view looking south-east)



Photograph 2 – Trees along New North Road (view looking west)



Photograph 3 – View of the junction taken from outside 1 Edgerton Road (including T21, T32, W89 and adjacent trees)



Photograph 4 – Trees within the garden of No.8 Cedar Mount adjacent to New North Road.



Photograph 5 – Within W89

- 3.3. A summary of the trees surveyed, and their Category Grading (as defined by BS5837 and summarised in **Appendix A**) is detailed in **Table 1** below:

Table 1: Category Grading of Existing Trees

Category	Quantity	Description
A	29	T3, T4, T7, T11, T12, T18, T26, T35, T35A, T46, T47, T48, T59, T60, T61, T62, T63, T73, T75, T80, T82, T104, T112, T150, T155, T159, T161, T167, T173
B	68	T2, T5, T8, T9, T10, T13, T14, T15, G20, T21, T28, T29, T31, T32, G33, T34, T37, T40, T42, T44, T45, T51, G54, T57, T65, T67, T68, T72, T74, T78, T81, T83, T84, W89, T93, T97, T102, T106, T107, T110, T113, T114, T118, T119, T120, T121, T122, T126, T129, T134, T141, T151, T154, T156, T160, T163, T164, T165, T166, T169, G170, T171, T172, T174, G176, H177, G178, G180
C	84	T1, T6, T16, G17, T19, T22, G23, T24, G25, G27, G30, T36, T38, T39, H41, T43, T49, T50, G52, T53, G55, T56, T58, T66, G69, T70, T71, T76, T77, T79, T85, T86, T87, G88, T90, T91, T92, T94, T95, T96, T98, T99, T100, T101, T103, T105, T108, T109, T111, T115, T116, T117, T123, G124, T125, T127, T128, T130, T131, G132, T133, T135, T136, T137, T138, T139, T140, G142, T143, G144, T145, T146, G147, T148, G149, T152, T153, T157, T158, T162, G168, H175, H179, T181
U	1	T64

- 3.4. The 'C' category trees are of low quality and value under BS5837 given their size, maturity and/or condition in the context of the Site. Several of these features are however, considered to have the potential to increase in value as they mature and /or if subject to appropriate management activities.
- 3.5. 'B' Category trees are of moderate quality and value under BS5837 and also within the context of the Site. This reflects the relative condition and size of these features, the amenity, habitat, landscape and cultural value they offer to the Site and adjacent land uses and their potential longevity in this context.
- 3.6. A number of 'A' Category trees, of high quality and value under BS5837, have been recorded within the Survey Area. These trees are of high value as a result of their age (mostly mature

specimens), size and/or good condition and the subsequent landscape and amenity value they offer the Site and adjacent land uses.

- 3.7. A single tree, T64, has been graded 'U' Category, i.e. unsuitable for retention for longer than 10 years. This is a result of the physiological condition of this tree, and its removal is therefore recommended.
- 3.8. As shown in **Figure 1** and detailed in **Table 2** and **Appendix B**, a number of trees within the Survey Area are covered by Tree Preservation Orders (green). The Tree Preservation Orders prevent the felling, topping, lopping or damage of roots of such trees without prior written consent of the Council (subject to certain exceptions). Furthermore, the Edgerton Conservation Area (CA) (purple) covers all trees adjacent to the northern side of Edgerton Road and western side of Blacker Road, with the Greenhead Park / New North Road Conservation Area covering trees adjacent to the southern side of Edgerton Grove Road and the southern side of New North Road. These designations prevent any works to or removal of these trees without the prior notification of such works to the Council, who will then decide whether or not to place a TPO on such trees. However, certain exemptions apply to both TPO and CAs, including tree works or removal which are required to implement an approved full planning permission, works to dead, dying or dangerous trees, works to comply with Statutory Obligations, works by Statutory Undertakers, or to enable the implementation of a highway order or scheme made or confirmed by the Secretary of State for Transport under Schedule 1 of the Highways Act 1980.
- 3.9. The Kirklees Metropolitan Borough Council interactive map in **Figure 1** below also shows the presence of a TPO tree between T11 and T12 (ref.46/91/t2). No tree was identified in this location during the survey (**Drawing 2**) and as such, it is understood that this tree has been removed since the TPO was created.

Figure 1: Tree Preservation Orders and Conservation Area Designations



Source: <http://maps.kirklees.gov.uk/treepreservationorders/Map.aspx>

Table 2: Trees Covered by TPO or Conservation Area Designations

TPO/Conservation Area Reference	Waterman tree Number
08/03/t1-t5	T1-T5
08/03/t6	T7
08/03/t7	T8
08/03/t8	T63
11/88/a2* and Edgerton Conservation Area	G20
HU1/71/a40*	T37, T38, T39, T40, H41, T42, T43, T44, T45, T46, T47, T48, T49, T50, T51, G52, T53, G54, G55, T56, T57, T58, T59, T60, T61, T135, T136, T137, T138, T139, T140 and T143
HU1/71/a63* and Greenhead Park/New North Road Conservation Area	T32, G33, T34 and T35
Greenhead Park/New North Road Conservation Area	G23, T24, G25, T26, G27, T28, T29, G30, T31, T64, T65, T66, T67, T68, G69, T70, T71, G124, T125, T126, T127, T128, T129, T130, T131, G132, T133, T134, T141, G142, T173, T174, H175, G176, H177, G178
Edgerton Conservation Area	T9, T10, T13, T14, T15, T16, G17, T18, T19, G20, T196, G170, T171 and T172
Birkby Conservation Area	G149, T150, T151
46/91/t1 and Edgerton Conservation Area	T12
46/91/t3 and Edgerton Conservation Area	T11
HU1/71/a39* and Edgerton Conservation Area	T72-T123 inclusive
HU1/71/a42* and Edgerton Conservation Area	T152-T162 inclusive
HU1/71/a41* and Edgerton Conservation Area	T163-T168 inclusive
81/91/t3 and t4	G180

*Area TPO. All trees which are spatially located within the area TPOs are listed in **Table 2** above, however, only those trees which were present when the area TPOs were made are covered by the TPO designation.

4. Arboricultural Impact Assessment

- 4.1. This Arboricultural Impact Assessment has been undertaken by overlaying the Arboricultural Constraints Plans (**Drawings 1 and 2**) over the proposed Development layout (**Drawing 3**) provided to Waterman IE by Kirklees Metropolitan Borough Council. The juxtaposition between the existing trees and the proposed Development layout has then been assessed by an Arboricultural Consultant and an assessment has been made as to which trees will need to be removed in order to implement the Development. The findings of this exercise can be seen on the Tree Removal and Protection plans contained in this report as **Drawings 4 and 5**.
- 4.2. The assessment was undertaken by assessing the impact of the design proposals on the Root Protection Areas (RPAs) and the above ground parts of the trees. BS5837 refers to the RPA of a tree as a *“layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority”*.
- 4.3. This assessment considered factors such as:
- The loss of RPA through direct impact of works;
 - Tree condition and therefore suitability for retention in proximity to re-aligned busy roads/high target areas; and
 - Impact on stability of retained trees resulting from loss of neighbouring trees which may currently provide companion shelter.
- 4.4. Where trees have RPAs that extend below the existing footpaths and carriageway, and the proposed changes are not shown to alter the footprint of the road (i.e. re-surfacing works only), it is currently assumed that any alterations to the surface treatment can be achieved without impacting on the tree roots, and as such, these trees are shown as retained.

Trees to be Removed

- 4.5. Based on the Development layout shown in **Drawing 3**, a number of trees will be lost (as shown on **Drawings 4 and 5** and detailed in **Table 3**), which, in the absence of compensation (replacement tree planting) will have a significant negative impact on the treescape of the immediate area.

Table 3: Trees to be Removed

Category Grading	Tree/Group reference	Total
A	T3, T4, T7, T35, T46, T47, T48, T59, T60, T61, T63, T73, T75, T80, T173	15
B	T2, T5, T8, T29, T31, T32, G33, T34, T37, T40, T42, T44, T45, T51, G54, T57, T65, T67, T68, T78, T81, T84, W89 (in part as shown in Drawing 5, larger trees have been recorded separately), T126, T129, T141, T174*	27
C	T1, T6, G30, T36, T38, T39, H41, T43, T49, T50, G52, T53, G55, T58, T66, G69, T70, T71, T76, T77, T79, T83, T85, T86, T87, G88, G124, T125, T127, T128, T130, T131, G132, T133, T135, T136, T137, T138, T139, T140, G142, T143, G149	43
U	T56, T64	2

Category	Tree/Group reference	Total
Grading		

Total

87

*Note: Tree 174 assumed to be removed pending trial trenching excavations to confirm presence of structural roots within area of RPA to be excavated. See Retaining Wall Realignment Section below for further details.

- 4.6. All features proposed for removal within **Table 3** are afforded protection by TPO or Conservation Area designations as detailed in **Table 2** above. These designations prevent the removal of or works to any protected tree without the prior written consent of Kirklees Metropolitan Borough Council, unless exempt by the reasons listed in paragraph 3.8. In addition, the status of the TPO and Conservation Areas present on trees to be removed are material considerations in planning terms.

Proposed New Tree Planting

- 4.7. 86 new individual trees, plus 56 pleached trees, evergreen hedgerows, mixed deciduous hedgerows and areas of understory shrub planting is proposed as an integral part of the Development as shown within **Drawings 6 and 7**.
- 4.8. Replacement tree planting along New North Mount, Blacker Road, Edgerton Road and Edgerton Grove Road will provide compensation for the loss of trees in these locations and enable the retention of amenity and screening value along these road corridors.
- 4.9. New tree planting will include a mix of native and ornamental trees, including deciduous and evergreen species. The further diversification of species mix and age (heavy standards to mature trees are proposed, **Drawings 6 and 7**) across the Site will enhance the Site with regards to general environmental resilience and would be of assistance in longer term management.

Trees to be Retained

- 4.10. All remaining trees can be retained and integrated within the landscape masterplan as part of the Development. This includes the retention of several significant features, including the majority of trees within W89 on the corner of Edgerton Road and Blacker Road and all trees located along the northern boundary of Edgerton Road.

Protection of Existing Trees to be Retained

- 4.11. The following recommendations are aimed only at protecting the trees. They should be carried out in accordance with all current Health and Safety legislation and best practice. If other requirements mean that these precautions cannot be carried out, the retained Arboricultural Consultant should be contacted prior to making any changes.

Removal of Existing Trees

- 4.12. Removal of trees as identified within **Table 3** and shown on **Drawings 4 and 5** (and adjacent shrub vegetation where required) will be undertaken prior to the installation of protection barriers as detailed below. Where stumps and root balls need to be removed within the RPAs of retained trees T35A, T62, T74 or T82, this will be completed using pedestrian operated stump grinders only. Stumps must not be mechanically pulled from the ground in order to prevent impacts on the rootzones of adjacent retained trees.

Site Monitoring

- 4.13. A retained Arboricultural Consultant will be appointed prior to the commencement of works on Site to ensure that protection measures are being implemented and where necessary, to advise on the likely implications of any root damage on the trees.
- 4.14. Prior to works being undertaken on Site, a pre-commencement meeting will be held with representatives of the main contractor, the retained Arboricultural Consultant and a representative of Kirklees Metropolitan Borough Council in order to finalise the tree protection methodologies. The extent of any on-going supervision will be agreed with Kirklees Metropolitan Borough Council during that meeting.

Tree Protection Fencing

- 4.15. Where existing trees are retained in proximity to construction work, tree protection will be required to mitigate for potential above and below ground impacts, and to ensure these trees are retained successfully.
- 4.16. Existing trees to be retained will be protected in accordance with the principles within BS5837 during both the demolition and construction phases. This includes the installation of temporary tree protection in the locations shown on **Drawings 4** and **5** prior to commencement of any demolition or construction works, with weatherproof signage as shown in **Appendix C**.
- 4.17. The area occupied by the canopy spread or RPA, (whichever is the greater) will be secured as a Construction Exclusion Zone (CEZ) where no unauthorised access or construction operations (including Site compounds / facilities / storage of materials) are permitted in order to protect the ground from compaction or excavation and canopies from physical damage.
- 4.18. Following the principles set out in section 6.2.2 of BS5837, these barriers should be “*fit for the purpose of excluding construction activity and appropriate to the degree and proximity of the work taking place around the retained trees*”. At the Site, Heras style fencing fixed to padded feet and cross braces is recommended, with examples of suitable fencing contained in **Appendix D**, and locations of protective fencing shown in **Drawings 4** and **5**.
- 4.19. In practice, site hoarding and/or the construction of new timber post and close boarded fencing as part of the Development may provide a similar function and replace the requirement for tree protection fencing in certain locations, which will be confirmed by the retained Arboricultural Consultant during the pre-commencement meeting.
- 4.20. Temporary tree protection fencing is not considered necessary around the remaining trees within the Site (i.e. where it is not shown on **Drawings 4** and **5**) due to the presence of existing fencing and/or level changes within the Site which provide a barrier between existing trees and proposed construction works.

Construction Working Area

- 4.21. The spatial constraints of the Site will require some demolition and construction operations to be undertaken within the canopy spread and/or RPAs of existing trees to be retained, and outside of the areas protected by Tree Protection Fencing. In these instances, the area within the canopy spread and / or RPA of these trees (whichever is the greater) would become a **Construction Working Area (CWA)**.
- 4.22. Works within the CWA will include (but are not limited to):

- Removal and replacement of existing hard surfacing;
 - Excavation works and construction of re-aligned retaining walls, pavements and carriageways;
 - Demolition of existing freestanding walls; and
 - construction of new soft/hard landscape.
- 4.23. The location/extent of the CWA will be identified and marked on Site during the pre-commencement meeting.
- 4.24. Works will be carefully planned and executed following the Arboricultural Method Statement (head of terms) detailed below, to manage and minimise damage to the retained trees;
- Select site access routes and construction plant that can safely access the Site given the physical constraints imposed by the height of the existing retained tree canopies;
 - For construction purposes, systems for the control and suppression of dust, hydrocarbons, cementitious and other phytotoxic elements will be employed to prevent damage to the adjacent trees; and
 - Do not store materials or construction plant within the canopy spread or RPA of trees to be retained.
- 4.25. Most tree roots can be expected to be found within the upper soil horizons (usually the top 600mm of field soil) and construction operations within the CWA will have regard to the potential presence and protection of tree roots within this location.
- 4.26. Where access is required within CWAs that are not protected by existing hard surface, suitable ground protection will be installed on top of existing ground levels which is capable of supporting any traffic entering the RPAs without being distorted or causing compaction. The ground protection will consist of the following:
- For pedestrian access a single thickness of scaffold boards on top of a scaffold framework to form a suspended walkway or a single thickness of plyboard or suitable matting on top of a compression resistant layer (e.g. 100mm depth of woodchip), laid on to a geotextile membrane.
 - For pedestrian operated machinery up to a gross weight of 2t, proprietary inter-linked boards placed on top of a compression-resistant layer laid on top of a geotextile membrane.
 - For wheeled or tracked plant exceeding 2t, an alternative system to an engineering specification designed to accommodate the likely loads.

Removal and Replacement of Existing Hard Surface

- 4.27. As shown in **Drawing 3**, the removal and replacement of existing pavement surfaces with flexible paving systems is proposed along all pavements within the Site whose alignment is to remain as existing. Where they exist within the CWAs, the existing hard surfaces will act as ground protection for the majority of the works, however, in order to avoid damage to the roots of these trees, the following additional precautions should be followed when working within the RPAs of retained trees:
- The existing surface will be removed in a rolling operation with any plant working backwards across the existing surfaces (or from the adjacent carriageway). Should access be required in the RPA once the existing surfaces have been removed (such as the times between the removal of the existing surfaces and the installation of the new hard surfaces), suitable ground protection will be installed as detailed in paragraph 4.27 above;
 - The existing surfaces (and sub-bases where necessary) will be removed using hand tools or small pedestrian operated plant only;

- Care will be taken to avoid damaging the existing soil present below the sub-base;
- Existing kerbs will be removed using hand tools where feasible and in such a way so as to avoid disturbing the surrounding soil;
- Where tree roots are encountered during works, roots exceeding 25mm diameter should remain undamaged, intact and protected by hessian/straw (where left exposed overnight) to prevent desiccation prior to backfilling with arisings from the original excavation or another inert granular material; and
- Where tree roots over 25mm diameter are encountered and cannot be retained, they will only be severed if approved by the retained arboricultural consultant.

Construction of Realigned Retaining Walls

- 4.28. Excavation and construction works are proposed within the RPAs of retained trees T35A, T72, T74, T82, T134 and T174 to facilitate the realignment of existing retaining walls (and subsequent pavement/carriageway).
- 4.29. Hand dug trial trenching excavations, supervised by the retained Arboricultural Consultant, will be undertaken prior to excavation works to ascertain the possibility of retaining T174, which is currently identified for removal. The development involves the realignment of the existing retaining wall within the RPA of this tree to provide a sufficient cantilever for the realigned retaining wall proposed along Edgerton Road. If trial trenching confirms the absence of structural roots within the area to be excavated, efforts will be made to retain this tree, and the principles detailed below will be followed during construction.
- 4.30. During construction, the above and below ground arboreal constraints will be considered and managed within CWAs. This will include careful equipment selection, use of existing hard surfacing for construction plant machinery, and consideration of above ground constraints posed by canopy spreads (which may include localised lateral canopy reduction works where required) in accordance with Section 7.5 of BS5837.
- 4.31. Should construction access be required to areas of RPA and/or canopy spread beyond the tree protection fencing shown in **Drawing 4** and **5**, suitable ground protection systems as detailed within paragraph 4.27 will be used.
- 4.32. Where tree roots are encountered during excavation works and cannot be retained, they will only be severed if approved by the retained arboricultural consultant.

Proposed Access Area within the RPAs of T150 and T151

- 4.33. Whilst **Drawing 3** indicates a 'proposed access area' within the RPAs of T150 and T151 which would be 'graded according to the new proposed levels', a gravelled access pathway currently exists within this location. Kirklees Metropolitan Borough Council have confirmed that given the need to tie any upgrades to this surface (where required) with the existing pathway levels to the north and south of this section, any grading within this location would be minor and would not involve excavation within the RPAs of T150 and T151. As such, no specific protection or mitigation measures are required.

Soft Landscaping within RPAs

- 4.34. Where soft landscaping is proposed within the CEZs or CWAs of retained trees, this will be undertaken as the last construction activities on Site. Prior to implementation, temporary tree

protection fencing (where present) will be removed and all landscaping operations within the RPA will be undertaken using hand tools.

- 4.35. Excavations required for planting pits and fence posts will be positioned to avoid large structural roots (those greater than 25mm in diameter) within the RPAs of retained trees.
- 4.36. Where there is a risk of soil compaction during the landscaping operations, suitable ground protection measures will be used as detailed in paragraph 4.27.

Utility Connections

- 4.37. If for any reason services are required to be located within the RPAs of the retained trees, the following precautions will be followed:
 - Mechanical trenching will not be permitted;
 - To limit the extent of any excavations, where possible, services will be located within shared ducts;
 - The preference will be to install the services using trenchless technology, but where this isn't viable, the trenches will be dug in accordance with BS5837 and NJUG Vol 4³, using hand tools and under the supervision of the retained arboricultural consultant. Roots over 25mm in diameter will be retained. Where this is not possible, they will only be severed if approved by the retained arboricultural consultant;
 - Should roots be left exposed overnight they should be wrapped in dry hessian; and
 - Any trenches within RPAs will be backfilled using the native material or another inert granular material taking care to avoid damaging the roots.

Tree Works

- 4.38. Should any tree surgery be proposed to retained trees to facilitate construction access, this would be undertaken by an Arboricultural Association Approved Contractor with works compliant with BS3998:2010 and BS5837, subject to consent by Kirklees Metropolitan Borough Council where required (i.e. trees with TPO or Conservation Area designations). Trees to be felled or vegetation to be removed should be clearly marked. Tree work should be timed to avoid the bird nesting season and other potential ecological constraints as detailed within Ecological Reports prepared for the Site. Care should be taken not to damage any surrounding vegetation to be retained.

³ <http://streetworks.org.uk/wp-content/uploads/V4-Trees-Issue-2-16-11-2007.pdf>

5. Summary

- 5.1. This report provides a record of the baseline arboricultural conditions at the Site and an assessment of the impacts of the Development on existing tree stock.
- 5.2. The Development comprises demolition and construction activities in proximity to existing trees and as such, the removal of several trees will be required. Existing trees to be removed to facilitate the Development are detailed on **Drawings 4** and **5** and in **Table 3**.
- 5.3. Existing trees to be retained will be protected in accordance with the principles of BS5837 during the demolition and construction works. The spatial constraints of the Site will require some demolition and construction operations to be undertaken within or directly adjacent to the canopy spread and/or RPAs of retained trees. Within these areas, existing trees to be retained will be protected by means of temporary protection fencing and/or a CWA where construction and demolition activities will be carefully managed following the principles outlined within this report to reduce impacts to these trees.
- 5.4. Replacement tree planting will be provided within the Site to compensate for the loss of existing trees as a result of the Development.

Drawings

Drawing 1: Arboricultural Constraints Plan Sheet 1 of 2 (ref.14496-WIE-ZZ-XX-SU-L-77001)

Drawing 2: Arboricultural Constraints Plan Sheet 2 of 2 (ref.14496-WIE-ZZ-XX-SU-L-77002)

Drawing 3: Blacker Road Junction General Arrangement (ref.Kirkees Council TF5/Area A/P/GA-1)

Drawing 4: Tree Retention and Removal Plan Sheet 1 of 2 (ref.14496-WIE-ZZ-XX-DR-L-77011)

Drawing 5: Tree Retention and Removal Plan Sheet 2 of 2 (ref.14496-WIE-ZZ-XX-DR-L-77012)

Drawing 6: Area A Tree Mitigation and Landscape Proposals sheet 1 of 2 (ref.Kirklees Metropolitan Borough Council TF5/AREA-A/P/LSC-1)

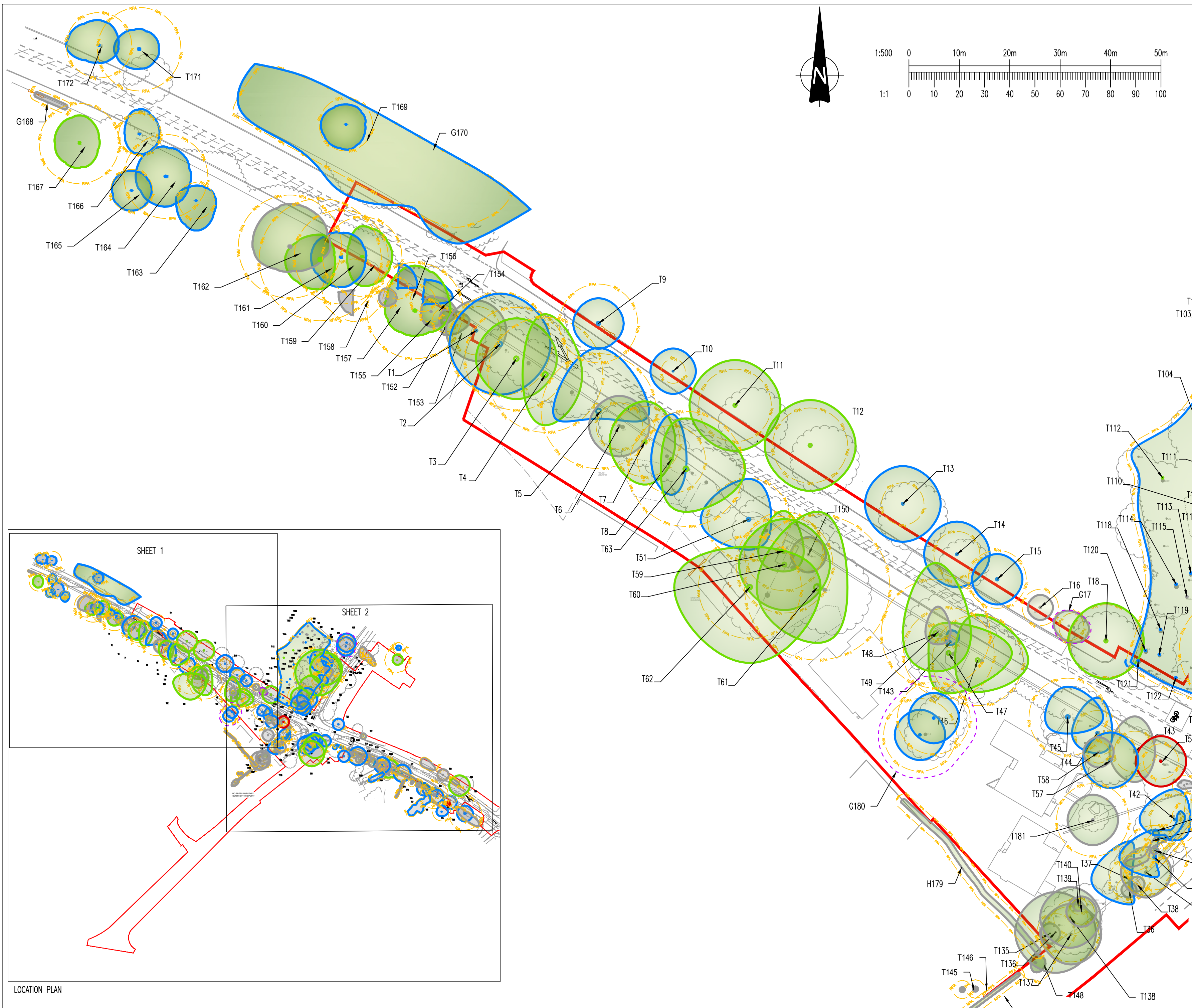
Drawing 7: Area A Tree Mitigation and Landscape Proposals sheet 2 of 2 (ref.Kirklees Metropolitan Borough Council TF5/AREA-A/P/LSC-2)

Drawings

Blacker Road, Huddersfield (Area A)

WIE14496-100

WIE14496-100-R-4-6-2-AIA



LEGEND

- CATEGORY GRADE A
Trees of high quality
- CATEGORY GRADE B
Trees of moderate quality
- CATEGORY GRADE C
Trees of low quality
- CATEGORY GRADE U
Trees unsuitable for retention
- ROOT PROTECTION AREAS (RPA)
- INDICATIVE EXTENT OF GROUPED FEATURE
- SITE BOUNDARY

NOTES:

ROOT PROTECTION AREA
Root Protection Areas are calculated in accordance with BS5837: 2012. The precise morphology and disposition of roots may not be fully reflected by these areas, particularly where there are hard standings, however they provide a good indication of potential root constraint.

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH WATERMAN TREE SURVEY REPORT

P06	01.06.21	UPDATED BOUNDARY	DC
P05	20.05.21	UPDATED BOUNDARY	DC
P04	10.07.20	ADDITIONAL TREES ADDED	MC
P03	28.05.20	ADDITIONAL TREES ADDED	MC
P02	08.11.18	TREE AMENDMENTS INCLUDING RPA ADJUSTMENTS	BM
P01	28.09.18	PRELIMINARY ISSUE	LT
Rev	Date	Description	By

Amendments

Project
Blacker Road, Huddersfield

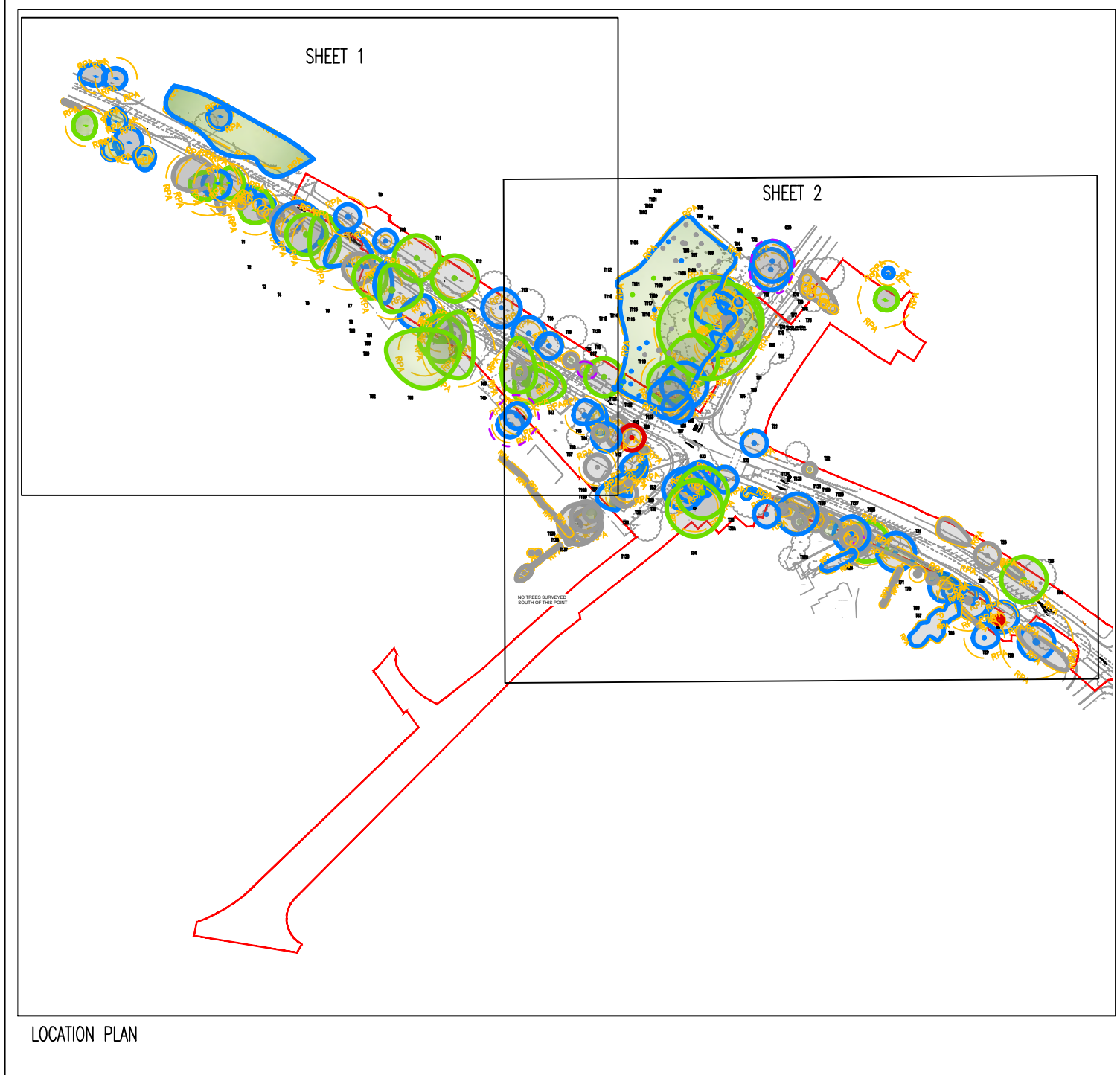
Title
**ARBORICULTURAL CONSTRAINTS PLAN
Area A
Sheet 1 of 2**

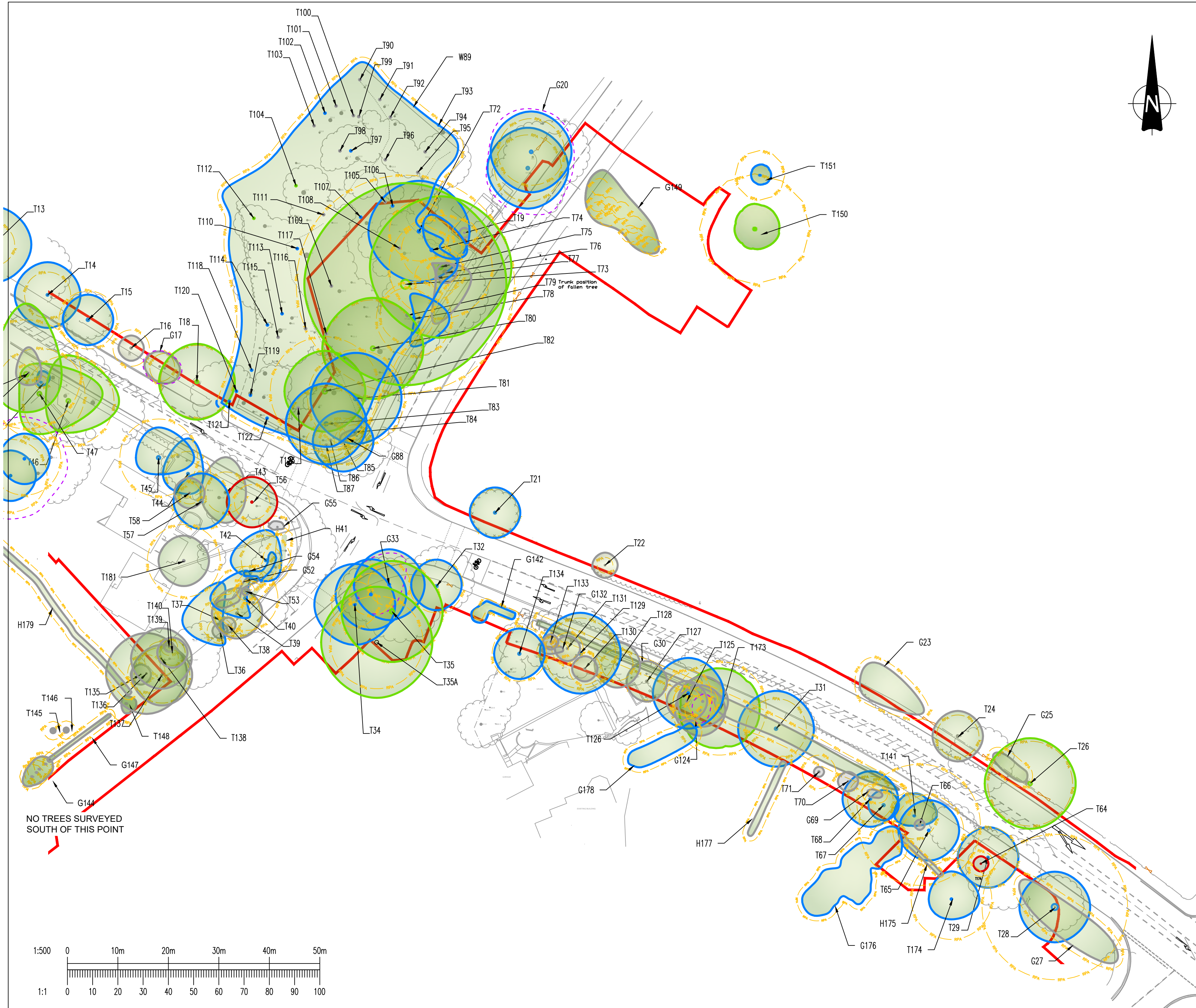
Client
Kirklees Metropolitan Borough Council

Merchants House Wapping Road Bristol BS1 4RW
t 0117 937 8200
mail@watermangroup.com www.watermangroup.com

Status
PLANNING

Designed By	RA	Checked By	RA	Waterman Ref	WIE14496
Drawn By	LT	Date	JUNE 2021	Scales @ A2	1:500@A2
Project - Originator - Volume - Level - Type - Role - Number					Revision
14496-WIE-ZZ-XX-SU-L-77001					P06





LEGEND

- CATEGORY GRADE A
Trees of high quality
- CATEGORY GRADE B
Trees of moderate quality
- CATEGORY GRADE C
Trees of low quality
- CATEGORY GRADE U
Trees unsuitable for retention
- ROOT PROTECTION AREAS (RPA)
- INDICATIVE EXTENT OF GROUPED FEATURE
- SITE BOUNDARY

NOTES:

ROOT PROTECTION AREA
Root Protection Areas are calculated in accordance with BS5837: 2012. The precise morphology and disposition of roots may not be fully reflected by these areas, particularly where there are hard standings, however they provide a good indication of potential root constraint.

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH WATERMAN TREE SURVEY REPORT

Rev	Date	Description	By
P06	01.06.21	UPDATED BOUNDARY	DC
P05	20.05.21	UPDATED BOUNDARY	DC
P04	10.07.20	ADDITIONAL TREES ADDED	MC
P03	25.05.20	ADDITIONAL TREES ADDED	MC
P02	08.11.18	TREE AMENDMENTS AND ADJUSTMENTS TO RPA'S	BM
P01	13.08.18	PRELIMINARY ISSUE	LT

Amendments

Project
Blacker Road, Huddersfield

Title
**ARBORICULTURAL CONSTRAINTS PLAN
Area A
Sheet 2 of 2**

Client
Kirklees Metropolitan Borough Council



Merchants House Wapping Road Bristol BS1 4RW
t 0117 937 8200
mail@watermangroup.com www.watermangroup.com

PLANNING			
Designed By	RA	Checked By	RA
Drawn By	LT	Date	JUNE 2021
Project - Originator - Volume - Level - Type - Role - Number			Revision
14496-WIE-ZZ-XX-SU-L-77002			P06

