

**Arboricultural Impact Assessment
Arboricultural Method Statement
(including Tree Survey)**

**North Bierley Former Sewage Treatment Works/Interchange 26
Phase 1**

Report reference: AR-4003-02-A
June 2020

Report Title:	Arboricultural Impact Assessment and Arboricultural Methods Statement (including Tree Survey) North Bierley Former Sewage Treatment Works/Interchange 26 Phase 1
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Summary Statement

This document comprises the arboricultural impact assessment (AIA), the arboricultural method statement (AMS) and the tree survey (AR-4003-01).

The Site is a narrow rectangular piece of sloping land between the M606 motorway, Hunsworth Beck, Cliff Hollins Lane and the M62 motorway in Oakenshaw. The former north Bierley water treatment works are situated to the eastern edge of the Site along Hunsworth Beck. Pastoral fields occupy the remainder of the Site. Access is obtained from Cliff Hollins Lane. Trees to the north of the main Site were also included in the survey.

This document assesses the impacts and methods of protecting existing trees and adjacent Hanging Wood for three areas of future commercial development off Cliff Hollins Lane at the Yorkshire Water North Bierley former sewage treatment works and proposed Interchange 26 Site.

Seven trees overall would require removal for the Phase 1 development and Bradford Road, Mill Carr Hill and one tree group. Pruning works would be required for two groups beside the realignment of Mill Carr Hill and Bradford Road. Tree protection for the retained trees would be tree barrier fencing to BS5837: 2012 and retained existing security fencing.

Arboricultural Impact Assessment

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Introduction

Purpose of the report

1. This report has been commissioned to provide professional independent, detailed arboricultural advice on relevant trees present at North Bierley former sewage treatment works.
2. A revised Site Layout plan, reference: 1856-PL-153C Site layout Phase 1, has been provided to enable an impact assessment and method statement of the proposed works on the existing relevant trees within the Site. The proposed development chiefly comprises commercial units with associated car and lorry parking with access roads. Also included in the proposed development are attenuation ponds, landscaping works and regrading of existing ground levels for building platforms. Demolition of the existing, redundant water treatment infrastructure in the phase 1 area is also proposed.

Impact Schedule

The following schedule identifies the individual tree and its retention category with the main feature(s) of the proposed works likely to cause an impact. The tree references are shown on the tree constraints plan and the tree protection plan. Any mitigation measures are noted.

Tree ref.	Species	Retention category	Proposal feature	Impact	Mitigation
T1	Ash	B 2	In approximate line of below ground drainage with easement.	Retain.	Retain existing boundary fence as protection for the tree during the works and post-construction. Use of hand tools only for softworks within RPA.
T2	Oak	B 3	In approximate line of below ground drainage with easement.	Retain. No impact expected.	Retain existing boundary fence as protection for the tree during the works and post-construction.
T3	Goat willow	B 3	In approximate line of below ground drainage with easement.	Retain. No impact expected.	Retain existing boundary fence as protection for the tree during the works and post-construction.
T4	White willow	C 3	In approximate line of below ground drainage with easement.	Retain. No impact expected.	Retain existing boundary fence as protection for the tree during the works and post-construction.
T5	Hawthorn	B 3	Interchange 26 Site and Flood Zone.	Retain. No impact expected.	None required.
T6	Goat willow	C 3	Approximate line of below ground drainage with easement.	Removal.	Off-set tree planting.

Tree ref.	Species	Retention category	Proposal feature	Impact	Mitigation
T7	Hawthorn	B 3	Future Development Area	Removal.	Off-set tree planting.
T8	Hawthorn	B 3	Future Development Area	Removal.	Off-set tree planting.
T9	Hawthorn	B 3	Future Development Area. At edge of shaft.	Removal.	Off-set tree planting.
T10	White poplar	C 3	Road layout and regrading works and car parking bays - Incursion to root protection area (RPA).	Removal.	Off-set tree planting.
T11	Hawthorn	C 3	Approx line of gas with easement, groundworks.	Removal.	Off-set tree planting.
T12	Sessile oak	B 3	Outside future development areas.	Retain.	Tree protection barrier to BS5837:2012.
T13	Hawthorn	B 2	Road alignment at Cliff Hollins Lane access point.	No impact expected. Retain with crown lifting for sightlines.	None required.
T14	Sycamore	B 2	Construction vehicle movements on Cliff Hollins Lane.	No impact expected. Retain.	None required.
T15	Cherry	B 2	Realignment of Mill Carr Hill/Bradford Road junction.	Removal.	Off-set tree planting.

Tree ref.	Species	Retention category	Proposal feature	Impact	Mitigation
G1	Oak Ash Sycamore Hazel Birch	B 2	Future Development Area.	Retain and protect hanging Wood from damage. No impact expected.	Retain existing security fencing in position during works and post development.
G2	Ash Field maple	C 2	Car park for school – subject to separate application.	Approx 30% of group removed – to be confirmed.	Off-set tree planting – to be confirmed.
G3	Sycamore Ash	B 2	Road realignments for Cliff Hollins Lane.	No impact expected. Retain.	None required.
G4	Hawthorns	B 3	Access road development.	Eastern end of group pruned back to accommodate access road.	Tree protection barrier to BS5837:2012 after pruning works.
G5	Ash	B 2	Road realignment for Mill Carr Hill Lane.	Retain. Canopy reduction by 1 metre approx.	Tree protection barrier to BS5837:2012 after pruning works.
G6	Swedish whitebeam Hawthorn Goat willow	B 2	Road realignment for Mill Carr Hill Lane.	Retain. Canopy reduction by 1 metre approx.	Tree protection barrier to BS5837:2012 after pruning works.
G7	Hawthorn	B 3	Future Development Area.	Retain portion of group outside the development area.	Tree protection barrier to BS5837:2012 for retained portion.
G8	Mixed	B 2	Interchange 26 Site.	Retain. No impact expected.	None required.
G9	Willow Poplar Hawthorn Mixed	C 3	Approx line of gas with easement and below ground drainage easement and landscaping works.	Removal.	Off-set tree planting.

Tree ref.	Species	Retention category	Proposal feature	Impact	Mitigation
H1	Hawthorn	B 2	Construction activity 14m+ away.	No impact expected due to distance and sloping ground.	Tree protection barrier to BS5837:2012 if required.
	Hanging Wood Mixed species	TPO SP1/51/W2	Phase 1 works east side.	No impact expected due to retention of existing boundary/Site fencing as a protective barrier.	None expected.

Implications for retained trees

Tree protection

- Of the 15 trees, 9 groups and hedge surveyed for the Tree Survey, seven trees, five whole tree groups (and groups with sections removed) and the hedge are expected to be retained for the Phase 1 development. These trees should be protected from unwanted damage during construction works with retention of the existing security fencing which runs at the northern edge of the Site parallel to the watercourse. In addition, a temporary tree protection barrier would be required for tree groups 4, 5 and 6 after pruning works have been completed for the realignment of Cliff Hollins Lane at Bradford Road. The barriers should be erected as close as possible to the realigned road.
- Hanging Wood, adjacent to the east side of the Site, is protected by Tree Preservation Order (ref: SP1/51/W2) and will be protected by retention of the existing boundary/Site fencing to the edge of this wood.
- Tree protection barriers should be the default specification for protective barrier, Figure 2, BS 5837: 2012 Trees in relation to design, demolition and constructions – Recommendations. Where Site circumstances prevent the use of the default barrier, an alternative specification would be recommended by the project arboriculturist with agreement of the local planning authority. The recommended locations for tree protective barriers are shown in Appendix 2 Tree Protection Plan.

6. All-weather notices should be attached to the barrier/existing retained fencing with words such as: "Construction exclusion zone – no access".
7. Where facilitation access is authorised within the RPA temporary ground protection should be installed prior to work starting on Site. The temporary ground protection should be capable of supporting the weight of any traffic/machinery using the Site without being distorted or causing compaction to the ground. It is recommended that the ground of the possible Site compound/storage area is covered in temporary ground protection to minimise soil damage by compaction and conserve soil health through to post-construction planting in this area. Facilitation access is not expected for the Phase 1 development.

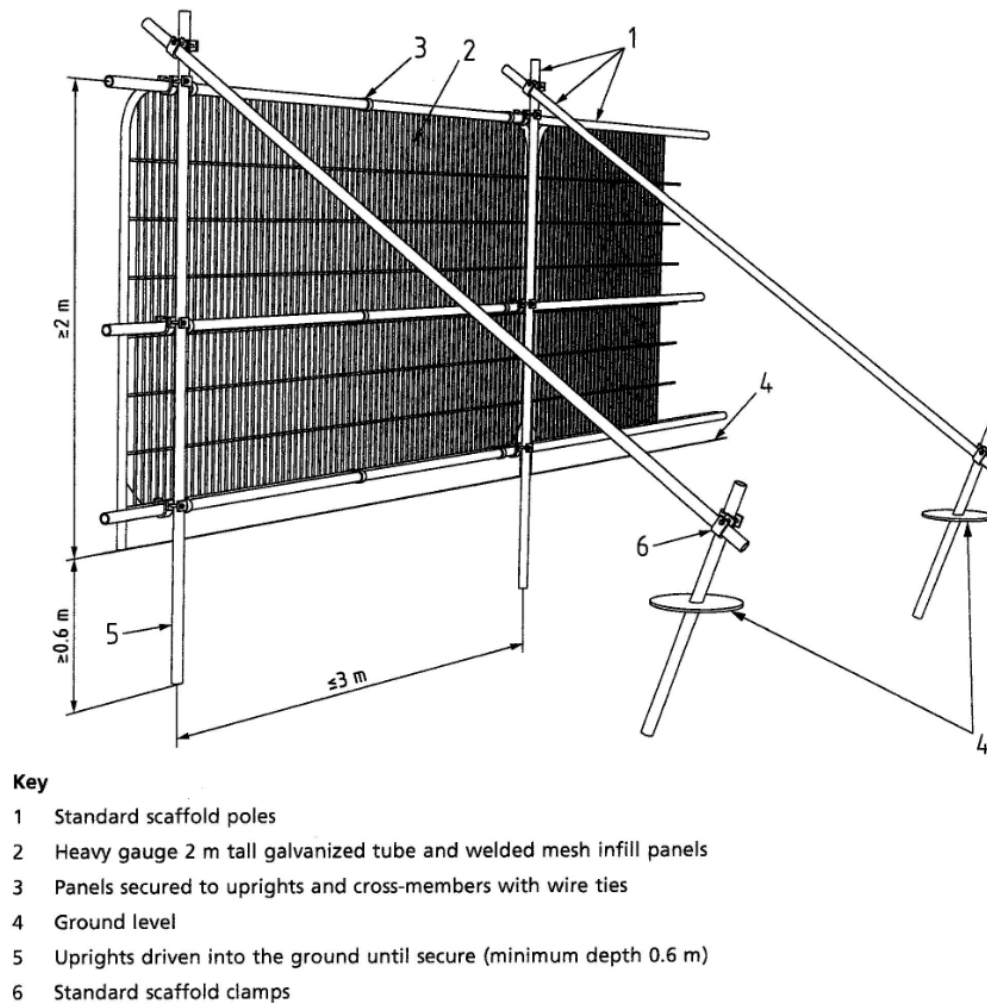


Figure 1

Tree work

8. Where pruning work is necessary and authorised to roots or branches of retained trees to enable facilitation works, it should be carried out by a competent contractor in accordance with BS 3998: 2010 Tree Works – Recommendations.
9. Roots smaller than 25mm diameter may be pruned back where necessary, making a clean cut with a suitable sharp tool, except where they occur in clumps. Roots in clumps or larger than 25mm diameter should be severed only following consultation with an Arboriculturist, as such roots may be essential to the health and stability of the tree.

Demolition

10. Demolition of the existing, redundant water treatment features is expected within the proposed Site works for the Phase 1 area though this should not cause impact to the trees retained.
11. *Drainage and utilities*
12. Drainage and utilities are expected to be included within the proposed Site works and should not involve digging or trenching within RPA's.

Trees to be removed

13. The trees expected to be removed for the Phase 1 future development areas as follows: T6 (Goat Willow low quality); T7 (Hawthorn moderate quality); T8 (Hawthorn moderate quality); T9 (Hawthorn moderate quality); T10 (White poplar low quality); T11 (Hawthorn low quality) plus one tree for the Mill Carr Hill/Bradford Road works T15 (Cherry moderate quality). Tree group G9 would require removal. No hedges are expected to be removed for Phase 1.

Mitigation

14. There is opportunity within the scheme to plant trees to off-set the trees and tree group requiring removal. The landscaping indicates trees proposed for the scheme which include avenue trees of lime (*Tilia cordata* 'Greenspire') planted as extra heavy standard (14-16cm girth), heavy standard trees (12-14cm girth) for hedgerow trees and basin tree groups near the Site entrance of 10-12cm girth. Species proposed include field maple, crabapple, alder, wild cherry, oak, rowan and whitebeam, birch and osier.

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Introduction

Purpose of the report

15. This report has been commissioned to provide professional independent, detailed arboricultural advice on relevant trees in the vicinity of the proposed development site.
16. It has been requested by Kirklees Council that an arboricultural method statement (AMS) is submitted in accordance with BS5387:2012 as condition (no. 18) to provide details of how the trees to be retained will be physically protected through the course of the development.

Documents provided

17. A development layout plan has been provided by the architect to enable an impact assessment of the proposed Phase 1 works on the existing relevant trees within the Site: drawing number 1856-PL-153 C Site Layout Phase 1. A draft Landscape Plan 798/LA1 has also been supplied by the project landscape architect.

Site description

18. The Site is a narrow rectangular piece of sloping land between the M606 motorway, Hunsworth Beck, Cliff Hollins Lane and the M62 motorway in Oakenshaw, BD12 7EP. The former north Bierley water treatment works are situated to the eastern edge of the Site along Hunsworth Beck. Pastoral fields occupy the remainder of the Site. Access is obtained from Cliff Hollins Lane. To the north side of the Site is Hanging Wood which Kirklees Council requires protection from damage by development.

Development proposal

19. The Phase 1 development proposal includes the demolition of redundant water treatment features, the construction of commercial units, car and lorry parking, service yards and access roads. Bulk earthworks are required to create building platforms. Attenuation ponds and landscaping for the scheme are proposed in conjunction with ecological mitigation. It is proposed to maintain all the Site boundaries throughout the works. Highway works are proposed to the existing Mill Carr Hall and Bradford Road junction and the existing Cliff Hollins Lane junction with the Site.

Tree protection: legal status

20. If full planning consent is granted, then any trees which require felling to implement the approved plans are exempt from statutory protection. It should also be considered that any proposed tree works detailed in the schedule are also implemented as part of the planning decision consent.
21. A Felling Licence is/not required for approved development work.

Arboricultural survey data

Data collection methodology

22. The trees were assessed visually from ground level. Where access to a tree is restricted this is noted in the schedule.
23. The tree reference numbers refer to the attached Tree Constraints Plan (TCP) references. The trees were not tagged for this survey.
24. Measurement of the existing height above ground level of the first significant branch and the direction of growth and the height of the canopy. This informs ground clearance, crown/stem ratio and shading.
25. The stem/trunk diameter is measured with a diameter tape at 1.5m from ground level around the stem for single stem trees and for multi-stemmed trees and other variants in accordance with Annex C of the British Standard. Where access restricts measurement of the tree, an estimate has been made, denoted by '#'.
26. Canopy spread is measured with an electronic distometer. The close-spacing of some of the trees impeded measurements of canopy spread and height and estimates were made.
27. The age of the tree is based on the typical longevity of the particular tree species. The age classes are: young (Y), semi-mature (SM), early mature (EM), mature (M), over-mature (OM) and veteran (V).
28. The physiological condition of the tree is an assessment of its likely health, vigour and stress. The classes for physiological condition are: good, fair, poor and dead.
29. Structural condition includes tree form, visible defects, irregularities and influencing factors.
30. Preliminary management recommendations note work (with prior approval where necessary) to promote the health and longevity of the tree and/or improve safety and/or increase habitat potential.
31. The life expectancy (life exp.) is the estimated remaining contribution in years, (<10, 10+, 20+, 40+).

32. The retention category (ret cat) for each tree is assessed in accordance with BS 5837: 2012 Table 1, summarised as below:

Category A	Trees of high quality with an estimated remaining life expectancy (ERC) of at least 40 years. Green canopy outline on plan.
Category B	Trees of moderate quality with an estimated ERC of at least 20 years. Blue canopy outline on plan.
Category C	Trees of low quality with an ERC of at least 10 years, OR young trees with a stem diameter below 150mm. Grey canopy outline on plan.
Category U	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. Trees unsuitable for retention. Dark red canopy outline on plan.

33. Sub- categories of 1, 2 or 3 are included in the tree data tables and are defined as follows:

Sub-category 1 trees are those with 'mainly arboricultural value'

Sub-category 2 trees are those with 'mainly landscape value'

Sub-category 3 trees are those with 'mainly cultural or conservation value'.

34. The root protection area (RPA) in m² is for layout purposed and indicates 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'. The RPA is calculated in accordance with BS 5837: 2012 Annex D. Where Site features are likely to have distorted the typical RPA, a polygon of the same area is estimated on plan to reflect a more realistic shape, in accordance with the British standard.

Tree data

35. The following schedule contains the tree data obtained on site:

Ref	Species	Life stage	Ht (m)	Can Ht (m)	Lowest branch	Stem diam (mm)	RPA (m²)	Canopy spread (m)	Physio logical	Structural condition	Recommendations	Life exp. (yrs)	Ret cat
T1	Ash	M	18	1.5	Not meas-ured	450# 200#	113	N 6# E 6# S 7# W 6#	Good	Fair#. Good crown. Beside Hunsworth Beck. Access limited.	None at present. Monitor for ash dieback.	20+	B 2
T2	Oak	M	15	1.5	Not meas-ured	500#	113	N 5# E 5# S 5# W 5#	Good	Fair#. Good, dense crown. Access and visibility obscured by vegetation. Beside Hunsworth Beck and T3.	None at present.	20-40+	B 3
T3	Goat willow	M	15	1	Not meas-ured	500#	113	N 5# E 5# S 5# W 5#	Fair	Fair. At least three large branches above 2m. Access and visibility obscured by vegetation. Beside Hunsworth Beck.	None at present.	10+	C 3
T4	White willow	M	14	Not meas-ured	Not meas-ured	500#	113	N 5# E 4# S 8# W 4#	Fair	Fair#. Leaning south. Torn limb sockets. Located beside watercourse.	None at present.	10+	C 3
T5	Hawthorn	M	6#	1	Not meas-ured	200#	18	N 3# E 3# S 4# W 4#	Fair#	Fair#. No close access due to cattle. Appears well-balanced with a good crown.	None at present.	10-20+	B 3
T6	Goat willow	M	8	GL	Not meas-ured	300 at base	41	N 5 E 5 S 5 W 5	Good	Fair. Multi-stemmed shrubby tree with a dense canopy.	None at present.	10+	C 3
T7	Hawthorn	M	8	<1	<1	200	18	N 3 E 3 S 3 W 3	Fair	Fair. On the fenceline with an elder intertwined. Multi stem. Some thinning of outer foliage evident	None at present.	10-20+	B 3
T8	Hawthorn	M	8	<1	<1	225	23	N 6 E 5.5 S 5 W 4.5	Fair	Fair. On fenceline. Typical dense habit.	None at present.	10-20+	B 3

Ref	Species	Life stage	Ht (m)	Can Ht (m)	Lowest branch	Stem diam (mm)	RPA (m²)	Canopy spread (m)	Physio logical	Structural condition	Recommendations	Life exp. (yrs)	Ret cat
T9	Hawthorn	M	7	1	<1	400#	72	N 3.5 E 3.5 S 3.5 W 3.5	Good	Good. In between two fences. Large hole at the base of the tree and other smaller holes.	None at present.	20+	B 3
T10	White poplar	M-OM	15	<1	<1.5	670 200	222	N 10 E 6.7 S 6 W 6	Good	Fair. Large tree with a kinked stem. Branch pruned beside fence with a large pruning wound.	Monitor prune wound for decay.	10+	C 3
T11	Hawthorn	M	6	<1	<1.5	275 at base	34	N 4.5 E 4.5 S 4.5 W 4.5	Fair	Fair. Growing from the base of an old rubble stone wall with a fence on top. Multi-stem tree.	None at present.	10-20+	C 3
T12	Sessile oak	M	7	2	2	570	150	N 2.9 E 7.1 S 5.8 W 3.3	Fair	Fair – poor. Badly damaged trunk with decaying heartwood and hollowing. Small, dense crown. Tight fork with main stem and smaller dead stem. Small, squat tree.	None at present.	20+	B 3
T13	Hawthorn	M	8	1.6	1m E	425	81	N 5.2 E 5 S 4.5 W 3	Good	Fair. Growing at the back of the road verge on a short slope against a fence. Old tear-outs and badly pruned stubs.	None at present.	20+	B 2
T14	Sycamore	M	18	3+	Not meas- ured	275 275 (300)	72 min	N 5.2 E 5 S 4.5 W 3	Good	Fair. At the roadside just inside the Site. Epicormic growth. Road edge barrier close to trunk. Larger stem could be a separate tree. On a steep slope.	None at present.	20+	B 2

Ref	Species	Life stage	Ht (m)	Can Ht (m)	Lowest branch	Stem diam (mm)	RPA (m ²)	Canopy spread (m)	Physio logical	Structural condition	Recommendations	Life exp. (yrs)	Ret cat
T15	Cherry	M	18	2	Not meas-ured	580	150	N 6.7 E 5.3 S 4 W 4.5	Fair	Fair. Large for species. Ivy obscures base. Roots exposed on grass verge. Prominent location beside Bradford Road.	None at present.	10-20	B 2
G1	Oak Ash Sycamore Hazel Birch	M	To 18	Typ 1.6	Typ 1.6	Typ 300	Typ 41	N 4# E 4# S 4# W 4#	Fair#	Fair#. Trees forming the edge of Hanging Wood on sloping ground. Collective value as a group. Typical broadleaf natives present.	None at present.	20-40+	B 2
G2	Ash Field maple	Y-SM	Typ 8	<1	Not meas-ured	Typ 100	5	N 1.5# E 1.5# S 1.5# W 1.5#	Good	Fair#. Small trees growing on a steep slope along Cliff Hollins Lane.	Monitor ash for ash dieback disease.	20+	C 2
G3	Sycamore Ash	M	Typ 18	Typ 1.8	Typ 2	Typ 375	64	N 7.5 E 7.5 S 7.5 W 7.5	Fair	Fair. Nine trees within the grassed verge of Cliff Hollins Lane on slightly sloping ground.	Monitor ash for ash dieback disease.	20+	B 2
G4	Hawthorns	M	Typ 7.5	Typ 1	Typ 1	200#	18	N 4 E 4 S 4 W 4	Good	Fair. No close access due to cattle. Mostly multi-stem trees with some bark damage and possible ground compaction.	None at present.	20-40+	B 3
G5	Ash	M	Typ 12	Typ 1.5	Typ 1.7	Typ 350	55	N 5.6 E 5# S 5# W 5.5	Good	Fair. Five mature trees on sloping embankment beside the motorway overpass.	Monitor ash for ash dieback disease.	20+	B 2
G6	Swedish whitebeam Hawthorn Goat willow	M	Typ 9	Typ 1	Typ 2m	Typ 300	41	N 4.5 E 4.5 S 4.5 W 4.5	Fair	Fair. Six trees at the end of a tree belt at the Bradford Road junction corner. Collective value.	None	20-40	B 2

Ref	Species	Life stage	Ht (m)	Can Ht (m)	Lowest branch	Stem diam (mm)	RPA (m²)	Canopy spread (m)	Physio logical	Structural condition	Recommendations	Life exp. (yrs)	Ret cat
G7	Hawthorn	M	Typ 7.5	Typ 1	Typ 1	200#	18	N 4 E 4 S 4 W 4	Good	Fair. No close access due to cattle. Mostly multi-stem trees with some bark damage and possible ground compaction. Approx nine small trees.	None at present.	20-40+	B 3
G8	Mixed	EM-M	Typ 8	Not measured	Not measured	Typ 175	21	See plan	Fair	Fair. No close access due to cattle. Motorway verge trees for M62 slip road.	None.	20-40+	B 2
G9	Willow Poplar Hawthorn Mixed	M	Typ 8	<1	<1.5	Typ 200	18	See plan	Fair	Fair. Close to Hunsworth Beck. Dense group. Public footpath adjacent. Other native broadleaf trees incl.	None at present.	10-20	C 3
H1	Hawthorn	EM	5	<0.5	,0.5	Typ 50	3	3 to 5m over site	Good	Fair. Collective value as a dense visual screen along the motorway.	None.	20-40+	B 2

Schedule of tree work

Works phasing

36. This method statement makes recommendations for the Site in order to ensure a successful tree retention. The table below identifies the Site-specific events requiring input or supervision.

Phase/timing	Action	Date
Immediate	Appoint arboricultural consultant.	To be confirmed

Immediate	Facilitation pruning and tree removal.	To be confirmed.
Pre-construction	Erect tree protection fencing to BS 5837:2012 specification as appropriate and check existing fencing to be retained is in place with notices attached.	To be confirmed.
During construction	Implement reporting process for all unforeseen arboricultural incidents.	To be confirmed.
Post construction	Removal of tree protection fencing. Assessment of condition of existing trees and newly planted trees.	To be confirmed.

Pre-development works

Enabling felling

37. In undertaking the proposed development, there will be direct loss of 5 trees and one tree group as follows in the schedule below;

Tree ref.	Species	Retention category	Proposal feature	Impact	Mitigation
T6	Goat willow	C	Approximate line of below ground drainage with easement.	Removal.	Off-set tree planting.
T10	White poplar	C	Road layout and regrading works – Incursion to root protection area (RPA).	Removal.	Off-set tree planting.
T11	Hawthorn	C	Approx line of gas with easement, groundworks, new fencing.	Removal.	Off-set tree planting.
T12	Sessile oak	B	Service yard between units 1 and 2.	Removal.	Off-set tree planting.

Tree ref.	Species	Retention category	Proposal feature	Impact	Mitigation
T15	Cherry	B	Realignment of Mill Carr Hill/Bradford Road junction.	Removal.	Off-set tree planting.
G9	Willow Poplar Hawthorn Mixed	C 3	Approx line of gas with easement and below ground drainage easement and landscaping works.	Removal.	Off-set tree planting.

Facilitation pruning

38. It is expected that the roadside canopies of tree groups G5 and G6 will require pruning back by approximately one metre to accommodate the proposed Mill Carr Hill/Bradford Road junction widening works.

Tree protection

39. Prior to any construction or vehicular movement tree protective measures must be in place. The project Arboriculturist will check this prior to the commencement of the works.
40. Included within the Phase 1 development proposals is the retention of the existing boundary fences as shown in Figure 1 below. Those adjacent to trees T1 and T2 are robust, security metal fencing (Palisade fencing or similar) which is expected to provide the necessary protection from unwanted construction access.
41. Due to distance of over 16m between hedge H1 and the edge of the phase 1 works, it is not expected that the hedge will require protection from a tree barrier. However, if the contractor intends to use the area between the hedge H1 and the development area for use such as Site compound or storage of materials, it would be prudent to erect fencing 1 to 2 metres from the outer edge of the hedge canopy.

42. Tree protection barriers should be the default specification for protective barrier, Figure 2 below, BS 5837: 2012 Trees in relation to design, demolition and constructions – Recommendations. Where Site circumstances, such as sloping ground, prevent the use of the default barrier, an alternative specification would be recommended by the project arboriculturist with agreement of the local planning authority. The recommended locations for tree protective barriers are shown in Appendix 2 Tree Protection Plan. The specification consists of a vertical and horizontal scaffold framework.
43. The tree protection barrier once erected shall not be moved from its approved position without approval from the project Arboriculturist and where necessary, the Council.
44. The protected area shall be regarded as sacrosanct with no storage of materials, lighting of fires or unauthorised vehicular movements. All-weather notices shall be attached to the barrier (including existing retained fencing) with the words: 'CONSTRUCTION EXCLUSION ZONE – NO ACCESS'.



Figure 1 Existing fencing to be retained.

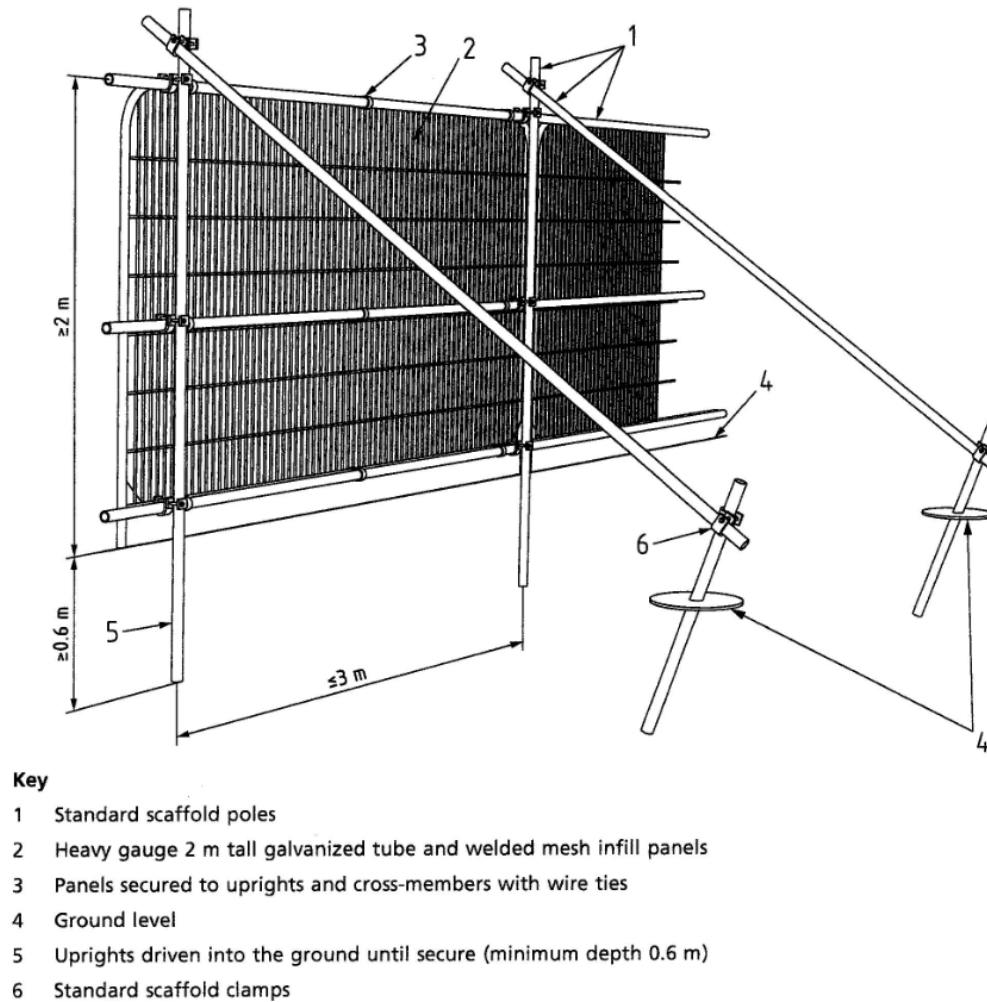


Figure 2

45. Material that will contaminate the soil such as concrete mixing, oil and vehicle washing should not be discharged within 10m of any tree stems.
46. Fires shall not be lit in a position where their flames can extend to within 5m of foliage, branches or trunk. This will depend on the size of the fire and the wind direction.
47. Where facilitation access is authorised within the RPA temporary ground protection should be installed prior to work starting on Site. The temporary ground protection should be capable of supporting the weight of any traffic/machinery using the Site without being distorted or causing compaction to the ground. It is recommended that the ground of the possible Site compound/storage area is covered in temporary ground protection to minimise soil damage by compaction and conserve soil health through to post-construction planting in this area.
48. The specification for the temporary ground protection is not required for the Phase 1 works.
49. The specification for the permanent ground treatment is not required for the Phase 1 works.

Tree work

50. Where pruning work is necessary and authorised to roots or branches of retained trees to enable facilitation works, it should be carried out by a competent contractor in accordance with BS 3998: 2010 Tree Works – Recommendations.
51. Roots smaller than 25mm diameter may be pruned back where necessary, making a clean cut with a suitable sharp tool, except where they occur in clumps. Roots in clumps or larger than 25mm diameter should be severed only following consultation with an Arboriculturist, as such roots may be essential to the health and stability of the tree.

Demolition

52. Demolition is expected within the proposed Site works for the removal of redundant water treatment tanks and retaining walls.

53. *Drainage and utilities*

54. Drainage and utilities are expected to be included within the proposed Site works and should not involve digging or trenching within RPA's.

Earthworks

55. Bulk earthworks are required for the Phase 1 works which are not expected to impact on the trees, tree groups and hedge to be retained. The detail of the earthworks boundary with retained ground levels will be provided by the confirmed contractor for the development.
56. The contractor's compound and storage area will be confirmed by the contractor. It is expected that the compound will be within the north-west corner of the Site with close access to Cliff Hollins Lane and retained trees would not be impacted by this location.

Post construction works

Landscape works

57. The proposed landscape plan for Phase 1 will include tree planting of *Tilia* sp. and hedgerow trees: field maple, alder, crabapple, wild cherry, rowan and whitebeam. Softworks should avoid planting within root protection areas.

Post development inspection

58. Following the completion of the development an inspection of the condition of the retained trees will be made to assess if any further tree works are required.
59. Where the soil around any tree is found to be compacted, appropriate remediation shall be instructed to be undertaken by the contractor. Such action may include soil aeration with compressed air (eg. 'Air Spade'), digging or forking over the soil to loosen the soil.

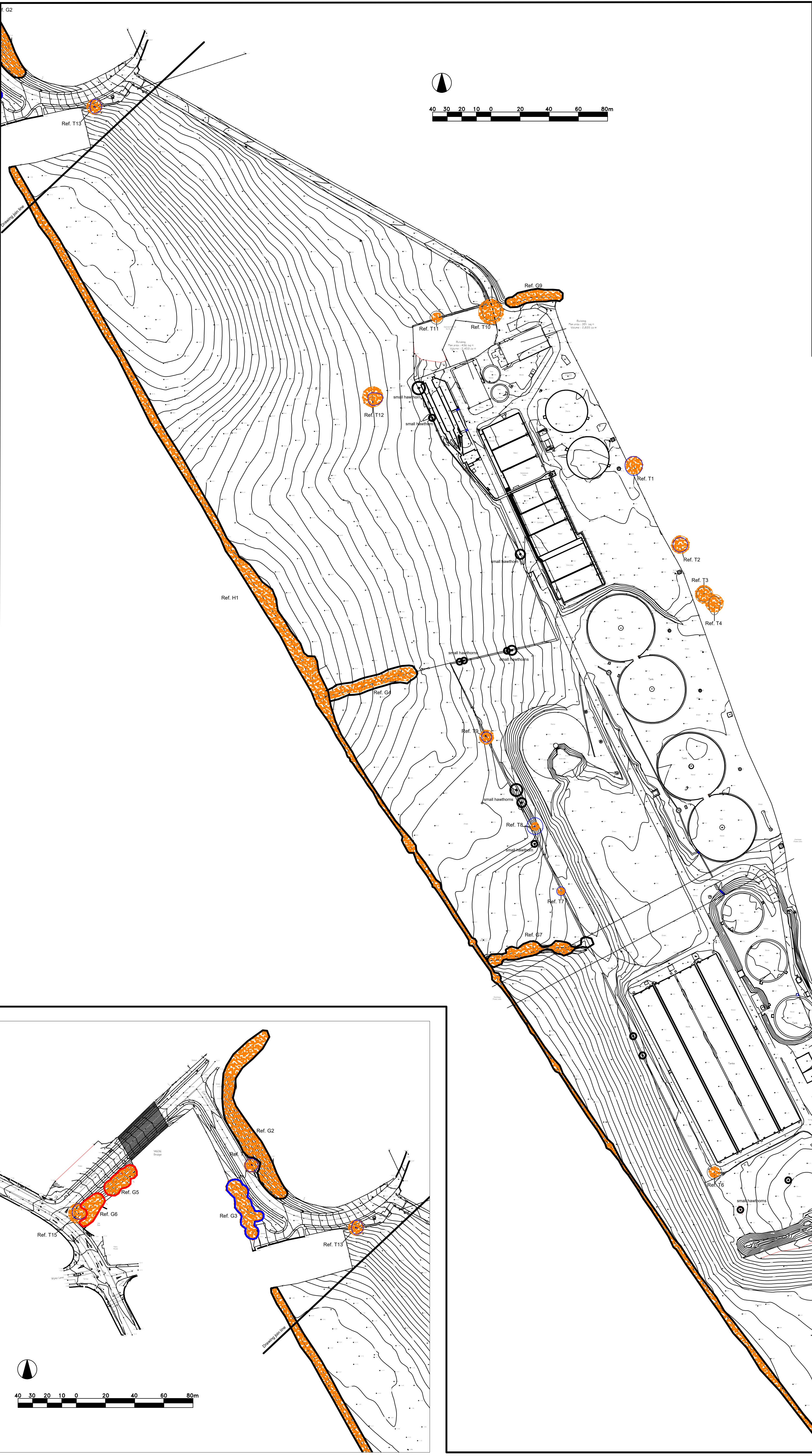
Annual inspection

60. An annual inspection of the trees will be undertaken post construction for the duration of two years following completion by the project arboriculturist. It is not anticipated that the condition of the trees will change significantly, though annual inspection is prudent to assess for any remedial action to improve the environment for the trees or to make trees safe.

Contact list

61. The list of contacts for the development construction is shown below:

Role	Name	Company/organisation	Contact details
Client	James Farnaby Ryan Unsworth	Opus North	James.farnaby@opusnorth.co.uk Ryan.unsworth@opusnorth.co.uk
Project manager	Adam Watson Gavin Beevers	Fox Lloyd Jones	Adam.watson@fljtd.co.uk Gavin.beevers@fljtd.co.uk
Principal designer and CDM Advisor	Tim Allen	Curtins Consulting	Tim.allen@curtins.com
Ecology and Arboriculture	Rob Weston	Brooks Ecological Ltd	rhw@brooks-ecological.co.uk
Contractor	To be confirmed	To be appointed	To be confirmed
Tree Officer	To be confirmed	Kirklees Council	To be confirmed



KEY

BS5837:2012 Retention categories:

Retention category A	
Retention category B	
Retention category C	
Category U	
Root Protection Area (RPA)	

Former Water Treatment Works
North Bierley, Oakenshaw

Tree Constraints Plan

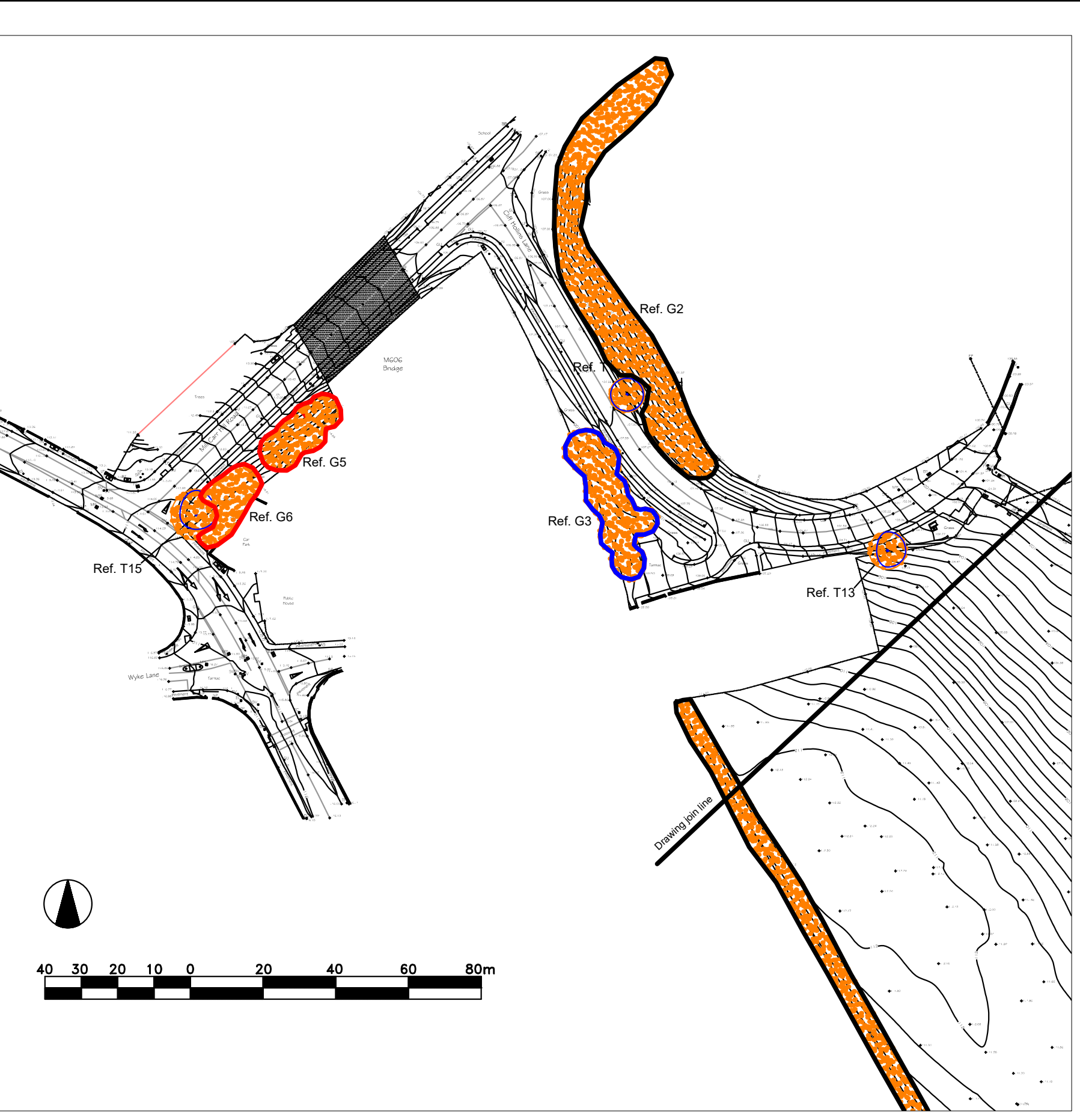
Dwg. No. DR - 4003 - 01

Scale: 1:1250 @ A1 Date: Sep 2019

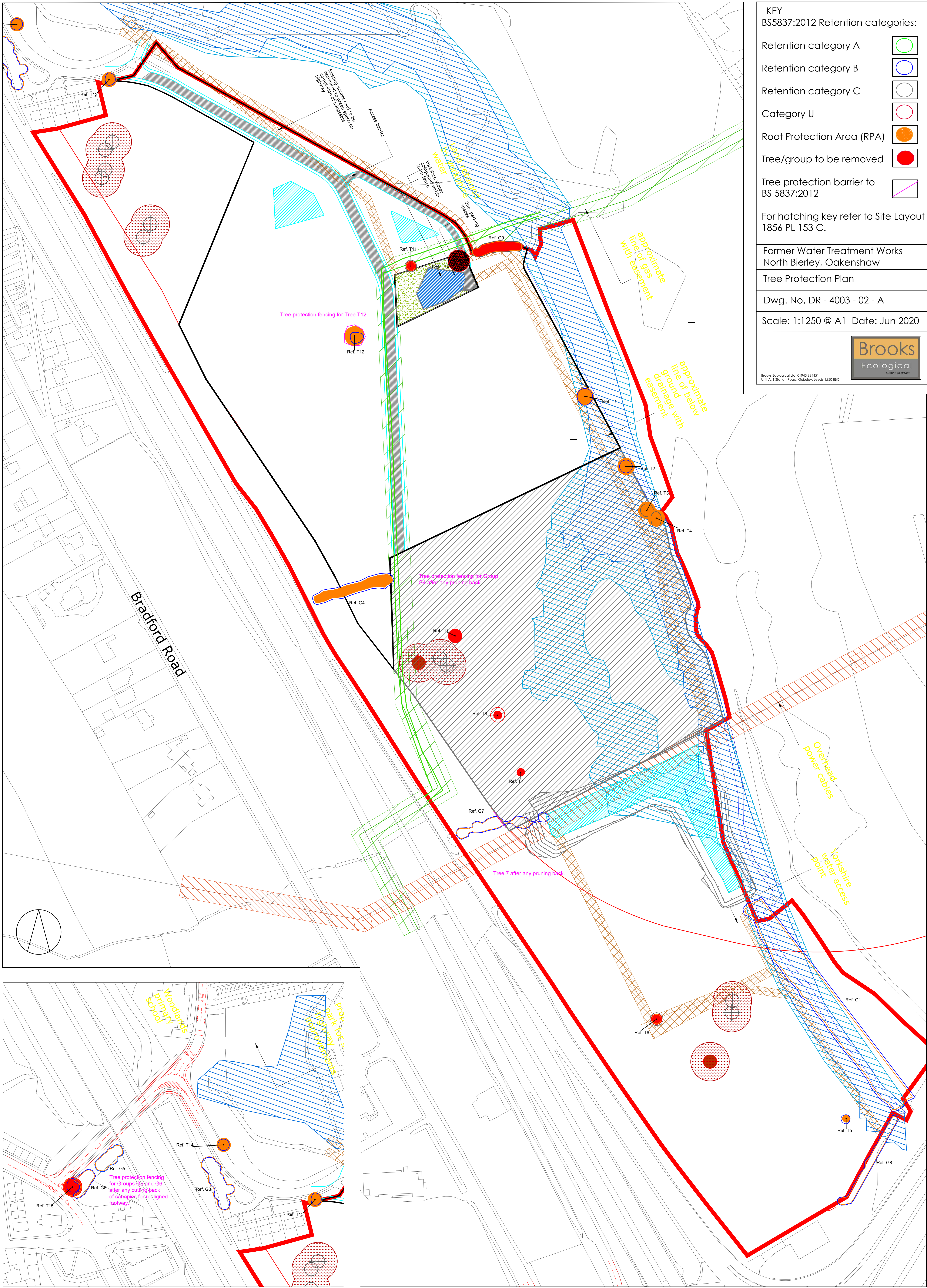
Brooks
Ecological

Brooks Ecological Ltd 01943 884451
Unit A, 1 Station Road, Guiseley, Leeds, LS20 8BX

Grounded advice



Appendix 1: DR-4003-01 Tree Constraints Plan



- KEY
- BS5837:2012 Retention categories:
- Retention category A
 - Retention category B
 - Retention category C
 - Category U
 - Root Protection Area (RPA)
 - Tree/group to be removed
 - Tree protection barrier to BS 5837:2012

For hatching key refer to Site Layout 1856 PL 153 C.

Former Water Treatment Works
North Bierley, Oakenshaw

Tree Protection Plan

Dwg. No. DR - 4003 - 02 - A

Scale: 1:1250 @ A1 Date: Jun 2020

Brooks Ecological

Grounded advice

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