Holgate and Kingstone, Barnsley

Arboricultural Impact Assessment

Report for Barnsley Partnership for Learning
(Laing O'Rourke)

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Institute of Chartered Foresters
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SUMMARY

Greengage Arboriculture & Ecology was commissioned to carry out an arboricultural impact assessment of a site at Holgate and Kingstone, Barnsley. The site is proposed for construction of a new school building and associated facilities as part of the Building Schools for the Future programme. The proposal for the site includes demolition of the existing Holgate School buildings.

A survey of trees on the site was carried out previously and the results of this survey are reported separately. The large site has a relatively low tree density. The majority of the trees are middle-age and early-mature trees growing in belts close to the boundaries. The most common trees are black poplar, sycamore, silver birch and hawthorn. The survey assessed 216 individual trees and shrubs, 31 groups of trees and 15 hedges.

None of the trees on the site are protected by Tree Preservation Orders and the site is not located in a Conservation Area.

The development proposal for the site includes an extensive cut and fill operation. Recommendations are made for minor revisions to the fill profile adjacent to some tree on the site in order to reduce the impact of the proposal on the trees. The assessment of impact in this report is based on adoption of these recommendations.

The proposed development will require the felling of 20 individually assessed trees and shrubs and 14 groups (or parts of groups) of trees and shrubs. In addition to this it is proposed to fell an additional eight individually assessed trees and two groups of trees and shrubs as part of the overall scheme design. It is also proposed to fell an additional 24 individually assessed trees and two groups of poor quality trees (R category), either to implement the proposal or as part of general site management. The report contains details on the quality and value of the trees to be felled and recommendations for the pruning of retained trees.

The proposed development will involve construction works and level changes within the root protection area of some retained trees. In many cases the impacts associated with this work can be adequately controlled or minimised by the adoption of appropriate construction methodologies which can be detailed in an arboricultural method statement. The proposal may lead to potential significant residual impacts on 11 individually assessed trees which are to be retained.

The proposed tree felling represents a relatively small proportion of the trees and shrubs present on the site. The proposed felling will lead to a temporary local loss of tree cover adjacent to Dodworth Road. However, it is considered that the tree felling can be adequately mitigated by new tree planting proposed in the landscape scheme, and in the long-term there should be no negative impact on public amenity, subject to development and implementation of a robust scheme for tree protection on site.

Recommendations are made for the production of an arboricultural method statement, with details and procedures for the protection of the retained trees and shrubs.

1. INTRODUCTION

1.1 Scope and Brief

This arboricultural report was commissioned by Laing O'Rourke on behalf of Barnsley Partnership for Learning. Laing O'Rourke have been appointed by Barnsley Metropolitan Borough Council (Barnsley MBC) to design and construct new school buildings and facilities under Phase 3 of the Barnsley Building Schools for the Future (BSF) programme.

The report was prepared by Guy Morrison, Principal Arboriculturist and Partner of Greengage Arboriculture & Ecology. He is a Chartered Forester and Registered Consultant with the Institute of Chartered Foresters. He is also a Professional Member of the Arboricultural Association and holds the Royal Forestry Society Professional Diploma in Arboriculture.

The scope of the report was to carry out an arboricultural impact assessment of the proposed development. The assessment and tree protection details accord with BSS5837:2005 '*Trees in relation to construction – Recommendations*' (BSi, 2005). The assessment is accompanied by a schedule for facilitation works to trees that are necessary in order to accommodate the proposed development, as well as remedial works necessary to improve tree condition and address tree hazards. A *Tree Protection Plan* (Plincke drawing no. BP4L_KIN_PLI_91_SW_00_05) has been produced separately and should be referred to when reading this report.

Arboricultural impact assessment reports have been commissioned for the three sites that form Phase 3 of the Barnsley BSF programme. These are Holgate and Kingstone, Wombwell, and St Michaels. This report relates to the Holgate and Kingstone site.

A pre-development tree survey of the site had been carried out previously. This *Tree Survey Report* (Greengage, 2010) and the accompanying *Tree Constraints Plan* (Greengage drawing no. 011-07) should be referred to when reading this report.

1.2 Site Description

A full description of the existing site and the site location plans are provided in the tree survey report (Greengage, 2010). A summary of the site description is provided below.

The proposed development site has an area of approximately 16.5ha and includes the existing site of Holgate School, as well as brownfield land and a small area of informal public open space. The existing school buildings and associated parking, access and tarmac playground all lie at the eastern end of the site and are

accessed from Shaw Lane. The centre site comprises a large area with several grass sports fields. The brownfield land is located in the north-western corner of the site and includes the former site of a demolished factory and petrol station on Dodworth Road. The site includes a small area of informal public open space and a footpath which accesses the site from Broadway to the south-west.

The large site has a low overall tree density and the trees present are concentrated in small areas of the site, generally close to the boundaries. Within Holgate School, most of the trees are growing on a bank located to the west of the playground with a smaller number scattered elsewhere on a bank to the east and close to the eastern and northern boundaries. The trees growing on the site include middle-age and early-mature sycamore, sessile oak, red oak, common lime, hornbeam, Norway maple and silver birch.

Within the former factory site, most of the trees are growing in a band along the western boundary, with a smaller number on the other boundaries. The trees growing on this site include middle-age and early-mature false acacia, purple Norway maple, wild cherry, silver birch, Scots pine, silver maple, Italian alder, whitebeam, weeping willow and sweet chestnut. The banks and rock cuttings on the edge of the former factory site include patches of naturally regenerated scrub.

To the east of the former factory site is an area informal public open space patches of dense planting along the northern and eastern boundaries. The trees growing here include middle-age and early-mature sycamore, silver birch, rowan, wild cherry and Norway maple.

The survey area included a narrow strip of land with a footpath accessing the site from Broadway. This has been planted with a long row of early-mature black poplar trees.

2. STATUTORY TREE PROTECTION

2.1 Tree Preservation Orders / Conservation Areas

The Local Planning Authority (LPA) has confirmed (e-mail dated 29/06/10) that there are currently no trees on or immediately adjacent to the site protected by Tree Preservation Order (TPO) and the site is not located in a Conservation Area.

2.2 Felling Licences

Tree felling on non-residential land is also controlled by the need to obtain a Felling Licence from the Forestry Commission before felling more than $2m^2$ of timber (or $5m^2$ if timber is not sold) per three month period, subject to various exemptions (FC, 2005).

2.3 Protected Species

Trees and scrub provide habitat for a wide range of species, some of which are protected. Most nesting birds and their nests are protected by the Wildlife and Countryside Act 1981 (as amended). All bats and their roosts are protected by the Wildlife and Countryside Act 1981 (as amended) and gain additional protection as under the Conservation (Natural Habitats, &c.) Regulations 1994. Birds listed under Schedule 1 of the Wildlife and Countryside Act 1981 and all bat species are also protected from disturbance when using nesting or roosting sites.

3. TREE SURVEY SUMMARY

3.1 Tree Survey Methodology

A tree survey was carried out on the site in accordance with BSS5837:2005 '*Trees in relation to construction – Recommendations*' (BSi, 2005). The tree survey report (Greengage, 2010) should be referred to for the survey methodology.

The trees' overall quality and value for retention was assessed in accordance with BS5837:2005 Table 1. This was dependent on the trees' physiological and structural condition, safe useful life expectancy and arboricultural, landscape, cultural and ecological value. Trees were assigned to the following quality and value categories:

Table 1. Tree quality and value categories

Quality and value	Characteristics
Category A	Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).
Category B	Those of moderate quality and value: in such a condition as to make a significant contribution (a minimum of 20 years is suggested).
Category C	Those of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm.
Category R	Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.

The root protection area (RPA) radius and area for each tree was calculated in accordance with BS5837:2005. The RPA is an area of ground that provides sufficient soil rooting volume to ensure the survival of the tree.

3.2 Tree Survey Results

The full survey results are shown in the *Tree Survey Report* (Greengage, 2010) and accompanying *Tree Constraints Plan* (Greengage drawing no. 011-07). An extract of the survey information is provided in the arboricultural impact and works schedule (Appendix A).

The survey assessed 216 individual trees and shrubs, 31 groups of trees and 15 hedges.

Eight trees of high quality and value (A category) were identified on the site. All these are early-mature trees of large-growing species, such as sessile oak, red oak, sycamore, ash and sweet chestnut. The majority of these trees are growing on a bank to the west of the existing playground.

The survey identified 72 individually surveyed trees and two groups of trees and shrubs of moderate quality and value (B category). These include a significant number of birch trees and other small and medium-growing species, such as whitebeam, rowan, hornbeam and false acacia. Other trees in this category included younger examples of large-growing species such as oak, lime and sycamore, and those which were down-graded from the high quality and value category because of the presence of minor defects. Trees in this category are scattered across the site, but there are particular concentrations on the north-west and northern boundaries and also some of the poplar trees in the row in the south-west of the site.

The survey identified 112 individually surveyed trees of low quality and value (C category). These include younger and smaller trees that are easily replaced. Other trees in this category include those with significant structural defects and wounding (which nevertheless have a safe useful life expectancy of more than ten years) and trees of poor form. The survey also assessed 29 groups of trees and shrubs and 15 hedges of low quality and value. These include small patches of young naturally regenerated trees and scrub, planting of mixed ornamental shrubs and rows of Leyland cypress.

Twenty four trees were identified to be in a poor condition and to require felling because of their condition, irrespective of any development proposal (R category). Many of these are early-mature black poplar trees in the south-west of the site. Trees in this category include dead trees and those with serious defects including large stem cavities, very weak and split main forks, and significant bark wounds.

4. ARBORICULTURAL IMPACTS

4.1 The Development Proposal

It is proposed to develop the site by constructing a large secondary school, the Holgate and Kingstone Advanced Learning Centre, which will replace and combine the existing Holgate School and the nearby Kingstone School.

It is proposed to demolish all the buildings which currently form Holgate School. These will be replaced with a sports pitch and an upgraded and expanded car-park accessed from Shaw Lane. The associated Holgate City Learning Centre building will be retained.

A new large school building will be built in the centre of the former factory site in the north-west corner of the site. This school will be accessed from Dodworth Road and will have associated car parking facilities paths, playground areas, sports courts and landscaping. It is understood that the level of the former factory site will be raised over most its area with fill to a level of 138.0m asl.

The use of the centre of the site as sports pitches will be retained, although changes will be made to the alignment of the pitches and there will be some re-grading to reduce the level of the existing highest sports pitch. This will provide fill material to raise the level of the former factory area and will create a single level area with several sports fields at the centre of the site.

The existing public footpaths crossing the site will be retained and these and the non-statutory footpath accessing the site from the south-west will be widened and upgraded to provide pedestrian access to the site from Broadway, Branksome Avenue and Beaumont Avenue.

The layout of the development proposal is shown on the *Tree Protection Plan* (Plincke drawing no. BP4L_KIN_PLI_91_SW_00_05) and the *Landscape Masterplan* (Plincke drawing no. BP4L_KIN_PLI_91_SW_00_01 Rev.P03) and the architects' plans on which this arboricultural impact assessment is based.

The routing of surface water and foul water drainage are shown on the *Civil Infrastructure External Drainage Plan* (Burro Happold drawing no. BP4L_KIN_BUR_DR_51_EX_LL_01 Rev.P02). Details on the routing water, gas, electricity and telecommunication services are not available at this stage.

4.2 Design Amendments

The proposal to add fill to uniformly increase levels in the north-west of the site to a level of 138.0m asl would have a significant impact a large number of trees where it would place fill within a large proportion of their RPA and would raise soil levels around the stems. In several locations it is therefore proposed to amend the fill profile and grade to a lower level than 138.0m asl. The proposed amendments are:

- Tree no.s 92-G101 – Finished fill level to be graded to a level 137.5m asl south of tree group. No fill to be added within tree group.
- Tree no.s 102-106 – Finished fill level to be graded from 137.5m asl south of tree no. 98 to 138.0m asl south of tree no. 105. No fill to be added to the north or east of trees.
- Tree no.s 166-180 – Finished fill level to be graded to a level of 175.25-175.5m asl at the top of the low steep bank to the east of the trees. No fill to be added within tree group.
- In all cases, small amendments to the fill profile will be made to ensure that fill will be added no closer than 0.5m from the stems of trees to be retained.

This report and the assessment of the impact on individual trees and groups of trees (Appendix A) is based on these proposed amendments. If the fill operation was carried out in accordance with the existing proposed fill then it would be necessary to revise this report.

4.3 Typical Development Impacts

Impacts by trees can be divided into direct and indirect impacts. Direct impacts refer to the removal of trees to facilitate the development and physical damage caused to retained trees during construction works. Indirect impacts refer to future pressures on the trees arising from their location in relation to the proposed use of the site.

Damage can be caused to trees in various ways during construction works. Direct damage to the roots is commonly encountered and is caused by excavation, for example to construct foundations or hardstandings or to install services. Roots are generally most frequent in the upper 600mm of soil, with many encountered at far shallower depth, and significant root damage can be caused by site soil stripping.

Damage to the soil may be as equally damaging to trees as direct root damage. Compaction is a commonly encountered problem and causes long-lasting damage to the soil. The anaerobic conditions which are often caused by compaction are unsuitable for most plant rooting and may cause tree decline. Compaction soil damage by vehicle movement is most common on, but not restricted to, high

clay-content and poorly drained soils. Damage to tree rooting conditions is also caused during hard-standing construction where impermeable construction prevents the infiltration of water and oxygen to the roots.

Direct damage to trees by construction at close distance can be minimised or even eliminated by the adoption of special construction methodologies. These include non-dig permeable hardstanding construction, pile and beam foundation design and non-trenched service installation. All these methodologies require careful design and supervision if they are to be used to minimise impact on trees.

Other common causes of tree damage on construction sites are accidental bark damage or branch breakage by vehicles and plant, fire damage, herbicide damage and soil pollution by cement-based products, diesel, hydraulic oil and other chemicals.

Trees may face indirect impacts where their retention in relation to the development causes a significant nuisance to future users of the site. This may lead to future pressure to fell the trees or prune them heavily in a way that destroys their form and much of their value. Another significant indirect impact is where indirect space has been allowed for the future crown-spread of the tree and BS5837 advises that trees should not be retained on the basis that their crown spread can be controlled by periodic pruning unless this is a desired management outcome. It is also important to allow space for trees to grow and develop without causing significant nuisances such as severe loss of light to adjacent property.

4.4 Direct Impacts

The arboricultural impact and facilitative works schedule (Appendix A) describes the impact of the development proposal on each tree surveyed, proposes mitigation measures and describes the arboricultural works that are necessary to implement the proposal. This is summarised below.

The main direct impacts on trees on the site are associated with the construction of the main site access from Dodworth Road. Other activities impacting on a lesser number of trees are the increase in levels with the addition of fill to the area proposed for the school building, the construction of a footpath from the proposed Shaw Lane car-park and the widening and upgrading of the footpath from Broadway in the south-west of the site.

Tree removal

All trees to be removed are shown on the *Tree Protection Plan* (Plincke drawing no. BP4L_KIN_PLI_91_SW_00_05 Rev.B).

Trees requiring removal because they are located in the footprint of proposed construction works are listed in Table 2 below.

Table 2. Trees and shrubs (A-C category only) to be removed to implement proposal where they are located on the footprint of proposed construction

Category	No.	Species	Age class
A None	None		
B 3 no. individual trees 0 no. group	141	Weeping Willow	EM
	144	Silver Birch	Mat
	145	Ash	MA
C 8 no. individual trees 7 no. group 3 no. group (part)	H5	Privet	NA
	G61 (part)	Hazel/ Elder/ Blackthorn/ Wych Elm	Mat
	G115 (part)	Wild Cherry/ Elder/ Rose	Y/MA
	116	Staghorn Sumach	MA
	G121 (part)	Hawthorn/ Elder	Mat
	H133	Leyland Cypress	MA
	H134	Cherry Laurel/ Elder/ Purple Crab Apple	EM
	135	Wild Cherry	MA
	G136	Italian Alder	Y
	G137	Cherry Laurel/ Broad-leaved Cockspur Thorn/ Spotted Laurel/ Viburnum	EM
	G142	Purple Cherry Plum/ Japanese Cherry/ Silver Birch/ Elder/ Cotoneaster/ Pyracantha	MA/Mat
	143	Leyland Cypress	MA
	146	Silver Birch	EM
	G211	Hawthorn/ Elder	Mat
	215	Sycamore	Y
	245	Japanese Cherry	EM
	246	Japanese Cherry	EM
	248	Japanese Cherry	EM
Total *11 no. individual trees* *7 no. groups* *3 no. groups (part)*			

Table 3 below lists trees requiring removal because significant construction works are proposed within their RPA and they are likely to suffer major damage or soil conditions will be drastically altered leading to a long-term decline in their condition.

Table 3. Trees and shrubs (A-C category only) to be removed to implement proposal where they are located beyond the footprint of proposed construction but are likely to suffer major damage

Category	No.	Species	Age class
A None	None		
B 1 no. individual tree	181	Italian Alder	Mat
C 8 no. individual trees 4 no. groups	32	Common Lime	EM
	33	Sycamore	EM
	G56	Elder	Mat
	114	Sycamore	MA
	G182	Italian Alder	Y
	G183	Italian Alder	Y
	185	Goat Willow	EM
	203	Elder	Mat
	G205	Sycamore/ Hawthorn/ Rose	MA
	205a	Sycamore	Y
	206	Goat Willow	EM
	249	Japanese Cherry	EM
Total *9 no. individual trees* *4 no. groups*			

Trees requiring removal because of their poor condition (R category trees), irrespective of the development proposal, are listed in Table 4 below.

Table 4. Trees and shrubs to be removed due to poor condition (R category)

Category	No.	Species	Age class
R 24 no. individual trees 2 no. groups	9	Sycamore	MA
	10	Sycamore	MA
	11	Sycamore	MA
	21	Goat Willow	Mat
	28	Silver Birch	EM
	41	Norway Maple	MA
	51	Norway Maple	MA
	65	Rowan	MA
	71	Rowan	MA
	85	Elder	Mat
	108	Norway Maple	EM
	G162	Sycamore	MA
	G164	Sycamore	MA
	167	False Acacia	Mat
	214	Sycamore	MA

Category	No.	Species	Age class
	227	Black Poplar	EM
	228	Black Poplar	EM
	229	Black Poplar	EM
	230	Black Poplar	EM
	232	Black Poplar	EM
	234	Black Poplar	EM
	235	Black Poplar	EM
	239	Black Poplar	EM
	240	Black Poplar	EM
	242	Black Poplar	EM
	243	Black Poplar	EM

It is proposed to fell several trees where their felling is not essential implement the proposed layout, but where their felling is desired as part of the overall scheme design within the *Landscape Masterplan*. These are listed below in Table 5.

Table 5. Trees and shrubs to be removed as part of the development, but whose removal is not essential.

Category	No.	Species	Age class
A 1 no. individual tree	140	Sweet Chestnut	MA
B 2 no. individual trees 1 no. groups	138	Weeping Willow	Mat
	139	Weeping Willow	Mat
	G194	Crack Willow	EM
C 5 no. individual trees 1 no. groups	6	Purple Crab Apple	Mat
	7	Holly var.	Mat
	8	Holly var.	Mat
	G199	Hawthorn	MA
	200	Hawthorn	MA
	201	Swedish Whitebeam	MA
Total *8 no. individual trees* *2 no. groups*			

Damage to retained trees

Table 6 below lists trees which can be retained but are likely to suffer potential damage or make suffer significant damage as a result of the development proposal, either to themselves or soil conditions within their RPA.

Table 6. Trees and shrubs to be retained with potential significant residual construction damage

Category	No.	Species	Age class
A 3 no. individual trees	14	Red Oak	EM
	30	Sessile Oak	EM
	104	Sycamore	EM
B 5 no. individual trees	69	Sycamore	EM
	70	Sycamore	EM
	103	Norway Maple	EM
	166	Wild Cherry	Mat
	171	Silver Maple	EM
C 3 no. individual trees	73	Sycamore	MA
	105	Sycamore	MA
	125	Swedish Birch	Mat
Total *11 no. individual trees*			

Table 6 does not include trees where the damage can be significantly minimised or eliminated by special construction methodologies, arboricultural supervision or other control measures. These works will require further consideration in an arboricultural method statement (section 5.2)

4.5 Indirect impact

Shading

The proposal is for extensive development of the site and all trees retained are retained within landscaped amenity area or adjacent to sports fields, footpaths and access roads.

Shading by both the retained trees and also the trees planted as part of the landscaping scheme will increase in the future. However, it is considered that the proposed retention of trees will not lead to undue shading of the site, either now or once the retained trees have grown to their full potential.

Pruning

Proposals for pruning are listed in the Arboricultural Impacts and Facilitative Works Schedule (Appendix B).

Because of the extensive nature of the development, relatively little facilitative pruning is required. Most recommendations for pruning are for formative pruning to improve the future form and development of young and middle-age trees, for example singling multi-stemmed trees.

4.6 Impact summary

The proposed development will require the felling of 20 individually assessed trees and shrubs and 14 groups of trees and shrubs (or parts of) (A-C category only). In addition to this the *Landscape Masterplan* requires the felling of an additional eight individually assessed trees and two groups of trees and shrubs as part of the overall scheme design. It is also proposed to fell an additional 24 individually assessed trees and two groups of poor quality trees (R category), either to implement the proposal or as part of general site management. The construction may lead to potential significant residual impacts on 11 individually assessed trees which are to be retained.

The proposed tree felling represents a relatively small proportion of the trees and shrubs present on the site. The proposed felling will lead to a local loss of tree cover adjacent to Dodworth Road. However, it is considered that the tree felling can be adequately mitigated by new tree planting proposed in the *Landscape Masterplan* and in the long-term there should be no positive impact on public amenity, subject to development and implementation of a robust scheme for tree protection on site (section 6.2).

5. RECOMMENDATIONS

5.1 Arboricultural works and inspection

The arboricultural impact and works schedule (Appendix A) contains recommendations for arboricultural works that are necessary to facilitate the development. The works schedule also contains recommendations for works that are necessary to address defects or improve the condition of trees.

Trees to be removed to facilitate the development or because of their condition are shown on the *Tree Protection Plan* (Plincke drawing no. BP4L_KIN_PLI_91_SW_00_05 Rev.B).

All works should be carried out by experienced arboricultural contractors and should comply with BS3998:1989 '*British Standard Recommendations for Tree Work'*.

A small number of trees are in a hazardous condition and require felling as soon as possible (see Appendix A and *Tree Survey Report* (Greengage (2010)). All other work recommendations are not urgent and could be postponed for up to 12 months until a development proposal receives planning permission and development commences.

Tree condition can change significantly over a relatively short period of time, and therefore the recommendations for works can only be held to be valid for a period of 12 months following the original tree survey date (June 2010). It is assumed that the local education authority has a programme of arboricultural inspection and the trees on this site should become part of that programme.

5.2 Tree protection

Tree Protection Plan

It is recommended that the trees to be retained on the site are protected in accordance with the *Tree Protection Plan* (Plincke drawing no. BP4L_KIN_PLI_91_SW_00_05 Rev.B). This plan shows the location of protective fencing which forms the construction exclusion zone to ensure that the trees to be retained and their essential rooting zone are not damaged during the proposed demolition and construction.

The protective fencing should comply with BS5837:2005. The fencing should be constructed from 2.3m high Herris-type weld-mesh panels securely attached to a braced scaffold framework. The scaffold framework shall comprise a vertical and horizontal framework, well-braced against impact. Vertical tubes will be placed at a maximum spacing of 3.0m and driven at least 600mm into the ground.

Within the construction exclusion zone, all damaging operation should be excluded. In particular, the following activities must not take place within the construction exclusion zone:

- changes in levels;
- excavation, including trenching for service installation;
- storage of materials, including earth
- Temporary access
- movement or parking of plant and vehicles;
- siting of site cabins or other temporary buildings;
- mixing of materials and chemicals; and
- disposal of liquids.

In addition to the above no fires should be lit on the site.

Arboricultural Method Statement

It is recommended that an arboricultural method statement (AMS) should be produced for the proposed development because of the sensitivity of the site and the construction and demolition works proposed within the RPA of trees to be retained.

The *Arboricultural Method Statement* should detail methodologies and procedures for tree protection where additional measures are required in addition to protective fencing. The method statement for the site should consider the following:

a) General responsibilities and procedures
   i. Roles and responsibilities for tree protection
   ii. Appointment of an arboricultural consultant to monitor tree protection
   iii. A tree protection monitoring programme
   iv. Procedures for reporting to client and LPA
   v. Phasing of the tree protection measures in relation to the construction programme

b) Protective fencing
   i. Reference to the Tree Protection Plan for fencing location and detail
   ii. Phased erection, removal and movement of the protective fencing in relation to the proposed demolition, earthworks and construction works
   iii. Procedures for supervised work within the construction exclusion zone

c) Demolition works
   i. Procedures for the removal of existing pathways and hardstandings within the RPA of retained trees

d) Cut and fill operation
   i. Confirmation of local amendments to the fill profile within the RPA of retained trees
   ii. Procedures for the addition a of fill within the RPA of retained trees

e) Low impact pathway construction
   i. Detailing of minimal excavation pathway construction for construction of paths within RPA of retained trees.

5.3 Protected Species

Trees on the site may be used for nesting by birds during the spring and summer. Nesting birds and their nests are legally protected and wherever possible the felling or pruning trees should be avoided between 1 March to 30 August to avoid an impact on nesting birds. Where it is necessary to carry out the work during this period then advice should be sought from a suitably qualified ecologist.

Some of the trees surveyed have features that could potentially be used by roosting bats, including cavities and cracks. It is recommended that a bat roost scoping study (BCT, 2007) is carried out by a suitably qualified ecologist of any trees due to be felled or where pruning might affect potential roosting features.

5.4 Replacement planting

The *Landscape Masterplan* (Plincke drawing no. BP4L_KIN_PLI_91_SW_00_01 Rev.P03) includes outline proposals for tree planting on the site. More detailed landscape planting plans will be produced once planning permission has been gained.

It is recommended that the proposed area for tree planting is extended to include the pathway linking the site to Broadway to the south-west. This strip of land currently includes a row of early-mature black poplar trees which screen the path and adjacent houses from the industrial unit to the south. The works schedule (Appendix A) includes a proposal to fell a significant proportion of the poplar because of their poor or hazardous condition. In order to retain the row of trees as a landscape feature, it is recommended that replacement black poplar trees are planted. It is recommended that the native black poplar (*Populus nigra* subsp. *betulifolia*) is planted, but avoiding the use of the Manchester Poplar clone in order to reduce the future risk of Poplar Scab disease. It is recommended that the stumps of the felled trees are ground-out and replacement poplar trees are planted to fill all gaps in the row. These should be planted with the same spacing as the existing trees, but positioned 1.0m to the side of the removed stump.

5.5 Further details

It is recommended that this assessment report is revised to take account of the proposed utility services layout once the details for the routing of water, gas, electricity and telecommunications services is available. These should be planned and routed so they do not pass through the RPA of trees to be retained. Where this is unavoidable, the impact should be assessed and measures taken to reduce

the impact. Measures and procedures to be utilised should comply with BS5837:2005 and '*NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees'* (2007) and be detailed in an Arboricultural Method Statement (section 5.2).

6. REFERENCES

BCT. 2007. *Bat Surveys, Good Practice Guidelines*. Bat Conservation Trust, London. www.bats.org.uk

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APPENDIX A – ARBORICULTURAL IMPACT AND WORKS SCHEDULE

APPENDIX A. ARBORICULTURAL IMPACT AND WORKS SCHEDULE

No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
1	London Plane	EM	C_2	None	None	No action
2	London Plane	EM	B_2	None	None	No action
3	London Plane	EM	B_2	None	None	No action
4	London Plane	EM	B_2	None	None	No action
H5	Privet	NA	C_2	Hedge located on proposed sports pitch.	None	Remove hedge
6	Purple Crab Apple	Mat	C_1	Felling not essential to implement scheme but proposed as part of the overall design.	None	Fell tree
7	Holly var.	Mat	C_1	Felling not essential to implement scheme but proposed as part of the overall design.	None	Fell tree
8	Holly var.	Mat	C_1	Felling not essential to implement scheme but proposed as part of the overall design.	None	Fell tree
9	Sycamore	MA	R	Poor quality tree proposed for felling.	None	Fell tree
10	Sycamore	MA	R	Poor quality tree proposed for felling.	None	Fell tree
11	Sycamore	MA	R	Poor quality tree proposed for felling.	None	Fell tree

Key Y – Young MA – middle-age EM - early mature Mat – mature OM - over-mature *-Assessment/proposal based of proposed amendment to fill profile (section 4.2)

No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
G12	Leyland Cypress/ Laburnum/ Goat Willow/ Ash/ Privet	EM/Mat	C_2	Trees and shrubs overhang proposed sports pitch	None	Prune trees and shrubs back to boundary
13	Hornbeam	EM	C_1	None	None	No action
14	Red Oak	EM	A_1	Re-grading of the base of the bank to accommodate proposed sports pitch will require excavation to a depth of approximately 0.3m within part of RPA. Tree can be retained with some potential for long-term impact on health.	Excavation within RPA to be carried out under arboricultural supervision. Prepare AMS.	No action
15	Red Oak	EM	B_1	None	None	No action
16	Sycamore	EM	B_1	None	None	No action
17	Sycamore	MA	C_1	None	None	No action
18	Common Lime	EM	C_1	None	None	No action
19	Goat Willow	EM	C_1	None	None	No action
20	Sycamore	EM	B_1	None	None	No action
21	Goat Willow	Mat	R	Poor quality tree proposed for felling.	None	Fell tree
22	Downy Birch	EM	C_1	None	None	No action
23	Sycamore	EM	A_1	None	None	No action
24	Sycamore	EM	B_1	None	None	No action
25	Sessile Oak	EM	A_1	None	None	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
26	Sessile Oak	EM	B_1	None	None	No action
27	Sycamore	EM	B_1	None	None	No action
28	Silver Birch	EM	R	Poor quality tree proposed for felling.	None	Fell tree
29	Ash	EM	A_1	Re-grading of the bank to accommodate proposed ramp for footpath will require an increase in soil levels to within a small proportion of RPA. Tree can be retained with potential minor impact on health only.	Re-grading within RPA to be carried out under precautions to be detailed in AMS.	No action
30	Sessile Oak	EM	A_1	Re-grading of the bank to accommodate proposed ramp for footpath will require an increase in soil levels to over more than half of the RPA with a minor increase in soil levels around the stem base proposed. Tree can be retained with some potential for long-term impact on health.	Re-grading within RPA to be carried out under precautions to be detailed in AMS. Ensure that soil levels are not raised with 0.5m of the stem base.	No action
31	Hornbeam	EM	B_1	Re-grading of the bank to accommodate proposed ramp for footpath will require an increase in soil levels to within part of RPA. Tree can be retained with potential minor impact on health only.	Re-grading within RPA to be carried out under precautions to be detailed in AMS.	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
32	Common Lime	EM	C_1	Re-grading of the bank to accommodate proposed ramp for footpath will require a significant increase in soil levels over the majority of the RPA with an increase in soil levels around the stem base proposed. Excavation proposed within a small proportion of the RPA. Tree likely to die if retained.	None	Fell tree
33	Sycamore	EM	C_1	Re-grading of the bank to accommodate proposed ramp for footpath will require a significant increase in soil levels or excavation over the majority of the RPA. Tree likely to die if retained.	None	Fell tree
34	Hornbeam	EM	B_1	Re-grading of the bank to accommodate proposed ramp for footpath will require a significant increase in soil levels or excavation within a significant proportion of the RPA.	Opportunities to amend earthworks design and retain tree under investigation.	None (provisional)
35	Sessile Oak	EM	A_1	None		No action
36	Silver Birch	MA	C_1	None	None	No action
37	Common Lime	MA	C_1	None	None	Cut stems to retain a single stem. Select a large upright stem for retention.
38	Sycamore	MA	C_1	None	None	Remove 4 no. secondary stems at base.

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
39	Ash	MA	C_1	None	None	Cut stems to retain a single stem. Select a large upright stem for retention.
40	Common Lime	MA	C_1	None	None	Cut stems to retain a single stem. Select a large upright stem for retention.
41	Norway Maple	MA	R	Poor quality tree proposed for felling.	None	Fell tree
42	Common Lime	MA	C_1	None	None	Cut stems to retain a single stem. Select a large upright stem for retention.
43	Ash	MA	C_1	Re-grading of the bank to accommodate proposed footpath will require an increase in soil levels to within a small proportion of RPA. Tree can be retained with potential impact on health unlikely.	Re-grading within RPA to be carried out under precautions to be detailed in AMS.	Cut stems to retain a single stem. Select a large upright stem for retention. Remove stem with bark wound.
44	Sycamore	MA	C_1	Re-grading of the bank to accommodate proposed footpath will require an increase in soil levels to within a small proportion of RPA. Tree can be retained with potential impact on health unlikely.	Re-grading within RPA to be carried out under precautions to be detailed in AMS.	Cut stems to retain a single stem. Select a large upright stem for retention.
G45	Elder/ Privet/ Hawthorn	Mat	C_2	None	None	Prune trees and shrubs back to boundary
G46	Sycamore	MA	C_2	None	None	No action
47	Ash	MA	B_1	None	None	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
48	Ash	MA	B_1	None	None	No action
49	Norway Maple	MA	C_1	None	None	No action
50	Norway Maple	MA	B_1	None	None	No action
51	Norway Maple	MA	R	Poor quality and hazardous tree proposed for felling.	None	Fell tree as soon as possible
52	Norway Maple	MA	B_1	None	None	No action
53	Norway Maple	MA	B_1	None	None	No action
54	Norway Maple	MA	C_1	None	None	No action
H55	Hawthorn/ Golden Privet	EM	C_2	None	None	No action
G56	Elder	Mat	C_2	Re-grading to accommodate proposed footpath will require excavation close to shrubs.	None	Remove shrubs
H57	Elder	EM	C_2	Land to the N will be subject to major re-grading. Details on proposed levels adjacent to the hedge are not available but it is assumed that it will not be necessary to excavate within 1.0m of the crown spread.	None	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
G58	Italian Alder/ Grey Willow/ Elder/ Sycamore	MA	B_2	Land to the N will be subject to major re-grading. Details on proposed levels adjacent to the hedge are not available but it is assumed that it will not be necessary to excavate within 1.0m of the crown spread.	None	No action
H59	Elder/ Blackthorn/ Grey Willow	NA	C_2	None	None	No action
G60	Hawthorn/ Elder	EM	C_2	None	None	No action
G61	Hazel/ Elder/ Blackthorn/ Wych Elm	Mat	C_2	Part of group lies on the line of a proposed footpath and associated earthworks.	None	Remove part of group on line of footpath and associated earthworks
62	Silver Birch	EM	C_1	None	None	No action
63	Hazel	EM	C_1	None	None	No action
64	Hazel	MA	C_1	None	None	No action
65	Rowan	MA	R	Tree on line of proposed earthworks to support footpath.	None	Fell tree
66	Goat Willow	Mat	C_1	None	None	No action
67	Goat Willow	NA	C_1	None	None	No action
68	Sycamore	MA	C_1	None	None	Cut stems to retain a single stem. Select a large upright stem for retention.

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
69	Sycamore	EM	B_1	Proposed fill operation to extend to include portion of RPA at 2.3m from stem. New footpath to be constructed on filled area within RPA. Tree can be retained with some potential for long-term impact on health.	Addition of fill within RPA to be carried out under precautions to be detailed in AMS. Construct footpath without excavation below the existing soil levels.	No action
70	Sycamore	EM	B_1	Proposed fill operation to extend to include portion of RPA at 1.8m from stem. New footpath to be constructed on filled area within RPA. Tree can be retained with some long-term impact on health likely.	Addition of fill within RPA to be carried out under precautions to be detailed in AMS. Construct footpath without excavation below the existing soil levels.	No action
71	Rowan	MA	R	Poor quality tree proposed for felling.	None	Fell tree
72	Norway Maple	EM	C_1	Proposed fill operation to extend to include portion of RPA at 1.8m from stem. Tree can be retained with potential minor impact on health only.	Addition of fill within RPA to be carried out under precautions to be detailed in AMS.	No action
73	Sycamore	MA	C_1	Proposed fill operation to extend to include approximately half of RPA and to extend to the stem base. New footpath to be constructed on filled area within RPA. Tree can be retained with some long-term impact on health likely.	Addition of fill within RPA to be carried out under precautions to be detailed in AMS. Construct footpath without excavation below the existing soil levels. Ensure that soil levels are not raised with 0.5m of the stem base.	No action
H74	Hawthorn	MA	C_2	None	None	No action
75	Lawsons Cypress	MA	C_1	None	None	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
H76	Pyracantha	NA	C_2	None	None	No action
77	Norway Maple	MA	C_1	None	None	No action
78	Sycamore	EM	B_1	Proposed fill operation to extend to 2.0m from stem. Tree can be retained with potential minor impact on health only.	Addition of fill within RPA to be carried out under precautions to be detailed in AMS.	No action
79	Rowan	EM	C_1	Proposed fill operation to extend to 0.6m from stem. Tree can be retained with potential minor impact on health only.	Addition of fill within RPA to be carried out under precautions to be detailed in AMS.	No action
80	Sycamore	MA	C_1	Proposed fill operation to extend to 1.2m from stem. Tree can be retained with potential minor impact on health only.	Addition of fill within RPA to be carried out under precautions to be detailed in AMS.	No action
81	Rowan	EM	C_1	Proposed fill operation to extend to include portion of RPA. Tree can be retained with potential minor impact on health only*	Addition of fill within RPA to be carried out under precautions to be detailed in AMS.	No action
82	Wild Cherry	EM	B_1	None	None	No action
83	Wild Cherry	EM	B_1	None	None	No action
84	Elder	EM	C_1	None*	None*	No action
85	Elder	Mat	R	Poor quality shrub proposed for removal	None	Remove shrub
86	Elder	EM	C_1	None	None	No action
87	Silver Birch	MA	C_2	None*	None*	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
88	Silver Birch	MA	C_2	None*	None*	No action
89	Silver Birch	EM	C_2	None*	None*	No action
90	Silver Birch	MA	C_2	None*	None*	No action
91	Silver Birch	EM	C_2	None*	None*	No action
92	Silver Birch	EM	C_2	None*	None*	No action
93	Goat Willow	MA	C_2	None*	None*	No action
H94	Hawthorn/ Sycamore	EM	C_2	None*	None*	No action
95	Silver Birch	MA	C_2	None*	None*	No action
96	Downy Birch	EM	C_2	None*	None*	No action
97	Silver Birch	EM	C_2	None*	None*	No action
98	Silver Birch	EM	C_2	Proposed fill operation to extend to include portion of RPA. Tree can be retained with potential minor impact on health only*	Addition of fill within RPA to be carried out under precautions to be detailed in AMS*	No action
99	Goat Willow	EM	C_2	None*	None*	No action
100	Silver Birch	EM	C_2	None*	None*	No action
G101	Silver Birch	MA	C_2	None*	None*	No action
102	Rowan	EM	B_1	None	None	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
103	Norway Maple	EM	B_1	Proposed fill operation to extend to include significant proportion of RPA at 1.0m from stem. Tree can be retained with some potential for long-term impact on health*	Addition of fill within RPA to be carried out under precautions to be detailed in AMS*	No action
104	Sycamore	EM	A_1	Proposed fill operation to extend to include a proportion of RPA at 2.4m from stem. Tree can be retained with potential minor impact on health only*	Addition of fill within RPA to be carried out under precautions to be detailed in AMS*	No action
105	Sycamore	MA	C_1	Proposed fill operation to extend to include significant proportion of RPA at 0.6m from stem. Tree can be retained with some long-term impact on health likely*	Addition of fill within RPA to be carried out under precautions to be detailed in AMS*	No action
106	Rowan	EM	B_1	None	None	No action
107	Silver Birch	Mat	B_1	Proposed fill operation to extend to include small portion of RPA. Tree can be retained with impact unlikely	None	No action
108	Norway Maple	EM	R	Poor quality tree proposed for felling.	None	Fell tree
109	Rowan	MA	C_1	None	None	No action
110	Sycamore	MA	C_1	None	None	No action
111	Black Poplar	EM	B_1	None	None	No action
112	Black Poplar	MA	C_1	None	None	No action
G113	Privet	EM	C_2	None	None	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
114	Sycamore	MA	C_1	Proposed fill operation to extend to include approx. half of RPA and to extend to the stem base. Long-term impact on health likely.	None	Fell tree
G115	Wild Cherry/ Elder/ Rose	Y/MA	C_2	Proposed fill operation to extend to close to top of rock cutting.	None	Remove trees and shrubs growing on or below rock cutting
116	Staghorn Sumach	MA	C_1	Proposed fill operation will bury shrub	None	Remove shrub
G117	Blackthorn/ Rose/ Hawthorn/ Elder	MA	C_2	None	None	No action
118	Black Poplar	MA	B_1	None	None	No action
119	Hawthorn	MA	C_1	None	None	No action
G120	Cherry Laurel	EM	C_2	None	None	No action
G121	Hawthorn/ Elder	Mat	C_2	Proposed fill operation to extend to approximately half way up slope. The level will be raised above the stem base of trees and shrubs growing on the lower slope.	None	Remove trees and shrubs growing on the lower slope with stem bases below the level of the proposed fill.
G122	Leyland Cypress/ Mountain Pine	EM	C_2	None	None	No action
123	Hawthorn	EM	C_1	None	None	No action
G123a	Dwarf Mountain Pine, Lawson Cypress, Leyland Cypress, Cherry Laurel	MA/EM	C_2	None	None	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
124	Swedish Birch	MA	C_1	None	None	No action
125	Swedish Birch	Mat	C_1	Proposed fill operation to extend to include approx. half of RPA and to extend to the stem base. New footpath to be constructed on filled area within RPA. Tree can be retained with some potential for long-term impact on health.	Addition of fill within RPA to be carried out under precautions to be detailed in AMS. Construct footpath without excavation below the existing soil levels. Ensure that soil levels are not raised with 0.5m of the stem base.	No action
H126	Hawthorn	MA	C_2	None	None	No action
127	Silver Birch	Mat	B_1	Tarmac hardstanding within RPA to be removed. Arboricultural supervision required to control potential for damage to tree.	Tarmac removal within RPA to be carried out under arboricultural supervision. Prepare AMS.	No action
128	False Acacia	EM	B_1	Tarmac hardstanding within RPA to be removed. Arboricultural supervision required to control potential for damage to tree.	Tarmac removal within RPA to be carried out under arboricultural supervision. Prepare AMS.	No action
129	Silver Birch	EM	B_1	Tarmac hardstanding within RPA to be removed. Arboricultural supervision required to control potential for damage to tree.	Tarmac removal within RPA to be carried out under arboricultural supervision. Prepare AMS.	No action
130	Whitebeam	EM	B_1	Tarmac hardstanding within RPA to be removed. Arboricultural supervision required to control potential for damage to tree.	Tarmac removal within RPA to be carried out under arboricultural supervision. Prepare AMS.	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
131	Whitebeam	Mat	B_1	Tarmac hardstanding within RPA to be removed. Arboricultural supervision required to control potential for damage to tree.	Tarmac removal within RPA to be carried out under arboricultural supervision. Prepare AMS.	No action
H132	Rose var./ Blackthorn/ Hawthorn	Mat	C_2	None	None	No action
H133	Leyland Cypress	MA	C_2	Hedge located in visibility splay of main site access.	None	Remove hedge
H134	Cherry Laurel/ Elder/ Purple Crab Apple	EM	C_2	Hedge partially located on line of footpath and in visibility splay of main site access. Removal of remainder not essential to implement scheme but proposed as part of the overall design.	None	Remove hedge
135	Wild Cherry	MA	C_1	Tree located on line of internal road.	None	Fell tree
G136	Italian Alder	Y	C_2	Trees located on line of internal road and car-park.	None	Fell tree
G137	Cherry Laurel/ Broad-leaved Cockspur Thorn/ Spotted Laurel/ Viburnum	EM	C_2	Part of group lies on the line of a proposed internal road.	None	Remove shrubs
138	Weeping Willow	Mat	B_1 (prov.)	Felling not essential to implement scheme but proposed as part of the overall design.	None	Fell tree

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
139	Weeping Willow	Mat	B_1	Felling not essential to implement scheme but proposed as part of the overall design.	None	Fell tree
140	Sweet Chestnut	MA	A_1	Felling not essential to implement scheme but proposed as part of the overall design.	None	Fell tree
141	Weeping Willow	EM	B_1	Tree located on line of internal site road.	None	Fell tree
G142	Purple Cherry Plum/ Japanese Cherry/ Silver Birch/ Elder/ Cotoneaster/ Pyracantha	MA/Mat	C_2	Group of trees and shrubs located on line of internal site road.	None	Fell trees and remove shrubs
143	Leyland Cypress	MA	C_1	Tree located on line of internal site road.	None	Fell tree
144	Silver Birch	Mat	B_1	Tree located on line of internal site road.	None	Fell tree
145	Ash	MA	B_1	Tree located on line of internal site road.	None	Fell tree
146	Silver Birch	EM	C_1	Tree located on line of internal site road.	None	Fell tree
147	Purple Norway Maple	MA	B_2	None	None	No action
148	Silver Birch	Mat	B_2	None	None	No action
149	Silver Birch	EM	C_1	None	None	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
150	False Acacia	EM	B_2	None	None	No action
151	False Acacia	EM	C_1	None	None	No action
152	Italian Alder	EM	C_1	None	None	No action
153	Apple	MA	C_1	None	None	No action
154	Elder	EM	C_1	None	None	No action
155	Silver Birch	EM	C_1	None	None	No action
156	Silver Birch	MA	C_1	None	None	No action
157	Scots Pine	MA	B_2	None	None	No action
158	Japanese Cherry	EM	C_1	None	None	No action
159	Silver Birch	EM	B_2	None	None	No action
160	Rowan	EM	B_2	None	None	No action
161	Silver Birch	EM	B_2	None	None	No action
G162	Sycamore	MA	R	Poor quality tree stems proposed for removal.	None	Remove trees
163	Silver Birch	Mat	B_1	None	None	No action
G164	Sycamore	MA	R	Poor quality tree stems proposed for removal.	None	Remove trees
165	Silver Birch	Mat	C_1	None	None	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
166	Wild Cherry	Mat	B_1	Proposed fill operation to extend to include over half of RPA and to extend to close to the stem base. Concrete hardstanding within RPA requires removal. Tree can be retained with some long-term impact on health likely*	Addition of fill within RPA to be carried out under precautions to be detailed in AMS. Concrete removal within RPA to be carried out under arboricultural supervision*	No action
167	False Acacia	Mat	R	Dead tree proposed for felling	None	Fell dead tree
168	Whitebeam	EM	B_1	Proposed fill operation to extend to include a significant proportion of RPA and to extend to close to the stem base. Tree can be retained with some potential for minor impact on health*	Addition of fill within RPA to be carried out under precautions to be detailed in AMS*	No action
169	Scots Pine	Y	C_1	None	None	No action
170	Whitebeam	EM	B_1	Proposed fill operation to extend to include a significant proportion of RPA and to extend to close to the stem base. Tree can be retained with some potential for minor impact on health*	Addition of fill within RPA to be carried out under precautions to be detailed in AMS*	No action
171	Silver Maple	EM	B_1	Proposed fill operation to extend to include approx. half of RPA and to extend to close to the stem base. Concrete hardstanding within RPA requires removal. Tree can be retained with some long-term impact on health likely*	Addition of fill within RPA to be carried out under precautions to be detailed in AMS. Concrete removal within RPA to be carried out under arboricultural supervision*	No action
172	Silver Birch	Mat	B_1	None*	None*	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
173	False Acacia	EM	C_1	None*	None*	No action
174	Scots Pine	MA	B_1	None*	None*	No action
175	Silver Birch	Mat	B_1	None*	None*	No action
176	Silver Birch	MA	C_1	None*	None*	No action
177	Sweet Chestnut	MA	B_1	None*	None*	No action
178	False Acacia	EM	B_1	None*	None*	No action
179	Silver Birch	MA	B_1	None*	None*	No action
180	Silver Birch	EM	C_1	None*	None*	No action
181	Italian Alder	Mat	B_1	Tree located 0.9m from kerb of proposed internal access road. Tree will suffer significant damage from construction and removal is required.	None	Fell tree
G182	Italian Alder	Y	C_2	Trees located within an area of proposed fill	None	Remove trees
G183	Italian Alder	Y	C_2	Trees located within an area of proposed fill	None	Remove trees
G184	Wild Cherry	Y/MA	C_2	None	None	Thin groups to re-space stems at 2m.
185	Goat Willow	EM	C_1	Located within an area to be re-graded. Level at stem base reduced ≥1.0m.	None	Fell tree
186	Sessile Oak	MA	B_1	None	None	No action
187	Rowan	MA	C_1	None	None	No action

Key Y – Young MA – middle-age EM - early mature Mat – mature OM - over-mature *-Assessment/proposal based of proposed amendment to fill profile (section 4.2)

No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
188	Rowan	MA	C_1	None	None	No action
189	Sycamore	MA	B_1	None	None	No action
190	Sycamore	MA	C_1	None	None	No action
191	Sycamore	MA	C_1	None	None	Formative pruning - Remove 1 no. stem at 1.2m to retain single stem.
192	Sessile Oak	MA	C_1	None	None	No action
193	Norway Maple	MA	B_1	None	None	No action
G194	Crack Willow	EM	B_2	Felling of group not essential to implement scheme but proposed as part of the overall design.	None	Fell trees
195	Sycamore	MA	C_1	None	None	No action
196	Hawthorn	EM	C_1	None	None	No action
197	Goat Willow	EM	C_1	None	None	No action
198	Crack Willow	EM	C_1	Proposed fill operation to extend to include a small proportion of RPA at 2.4m from stem. Tree can be retained with potential minor impact on health only	None	No action
G199	Hawthorn	MA	C_2	Felling of group not essential to implement scheme but proposed as part of the overall design.	None	Fell trees
200	Hawthorn	MA	C_1	Felling of tree not essential to implement scheme but proposed as part of the overall design.	None	Fell tree

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
201	Swedish Whitebeam	MA	C_1	Felling of tree not essential to implement scheme but proposed as part of the overall design.	None	Fell tree
G202	Elder	Mat	C_2	None	None	No action
203	Elder	Mat	C_1	Proposed fill operation to extend to include approx. half of RPA and to extend to stem base. Remove shrub	None	Remove shrub
204	Hawthorn	EM	C_1	None	None	No action
G205	Sycamore/ Hawthorn/ Rose	MA	C_2	Proposed fill operation to extend to up lower slopes. The ground level will be raised above the stem base of trees and shrubs growing on the lower slope.	None	Remove trees and shrubs growing on the lower slope with stem bases below the level of the proposed fill.
205a	Sycamore	Y	C_1	Trees located within an area of proposed fill with stem based buried to 0.75m.	None	Fell tree
206	Goat Willow	EM	C_1	Trees located within an area of proposed fill with stem based buried to 1.2m.	None	Fell tree
207	Hawthorn	MA	C_1	None	None	No action
208	Elder	EM	C_1	None	None	No action
208a	White Willow	EM	C_1	Construction of footpath within a small proportion of RPA. Tree can be retained with potential impact on health minor only.	None	No action
209	Silver Birch	EM	C_1	None	None	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
210	Silver Birch	EM	C_1	None	None	No action
G211	Hawthorn/ Elder	Mat	C_2	Group located on line of proposed footpaths.	None	Fell trees
G212	Silver Birch/ Buddleia	Y/MA	C_2	None	None	No action
213	Silver Birch	Y	C_2	None	None	No action
214	Sycamore	MA	R	Poor quality tree proposed for felling.	None	Fell tree
215	Sycamore	Y	C_1	Tree located on line of footpath.	None	Fell tree
216	Black Poplar	EM	B_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
217	Black Poplar	EM	B_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
218	Black Poplar	EM	B_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
219	Black Poplar	EM	B_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
220	Black Poplar	EM	B_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
221	Black Poplar	EM	B_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
222	Black Poplar	EM	B_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
223	Black Poplar	EM	C_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
224	Black Poplar	EM	C_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
225	Black Poplar	EM	C_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
226	Black Poplar	EM	C_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
227	Black Poplar	EM	R	Poor quality and hazardous tree proposed for felling.	None	Fell tree as soon as possible
228	Black Poplar	EM	R	Poor quality and hazardous tree proposed for felling.	None	Fell tree as soon as possible
229	Black Poplar	EM	R	Poor quality and hazardous tree proposed for felling.	None	Fell tree as soon as possible
230	Black Poplar	EM	R	Poor quality tree proposed for felling.	None	Fell tree
231	Black Poplar	EM	B_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	Re-attach bird box
232	Black Poplar	EM	R	Poor quality tree proposed for felling.	None	Fell tree
233	Black Poplar	EM	C_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
234	Black Poplar	EM	R	Poor quality tree proposed for felling.	None	Fell tree
235	Black Poplar	EM	R	Poor quality tree proposed for felling.	None	Fell tree
236	Black Poplar	EM	C_2	None	None	No action
237	Black Poplar	EM	C_2	None	None	Cut branch in upper crown below tear-out wound

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
238	Black Poplar	EM	C_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
239	Black Poplar	EM	R	Poor quality and hazardous tree proposed for felling.	None	Fell tree as soon as possible
240	Black Poplar	EM	R	Poor quality tree proposed for felling.	None	Fell tree
241	Black Poplar	EM	B_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
242	Black Poplar	EM	R	Poor quality tree proposed for felling.	None	Fell tree
243	Black Poplar	EM	R	Poor quality tree proposed for felling.	None	Fell tree
244	Black Poplar	EM	B_2	Hard-surfaced footpath to be constructed within RPA.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
245	Japanese Cherry	EM	C_2	Tree located on line of footpath.	None	Fell tree
246	Japanese Cherry	EM	C_2	Tree located on line of footpath.	None	Fell tree

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No.	Species	Age class	Category grade	Arboricultural impact	Protection measures	Facilitative and remedial arboricultural works
247	Sycamore	MA	B_1	Hard-surfaced footpath to be constructed within a significant proportion of the RPA close. Tree stem located 1.1m from path edge. Tree can be retained with a minimal dig construction of footpath.	Footpath to be constructed with minimal excavation (≤50mm) to minimise potential for root damage. Detail in AMS.	No action
248	Japanese Cherry	EM	C_2	Tree located on line of footpath.	None	Fell tree
249	Japanese Cherry	EM	C_2	Hard-surfaced footpath to be constructed within a large proportion of the RPA close. Tree stem located close to path edge.	None	Fell tree
250	Scots Pine	MA	B_1	None	None	No action
H251	Privet/ Hawthorn	NA	C_2	None	None	No action
H252	Leyland Cypress	MA	C_2	None	None	No action
H253	Lawson Cypress	MA	C_2	None	None	No action
G254	Italian Alder	MA	C_2	None	None	No action
H255	Privet	NA	C_2	None	None	No action
256	Elder	EM	C_1	None	None	No action
G257	Cherry Laurel/ Pyracantha	EM	C_2	None	None	No action
258	Goat Willow	Mat	C_1	None	None	No action
259	Midland Hawthorn	Mat	B_1	None	None	No action

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