Stubbins & Ramsbottom Flood Risk Management Scheme

Arboricultural Assessment: BS 5837:2012

Client
Atkins
Chadwick House,
Birchwood Park,
Warrington, WA3 6AE

Project number
13-023A

Date
20.08.2013
1. Scope
1.1 The following report is an assessment to BS5837: 2012 of trees within the town of Ramsbottom and describes a relatively short extent of the River Irwell which runs near the centre. The project essentially involves the creation of a number of types of physical barriers, designed to prevent the river from bursting its banks and flooding the town.

1.2 This report is accompanied by three plans:

1) 3x Tree Constraints Plans (A1, 1:200 scale): 13-023-1A, 13-023-2A & 13-023-3A

All of the relevant information relating to this arboricultural assessment, including tree locations, crowns and categories, arboricultural data tables and arboricultural solutions matrices have been applied to the above drawings for ease of reference.

1.3 The site was last visited on the 3rd August 2013.

1.4 The trees have been inspected from ground level to the criteria provided in BS 5837:2012: *Trees in relation to design, demolition and construction. Recommendations.*

2. Site and Surroundings
2.1 The project area, despite its brevity, takes in a number of landscape types. Pin Meadow describes open grassland enclosed by trees on most sides stops fairly abruptly at Alderway, at which point the character of the site changes to a collection of domestic garden with some small trees. Just before Stubbins Bridge there is a small, and obviously well-tended Memorial Garden with some recently-planted ornamental trees. The final stretch of the project runs from the far side of the bridge to the far side of the Cuba Industrial site and describes a relatively unseen and inaccessible area of ground between the river’s edge and the rear of the buildings.
3. The Trees
3.1 Details of the tree population on the site can be found in the Arboricultural Data Tables, appended to this report. These include details of 12 individual trees and 10 tree groups. The information provided conforms to the requirements of BS5837: 2012.

3.2 In general, the trees are typical self-set river bank species with scrubby willow under sycamore and ash. Rather different are the trees along the edge of Alderway are well-spaced and large mature ash, sycamore and common lime. These are large and mature open-grown trees of visual significant, although their conditions are variable.

4. The Proposals
4.1 The development essentially involves the creation of a continuous barrier feature, which is to enclose the housing adjacent to Pin Meadow from the North-West with a mass concrete wall, running along the rear gardens in the form of a slightly elevated bank to the rear of the houses on Robert Street to Stubbins bridge. After which it runs along the river to the South to a tie-in point just past the Cuba Industrial Estate.

5. Arboricultural Constraints & Mitigation
5.1 Details of potential arboricultural constraints, and potential mitigation or solutions can be found in the Arboricultural Solutions Matrices, which are appended to this report and applied to each of the Tree Constraints Plans.

6. Recommendations
6.1 A summary of the issues and proposed solutions are found on the Tree Constraints Plans. The salient points are as follows:

6.1.1 It is clear that the removal of the trees T2-T8 will present a significant arboricultural impact. That said, the extent of the exposure to the housing to possible flood events, and the engineering works require to safeguard them is arguably more significant. We would suggest that the proposed semi-formal planting of semi-mature lime here should be attractive and appropriate and should be easier for the people in the nearby houses to live with in the longer terms that the current trees.

6.1.2 It would appear that any removals from Pin Meadow and the Bridge would be insignificant and remediable.

6.1.3 The two tree groups near the walls due to be repaired (G7 and G8) may need to be temporarily cut back in order to enable works. We would suggest that these impacts should be fairly transitory in nature.

6.1.4 The remaining cutting back of trees from G8 to the tie-in point should once again be fairly transitory due to the scrubby and vigorous nature of the constituent species. That said, the proposed willow withy planting should accelerate regrowth and allow any gaps to be filled, while not disturbing the possible asbestos in this area.
6.2 We would recommend that a suitably qualified and experienced contractor is used to undertake the works specified, and that all works should comply with the guidance set out in BS 3998:2010 "Tree Work: Recommendations".

Should you require any clarification of the points in this report, please do not hesitate to contact me at any time.

Yours faithfully,

Scott Fairley MSc(for)
Principal Arboriculturalist
<table>
<thead>
<tr>
<th>tree no</th>
<th>species</th>
<th>height</th>
<th>DBH (mm)</th>
<th>RPA (av. radius)</th>
<th>crown spread N-E-S-W</th>
<th>height to 1st significant branch</th>
<th>age class</th>
<th>condition</th>
<th>structural condition</th>
<th>preliminary management recommendations</th>
<th>estimated remaining years</th>
<th>category grade</th>
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</thead>
<tbody>
<tr>
<td>T1</td>
<td>Common Lime</td>
<td>17</td>
<td>580</td>
<td>7</td>
<td>5-5-3-4</td>
<td>0</td>
<td>M</td>
<td>good</td>
<td>Moderate vitality. Part of linear group. Suckers around stem base. Epicormics on stem. Minor dead wood in crown. Low branches over road/footpath.</td>
<td>Ascertain potential impact on RPA. Crown lift to 5m. Erect tree protection fencing to full extent of RPA if possible.</td>
<td>20+</td>
<td>B1</td>
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<tr>
<td>T2</td>
<td>Ash</td>
<td>19</td>
<td>640</td>
<td>7.7</td>
<td>8-9-5-5</td>
<td>5NE</td>
<td>M</td>
<td>fair</td>
<td>Low shape &amp; form. Low vitality. Declining. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape.</td>
<td>Tree will need to be replaced in order to enable the flood defence works as proposed.</td>
<td>10+</td>
<td>C1 (U)</td>
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<tr>
<td>T3</td>
<td>Sycamore</td>
<td>18</td>
<td>495</td>
<td>5.9</td>
<td>4-6-5-2</td>
<td>4N</td>
<td>M</td>
<td>fair</td>
<td>Low vitality. Tree located within raised bed. Heavy crown lifting has top-loaded the tree. Minor dead wood in crown. Low bud/leaf density.</td>
<td>Tree will need to be replaced in order to enable the flood defence works as proposed.</td>
<td>20+</td>
<td>C1 (U)</td>
</tr>
<tr>
<td>T4</td>
<td>Sycamore</td>
<td>17</td>
<td>820</td>
<td>9.8</td>
<td>7-9-8-6</td>
<td>4NE</td>
<td>OM</td>
<td>fair</td>
<td>Low vitality. Declining. Tree located within raised bed. Large pruning wounds. Heavy crown lifting has top-loaded the tree. Minor dead wood in crown. Dieback in crown. Low bud/leaf density.</td>
<td>Tree will need to be replaced in order to enable the flood defence works as proposed.</td>
<td>20+</td>
<td>C1 (U)</td>
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<tr>
<td>tree no</td>
<td>species</td>
<td>height</td>
<td>DBH (mm)</td>
<td>RPA (av. radius)</td>
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<td>height to 1st significant branch</td>
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<tr>
<td>T5</td>
<td>Sycamore</td>
<td>16</td>
<td>690</td>
<td>8.3</td>
<td>5-4-6-7</td>
<td>4N</td>
<td>M</td>
<td>good</td>
<td>Moderate vitality. Soil levels altered. Included bark present in main fork. Small leaves for species. Minor dead wood in crown.</td>
<td>Tree will need to be replaced in order to enable the flood defence works as proposed.</td>
<td>20+</td>
<td>B1 (U)</td>
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<tr>
<td>T6</td>
<td>Ash</td>
<td>22</td>
<td>810</td>
<td>9.7</td>
<td>4-6-8-5</td>
<td>7E</td>
<td>M</td>
<td>good</td>
<td>Moderate vitality. Cavity on stem. Major deadwood in crown.</td>
<td>Tree will need to be replaced in order to enable the flood defence works as proposed.</td>
<td>20+</td>
<td>B1 (U)</td>
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<tr>
<td>T7</td>
<td>Sycamore</td>
<td>18</td>
<td>640</td>
<td>7.7</td>
<td>5-5-2-6</td>
<td>4S</td>
<td>M</td>
<td>poor</td>
<td>Low vitality. Declining. Soil levels altered. Decay present on stem. Cavity on stem. Major bark wounding on stem. Exudation on stem. Small leaves for species. Heavy crown lifting has top-loaded the tree. Dieback in crown. Broken branches in crown. Major deadwood in crown.</td>
<td>Tree will need to be replaced in order to enable the flood defence works as proposed.</td>
<td>&lt;10</td>
<td>U</td>
</tr>
<tr>
<td>T8</td>
<td>Sycamore</td>
<td>19</td>
<td>940</td>
<td>11.3</td>
<td>6-8-8-5</td>
<td>3NW</td>
<td>M</td>
<td>good</td>
<td>Moderate vitality. Surface roots sustained bark damage. Epicormics on stem. Minor dead wood in crown.</td>
<td>Tree will need to be replaced in order to enable the flood defence works as proposed.</td>
<td>20+</td>
<td>B1 (U)</td>
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# Arboricultural Data Tables

<table>
<thead>
<tr>
<th>tree no</th>
<th>species</th>
<th>height (DBH)</th>
<th>DBH (mm)</th>
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<tbody>
<tr>
<td>T9</td>
<td>Fir</td>
<td>14</td>
<td>385</td>
<td>4.6</td>
<td>4-4-4-4</td>
<td>3.5N</td>
<td>SM</td>
<td>good</td>
<td>Growing well but ultimate size and inability to prune back make it a poor garden tree.</td>
<td>Ascertain potential impact on RPA.</td>
<td>20+</td>
<td>B1</td>
</tr>
<tr>
<td>T10</td>
<td>Sycamore</td>
<td>12</td>
<td>1800</td>
<td>15</td>
<td>5-8-8-4</td>
<td>0</td>
<td>OM</td>
<td>fair-poor</td>
<td>Coppice. Stem divides below 1.5m. Major deadwood in crown. Unbalanced crown shape. Evidence of roots in track may relate to this tree.</td>
<td>Ascertain potential impact on RPA.</td>
<td>20+</td>
<td>C2</td>
</tr>
<tr>
<td>T11</td>
<td>Lawson Cypress</td>
<td>10</td>
<td>420</td>
<td>5</td>
<td>3-3-3-3</td>
<td>2N</td>
<td>EM</td>
<td>fair</td>
<td>Fast growing tree, ineffective as a screen and only liable to become a nuisance.</td>
<td>Ascertain potential impact on RPA.</td>
<td>20+</td>
<td>C1</td>
</tr>
<tr>
<td>T12</td>
<td>Sycamore</td>
<td>11</td>
<td>av. 380</td>
<td>4.5</td>
<td>4-3-3-3</td>
<td>2.5N</td>
<td>M</td>
<td>fair-poor</td>
<td>Multi-stemmed tree which has been very heavily crown-lifted and is now top-loaded. Fact that tree forks at ground level suggests levels here have been raised. Tree is sprouting fairly heavily due to excessive pruning.</td>
<td>If access to river bank for construction is required here, and if tree is to be retained (and we would suggest that it may be better replaced), then the RPA will need to be dressed with Terram and plastic bog mats filled with clean stone in order to prevent root damage during the construction. Tree protective fencing will also be required.</td>
<td>10-20</td>
<td>C1</td>
</tr>
</tbody>
</table>

**tree groups**

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project name: Stubbins & Ramsbottom FRMS  
client: Atkins  
project number: 13-023A (v.1.01)  
date: 2008.2013  
Fairley Arboriculture and Landscape Planning Ltd
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<tbody>
<tr>
<td>G1</td>
<td>Sycamore Goat Willow Common Lime Elder Ash</td>
<td>max 8</td>
<td>av. 400</td>
<td>allow 3</td>
<td>as shown on plan</td>
<td>0</td>
<td>SM</td>
<td>fair</td>
<td>Part of linear group. Fairly open feature of trees along railway embankment. Little of individual merit.</td>
<td>Quality of trees are not sufficient to constrain development</td>
<td>20+</td>
<td>B2</td>
</tr>
<tr>
<td>G2</td>
<td>Laburnum Lawson Cypress Norway Maple</td>
<td>max 4</td>
<td>av. 180</td>
<td>allow 1.5</td>
<td>as shown on plan</td>
<td>0</td>
<td>SM</td>
<td>good</td>
<td>Number of small, planted garden trees likely to be affected by the proposals.</td>
<td>Ascertain potential impact on RPA. Smaller trees could be relocated.</td>
<td>20+</td>
<td>B2</td>
</tr>
<tr>
<td>G3</td>
<td>Ash Goat Willow</td>
<td>max 8</td>
<td>av. 200</td>
<td>allow 2</td>
<td>as shown on plan</td>
<td>0</td>
<td>SM</td>
<td>poor</td>
<td>Poor shape &amp; form. Low vitality. Part of linear group. Spindly habit. Coppice. Soil levels altered. Cavity on stem. Major bark wounding on stem. Dieback in crown. Unbalanced crown shape.</td>
<td>Ascertain potential impact on RPA. Crown lift to 3m over footpath.</td>
<td>10+</td>
<td>C2</td>
</tr>
<tr>
<td>G4</td>
<td>Ash Sycamore Goat Willow</td>
<td>max 9</td>
<td>av 400</td>
<td>allow 3</td>
<td>as shown on plan</td>
<td>0</td>
<td>EM</td>
<td>poor</td>
<td>Part of linear group. Spindly habit. Soil levels altered. Small leaves for species. Dieback in crown. Low bud/leaf density.</td>
<td>Ascertain potential impact on RPA. Crown lift to 3m.</td>
<td>20+</td>
<td>C2</td>
</tr>
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<tr>
<td>G5</td>
<td>Swedish Whitebeam, Sycamore (plus assorted undergrowth)</td>
<td>max 7</td>
<td>av.300</td>
<td>allow 2</td>
<td>as shown on plan</td>
<td>0</td>
<td>SM</td>
<td>poor</td>
<td>Poor shape &amp; form. Low vitality. Declining. Part of linear group. Spindly habit. Large pruning wounds. Small leaves for species. Heavy crown lifting has top-loaded the tree. Low bud/leaf density. Major deadwood in crown.</td>
<td>Manage as a group- if one is to go, replace all three. Other trees to rear adjacent to river could be cut back with little ill effect.</td>
<td>&lt;10</td>
<td>C2</td>
</tr>
<tr>
<td>G6</td>
<td>lime, cherry, Callery pear, hornbeam</td>
<td>max 6</td>
<td>av.240</td>
<td>allow 2</td>
<td>as shown on plan</td>
<td>0</td>
<td>Y-SM</td>
<td>good</td>
<td>Number of relatively recently-planted ornamental trees in small memorial garden. Cherries are doing poorly, but other trees are growing well. Number of shrubs in bed to rear.</td>
<td>individual RPAs of trees will be relatively small so work could be undertaken relatively close. Trees are also young enough that careful translocation would be entirely possible.</td>
<td>20-40</td>
<td>B2</td>
</tr>
<tr>
<td>G7</td>
<td>cherry, ash, goat willow</td>
<td>max 9</td>
<td>av. 300</td>
<td>allow 3</td>
<td>as shown on plan</td>
<td>0</td>
<td>EM-M</td>
<td>fair</td>
<td>Fairly tall clump of self-set trees growing between riverside shingle and retaining wall. Scruffy habit overall and some appear to have been fairly roughly cut back. Some very long lateral branches overhanging the river.</td>
<td>Nature of group and constituent species suggest that the trees will recover quickly from any removal or pruning works. Some significant cutting back of laterals to gain access to river edge will be required.</td>
<td>10-20</td>
<td>C2</td>
</tr>
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### Stubbins & Ramsbottom FRMS – Arboricultural Data Tables

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</tr>
</thead>
<tbody>
<tr>
<td>G8</td>
<td>sycamore, ash</td>
<td>max 11</td>
<td>av 425</td>
<td>allow 4</td>
<td>as shown on plan</td>
<td>0</td>
<td>M</td>
<td>fair</td>
<td>Relatively even-aged group of sycamores adjacent to river at end of Dale Street. Trees are significantly imposing upon the retaining wall, which is set to be re-pointed and improved as part of the proposals.</td>
<td>These trees will clearly need to be cut back in order to effect any improvements to the wall. A judgment will need to be made with respect to whether they could be allowed to coppice and be retained long-term or whether they would need to be removed permanently for engineering reasons.</td>
<td>20-40</td>
<td>B2</td>
</tr>
<tr>
<td>G9</td>
<td>ash</td>
<td>max 11</td>
<td>av 320</td>
<td>allow 3</td>
<td>as shown on plan</td>
<td>0</td>
<td>EM-M</td>
<td>fair-good</td>
<td>Reasonably well-spaced, self-set ash surrounding small garage unit and leading down towards the river’s edge. Trees are mostly of a tidy, upright form and most around the garage and been crown-lifted for access. Note that RPA offset only applies to edge of median water line of river, since persistently waterlogged soil will tend to constrain sycamore roots.</td>
<td>Required access for defence works on river’s edge should require minimal disturbance of these trees. Even if some nearest the bank are to be removed, the cohort of trees behind will quickly re-fill the available space. Some significant cutting back of laterals to gain access to river edge will be required.</td>
<td>20-40</td>
<td>B2</td>
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## Arboricultural Data Tables

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<th>structural condition</th>
<th>preliminary management recommendations</th>
<th>estimated remaining years</th>
<th>Category grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>G10</td>
<td>goat willow, birch, ash, sycamore</td>
<td>max 13</td>
<td>av 400</td>
<td>allow 3</td>
<td>as shown on plan</td>
<td>0</td>
<td>EM-M</td>
<td>good</td>
<td>Linear feature of variable width running from residential garden with access to river South to the end of the Cuba industrial estate. Trees to the building side tend to have been crown-lifted clear of building roofs and for general access. Whereas willow down by river edge are wider and more multi-stemmed. The more scrubby nature of the trees within the construction area will inform a rapid recovery from any cutting back or felling. If any trees within the 2m need to be removed, they should coppice back freely and their roots should not adversely affect deep piles. It is assumed that the roots of any coppiced will not be excavated due to the asbestos issue here. Some significant cutting back of laterals to gain access to river edge will be required.</td>
<td>20-40</td>
<td>B2</td>
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<tr>
<td>ref</td>
<td>issue</td>
<td>conditions &amp; mitigation</td>
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</table>
| 1.  | Proposed flood defence works will be undertaken relatively close to the lime, T1(B1) | • The retention of this tree is integral to the success of some of the mitigation planting detailed below, so the tree should be safeguarded;  
• Tree protection fencing should be erected as close as possible to the edge of the radial RPA of the tree prior to work commencing                                                                                                                                                           |
| 2.  | Construction of a new flood defence wall along the edge of Pin Meadow will require the removal of T2(C1), T3(C1), T4(C1), T5(B1), T6(B1), T7(U) and T8(B1). | • This is a topographically low and densely populated area where the flood risk is identified as being acute;  
• Since some of the path which runs across the edge of the rough wall in this area is essentially of loose-tipped rubble and building waste, there is no question of it being renovated - it needs to be built to the correct standard, and this will require a substantial foundation and adequate total mass. The trees here are too close to consider retention, either from a tree health or engineering point of view,  
• It has been agreed that a semi-formal line of 2 semi mature (200-250, 7m+) small leaved limes at 10-12m centres will be installed such as to tie in with the lime T1 at the Western edge of Pin Meadow. Such large trees on high clear stems will allow the new wall to be seen from the Meadow Side as well as allows views through to the Meadow from Alderway. |
| 3.  | Some small garden trees in G2(B2) may be affected by the works        | • The trees are generally small enough that they could be either transplanted or replaced should any need to be removed. However, it is suggested that the RPAs of these trees will be so small, that any effect should be negligible.                                                                                                                  |
| 4.  | Some overhanging branches in G3(C2) and G4(C2) may need to be cut back for access during the works. | • Provided any crown lifting or pruning back is done to the correct standard, the effect of such work should be negligible.                                                                                                                                                                                                                                         |
| 5.  | Some trees, notably the sub-optimal whitebeams, in G5(C2) will need to be removed in order to construct the combined seating/wall feature in this area. | • The whitebeams here are in a poor and declining condition and we would recommend their replacement irrespective of the development,  
• Following the completion of the works in this area, some suitable replanting which more closely mirrors the planting in G6, which is becoming established.                                                                                                                                 |
| 6.  | The memorial garden G6(B2) is close to the proposed works.            | • Works should be confined to the far side of the current footpath. Nevertheless, tree protection fencing should be erected along the footpath edge prior to the commencement of works.                                                                                                                                                     |
| 7.  | Trees in groups G7(C2) and G8(B2) will likely need to be cut back or removed in order to undertake repair works to the walls behind them | • The extent of any impact would not be fully quantified until the works are underway, since the scale of works here may conceivably change in practice. That said, these are all fast-growing self-set trees which could be expect to grow back reasonably vigorously once the works are complete. We would not expect that re-planting in these areas would be necessary. |
| SITE-WIDE | General advice | • Any tree work undertaken should be carried out in accordance with BS 3998:2010 “Tree Work: Recommendations”  
• All tree protective fencing should be maintained until works on site are complete |
<table>
<thead>
<tr>
<th>ref</th>
<th>issue</th>
<th>conditions &amp; mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.</td>
<td>Proposed flood defence works will be undertaken along the riverside edge of G9(B2)</td>
<td>• The ash trees in this group are generally of a fairly upright habit closer to the adjacent garage, although the trees closer to the bank have long laterals; • The trees should be variously crown-lifted and pruned back in order to provide a safe working space for the installation of the flood defences here, • Given that continuous and connected fencing along the bank may prevent workings gaining the bank safely and easily in the case of an incident, there may be some safety constraints to assess prior to specifying the barrier here, • Given the obvious cohort of replacement trees near the edge it is not thought that replacement planting would be indicated here.</td>
</tr>
<tr>
<td>9.</td>
<td>Access as noted in an early draft for the site would appear to run fairly close to the RPA of the sycamore T12(C1)</td>
<td>• RPA will need to be dressed with Terram and plastic bog mats filled with clean stone in order to prevent root damage during the construction. Tree protective fencing will also be required, • If the tree is to be removed and replaced. It would be worthwhile negotiating directly with the landowner to agree the size and species.</td>
</tr>
<tr>
<td>10.</td>
<td>Proposed flood defence works will be undertaken along the riverside edge of G10(C2)</td>
<td>• The trees in this group are fairly scrubby and should regenerate fairly readily from being cut back to access and install the new piling, • Since the works here are fairly extensive, then some restocking should be considered. Given the issues associated with possible asbestos in the bank, we would suggest that willow withies be cut to 1.8m length and not more than 75mm diameter and simply stock not less than 600mm into the bank and allowed to shoot, • From a biodiversity point of view, we would suggest that withies are simply harvested from a range of willow species further upstream in the Irwell, ensuring that local-adapted geotypes are used. Plants should be harvested and promptly planted at approximately 1.5 metre centres anytime between late Autumn and early Spring into moist soil or mud, • Given that continuous and connected fencing along the bank may prevent workings gaining the bank safely and easily in the case of an incident, there may be some safety constraints to assess prior to specifying the barrier here.</td>
</tr>
<tr>
<td>SITE-WIDE</td>
<td>General advice</td>
<td>• Any tree work undertaken should be carried out in accordance with BS 3998:2010 &quot;Tree Work: Recommendations&quot; • All tree protective fencing should be maintained until works on site are complete</td>
</tr>
</tbody>
</table>
### Arboricultural Data Tables

<table>
<thead>
<tr>
<th>Tree No</th>
<th>Species</th>
<th>Height</th>
<th>DBH</th>
<th>Condition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Sycamore</td>
<td>32</td>
<td>9.7</td>
<td>Degraded</td>
<td>Leaf.</td>
</tr>
<tr>
<td>T2</td>
<td>Ash</td>
<td>24</td>
<td>10.4</td>
<td>Poor</td>
<td>Spindly habit.</td>
</tr>
<tr>
<td>T3</td>
<td>Sycamore</td>
<td>18</td>
<td>8.2</td>
<td>Fair</td>
<td>Leaf.</td>
</tr>
<tr>
<td>T4</td>
<td>Sycamore</td>
<td>19</td>
<td>9.4</td>
<td>Good</td>
<td>Leaf.</td>
</tr>
<tr>
<td>T5</td>
<td>Ash</td>
<td>22</td>
<td>11.3</td>
<td>Good</td>
<td>Leaf.</td>
</tr>
<tr>
<td>T6</td>
<td>Ash</td>
<td>23</td>
<td>11.7</td>
<td>Good</td>
<td>Leaf.</td>
</tr>
<tr>
<td>T7</td>
<td>Sycamore</td>
<td>17</td>
<td>8.9</td>
<td>Fair</td>
<td>Leaf.</td>
</tr>
<tr>
<td>T8</td>
<td>Sycamore</td>
<td>18</td>
<td>9.1</td>
<td>Good</td>
<td>Leaf.</td>
</tr>
<tr>
<td>T9</td>
<td>Ash</td>
<td>22</td>
<td>11.5</td>
<td>Good</td>
<td>Leaf.</td>
</tr>
</tbody>
</table>

#### Arboricultural Solutions Matrix

- **Category A**: Trees that will need to be replaced.
- **Category B**: Trees that may need to be replaced.
- **Category C**: Trees that may be replaced.
- **Category D**: Trees that will need to be managed.

- **Ramsbottom Flood Alleviation Project - Arboricultural Data Tables**

#### Arboricultural Solutions

- **Category A**
  - Tree T1: Sycamore
  - Tree T2: Ash
  - Tree T3: Sycamore
  - Tree T9: Ash

- **Category B**
  - Tree T4: Sycamore
  - Tree T5: Ash
  - Tree T6: Ash
  - Tree T7: Sycamore

- **Category C**
  - Tree T8: Sycamore

#### Arboricultural Recommendations

- **Recommendations for RPA 20+**
  - Tree T1: Sycamore
  - Tree T2: Ash
  - Tree T3: Sycamore
  - Tree T9: Ash

#### Arboricultural Notes

- **Trees to be retained**
  - Tree T1: Sycamore
  - Tree T4: Sycamore
  - Tree T7: Sycamore

- **Trees to be removed**
  - Tree T2: Ash
  - Tree T3: Sycamore
  - Tree T5: Ash
  - Tree T6: Ash
  - Tree T8: Sycamore
  - Tree T9: Ash

#### Arboricultural Considerations

- **SITE-WIDE**
  - General advice
    - All tree protective fencing should be maintained until works on site are complete.
    - Any tree work undertaken should be carried out in accordance with BS 3998:2010 "Tree protection in the urban environment".
    - All tree protective fencing should be maintained until works on site are complete.

- **Location Plan 1:2,500 Scale**
  - Location: Ramsbottom, Lancs

#### Arboricultural Solutions

- **Category A**
  - Trees that will need to be replaced.

- **Category B**
  - Trees that may need to be replaced.

- **Category C**
  - Trees that may be replaced.

- **Category D**
  - Trees that will need to be managed.

#### Arboricultural Solutions

- **Recommendations for RPA 20+**
  - Tree T1: Sycamore
  - Tree T2: Ash
  - Tree T3: Sycamore
  - Tree T9: Ash

- **Arboricultural Notes**

- **SITE-WIDE**
  - General advice
    - All tree protective fencing should be maintained until works on site are complete.
    - Any tree work undertaken should be carried out in accordance with BS 3998:2010 "Tree protection in the urban environment".
    - All tree protective fencing should be maintained until works on site are complete.

#### Arboricultural Solutions

- **Category A**
  - Trees that will need to be replaced.

- **Category B**
  - Trees that may need to be replaced.

- **Category C**
  - Trees that may be replaced.

- **Category D**
  - Trees that will need to be managed.
**TREE CATEGORIES**

- Category A: Trees removed for complete or partial clearance.
- Category B: Trees removed for specific objectives.
- Category C: Trees for general clearance.
- Category U: Trees to be conserved.

**KEY**

- RPA: Root Protection Area
- Terram: Soil protection material
- Plastic bog mats: Moisture control

**TREE PROTECTION FENCING**

- Tree protective fencing should be maintained until site completion.
- Fencing should be maintained after significant works to the bank and root zones.

**PLANNING CONSIDERATIONS**

- All tree protective fencing should be maintained until work is complete.

**FAIRLEYarb**

- Web: www.fairleyarb.com

**NOTE**

- All signs to be attached to protective fencing.

**SITING**

- Where possible, trees should be retained.
- Trees should be protected from disturbance.

**RECOMMENDATIONS**

- Trees should be protected from disturbance.
- All necessary precautions should be taken to ensure the safety of the trees.

**PROPOSED FLOOD DEFENCE WORKS**

- Flood defence works will be undertaken along the riverside edge.
- Ground levels will be raised.
- Tree protective fencing will be required.

**TREE REMOVAL**

- Trees may be better replaced.
- Tree protective fencing will be required.

**ROOT PROTECTION AREA**

- The RPA will need to be dressed with Terram and plastic bog mats.

**MATERIALS**

- Terram: Soil protection material
- Plastic bog mats: Moisture control

**RECOMMENDATIONS**

- All necessary precautions should be taken to ensure the safety of the trees.
- All tree protective fencing should be maintained until work is complete.

**FAIRLEYarb**

- Web: www.fairleyarb.com
**TREE CATEGORIES**

- Category A: Trees to be retained
- Category B: Trees to be retained
- Category C: Trees to be retained
- Category U: Trees to be retained

**Note:** Tree & group colour-coding and categories are designed to comply with the conventions set out in BS 5837:2012 "Trees in relation to design, demolition and construction. Recommendations."

**Key**
- Root Protection Area
- Area of overlap with RPA where special measures or surfaces may be required
- Tree protective fencing to BS 5837:2012

**Table: Arboricultural Data Tables**

<table>
<thead>
<tr>
<th>Tree No</th>
<th>Species</th>
<th>Height (m)</th>
<th>DBH (mm)</th>
<th>RPA (m)</th>
<th>Crown Spread (m)</th>
<th>Age</th>
<th>Condition</th>
<th>Structural Condition</th>
<th>Preliminary Management Recommendations</th>
<th>Remaining Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>G10</td>
<td>Goat willow, birch, ash, sycamore</td>
<td>max 13 av 400</td>
<td>allow 3 as shown on plan 0</td>
<td>EM-M</td>
<td>good</td>
<td>20-40 B2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**General Advice**
- Any tree work undertaken should be carried out in accordance with BS 3998:2010 "Tree Work: Recommendations".
- All tree protective fencing should be maintained until works on site are complete.
- Signs to be attached to protective fencing are recommended.