ARBORICULTURAL REPORT
to BS 5837:2005
at
Old Mill Lane
Barnsley
South Yorkshire
S71

Client:
WSP Group

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1. Introduction

1.1 Purpose of the Report

1.1.1 A report is required at **Old Mill Lane, Barnsley,** to provide detailed, independent, arboricultural advice on the trees present, in the context of potential development.

1.2 Terms of Reference

1.2.1 I am instructed by Richard Gill of WSP Group, to visit the site and prepare my findings in a report.

1.2.2 For this purpose I have been supplied with a topographical survey, Drawing No. **11806-Provisional.DWG**.

1.2.3 Please note that some areas of trees on the topographical survey have only been indicated as a canopy line, and individual stems have not been plotted. Where possible, trees stems have been plotted on the Tree Constrains Plan at **Appendix 6** as accurately as possible by using measurements taken from fixed points on site. However, some areas such as **G16**, **G17** & **G54** have had to be surveyed as large groups due to the dense nature of the planting and due to the lack of fixed points to measure from accurately.

1.2.4 Please also note that access to the trees and groups around the gas tower to the centre of the site was not possible, due to locked gates and the security fencing. As such, dimensions of trees and groups around this area have been estimated, and recommendations have been made to gain permission to access this area in order for a full adequate inspection of these trees to take place.

1.3 Scope of the Report

1.3.1 This report is compiled in accordance with *BS 5837:2005 Trees in relation to construction.*

1.3.2 Preliminary recommendations are given with a view to the long-term management of a sustainable tree cover.

1.3.3 All trees within the site boundary with a stem diameter above 75mm are included.

1.3.4 Where applicable trees outside the site boundary, but close enough to be affected by the proposed development, are included.

1.3.5 The specific design of any proposed development is not generally taken into account at this stage.

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1.4 Survey Details

1.4.1 The survey took place during the month of September 2011.

1.4.2 The survey was conducted by Toby Parsons.

1.4.3 Inspection was made at ground level. Further investigation, such as climbed inspections or decay detection surveys, may be recommended where appropriate.

1.4.4 Measurements were obtained using clinometers, specialist tapes and electronic distometers. Where this was not possible measurements were estimated.

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2. Site Description

2.1 Land Use

2.1.1 The site can be roughly broken down in to two parts due to the river flowing east west through the site. The area north of the river has recently undergone some new development, and during our survey a new road and hard other surfacing was being constructed (this road is indicated on the topographical survey). It appears from aerial photographs that some trees were removed to construct this.

2.1.2 To the south of the river; the centre of the site is dominated by a gas tower. To the west and south of the gas tower are several large retail units, and to the south east of the gas tower is an area that used to house a large building that has since been demolished.

2.2 Topography

2.2.1 The site is approximately level.

2.3 Treescape

2.3.1 Surrounding the site are mainly retail areas containing amenity planting and occasional mature trees.

2.3.2 The trees on this site have a moderate impact on the local treescape.

2.4 Visual Amenity Value

2.4.1 The trees on site collectively provide a reasonable visual amenity to the surrounding area. Occasional specimens have a high amenity value.

2.5 Age Class Mix

2.5.1 The trees surveyed ranged in age from young to mature.

2.6 Species Diversity

2.6.1 Species surveyed include Sycamore, Ash, Lombardy Poplar, Goat Willow, Hawthorn, Rowan, Robinia, Swedish Whitebeam, Cotoneaster, Sea Buckthorn, Norway Maple and Silver Birch.

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3. Status of the Trees

3.1 A check was made on 25th August 2011 with: ***Barnsley Metropolitan Borough Council.***

3.2 We are informed that the majority of the trees on site are protected a woodland Tree Preservation Order (**W1** of **TPO 5/1996**).

3.3 Before any work is organised, all the necessary steps to get the permission of the Local Planning Authority must be taken.

3.4 ***No work must be done to any trees until this permission has been granted.***

4. Tree Descriptions and Recommendations

4.1 Full details of all individual trees surveyed are recorded in the tables at **Appendix 1**. A full explanation of the tables can be found at **Appendix 2**. Please refer also to the Tree Constraints Plan at **Appendix 6** for tree locations.

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5. Discussion

5.1 Tree Condition & Recommended Works

5.1.1 The tree survey revealed a total of 66 items of vegetation (41 individual trees and 25 groups of trees). Of these, 22 trees/groups were identified as retention category 'B' and 44 trees/groups were identified as retention category 'C'. No retention category 'A' or 'R' trees were identified on this occasion. Please refer to **Appendix 2** for retention category and definition criteria.

5.1.2 No tree pruning works are recommended for any trees on site at this time.

5.1.3 A full detailed inspection of **T42**, **T43**, **G44**, **G45**, **T51**, **T52**, **G53** and **G54** was inhibited by security fences and locked gates around the gas tower to the centre of the site, as detailed at **Appendix 1**. As such, recommendations have been made to gain permission to access this area (from national grid) in order for a full adequate inspection of these trees to take place.

5.1.4 Trees which have been noted to have significant structural or physiological defects, as detailed at **Appendix 1**, should be monitored (re-inspected and re-assessed) on an annual basis to assess if their condition is still acceptable. Although these trees were considered to be in an acceptable condition at the time of the inspection, the defects observed may lead to their early demise of render them unsafe in the future.

5.1.5 General tree health and crown condition should be monitored and trees re-inspected for signs of a decline where recent ground level changes adjacent to **G16**, **G17** and **G18** have taken place, as detailed at **Appendix 1**.

5.1.6 The species and age diversity of existing trees on site is average and a proposed development could improve this by incorporating a Tree Planting Scheme which introduces younger trees of a variety of suitable species.

5.2 Potential Arboricultural Implications & Design Advice

5.2.1 The details of the proposed development are not known at present. However, the following comments can be made about the site in terms of its tree cover in relation to a potential development.

5.2.2 During development the part of the tree most commonly under threat, and most commonly ignored, is the rooting system. When trees are damaged, particularly the roots, their long-term health and stability can be affected. Most development activity can have an impact on the future condition and safety of a tree, and therefore careful planning and management of tree protection should ensure a continued sustainable tree cover with minimal stress to existing trees.

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5.2.3 There is little room for development within this site without the removal of some trees. However many of the trees are of poor quality (retention category 'C') and could be replaced as part of a post development landscaping scheme.

5.2.4 There are a number of high amenity trees within this site. They will enhance any proposed development and care should be taken at the design stage to ensure that these trees are retained.

5.2.5 In order to ensure that the retained trees on site are properly protected during the development phase, the tree rooting zones are to be considered. For the purpose of development the rooting zone of the tree is known as the Root Protection Area or RPA. The RPA of each tree or group is marked on the Tree Constraints Plan at **Appendix 6** and represents the rooting zone which, where possible, should remain undisturbed. The protection of retained trees can therefore be achieved by creating a **Construction Exclusion Zone** (**CEZ**) based on the RPAs.

5.2.6 Damage caused by any construction activity such as demolition, soil stripping, and provision of services needs to be considered at the design stage. Care should be taken to avoid damage to tree roots when existing structures such as tarmac surfaces are removed within a RPA.

5.2.7 The laying of access roads, driveways, parking areas or any other hard surfaces planned in proximity to retained trees needs to be considered. There are many solutions available to construct hard surfaces over RPAs without causing damage to trees.

5.2.8 Boundary walls or other light structures can be constructed without damage to roots through the use of piled foundations rather than the more traditional strip foundations.

5.2.9 The location of drainage and utilities within the RPA can be achieved if need be, using special techniques and supervision.

5.2.10 The position of the site compound is a major consideration. It is recommended that this, which typically includes the site office, facilities, toilets, storage of materials and parking, is located away from trees and outside the RPA.

5.2.11 Consideration must be given to movement of both vehicle and pedestrian traffic. If possible traffic should be diverted away from the RPAs. If this is not possible a range of temporary surfaces are available to distribute the weight of traffic and allow the roots to receive moisture and air.

5.2.12 Generally, the alteration of ground levels within the RPA is not acceptable, however, should ground levels need to be lowered in areas adjacent to trees or within the minimum distance recommended, appropriate measures should be taken to minimise the detrimental effects on the trees and their root systems. With regards to raising levels, it is necessary to maintain adequate supplies of moisture and oxygen through the soil to the tree roots. Therefore, no material should be placed within the RPA without arboricultural advice.

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5.2.13 The shade that will be cast by the retained trees must also be considered. Where buildings are to be positioned within the shade cast area of trees, these should be designed in order to maximise light levels. If required, JCA can provide a shade cast prediction plan.

5.2.14 Many development sites contain areas of nature conservation interest. Trees and hedgerows, in particular, provide an important habitat for birds, bats, invertebrates and fungi and appropriate attention needs to be paid to preserving habitats throughout the development process. JCA can provide ecological and bat surveys where required.

5.2.15 Where a landscape planting scheme is proposed, consideration must be made at the planning stage as to where this is to be implemented on site. Such locations should be protected in order to prevent soil compaction and/or contamination and should therefore form part of the Construction Exclusion Zone. JCA can provide Tree Planting Schemes where required.

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6. Conclusions

6.1 The trees surveyed were generally found to be in fair condition.

6.2 The majority of the trees on site are protected a woodland Tree Preservation Order (**W1** of **TPO 5/1996**).

6.3 No tree pruning works have been recommended on this occasion, and no trees have been recommended for removal.

6.4 Some trees and groups require a full detailed inspection when access to the area around the gas tower is granted. These are summarised in **Section 5** and detailed at **Appendix 1**.

6.5 Various trees and groups require annual monitoring due to either the presence of structural or physiological defects, or due to recent ground level changes as a result of the construction of the new road to the north of the site. These are summarised in **Section 5** and detailed at **Appendix 1**.

6.6 All development work carried out in close proximity to trees should be done so in a manner sympathetic to their needs. Otherwise the condition of the trees may deteriorate in the months and years following the development, leading to a loss of amenity and potentially hazardous trees.

6.7 Care should be taken at the design stage to ensure that the retained trees are protected. The protection of retained trees can be achieved by the creation of a Construction Exclusion Zone based on the Root Protection Area of a tree. The Root Protection Area of each tree or group is marked on the Tree Constraints Plan at **Appendix 6**.

6.8 The proposed development should ideally be accompanied by an Arboricultural Method Statement (AMS) detailing the specific protection measures necessary for each tree. This should specify fencing standards and positions (the creation of the Construction Exclusion Zone), acceptable construction techniques and necessary tree works.

6.9 Upon instruction JCA Ltd are able to provide a comprehensive Arboricultural Method Statement in order to ensure the continued health of trees throughout the proposed development. We are also able to provide tree planting schemes and organise tree works.

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Appendices

Appendix 1: Tree Descriptions and Recommendations

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Tree Ref.	Age Species *Latin Name*	Height (m)	Crown Height (m)	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations	Physiological Condition	Structural Condition	Amenity Value	Life Expectancy (yrs)	Retention Category
G 1	Semi-mature Sycamore *Acer pseudoplatanus*	6	0.5	To 15 at base	3 1 2 2	Two semi-mature self seeded Sycamore forming one crown. Acceptable condition at present.	No action required.	FAIR	FAIR	LOW	20-40	C
G 2	Early-mature Sycamore *Acer pseudoplatanus*	To 12	0.5	To 45	6 5.5 5.5 5.5	Group of Sycamore forming one crown. No major visible defects. Acceptable condition at present.	No action required.	FAIR	FAIR	MOD	40+	C
T 3	Mature Lombardy Poplar *Populus nigra 'Italica'*	19	3	79	3 2 4.5 1	Tree not plotted on topographical survey. Single stemmed and vertical with a balanced crown. No evidence of significant pruning. No major visible defects.	No action required.	GOOD	GOOD	MOD	20-40	B
T 4	Mature Sycamore *Acer pseudoplatanus*	14	4	54	5.5 6 4 Est 7	Tree not plotted on topographical survey. Single stemmed and vertical with a balanced crown. Occasional pruning wounds due to crown lifting. No major visible defects.	No action required.	GOOD	FAIR	MOD	20-40	C
T 5	Early-mature Lombardy Poplar *Populus nigra 'Italica'*	19	10	52	2 2 2 3	Tree not plotted on topographical survey. Single stemmed and vertical with a balanced crown. No evidence of significant pruning. No major visible defects.	No action required.	FAIR	GOOD	HIGH	20-40	B
T 6	Early-mature Lombardy Poplar *Populus nigra 'Italica'*	19	10	50	2 2 2 2	Tree not plotted on topographical survey. Single stemmed and vertical with a balanced crown. No evidence of significant pruning. No major visible defects.	No action required.	FAIR	FAIR	HIGH	20-40	B
T 7	Mature Sycamore *Acer pseudoplatanus*	14	3	42	4 4.5 4 Est 4	Tree not plotted on topographical survey. Single stemmed and vertical with a balanced crown. Some dieback noted in upper crown.	Monitor annually.	FAIR	FAIR	MOD	10-20	C
G 8	Young to mature Mixed species	To 18	0+	To 60. Ave 25	See plan	Stems not plotted on topographical survey. Mixed species group. Species include Ash, Goat Willow, Sycamore and Hawthorn. No major visible defects.	No action required.	GOOD	FAIR	HIGH	40+	B
T 9	Mature Ash *Fraxinus excelsior*	18	5	72	4 5 7 7	Tree not plotted on topographical survey. Situated within G8. Single stemmed and vertical with a balanced crown. Significant dieback noted. Acceptable condition at present due to land use.	Monitor annually.	POOR	FAIR	MOD	10-20	C
T 10	Early-mature Sycamore *Acer pseudoplatanus*	16	4	47	5.5 6.5 5 5	Tree not plotted on topographical survey. Situated within G8. Single stemmed and vertical with a balanced crown. Some stem wounds with minor decay noted. Acceptable condition at present.	Monitor annually.	FAIR	FAIR	MOD	20-40	C

Tree Ref.	Age Species *Latin Name*	Height (m)	Crown Height (m)	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations	Physiological Condition	Structural Condition	Amenity Value	Life Expectancy (yrs)	Retention Category
T 11	Mature Sycamore *Acer pseudoplatanus*	16	4	92	7 7 8.5 Est 9	Tree not plotted on topographical survey. Twin-stemmed at 3.5m with a balanced crown. Significant epicormic growths at base. Some dieback and small leaves noted. Acceptable condition at present.	Monitor annually.	FAIR	FAIR	MOD	20-40	C
T 12	mature Ash *Fraxinus excelsior*	16	3	59	6.5 7 7.5 7	Tree not plotted on topographical survey. Single stemmed and vertical with a balanced crown. No major visible defects.	No action required.	FAIR	GOOD	MOD	20-40	B
T 13	Mature Ash *Fraxinus excelsior*	16	3	58	8 7.5 6.5 8	Tree not plotted on topographical survey. Single stemmed and vertical with a balanced crown. Minor deadwood noted. No major visible defects.	No action required.	FAIR	GOOD	MOD	20-40	B
G 14	Young to semi-mature Mixed species	To 6	0+	Ave. 5	See plan	Mixed species understorey group. Species include Goat willow, Ash, Birch, Hawthorn and Field Maple. No major visible defects.	No action required.	FAIR	FAIR	MOD	20-40	C
T 15	Early-mature Sycamore *Acer pseudoplatanus*	14	4	48	6 5 Est 6 5.5	Tree not plotted on topographical survey. Single stemmed and vertical with a balanced crown. Occasional pruning wounds due to crown lifting. No major visible defects.	No action required.	FAIR	GOOD	LOW	20-40	B
G 16	Young to early-mature Mixed species	To 15	0+	Ave. 25	See plan	Mixed species group to the north of the river. Species include Ash, Sycamore, Goat Willow, Birch and Hawthorn. Provides good screen and habitat. Some recent ground level changes observed due to construction of the adjacent new road. Acceptable condition at present.	Monitor annually.	GOOD	FAIR	MOD	40+	B
G 17	Young to early-mature Mixed species	To 15	0+	Ave. 25	See plan	Mixed species group to the north of the river. Species include Ash, sycamore, Goat Willow, Birch and Hawthorn. Provides good screen and habitat. Some recent ground level changes observed due to construction of the adjacent new road. Acceptable condition at present.	Monitor annually.	GOOD	FAIR	MOD	40+	B
G 18	Semi-mature to mature Mixed species	To 12	0+	To 28	See plan	Tree stems not plotted on topographical survey. Mixed species group situated adjacent to the new road, and inpart forms the rear boundary to the adjacent residential property. Species include Birch, Hawthorn, Goat Willow and Sycamore. Some recent ground level changes observed due to construction of the adj new road.	Monitor annually.	FAIR	FAIR	MOD	40+	C
T 19	Early-mature Norway Maple *Acer platanoides*	7	1	25	4 3 4 3.5	Single stemmed and vertical with a balanced crown. Occasional pruning wounds due to crown lifting. Minor bark wounds noted to stem.	No action required.	FAIR	FAIR	MOD	20-40	B
G 20	Early-mature Mixed species	1.5	0	Est to 5	See plan	Well maintained shrub group consiting of Pyracantha and Cotoneaster. No major visible defects.	No action required.	GOOD	GOOD	LOW	20-40	C

Tree Ref.	Age Species *Latin Name*	Height (m)	Crown Height (m)	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations	Physiological Condition	Structural Condition	Amenity Value	Life Expectancy (yrs)	Retention Category
G 21	Early-mature Mixed species	T0 8	0+	Est to 20	See plan	Well maintained shrub group with occasional trees. Species include Dogwood, Cotoneaster, Hawthorn, Viburnum, Goat Willow and Hawthorn. No major visible defects.	No action required	GOOD	GOOD	MOD	20-40	C
T 22	Mature Lombardy Poplar *Populus nigra 'Italica'*	18	1	120 at base	4 3.5 3 4	Multi-stemmed at ground level with a balanced crown. No major visible defects.	No action required.	GOOD	GOOD	HIGH	20-40	B
T 23	Early-mature Rowan *Sorbus aucuparia*	9	2.5	23	4 3.5 3 3.5	Single stemmed and vertical with a balanced crown. Occasional pruning wounds. No major visible defects.	No action required.	GOOD	FAIR	LOW	20-40	C
T 24	Early-mature Norway Maple *Acer platanoides*	10	2	31	3.5 3.5 4 4	Twin-stemmed at 1.5m with a balanced crown. Occasional pruning wounds due to crown lifting. No major visible defects.	No action required.	FAIR	FAIR	MOD	20-40	B
T 25	Early-mature Rowan *Sorbus aucuparia*	11	4	21	3.5 3 1 2.5	Single stemmed and vertical with a balanced crown. Occasional pruning wounds due to crown lifting.	No action required.	FAIR	FAIR	MOD	20-40	C
T 26	Early-mature Sycamore *Acer pseudoplatanus*	14	3	39	5 4.5 3.5 4	Single stemmed and vertical with a balanced crown. Occasional pruning wounds due to crown lifting. No major visible defects.	No action required.	FAIR	FAIR	LOW	20-40	C
T 27	Early-mature Rowan *Sorbus aucuparia*	8	1	17	3.5 3.5 6.5 1	Single stemmed and vertical with an unbalanced crown. Occasional pruning wounds due to crown lifting.	No action required.	FAIR	FAIR	MOD	20-40	C
T 28	Early-mature Sycamore *Acer pseudoplatanus*	11	2	22	Est 3 4 3 4.5	Single stemmed and vertical with a balanced crown. No evidence of significant pruning. No major visible defects.	No action required.	FAIR	FAIR	MOD	20-40	C
T 29	Early-mature Sycamore *Acer pseudoplatanus*	11	2.5	Est 26	3 3.5 2 4	Stem not plotted on topo. Single stemmed and vertical with a balanced crown. No major visible defects. Situated to the north of the fence. Limited inspection as a result.	No action required.	FAIR	FAIR	LOW	20-40	C
T 30	Early-mature Rowan *Sorbus aucuparia*	10	2	20	1 2.5 3.5 3	Single stemmed and vertical with a balanced crown. No evidence of significant pruning. No major visible defects.	No action required.	FAIR	FAIR	LOW	20-40	C

Tree Ref.	Age Species *Latin Name*	Height (m)	Crown Height (m)	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations	Physiological Condition	Structural Condition	Amenity Value	Life Expectancy (yrs)	Retention Category
T 31	Early-mature Rowan *Sorbus aucuparia*	8	2	15	1 1 3.5 3	Single stemmed and vertical with a balanced crown. No evidence of significant pruning. No major visible defects. Epicormic growths at base.	No action required.	FAIR	FAIR	LOW	20-40	C
T 32	Early-mature Rowan *Sorbus aucuparia*	7	2.5	20	1 2 3 3	Single stemmed and vertical with a balanced crown. No evidence of significant pruning. No major visible defects.	No action required.	FAIR	FAIR	LOW	20-40	C
T 33	Early-mature Rowan *Sorbus aucuparia*	7	2	17	1 2 3 3	Single stemmed and vertical with a balanced crown. No evidence of significant pruning. No major visible defects.	No action required.	FAIR	FAIR	LOW	20-40	C
G 34	Early-mature Sycamore *Acer pseudoplatanus*	To 12	3	Ave. 23	See plan	Stems not plotted on topographical survey. Linear group of Sycamore situated to the north of the fence on top of the river bank. No major visible defects.	No action required.	FAIR	FAIR	LOW	20-40	B
T 35	Early-mature Rowan *Sorbus aucuparia*	8	2.5	21	2 3 1 4	Twin-stemmed at 2m with a balanced crown. Occasional pruning wounds due to crown lifting. Minor stem wounds noted.	No action required.	FAIR	FAIR	LOW	20-40	C
T 36	Early-mature Sycamore *Acer pseudoplatanus*	14	2	Est 50 at base	Est 6 4 5 6	Multi-stemmed at ground level with a balanced crown. Occasional pruning wounds due to crown lifting. Situated on river bank behind fence. Limited inspection as a result.	No action required.	FAIR	FAIR	LOW	40+	B
T 37	Semi-mature Ash *Fraxinus excelsior*	8	2	Est 15	Est 3.5 3.5 2 3.5	Single stemmed and vertical with a balanced crown. Occasional pruning wounds due to crown lifting. Situated behind fence. Limited inspection as a result.	No action required.	GOOD	FAIR	LOW	20-40	C
T 38	Semi-mature Sycamore *Acer pseudoplatanus*	10	2	Est 20	2.5 2.5 2.5 2.5	Single stemmed and vertical with a balanced crown. Situated behind fence. Limited inspection as a result.	No action required.	FAIR	GOOD	LOW	40+	C
T 39	Semi-mature Ash *Fraxinus excelsior*	10.5	2	Est 17	Est 2.5 2.5 Est 2.5 2.5	Single stemmed and vertical with a balanced crown. Situated behind fence. Limited inspection as a result.	No action required.	FAIR	GOOD	LOW	20-40	C
T 40	Early-mature Sycamore *Acer pseudoplatanus*	12	2	Est 30 at base	Est 4 3.5 Est 4 3	Twin-stemmed at 0.5m with a balanced crown. Situated behind fence. Limited inspection as a result.	No action required.	FAIR	FAIR	LOW	20-40	C

Tree Ref.	Age Species *Latin Name*	Height (m)	Crown Height (m)	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations	Physiological Condition	Structural Condition	Amenity Value	Life Expectancy (yrs)	Retention Category
T 41	Early-mature Rowan *Sorbus aucuparia*	8	2	13	0 2 1 3	Twin-stemmed at 2m with an unbalanced crown. Suppressed specimen. No major visible defects. Minor stem wounds noted.	No action required.	FAIR	FAIR	LOW	10-20	C
T 42	Mature Ash *Fraxinus excelsior*	Est 17	Est 2.5	Est 57	Est 7 Est 7.5 Est 7 Est 7	Situated behind locked security fence adjacent to the gas tower. No access prevented detailed inspection.	Gain access to allow adequate inspection.	FAIR	FAIR	LOW	10-20	C
T 43	Early-mature Ash *Fraxinus excelsior*	15	2	Est 35	Est 4 Est 4 Est 4 Est 4	Situated behind locked security fence adjacent to the gas tower. No access prevented detailed inspection.	Gain access to allow adequate inspection.	FAIR	FAIR	LOW	20-40	C
G 44	Early-mature to mature Mixed species	To 17	1	Est to 50	Est (see plan)	Situated behind locked security fence adjacent to the gas tower. No access prevented inspection.	Gain access to allow adequate inspection.	FAIR	FAIR	LOW	40+	B
G 45	Early-mature to mature Mixed species	To 17	1	Est to 45	Est (see plan)	Situated behind locked security fence adjacent to the gas tower. No access prevented detailed inspection.	Gain access to allow adequate inspection.	FAIR	FAIR	MOD	40+	B
G 46	Semi-mature to early-mature Mixed species	To 12	0.5+	Ave. 25	See plan	Stems not plotted on topographical survey. Mixed species group. Species include Goat Willow, Sycamore, Hawthorn and Pyracantha. Occasional pruning wounds due to crown lifting. No major visible defects.	No action required.	FAIR	FAIR	MOD	20-40	C
T 47	Early-mature Robinia *Robinia pseudoacacia*	15	3	42	5 4 4 5	Multi-stemmed at 2m with a balanced crown. Very minor dieback in top. Acceptable condition at present.	No action required.	FAIR	FAIR	LOW	10-20	C
G 48	Semi-mature Mixed species	To 15	2	To 22	See plan	Four trees forming one crown. Only two of the stems plotted on the topo. Species include Sycamore and Whitebeam. No major visible defects. Acceptable condition at present.	No action required.	FAIR	FAIR	MOD	20-40	C
G 49	Semi-mature Robinia *Robinia pseudoacacia*	To 6	1	To 5	See plan	Three Robinia in a row. Stems not plotted on topographical survey. One of the specimens is virtually dead. Acceptable condition at present.	No action required.	FAIR	FAIR	MOD	20-40	C
G 50	Semi-mature Swedish whitebeam *Sorbus intermedia*	To 4	0.5	To 18	See plan	Two trees forming one crown. No major visible defects.	No action required.	FAIR	FAIR	MOD	20-40	C

Tree Ref.	Age Species *Latin Name*	Height (m)	Crown Height (m)	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations	Physiological Condition	Structural Condition	Amenity Value	Life Expectancy (yrs)	Retention Category
T 51	Mature Ash *Fraxinus excelsior*	Est 17	Est 1	Est 90 at base	Est 7 Est 7 Est 8 Est 6	Situated behind locked security fence adjacent to the gas tower. No access prevented detailed inspection.	Gain access to allow adequate inspection.	FAIR	FAIR	MOD	40+	B
T 52	Early-mature Hawthorn *Crataegus monogyna*	Est 9	Est 0.5	Est 30 at base	Est 4 Est 4 Est 4 Est 4	Situated behind locked security fence adjacent to the gas tower. No access prevented detailed inspection.	Gain access to allow adequate inspection.	FAIR	FAIR	MOD	20-40	C
G 53	Early-mature to mature Mixed species	Est to 17	Est 1	Est to 45	Est (see plan)	Situated behind locked security fence adjacent to the gas tower. No access prevented detailed inspection.	Gain access to allow adequate inspection.	FAIR	FAIR	MOD	40+	B
G 54	Early-mature to mature Mixed species	Est to 17	Est 1	Est to 45	Est (see plan)	Situated behind locked security fence adjacent to the gas tower. No access prevented inspection.	Gain access to allow adequate inspection.	GOOD	GOOD	MOD	40+	B
G 55	Semi-mature to early-mature Mixed species	To 9	2	To 23	See plan	Linear row of self seeded trees. Species include Ash and Sycamore. Occasional pruning wounds due to crown lifting. No major visible defects. Acceptable condition at present.	No action required.	FAIR	FAIR	MOD	20-40	C
G 56	Semi-mature Mixed species	To 8	0+	To 15	See plan	Self seeded group of Ash and Sycamore. Stems not plotted on topographical survey. No major visible defects.	No action required.	FAIR	FAIR	MOD	20-40	C
G 57	Semi-mature Mixed species	To 7	0.5+	To 23	See plan	Self seeded group of Ash and Sycamore. Stems not plotted on topographical survey. No major visible defects.	No action required.	FAIR	FAIR	MOD	20-40	C
T 58	Semi-mature Ash *Fraxinus excelsior*	5	0	To 10	2.5 2.5 2.5 2.5	Stem not plotted on topographical survey. Multi-stemmed at ground level with a balanced crown. No evidence of significant pruning. No major visible defects.	No action required.	FAIR	FAIR	MOD	20-40	C
G 59	Semi-mature to early-mature Mixed species	To 10	0.5	To 32 at base	3.5 4.5 Est 5 4.5	One Silver Birch and one Goat Willow forming one crown. Acceptable condition at present.	No action required.	FAIR	FAIR	MOD	20-40	C
G 60	Semi-mature to early-mature Mixed species	To 8	0+	To 25 at base	See plan	One Sycamore and One Sea Buckthorn forming one crown. No major visible defects.	No action required.	FAIR	FAIR	HIGH	20-40	C

Tree Ref.	Age Species *Latin Name*	Height (m)	Crown Height (m)	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations	Physiological Condition	Structural Condition	Amenity Value	Life Expectancy (yrs)	Retention Category
T 61	Early-mature Cotoneaster *Cotoneaster sp.*	3	0	Est 20 at base	2.5 2.5 2.5 2.5	Healthy shrub specimen. No major visible defects.	No action required.	GOOD	GOOD	HIGH	20-40	C
G 62	Mature Sea Buckthorn *Hippophae rhamnoides*	To 6	0+	To 25 at base	4 3.5 4 4	Two specimens forming one crown. No major visible defects. Crown significantly over hangs the wall in to site.	No action required.	FAIR	FAIR	HIGH	20-40	C
T 63	Early-mature Norway Maple *Acer platanoides*	12	3	33	3.5 4.5 4 5	Multi-stemmed at 2.5m with a balanced crown. Occasional pruning wounds due to crown lifting. Crown overhangs the footpath. No major visible defects.	No action required.	FAIR	FAIR	HIGH	40+	B
T 64	Early-mature Silver Birch *Betula pendula*	11	2	21	2 3.5 3 3	Single stemmed and vertical with a balanced crown. Occasional pruning wounds due to crown lifting. No major visible defects.	No action required.	FAIR	FAIR	HIGH	40+	B
T 65	Early-mature Norway Maple *Acer platanoides*	12	2	35	5 5 4 5	Twin-stemmed at 2m with a balanced crown. Occasional pruning wounds due to crown lifting. Crown overhangs the footpath. No major visible defects.	No action required.	FAIR	FAIR	HIGH	40+	B
G 66	Semi-mature to early-mature mixed species	To 9	0+	To 30 at base	See plan	Mixed group of Sycamore and Sea Buckthorn. No major visible defects. Crowns overhang the wall into site.	No action required.	FAIR	FAIR	HIGH	20-40	C

Appendix 2: Explanation of Tree Descriptions

A2.1 Measurements

A2.1.1 *HEIGHT* of the tree is measured from the stem base in metres. Where the ground has a significant slope the higher ground is selected.

A2.1.2 *CROWN HEIGHT* is an indication of the average height at which the crown begins.

A2.1.3 *STEM DIAMETER* is measured at 1.5 metres above (higher) ground level. Where the tree is multi-stemmed at this point; the diameter is measured close to ground level, just above the root buttress.

A2.1.4 *CROWN SPREAD* is measured from the centre of the stem base to the tips of the branches in all four cardinal points.

A2.2 Evaluations

A2.2.1 *AGE CLASS* of the tree is described as young, semi-mature, early-mature, mature, or over-mature.

A2.2.2 *PHYSIOLOGICAL CONDITION* is classed as good, fair, poor, or dead. This is an indication of the health of the tree and takes into account vigour, presence of disease and dieback.

A2.2.3 *STRUCTURAL CONDITION* is classed as good, fair or poor. This is an indication of the structural integrity of the tree and takes into account significant wounds, decay and quality of branch junctions.

A2.2.4 *LIFE EXPECTANCY* is classed as; less than 10 years, 10-20 years, 20-40 years, or more than 40 years. This is an indication of the number of years before removal of the tree is likely to be required.

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A2.3 Retention Categories

A2.3.1 ***A (marked green on the plan) = retention most desirable.***

These trees are of high quality and value with a good life expectancy. They may be further sub-divided as follows:

A1) Particularly good examples; perhaps rare or unusual species, or forming an essential part of arboricultural features e.g. avenues.

A2) Groups of trees having a significant landscape impact or with excellent screening properties, or those softening the effect of existing structures.

A3) Those having significant conservation or historical value e.g. veteran trees.

A2.3.2 ***B (marked in blue on the plan) = retention desirable.***

These trees are of moderate quality and value with a significant life expectancy. They may be further sub-divided as follows:

B1) Trees that might be included in the high category but because of their numbers or slightly impaired condition, are downgraded in favour of the better individuals.

B2) Groups of trees forming distinct landscape features, thereby attracting a higher collective rating than they might as individuals.

B3) Trees with clearly identifiable conservation or other cultural benefits.

A2.3.3 ***C (marked in grey on the plan) = trees which could be retained.***

These trees are of low quality and value, and are in adequate condition to remain until new planting could be established. They may be further sub-divided as follows:

C1) Trees not qualifying in higher categories.

C2) Groups of trees which do not form a distinct landscape feature.

C3) Trees with very limited conservation or other cultural benefits.

A2.3.4 ***R (marked in red on the plan) = trees for removal.***

These trees are in such a condition that any existing value would be lost within 10 years. This may be due to any of the following:

1) Failure is likely due to serious, irredeemable, structural defects.
2) Removal of other category R trees will render them exposed and unstable.
3) They are in serious, overall decline or are dead.
4) They are of low quality and suppressing adjacent trees of better quality.
5) Diseases are present which may affect the health of adjacent trees.

These trees should be removed or treated in such a way as to make them safe where they have high ecological value, such as in a woodland setting.

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Appendix 3: General Guidelines

A3.1 All work must be to BS 3998: 2010 - '*Recommendations for tree work'*.

A3.2 Staff carrying out the work must be qualified, experienced and ideally be Arboricultural Association approved contractors. They should be covered by adequate public liability insurance.

A3.3 This report is based upon a visual inspection. The consultant shall not be responsible for events which happen after this time due to factors which were not apparent at the time, and the acceptance of this report constitutes an agreement with the guidelines and the terms listed in this report.

A3.4 Any defects seen by a contractor or the employer that were not apparent to the consultant must be brought to the consultant's attention immediately.

A3.5 No liability can be accepted by JCA Limited in respect of the trees unless the recommendations of this report are carried out under the supervision of JCA and within JCA's timescale.

A3.6 It is advisable to have trees inspected by an arboricultural consultant regularly. In this instance it is recommended that these inspections are made every year.

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Appendix 4: Glossary of Terms & Abbreviations

Arboriculture	The cultivation of trees in order to produce individual specimens of the greatest ornament, for shelter or any primary purpose other than the production of timber.
Canker	Disease damaged area of a tree, usually caused by fungus or bacteria.
Co-dominant Stem	A stem which has grown in direct competition to the main stem and which has formed a substantial size influencing the appearance of the tree.
Crown Lift	The removal of the lowest branches, usually to a given height. It allows more residual light and greater clearance underneath for vehicles, etc.
Crown reduce	The reduction of a tree's height or spread while preserving its natural shape.
Crown thin	The removal of some of the density of a tree's crown**,** usually 5-25% allowing more light through its canopy and reducing wind resistance.
Deadwood	Either dead branches, or a procedure involving the removal of dead, dying and diseased branches.
Dieback	Where branches are beginning to show signs of death usually at the tips in the crown.
Epicormic shoots	Small branches that grow in uncharacteristic clusters around the base or the stem of a tree, usually as a result of bad pruning or some other stress factor.
Formative pruning	The trimming of a tree to remove weaknesses and irregularities which may lead to problems. The formative pruning operation is aimed at reducing the potential for future weaknesses or problems within the tree's crown.
Included bark	Where the bark on two adjoining branches or stems is growing tight together, forming a joint with limited physical strength.
Pollarding	A method of tree management in which the main trunk of the tree is cut at about 4m, and the resulting branches are then cropped on a regular basis.
Remedial pruning	The removal of old stubs, deadwood, epicormic growth, rubbing or crossing branches and other unwanted items from the tree's crown. Sometimes referred to as crown cleaning.
RPA	Root Protection Area – The theoretical rooting area of a tree as defined in BS5837: 2005 *Trees in relation to construction*.
Topping	Topping is a form of pruning that removes terminal growth leaving a 'stub' cut end. Topping causes serious health problems to a tree.

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Appendix 5: Author Qualifications

Principal Consultant and Managing Director

Jonathan Cocking F.R.E.S., Tech. Cert. (Arbor.A), PDipArb (RFS) FArborA CBiol MSB. MICFor. Jonathan is a Registered Consultant and Fellow of the Arboricultural Association and sits on its Professional Committee. He has 31 years experience in the Arboricultural profession and served for eight years as Senior Arboriculturist with a large local authority before establishing JCA in 1997. He has since developed JCA's portfolio of services and its extensive client base. Jonathan is a Chartered Biologist, a Chartered Arboriculturalist and an Expert Witness with much experience of litigation work.

Technical Coordinator

Toby Thwaites *BSc (Hons), HND (Arboriculture).* Toby joined JCA in 1998 after graduating in Ecology at the University of Huddersfield and has since graduated in Arboriculture at the University of Lancashire. A former JCA team leader and Consulting Arboriculturist, Toby was promoted to Technical Coordinator and now oversees all office and on-site activities at JCA and is on hand to offer technical support and advice.

Consulting Staff: Arboriculture

Andrew Bagshaw *FdSc (Arboriculture).* Andrew joined JCA in 2005 having gained several years experience in tree surgery and landscaping. He is trained in aerial rescue and is JCA's principal first aid person. Andrew has obtained a foundation degree in Arboriculture at the University of Lancashire, is QTRA qualified and is a JCA team leader who manages an office of Consulting Arboriculturists.

Adam Winson *BSc (Hons), ND (Arboriculture) MSc (Arboriculture and Urban Forestry).* Adam is a Professional Associate of the Institute of Chartered Foresters and an Associate Member of the Institute of Ecology and Environmental Management. Prior to joining JCA Adam worked as a tree surgeon. During his BSc in Environmental Conservation he gained the CPRE award for best dissertation. Adam has recently obtained an MSc in Arboriculture and Urban Forestry.

Robert Godwin *BA (Hons), MSc (Arboriculture and Urban Forestry), MArborA.* Robert is a Professional Member of the Arboricultural Association and a Professional Associate of the Institute of Chartered Foresters. He has a degree in Landscape Planning & Management and has several years experience as a Consulting Arboriculturist. Robert has recently obtained an MSc in Arboriculture and Urban Forestry.

Victoria Black *FdSc (Arboriculture).* Victoria has been with JCA since 2002 building her knowledge of the Arboricultural business. She has recently obtained her foundation degree in Arboriculture at the University of Lancashire.

Andrew Bussey Andrew joined JCA having spent 12 years doing tree surgery for various private companies and a Local Authority. He has various NPTC qualifications, is QTRA qualified and is currently studying for his Arboricultural Technicians Certificate.

Toby Parsons *Cert. Arb. (RFS), Tech. Cert. (Arbor.A).* Toby joined JCA after spending 6 years working as a senior climber for various Arboricultural contractors in the East Midlands and the South-West. He has gained the Level 2 Certificate in Arboriculture (RFS), an Arboricultural Technicians Certificate and is QTRA qualified.

Phil Humeniuk *FdSc (Arboriculture), MicFor.* Phil has recently joined JCA having spent 3 years working for various tree surgery companies and as a Tree Officer for a Local Authority. He obtained his foundation degree in Arboriculture at the University of Central Lancashire.

Consulting Staff: Ecology

Christopher Shaw *BSc (Hons).* Chris is our in-house Ecologist, and joined JCA in 2010 after achieving a First Class degree in Biology at the University of Leeds. Prior to joining JCA, Chris has volunteered with a number of organisations including the Yorkshire Wildlife Trust, BTCV and a local Ecological Consultancy. He is currently undertaking a 'Certificate in Ecological Consultancy Course' with Acorn Ecology. Chris is actively involved in building JCA's portfolio of ecological services.

Administrative Staff

Sue Guest Administrative Team Leader.
Sally Whitwam Administrative Assistant.
Simeon Haigh *BSc (Hons).* IT Officer.
Catherine Cocking Accounts Manager.
Yasmin Hussain Administrative Assistant.
Liz Bone Trainee Administrative Assistant
Alec Fielden *Cert. Arb. (RFS).* CAD Technician.

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Appendix 6: Tree Constraints Plan

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Root Protection Area: RPA

THE ROOT PROTECTION AREA (RPA) INDICATES THE LIKELY ROOTING ZONE OF A TREE. THE RPA SHOULD IDEALLY REMAIN UNDISTURBED IF A TREE IS TO BE RETAINED.

THE DEVELOPMENT PROPOSALS SHOULD THEREFORE BE DESIGNED TO AVOID THE RPA OF ANY TREE WHICH IS TO BE RETAINED.

IF IT IS NECESSARY FOR THE DEVELOPMENT TO ENCROACH INTO THE RPA OF A TREE WHICH IS TO BE RETAINED THEN SPECIALIST CONSTRUCTION TECHNIQUES AND MATERIALS MUST BE CONSIDERED.

Appendix 6: Tree Constraints Plan

TITLE: Site at Old Mill Lane,
Barnsley,
S71 1LL.
JCA Ref: 10307/TP

SCALE 1:1000	PAPER SIZE A2

SURVEYED BY:TP	DRAWN BY: CS	APPROVED BY: TP

JCA Limited

Arboricultural & Forestry Consultants

BRITISH STANDARD 5837: 2005 4.3.1 RETENTION CATEGORIES

Detailed definitions of these catagories are at Appendix 2 of our report. N.B. These categories do not necessarily represent or correspond to recommendations for action made in this report.

	CATEGORY A: 'RETENTION MOST DESIRABLE'
	CATEGORY B: 'RETENTION DESIRABLE'
	CATEGORY C: 'TREE WHICH COULD BE RETAINED'
	CATEGORY R: 'TREE FOR REMOVAL'
	CENTRE OF TREE/SHRUB
	CENTRE OF TREE/SHRUB TO BE REMOVED
	ROOT PROTECTION AREA

I hope that this report provides all the necessary information, but should any further advice be needed please do not hesitate to contact the author.

Signed



.....
Toby Parsons Cert. Arb. (RFS), Tech. Cert. (Arbor.A).

On behalf of

Jonathan P Cocking. F.R.E.S., P.Dip. Arboriculture (RFS), F Arbor A, C.Biol., M.I.Biol.,
Registered Consultant of the Arboricultural Association.

7th September 2011

For and on behalf of ***JCA Ltd***

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