

BS5837 Compliance Report [90562]

A report for Mercia Waste Management



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If this report has been released electronically the appendices listed above can be found in annexed zip folder as *.pdf* or *.dwg* files. If this report has been released in hard copy the above appendices will be bound into the back of this report. Plans may be annexed separately as A1 or A0 copies where a bound-in A3 copy is not appropriate.

FOREWORD

1. British Standard 5837:2005 ‘Trees in relation to construction’ (“BS5837”) supersedes BS5837:1991 which has since been withdrawn. The scope of BS5837 is to provide recommendations and guidance on how trees and other vegetation may be satisfactorily integrated into construction and development projects. The overall aim of this is to ensure the continued longevity and quality of amenity contribution that trees appropriate for retention and protection provide. This report and its appendices follow precisely the strategy for arboricultural appraisal and input intended to provide councils with evidence that trees have been properly considered throughout the development process.

EXECUTIVE SUMMARY

2. A review of the proposal Mercia EnviRecover facility has been undertaken using the methodologies and thinking of BS5837, in conjunction with anything else relevant, e.g. planning authority policy, site meetings, discussions with council officers, etc. In terms of trees the proposal represents an improvement on the extant planning permission that exists at the site for the development of B2/B8 industrial/commercial units, with significantly more trees being retained, most notably the group of poplar trees to the northeast of the site. The proposal is considered sound from the view of an independent arboriculturist and should be submitted to Worcestershire County Council (“council”) for their assessment.

ARBORICULTURAL IMPLICATIONS ASSESSMENT (“assessment”)

3. The site comprises an undeveloped plot situated within Hartlebury Trading Estate.
4. The tree stock is generally of mixed quality. Some trees are substantial and good quality including two mature oaks within the interior, and a group of poplar to the northeast corner of the site. A significant number of trees on site are poor in terms of their present condition or future potential.
5. A number of trees within the site are subject to a Tree Preservation Order; of these the proposal would result in the loss of two oaks and two hawthorns. The loss of these trees is unavoidable given the scale of the proposals and the necessity to maximize the developable space. It is considered that the landscape proposals will adequately mitigate the loss of these trees.
6. There are a number of issues to be addressed in an arboricultural implications assessment, and broadly these are as follows –
 - a. The effect and extent of the proposed development within root protection areas (“RPA”) of retained trees. Addressed in the assessment under **below ground constraints**.
 - b. The potential conflicts of the proposed development with canopies of retained trees. Addressed in the assessment under **above ground constraints**.
 - c. The likelihood and reasonableness of any future pressures arising in respect of remedial works to retained trees, beyond that which would in the course of ordinary management, have been scheduled in any event. Addressed in the assessment under **future pressures for tree works**.
7. The site falls within the catchment of the following arboricultural constraints as determined by the Wychavon District Council’s Local Plan (LP) policies written statement.

LP policies relating to trees and development;

ENV8 Protection of Hedgerows, Trees and Woodland
SUR2 Landscape Design

8. A study of the LP confirms the likely view of the council in respect of the retention and management of trees within impacting distance of the site. This opinion can be summarized thus: the council will wish to see that good quality trees, as assessed by the tree survey, are retained and protected where appropriate throughout the development process. The good quality trees on site will need their RPAs and canopies protecting where this is consistent with the thinking of the BS5837. The council will wish to see the precise methodology for retaining and protecting good quality trees. This methodology is commonly referred to as an 'arboricultural method statement'.
9. It is accepted that one exemption of a tree preservation order/other tree-specific statutory protection is detailed planning consent. Further, BS5837 does not take account of statutory protection in its assessment criteria. For these reasons, no further distinction will be drawn between trees with and/or without statutory protection.
10. Before continuing, it is useful at this point for the reader to become familiar with the following documents found appended to this report (as applicable) –
 - *Tree survey schedule;*
 - *Tree constraints plan ("TCP");*
 - *RPA incursion plan – showing the scheme overlaid onto the TCP; and*
 - *Tree protection plan ("TPP").*
11. Throughout this assessment statements made in a technical capacity relating to the opinion of the consultant will be followed by justification.

Example –

Tree reference 1909 should be removed. Reason: it is structurally defective (see comments in tree survey schedule) and poses a significant hazard and unacceptable risk to the public. It has attracted a BS5837 retention category of R.

12. At various points in this assessment the quality, attributes and condition of individual trees will be discussed. This is necessary to provide sufficient justification for either a revision to the scheme or remedial tree works/removal. However, this often dilutes the bigger picture of the intentions for the site and/or makes for difficult reading. Therefore, at the end of each section of this assessment a tabulated summary is provided. A complete summary of all remedial tree work/removals can be found in the “specification for tree works” section of the arboricultural method statement.

Below ground constraints

13. The TCP informs the design team of tree related constraints. However, the competing needs of trees and developable space result in trees being only one consideration of many in the determination of a planning application.
14. Trees/groups reference 723, 724, 726, 756, 757, 759 – 763, 766, G1 (where they fall within the site boundary), G4 and G5 have attracted a BS5837 retention category of C those of low quality and value. Tree 723 is an offsite tree; its removal has been recommended as the scheme will detrimentally impact on the trees rooting area which could lead to health and safety issues. These trees will not limit or constrain the development in any way and will be removed to facilitate this development. Reason: the trees do not possess the potential to provide a significant amenity contribution into the long term or are of poor structural/physiological condition.
15. Trees reference 721, 722, 755 and 758 have attracted BS5837 retention categories of A and B those of high to moderate quality and value. These trees will be removed to facilitate the proposal. Reason: Were these trees retained and fenced off at their perimeter/s the developable space available would be reduced and confined to such an extent that the scheme would no longer be viable. In the view of the consultant the loss of these trees is unavoidable within the proposal.
16. The aforementioned trees constitute a significant percentage of the overall canopy cover on the site. These will be replaced by incorporating good quality trees into the long term vision of the development as part of the landscape proposals. Reason: the trees are not of sufficient quality to justify constraining the development. The high quality landscape proposals will enhance the existing amenity contribution so reflecting a net gain for the Borough.

17. Where necessary, all retained trees will be fenced off around the RPAs to protect them from damage. A specification for fencing can be found in later section/s of this report. The precise alignment of fencing is illustrated on the TPP.
18. Development will take place within the RPAs of some of the retained trees to facilitate the proposal. The scheme makes provision for a new access road and drainage ditch which will incur into the RPAs of a number of trees. Reason: Some minor incursion is necessary in order that the developable space can be maximized whilst retaining the maximum number of trees.
19. In the view of the consultant, the incursion of the proposed access road into the RPA of offsite tree reference 725 will not be detrimental to its retention. Reason: An access road presently exists into the water treatment plant. The remaining incursion accounts for <5% of the total RPA.
20. In the view of the consultant, the incursion of the proposed drainage ditch into the RPAs of trees reference 732 to 748 will not be detrimental to their retention. Reason: the incursions account for less than 10% of any individual RPA. Whilst some minor root loss can be anticipated, this is not considered sufficient to be of significant detriment to these trees.
21. The consultant has not been supplied with information as to the siting or alignment of existing or new utilities. If utilities are proposed then tracing a route using an *Air Knife/Air Spade* under the supervision of the consultant will ensure no significant roots are severed or damaged.

Summary of this section

Tree reference #	BS5837 retention category	Description	Justification
723, 724, 726, 756, 757, 759 – 763, 766, G1, G4 and G5	C	Remove	Tree/s are poor quality and should not constrain the development.
721, 722, 755 and 758	A and B	Remove	The loss of these tree/s is unavoidable and can be adequately mitigated

			through replacement planting
All remaining trees	B and C	Integrate into development, retain and protect	Tree/s are not impacted by the proposals and should be retained and protected.

Above ground constraints

- 22. All retained trees have an adequate clearance height over the proposals; as such no remedial tree works are required to facilitate the development.
- 23. Issues do not arise in relation to light/shading of the site as a consequence of the development. Windows of proposed buildings are not shaded by the retained trees.

Future pressures for tree works

- 24. The leaf litter and minor twig debris is not oppressively burdensome to cope with and does not render the proposal unsafe.
- 25. Requests that are not in line with the council’s thinking or policies, or which are not part of routine maintenance or sound arboricultural management, should not arise as a result of the development.

Replacement planting

- 26. 11 poor quality trees, 3 poor quality groups and 4 good /moderate quality trees are being removed to facilitate the development. New trees will be re planted to mitigate this loss as part of the landscape proposals. Reason: planting suitably selected tree species correctly and in an appropriate location (relative to the spatial constraints of the site), will provide a far superior amenity contribution and for a longer term, with less maintenance than could be achieved by retaining the trees which are being removed.
- 27. The ratio of trees removed to trees replanted should not be fixed (i.e. 1:1). Instead, it should take into consideration the available space for tree growth and development. Reason: in order to ensure the tree/s are physically suited to the site at maturity, i.e. they do not require pruning which is burdensome or detrimental to

the tree/s' health in order to maintain them through to maturity. A specification for and the alignment of re planted trees is contained in the landscape proposals.

ARBORICULTURAL METHOD STATEMENT (“method statement”)

Tree works & removals

28. All tree works recommended are to be carried out prior to any site personnel being present or commencing works or any materials being delivered. Reason: for the welfare, health and safety of site personnel.

Summary of tree works & removals

Tree reference #	Remedial works description		
	Remove	Canopy works	Other
721, 722, 723, 724, 726, 755 – 763, 766, G1, G4 and G5	Remove to ground level prior to site operations		

29. All tree works must be undertaken in accordance with detailed planning permissions or otherwise with the consent of the council if trees are subject to statutory protection (subject to the normal statutory exemptions).
30. All tree works must be undertaken to British Standard 3998:1989 and by an arboricultural/forestry contractor. The minimum level of insurance indemnity for this type of works should be £5,000,000 public and products liability and £10,000,000 employer’s liability.

Specification for protective barrier fencing (“PBF”)

31. PBF is to be installed immediately following the completion of the tree works as per the TPP. PBF is to remain in situ as per the TPP for the entire duration of the development unless otherwise agreed in writing by the council.
32. PBF is appropriate for the intensity and proximity of the development. PBF will protect trees where development activity is in close proximity. PBF will comprise a scaffold construction of “a scaffold vertical and horizontal framework, well braced to resist impact with the vertical tubes spaced at a maximum of 3.0m. Onto this, weld mesh panels should be securely fixed with wire or scaffold clamps. Weld mesh panels on rubber or concrete feet are not resistant to impact and should not be used.” Signage denoting the words “tree protection area” at 5.0m

intervals will be fixed to the PBF (the company can supply and install PBF and signage).

Specification for prohibition

33. All tree works will be completed and PBF installed in accordance with the TPP, prior to commencement of development.
34. No mechanical digging or scraping is permitted within an RPA excepting operations specifically permitted in this report.
35. No fires are to be lit within 10.0m of any vegetation.
36. No machinery, plant or vehicles are to be washed down within 5.0m of vegetation.
37. Tree works that are not specified in this report (or leaning against or attaching of objects to a tree) are not permitted.
38. No chemicals or materials are to be transported or stored or used or mixed within a RPA.
39. Only following build completion can PBF be removed and landscaping/tree planting works be undertaken.

Communication

40. All site personnel and members of the design team are to be provided with a copy of this report and its associated documents for distribution at their discretion (notwithstanding our terms of business). The arboricultural consultant can be contacted at any time for clarification of information contained herein or for further advice.
41. Arbtech's principal contact details can be found at www.arbtech.co.uk.

Site monitoring

42. The development is to be monitored by an independent arboriculturalist, who will record and report findings to the council, at appropriate intervals. As a suggested minimum, the appointed arboriculturalist should visit once to sign off the

installation of tree protective measures; once per 3 calendar months during the construction phase; and once to sign the construction off and recommend that non-permanent tree protective measures can be removed.

This concludes our advice.

Survey schedule (Appendix I)

Tree survey field data compliant to British Standard 5837:2005

Date/s of survey Start 18/03/2010 Finish -

Survey undertaken Contract 90562 Site Hartlebury Trading Estate, Kidderminster

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Item ref	Species	Age	Vitality	BS Cat	BS Cat	Clr	Height	DBH	N	S	E	W	Notes	Mgt reco's
721	Common Oak; <i>Quercus robur</i> Fagaceae	M	13	A	2	2.5	13	820	7	6	7	7	Minor deadwood	
G1	Goat willow; <i>Salix caprea</i> Salicaceae	Y	6	C	3	0	6	Average 120					Poorly located adjacent structure	Remove due to location
722	Common Oak; <i>Quercus robur</i> Fagaceae	M	8	B	1	1	8	450	5	5	5	5	No significant defects	
723	Goat willow; <i>Salix caprea</i> Salicaceae	FM	8	C	2	1	8	450	4	5	5	5	Multi-stemmed	
724	Hawthorn; <i>Crataegus monogyna</i> Rosaceae	Y	5	C	2	1	5	230	2	2	2	2	Multi-stemmed	
725	Silver birch; <i>Betula pendula</i> Betulaceae	M	10	B	1	2	10	360	4	4	4	4	No significant defects	
726	Goat willow; <i>Salix caprea</i> Salicaceae	M	6	C	2	0	6	370	2	4	4	4	Multi-stemmed	
727	Poplar; <i>Populus ssp</i> Salicaceae	Y	6	C	2	2	6	140	1	1	1	1	No significant defects	
728	Ash; <i>Fraxinus excelsior</i> Oleaceae	Y	7	C	2	2	7	140	2	2	2	2	No significant defects	
729	Cherry; <i>Prunus ssp.</i> Rosaceae	Y	5	C	2	1	5	150	3	3	3	3	No significant defects	
730	Common Oak; <i>Quercus robur</i> Fagaceae	FM	10	A	2	2	10	850	4	8	6	7	Minor deadwood	
731	Poplar; <i>Populus ssp</i> Salicaceae	M	18	B	2	2	18	610	5	3	5	5	No significant defects	
732	Poplar; <i>Populus ssp</i> Salicaceae	M	20	B	2	1	20	600	3	3	4	4	No significant defects	
733	Poplar; <i>Populus ssp</i> Salicaceae	M	22	B	2	1	22	540	5	3	5	5	Bifurcates at 9m	
734	Poplar; <i>Populus ssp</i> Salicaceae	M	2	B	2	1	2	500	3	3	3	4	No significant defects	
735	Poplar; <i>Populus ssp</i> Salicaceae	M	22	B	2	1	22	510	4	4	4	4	No significant defects	
736	Poplar; <i>Populus ssp</i> Salicaceae	M	22	B	2	0	22	570	3	3	4	4	No significant defects	
737	Poplar; <i>Populus ssp</i> Salicaceae	M	22	B	2	1	22	480	3	3	4	3	No significant defects	

Item ref	Species	Age	Vitality	BS Cat	BS Cat	Clr	Height	DBH	N	S	E	W	Notes	Mgt reco's
738	Poplar; <i>Populus ssp Salicaceae</i>	M	22	B	2	1	22	580	5	4	4	4	No significant defects	
739	Poplar; <i>Populus ssp Salicaceae</i>	M	22	B	2	1	22	610	3	3	3	5	No significant defects	
740	Poplar; <i>Populus ssp Salicaceae</i>	M	22	B	2	1	22	590	3	3	4	4	Bifurcates at 8m	
741	Poplar; <i>Populus ssp Salicaceae</i>	M	19	B	2	1	19	470	3	3	5	5	Poor form	
742	Poplar; <i>Populus ssp Salicaceae</i>	M	22	B	2	1	22	580	4	3	4	5	No significant defects	
743	Poplar; <i>Populus ssp Salicaceae</i>	M	22	B	2	1	22	490	3	4	5	2	No significant defects	
744	Poplar; <i>Populus ssp Salicaceae</i>	M	22	B	2	1	22	490	3	3	2	5	No significant defects	
745	Poplar; <i>Populus ssp Salicaceae</i>	M	22	B	2	1	22	600	3	3	5	5	No significant defects	
746	Poplar; <i>Populus ssp Salicaceae</i>	M	22	B	2	1	22	540	3	3	2	5	No significant defects	
747	Poplar; <i>Populus ssp Salicaceae</i>	M	21	B	2	1	21	570	3	5	4	4	No significant defects	
748	Poplar; <i>Populus ssp Salicaceae</i>	M	22	B	2	2	22	610	5	5	3	5	Bifurcates at 13m, northern fork lost	
749	Poplar; <i>Populus ssp Salicaceae</i>	M	22	B	2	2	22	480	4	4	4	4	No significant defects	
750	Poplar; <i>Populus ssp Salicaceae</i>	M	22	B	2	1	22	520	3	4	4	4	No significant defects	
751	Poplar; <i>Populus ssp Salicaceae</i>	M	22	B	2	1	22	520	4	4	4	5	No significant defects	
752	Poplar; <i>Populus ssp Salicaceae</i>	M	10	C	2	0	10	500	3	3	3	4	Topped at 9m	
753	Poplar; <i>Populus ssp Salicaceae</i>	M	10	C	2	0	10	530	4	4	3	4	Topped at 9m	
G2	46 Poplar, 1 Cherry and 1 Ash	EM TO M	15 to 18	B	2	5	15 to 18	200 to 320					Planted in rows	
754	Ash; <i>Fraxinus excelsior Oleaceae</i>	M	16	B	2	4	16	550	8	7	4	8	Ivy clad, asymmetric form due to neighbouring tree	

Item ref	Species	Age	Vitality	BS Cat	BS Cat	Clr	Height	DBH	N	S	E	W	Notes	Mgt reco's
G3	Field maple, Hazel, Hawthorn and Oak	EM to M	5 to 15	B	2		5 to 15	Average 200					Woodland edge, minor overhang in places	
755	Common Oak; <i>Quercus robur</i> <i>Fagaceae</i>	M	13	A	2	2	13	1000	7	9	8	8	Slight lean to west, minor deadwood	
756	Hawthorn; <i>Crataegus monogyna</i> <i>Rosaceae</i>	EM	6	C	2	1	6	200	3	4	3	4	No significant defects	
G4	Hawthorn, Silver birch	EM	6 to 8	C	2	1	6 to 8	200					No significant defects	
757	Silver birch; <i>Betula pendula</i> <i>Betulaceae</i>	Y	7	C	2	2	7	180	2	2	2	2	No significant defects	
758	Common Oak; <i>Quercus robur</i> <i>Fagaceae</i>	EM	7	B	2	0	7	340	4	4	3	4	No significant defects	
759	Sycamore; <i>Acer pseudoplatanus</i> <i>Aceraceae</i>	Y	6	C	2	1	6	400	4	4	4	4	Multi-stemmed, coppice	
760	Common Oak; <i>Quercus robur</i> <i>Fagaceae</i>	EM	7	C	2	1	7	430	3	4	4	4	Multi-stemmed, bifurcates at 1m	
761	Silver birch; <i>Betula pendula</i> <i>Betulaceae</i>	Y	7	C	2	2	7	180	2	2	2	2	No significant defects	
762	Silver birch; <i>Betula pendula</i> <i>Betulaceae</i>	Y	7	C	2	2	7	180	2	2	2	2	Epicormics	
763	Common Oak; <i>Quercus robur</i> <i>Fagaceae</i>	EM	7	C	2	0	7	300	4	4	4	4	No significant defects	
G5	6 Silver birch, 14 Hawthorn and 1 oak	Y	5	C	2	0	5	75 to 200					No significant defects	
764	Silver birch; <i>Betula pendula</i> <i>Betulaceae</i>	Y	7	C	2	2	7	150	3	3	3	2.5	No significant defects	
765	Silver birch; <i>Betula pendula</i> <i>Betulaceae</i>	EM	9	B	2	2	9	310	4	4	4	4	No significant defects	
766	Common Oak; <i>Quercus robur</i> <i>Fagaceae</i>	EM	6	C	2	0	6	360	5	5	3	3	Multi-stemmed	
767	Silver birch; <i>Betula pendula</i> <i>Betulaceae</i>	Y	6	C	2	1	6	260	2	2	2	2	Multi-stemmed	
768	Silver birch; <i>Betula pendula</i> <i>Betulaceae</i>	Y	6	C	2	1	6	250	3	2	2	3	Multi-stemmed	
769	Silver birch; <i>Betula pendula</i> <i>Betulaceae</i>	Y	6	C	2	1	6	140	3	0	2	2	No significant defects	
770	Goat willow; <i>Salix caprea</i> <i>Salicaceae</i>	EM	5	C	2	1	5	200	4	0	3	3	Lean to north	

Survey schedule (Appendix I)

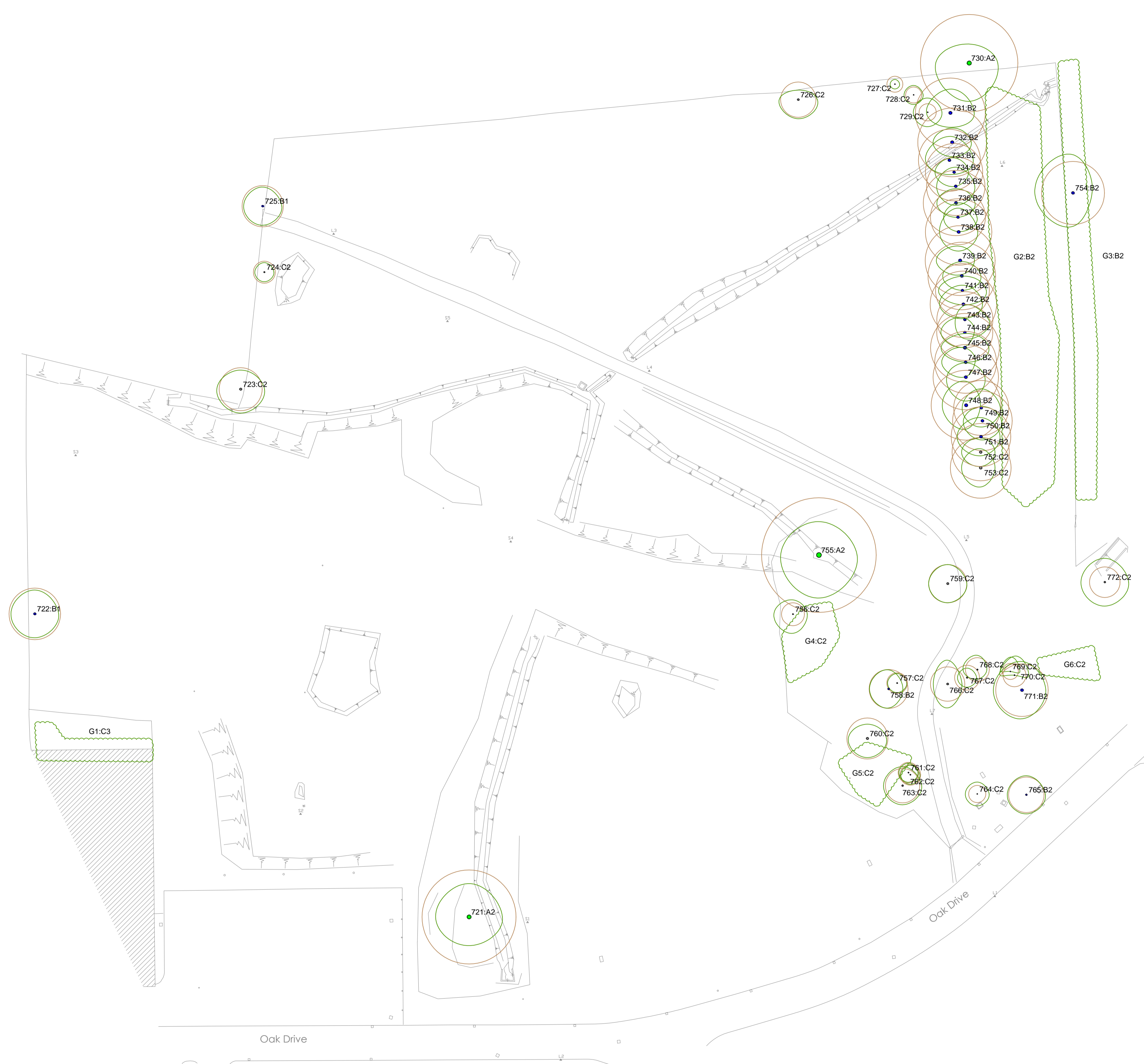
Tree survey field data compliant to British Standard 5837:2005

Date/s of survey Start 18/03/2010 Finish -

Survey undertaken Contract 90562 Site Hartlebury Trading Estate, Kidderminster

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Item ref	Species	Age	Vitality	BS Cat	BS Cat	Clr	Height	DBH	N	S	E	W	Notes	Mgt reco's
771	Ash; <i>Fraxinus excelsior</i> <i>Oleaceae</i>	M	10	B	2	2	10	550	6	6	5	6	Multi-stemmed at 3m, No significant defects	
G6	8 Silver birch, 2 Goat willow	Y	6	C	2	0	6	170					Scrubby area	
772	Goat willow; <i>Salix caprea</i> <i>Salicaceae</i>	M	7	C	2	0	7	320	5	5	5	5	Multi-stemmed, topped at 1m	



KEY

- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem

001 Tree No.

TREE CATEGORY ID.

- Category A
- Category B
- Category C
- Category R

REV.	DESCRIPTION	DWN	CHK'D	DATE
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CLIENT
Mercia Waste Management

PROJECT
90562
Hartlebury Trading Estate,
Kidderminster.

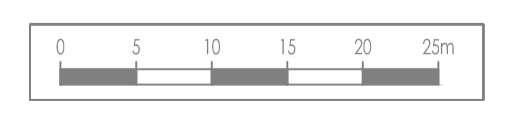
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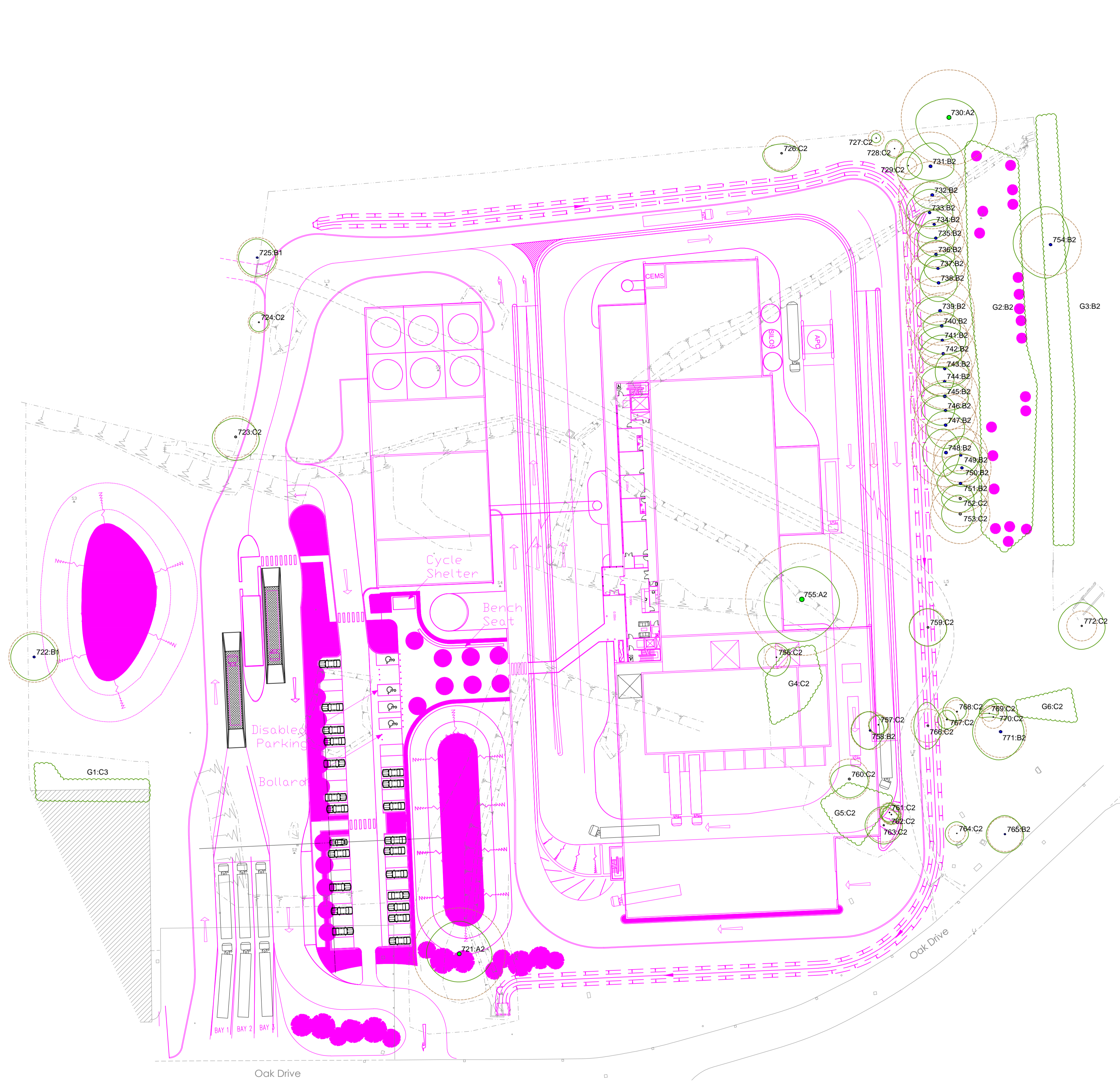
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ARBTECH CONSULTING LIMITED
1/2 Charter Court
Well House Barns
Chester
CH4 0DH
Telephone: 0845 0176950

Drawing Number
TCP - 01

A1
REV.





KEY

- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem
- 001 Tree No.
- Proposed scheme

TREE CATEGORY ID.

- Category A
- Category B
- Category C
- Category R

REV.	DESCRIPTION	DWN	CHK'D	DATE
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Mercia Waste Management

PROJECT
90562
Hartlebury Trading Estate,
Kidderminster.

TITLE
Incursion Plan (IP)

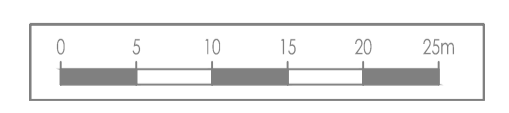
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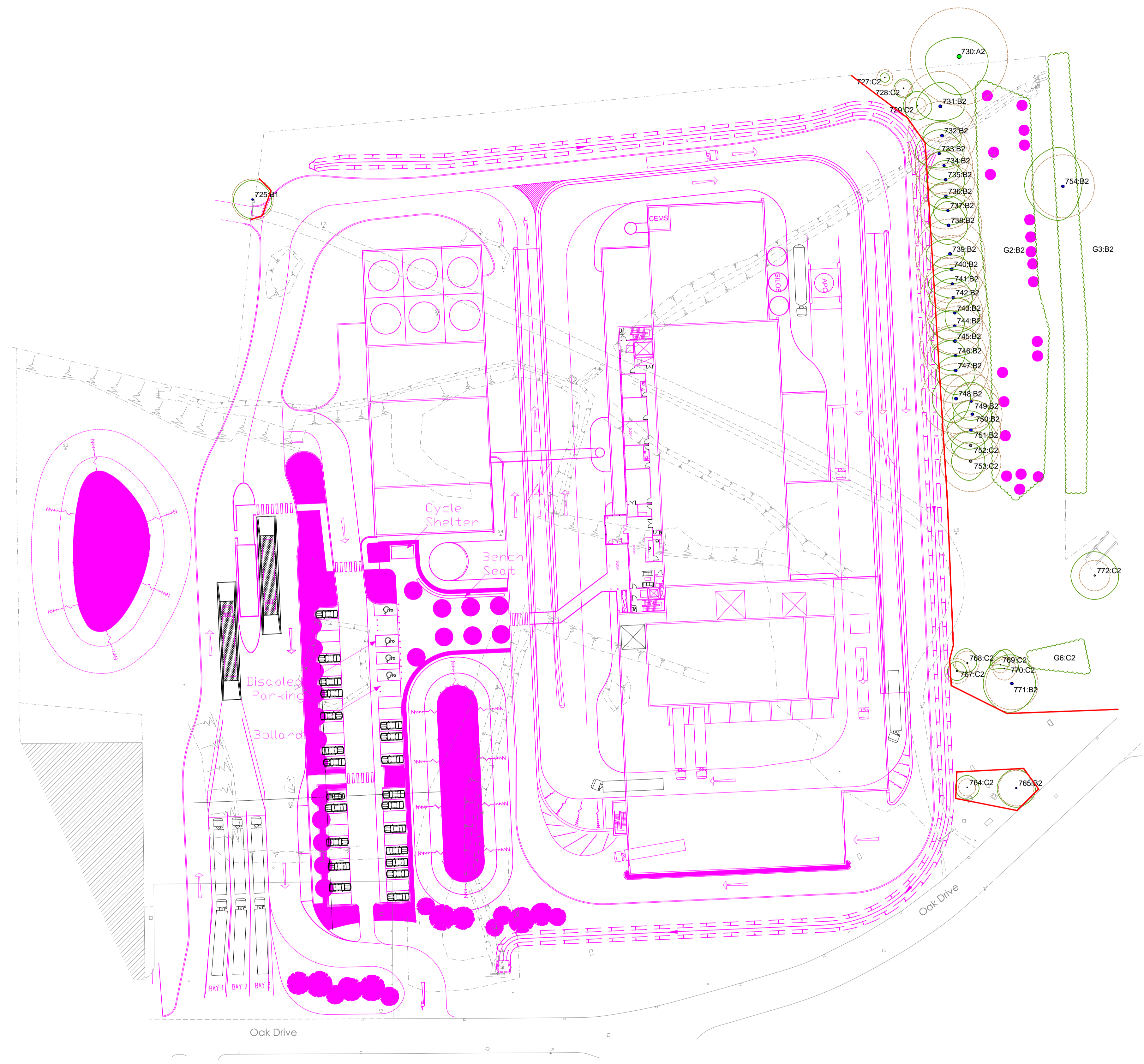
ARBTECH CONSULTING LIMITED
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Well House Barns
Chester
CH4 0DH
Telephone: 0845 0176950



Drawing Number
IP - 01

A1
REV.





KEY

- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem
- 001 Tree No.
- Proposed scheme
- Protective Barrier Fencing (PBF)

REV.	DESCRIPTION	DWN	CHK'D	DATE
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PROJECT
90562
Hartlebury Trading Estate,
Kidderminster.

TITLE
Tree Protection Plan (TPP)

DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
DG	18/03/2010					1:500

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Well House Barns
Chester
CH4 0DH
Telephone: 0845 0176950

Drawing Number
TPP - 01

A1
REV.
A

