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Arboricultural Impact Assessment

Planning Application for the Development of Houghton Main Renewable Energy Park (REP) comprising a Timber Resource Recovery Centre and an Anaerobic Digestion Facility (AD) Including Associated Infrastructure

Land off Houghton Main Colliery Roundabout, Park Spring Road, Houghton Main, Barnsley

Peel Environmental Management (UK) Limited and Houghton Main Waste Limited

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ARBORICULTURAL IMPACT ASSESSMENT
LAND OFF HOUGHTON MAIN COLLIERY ROUNDABOUT, PARK SPRINGS

Control sheet

Project No.:	BTC602
Project Title:	Arboricultural Impact Assessment at Land off Houghton Main Colliery Roundabout, Park Springs
Agent for Client:	Enzygo Ltd
Council:	Barnsley Metropolitan Borough Council
Survey Date:	27 February 2014
Prepared by:	Phill Harris MSc BSc(Hons) HND CEnv MArborA MICFor Chartered Arboriculturist
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DISCLAIMER

Survey Limitations: Unless otherwise stated all trees are surveyed from ground level using non-invasive techniques, in sufficient detail to gather data for and inform the design of the current project only. The disclosure of hidden crown and stem defects, in particular where they may be above a reachable height or where trees are ivy clad or located in areas of restrictive ground vegetation, cannot therefore be expected. Detailed tree safety appraisals are only carried out under specific written instructions. Comments upon evident tree safety relate to the condition of said tree at the time of the survey only. Unless otherwise stated all trees should be re-inspected annually in order to appraise their on-going mechanical integrity and physiological condition. It should, however, be recognised that tree condition is subject to change, for example due to the effects of disease, decay, high winds, development works, etc. Changes in land use or site conditions (e.g. development that increases access frequency) and the occurrence of severe weather incidents are also significant considerations with regard to tree structural integrity, and trees should therefore be re-assessed in the context of such changes and/or incidents and inspected at intervals relative to identified and varying site conditions and associated risks.

Where trees are located wholly or partially on neighbouring private third-party land then said land is not accessed and our inspection is therefore restricted to what can reasonably be seen from within the site. Stem diameters and other measurements of trees located on such land are estimated. Any subsequent comments and judgments made in respect of such trees are based on these restrictions and are our preliminary opinion only. Recommendations for works to neighbouring third-party trees are only made where a potential risk to persons and/or property has been identified during our survey or, if applicable, where permissible works are required to implement a proposed development. Where significant structural defects of third-party trees are identified and associated management works are considered essential to negate any risk of harm and/or damage then we will inform the relevant Council of the matter. Where a more detailed assessment is considered necessary then appropriate recommendations are set out in the Tree Survey Schedule.

Where tree stem locations are not included on the plan(s) provided then they are plotted by the arboriculturist at the time of the survey using, where appropriate and/or practicable, a combination of measurement triangulation and GPS co-ordination. Where this is not possible then locations are estimated. Restrictions in these respects are detailed in the report.

This document is intended as a guide to identify key tree related constraints to site development only, and the potential influence of trees upon existing or proposed buildings or other structures resulting from the effects of their roots abstracting water from shrinkable load-bearing soils is not considered herein. The tree survey information in its current form should not therefore be considered sufficient to determine appropriate foundation depths for new buildings. Accordingly, an updated survey, with reference to the current NHBC Standards Chapter 4.2 - Building Near Trees, must therefore be prepared for the specific purpose of informing suitable foundation depths subsequent to planning approval being granted. The advice of a structural engineer must also be sought with regard to appropriate foundation depths for new buildings.

Third Parties: Any disclosure of this document to a third party is subject to this disclaimer. The report was prepared by Bowland Tree Consultancy Ltd at the instruction of and for use by our client. This report does not in any way constitute advice to any third party who is able to access it by any means. Bowland Tree Consultancy Ltd excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage arising from reliance on the contents of this report.

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APPENDICES

PLANS

1.0 INTRODUCTION

Terms of Reference

1.1 Bowland Tree Consultancy Ltd were instructed to:

a) Survey, as individuals or by group, all trees having reasonable potential to be adversely affected by or to affect development of the site under consideration;
b) Prepare a tabulated Tree Survey Schedule based on guidance specified BS5837:2012 - Trees in Relation to Design, Demolition and Construction – Recommendations;
c) Evaluate the potential tree related impacts and design conflicts of the proposals;
d) Advise on removal, retention and management options for the trees in the current context and in the context of the proposed development;
e) Advise on suitable tree protection measures required during development;
f) Annotate the existing site plan and the proposed site plan to produce a Tree Constraints Plan and a Tree Impact Plan respectively, identifying tree retention categories, crown spreads, Root Protection Areas, projected tree related impacts, approximate temporary protective fencing locations, new tree planting suggestions, and other pertinent details; and
g) Produce an Arboricultural Impact Assessment report outlining the main tree related issues and reasonably foreseeable tree related impacts in relation to the proposed development and indicating suitable mitigation provisions and appreciate retained tree protection measures.

Scope and Purpose of Report

1.2 By detailing foreseeable tree related issues this report is intended to assist the Local Planning Authority (LPA) in their review of the proposed development and, as such, should be supplied to them in support of the planning application to which it pertains.

1.3 Essentially, the report provides an initial analysis of the impacts that the proposed development is projected to have on trees located both within the site and, where considered pertinent and where practicable, on land immediately adjacent to its boundaries.

1.4 It also offers guidance on suitable retained tree management and mitigation for projected losses, along with advice on appropriate tree protection measures in the context of the proposed development in accordance with current guidance.

Site Visit, Data Collection and Tree Plans

1.5 Further to our instruction I confirm that I visited the site on 27 February 2014 and carried out a survey of the trees. My survey was carried out in accordance with the preceding disclaimer, and all tree data collected on site is set out in the attached tabulated Tree Survey Schedule (TSS) at Appendix One which, for ease of interpretation, should be read alongside the associated BS5837:2012 Table 1 (as appended).

1.6 The survey identified seven individual trees (prefixed ‘T’), six groups of trees (prefixed ‘G’), and one hedge (prefixed ‘H’), and I have numbered the surveyed vegetation accordingly on the Tree Constraints Plan (TCP) and Tree Impact Plan (TIP), as appended. The TCP details the existing site with the readily definable tree constraints, whilst the TIP also has an overlay of the development proposals along with associated projected tree related impacts.

1.7 The plans are based on topographical survey based existing and proposed site plans that were provided in electronic format by the client’s agent, Enzygo Ltd, and, for the purpose of this report, I presume the provided plans’ details to be accurate.

2.0 STATUTORY PROTECTION IN RESPECT OF TREES AND ASSOCIATED WILDLIFE

Tree Preservation Orders and Conservation Area Designations

2.1 The Town & Country Planning Act (1990) (the Act) and associated Regulations empower Local Planning Authorities (LPAs) to protect trees in the interests of amenity by making Tree Preservation Orders (TPOs). The Act also affords protection for trees of over 75mm diameter that stand within the curtilage of a Conservation Area (CA). Subject to certain exemptions, an application must be made to the LPA in question to carry out works upon or to remove trees that are subject to a TPO, whilst six weeks' notice of intention must be given to carry out works upon or to remove trees within a CA that are not protected by a TPO.

2.2 I have not been informed if any of the trees within the site are the subject of TPO protection or if the site stands within a CA. As such, the planning department of Barnsley Metropolitan Borough Council should be contacted to check for the presence of any such statutory tree protection prior to carrying out any tree works.

Protected Species

2.3 Nesting birds are afforded statutory protection under the Wildlife & Countryside Act (1981) (as amended) and their potential presence should therefore be considered when clipping hedges, removing climbing plants and pruning and removing trees. The breeding period for woodlands runs from March to August inclusive. Hedges provide valuable nesting sites for many birds and clipping should therefore be avoided during March to July. Trees, hedges and ivy should be inspected for nests prior to pruning or removal and any work likely to destroy or disturb active nests should be avoided until the young have fledged.

2.4 All bat species are protected under Schedule 5 of the Wildlife & Countryside Act (1981) (as amended) and under Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended). In this respect it should be noted that it is possible that unidentified bat habitat features may be located high up in tree crowns and all personnel subsequently carrying out tree works at the site should therefore be vigilant and mindful of the possibility that roosting bats may be present in trees with such features. If any bat roosts are identified then it is essential that works are halted immediately and that a suitably qualified and experienced ecologist investigates and advises on appropriate action(s) prior to works continuing.

Felling Licences

2.5 Subject to certain exemptions the Forestry Act (1967) requires that a 'Felling Licence' be obtained to remove growing trees amounting to more than five cubic metres of timber in a calendar quarter. Felling Licences are administered by the Forestry Commission and contravention of the associated controls can incur substantial penalties. A Felling Licence is, however, not required where tree removals are required for the purpose of implementing a development authorised by detailed (i.e. full) planning permission granted under the Act (1990).

3.0 THE SITE AND THE SURROUNDINGS

3.1 The site is located within a rural/industrial area of South Yorkshire, approximately seven kilometres to the east of Barnsley town centre, within the administrative boundaries of Barnsley Metropolitan Borough Council. It is bordered to the east by Park Spring Road, to the north by a dismantled railway and group of trees, and to the west by fields. There is a roundabout to Park Spring Road to the south with provision for vehicular access to the site

from this point.

3.2 The site currently consists mainly of an open area of unmanaged grass with several large groups of very young self-set trees, along with several groups of more established trees to the site's north-west and west. Topography within the site is variable, with a raised earth bund along the northern boundary and a minor fall in overall ground levels from east to west.

4.0 THE TREE POPULATION

4.1 As noted previously, seven individual trees, six groups of trees and one hedge were surveyed for the purpose of this appraisal. The surveyed trees are a mix of native deciduous broadleaf species, including Oak, Silver Birch and Goat Willow.

4.2 The trees range from young to early-mature in age, although the majority are very young, whilst sizes vary from small to moderately small with heights of up to 12 metres and maximum diametrical crown spreads of up to 13 metres. Detailed tree dimensions and other pertinent information, such as structural defects and physiological deficiencies, are included in the Tree Survey Schedule (TSS) at Appendix One.

4.3 In respect of the TSS it should be noted that tree quality is categorised within the existing site context without taking any development proposals into account. However, recommendations for works included in the TSS take both current site usage into consideration and the proposed site development where there are definable development related issues with regard to specific trees.

4.4 The TSS includes a column ('Cat. Grade') listing the trees' respective retention values, where they are rated either 'A', 'B', 'C' or 'U', as per BS5837:2012 Table 1 (Appendix One). 'A' category trees are those considered to be of 'high quality' and, accordingly, the most suitable for retention, whilst 'B' category trees are those considered to be of 'moderate quality'. As detailed in Table A (below), two trees were categorised as high quality ('A'), three trees and three groups were categorised as moderate quality ('B'), and two trees, three groups and the hedge were categorised as low quality ('C').

Table A: BS5837-2012 Retention Categories of the Surveyed Trees

	Ret. Cats.	Tree/Group/Hedge Numbers	Totals
Those of a moderate or high quality that should be afforded appropriate consideration in the context of development	**'A'**	T3, T7	*2 Trees*
	'B'	T1, T2, T4, G1, G3, G4	*3 Trees* *3 Groups*
Those of a low quality that should not be considered a material constraint to development	**'C'**	T5, T6, G2, G5, G6, H1	*2 Trees* *3 Groups* *1 Hedge*
Those that should be removed for management reasons regardless of site proposals	**'U'**	-	-
			= 7 Trees, 6 Groups, & 1 Hedge in Total

5.0 THE DEVELOPMENT PROPOSAL AND ITS PROJECTED ARBORICULTURAL IMPACTS

5.1 The application is for the construction of a timber resource recovery centre and anaerobic digestion facility consisting of various buildings, a surface water storage lagoon, car-parking provision, landscaping, and vehicular access off the roundabout to the south of the site, as detailed on the TIP.

5.2 Accordingly, I have been provided with a proposal plan to that effect, by Enzygo Ltd, and, in order to appraise the projected impacts that the development will potentially have on the site vegetation, the tree constraints were overlaid onto the site proposal plan, as detailed on the TIP.

Projected Arboricultural Losses Relating to the Proposal

5.3 As detailed in Table B, below, and on the TIP, implementation of the proposed development as it stands is projected to require the removal of one moderate quality group, part of a second moderate quality group, and two low quality groups.

Table B: Arboricultural Impacts of Proposed Development & Other Tree Removal Proposals

	Ret. Cats.	Removals necessary to implement development	Removals suggested for non-development related reasons	Total number of tree removals
Those of a high quality that should be afforded appropriate consideration in the context of development	**'A'**	-	-	-
Those of a moderate quality that should be afforded appropriate consideration in the context of development	**'B'**	G3, G4 (part)	-	*1 Group* *1 Part Group*
Those of a low quality that should be afforded appropriate consideration in the context of development	**'C'**	G2, G6	-	*2 Groups*
Those that should be removed for management reasons regardless of site plans	**'U'**	-	T2, T4, T7, T10, T20	*5 Trees*
Totals		*3 Groups* *1 Part Group*	-	***= 3 Groups &*** ***1 Part Group*** ***in Total***

Mitigation for Projected Tree Losses as Part of Site Landscaping

5.4 New tree planting as part of site landscaping is proposed to the north-eastern and south-eastern sections of the site, as preliminarily indicated on the TIP. As shown, the proposals include provision for a substantial number of new trees which, in turn, is projected to adequately mitigate for the necessary development related tree losses. Accordingly, requirements in respect of specific new tree planting details can be conditioned to a planning approval.

6.0 RECOMMENDATIONS FOR SUCCESSFUL TREE RETENTION IN THE CONTEXT OF DEVELOPMENT

Root Protection Areas and Construction Exclusion Zones

6.1 Adequate protection of the Root Protection Areas (RPAs) of retained trees during construction is essential if their long-term viability is to be assured. RPAs, which are calculated through a method provided in BS5837:2012, are ground areas that should be protected by temporary protective fencing as Construction Exclusion Zones (CEZs) throughout the development process, thereby keeping the trees' root zones free from disturbance. Consequently, the RPA distances, as detailed in the TSS (see 6.2, below), and on the TCP and TIP give an idea of the on-site below-ground constraints in respect of tree roots and assist in planning for appropriate tree retention in relation to feasible development. In certain situations, such as at the site under consideration, there is a limited degree of flexibility in the CEZ positioning, as discussed in paragraph 6.2.

6.2 The TSS includes two columns listing the RPAs of the individually surveyed trees and, where applicable, the largest of the trees in any surveyed groups as overall areas in square metres and as radial distances. The radial RPAs are indicated as magenta coloured circles

on the TCP and TIP. With regard to CEZs the design, materials and construction of the fencing should be appropriate for the intensity and type of site construction works, should conform to at least section 6.2 of BS5837:2012, and should be secured by the imposition of a suitably worded planning condition. A default Temporary Protective Fencing Specification is included at Appendix Two.

Underground Utilities

6.3 The installation of underground utilities in close proximity to trees can cause serious damage to their roots. As such, it is essential that utilities be routed outside RPAs unless there is no other available option, and specifics regarding these routes should be included as part of a detailed planning application. Where RPAs cannot be avoided then guidelines set out in the National Joint Utilities Group publication 'Volume 4: NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2) – Operatives Handbook' should be followed (e.g. trenches of a very limited width to be hand dug or the use of directional drilling).

Arboricultural Method Statement and Tree Protection Plan

6.4 Government guidance recommends that, where considered expedient by the LPA, an Arboricultural Method Statement (AMS) and a Tree Protection Plan (TPP) be prepared detailing special mitigation construction. Essentially, the AMS and TPP describe and detail the procedures, working methods and protective measures to be used in relation to retained trees in order to ensure that they are adequately protected during the construction process. Production of and adherence to an AMS and TPP can be conditioned as part of a planning approval.

7.0 OTHER RECOMMENDATIONS

Non-Development Related Tree Works and Recommendations

7.1 Any general management pruning works for retained trees that are stated to be non-development related, as detailed in the TSS, are recommended in accordance with prudent arboricultural management and should therefore be carried out regardless of any site development proposals and potential changes in land usage. All tree works should be carried out in accordance with BS3998:2010 - Tree Work – Recommendations.

Tree Work Related Consents

7.2 No tree pruning or removal works should commence on site until necessary consents have been obtained from the LPA as part of a planning approval or in respect of any statutory tree protection (e.g. TPOs).

Arboricultural Contractors

7.3 All tree works should be carried out by suitably qualified and experienced arboricultural contractors carrying appropriate public liability insurance cover and be implemented to the minimum current CE and UK industry standards and in accordance with industry codes of practice. Only certificated personnel should, in accordance with The Control of Pesticides Regulations, apply any pesticides.

Contractors and Subsequently Identified Tree Defects

7.4 Tree contractors should be made aware that, should any significant tree defects become apparent during operations that would not have been immediately obvious to the surveyor, then such defects should be notified immediately to the client and subsequently confirmed to the consultant within five working days.

New Tree Planting

7.5 All tree planting at the site should be carried out in accordance with BS4428:1989 - Code of Practice for General Landscape Operations, BS3936-1:1992, Nursery Stock – Part 1: Specification for Trees and Shrubs and BS4043:1989, Transplanting Root-Balled Trees where applicable, or any ensuing superseding guidance where applicable.

Retained Tree Management

7.6 Any tree risk management appraisals and subsequent recommendations made in this report were based on observations and site circumstances at the time of my survey. Trees are dynamic living organisms whose structure is constantly changing and even those evidently in good condition can succumb to damage and/or stress. In this respect I would note that, under the Occupiers' Liability Act (1957 & 1984), site occupants have a duty of care to take reasonable steps to prevent or minimise the risk of personal injury and/or damage to property from any tree located within the curtilage of the land they occupy. It is accepted that these steps should normally include commissioning a qualified and experienced arboriculturist to survey their trees in order to identify any risk of harm to persons or damage to property that they may present and, where unacceptable risks are identified, taking suitable remedial action to negate those risks.

8.0 SUMMARY AND CONCLUSIONS

8.1 The subject site is located in a rural/industrial area east of Barnsley, South Yorkshire. Seven individual trees, six groups of trees, and one hedge were surveyed in respect of a proposal to construct a timber resource recovery centre and anaerobic digestion facility with associated vehicular access.

8.2 Two trees were allocated high retention values, three trees and three groups were allocated moderate retention values, and two trees, three groups and the hedge were allocated low retention values.

8.3 An evaluation of the proposed development in the context of the existing site has indicated that it will be necessary to remove a moderate retention value group and part of a second moderate retention value group, along with two low retention value groups.

8.4 However, the provision of new tree planting is proposed as part of the development's landscaping which, in turn, is projected to sufficiently mitigate for the necessary development related tree losses.

8.5 In consideration of the above findings I therefore conclude that, from the details provided to date, the site in question can be developed as proposed whilst retaining the better value individual trees and, in turn improving the overall quality of the tree cover over the long-term.

8.6 However, in order to ensure successful existing tree preservation, it is essential that the retained trees are protected in strict accordance with current Government guidance and the recommendations included herein.

REFERENCES

BS4428:1989 - Code of Practice for General Landscape Operations. BSI British Standards,
BS3936-1:1992, Nursery Stock – Part 1: Specification for Trees and Shrubs. BSI British Standards, London.
BS3998:2010 - Tree Work - Recommendations. BSI British Standards, London.
BS4043:1989 - Transplanting Root-Balled Trees. BSI British Standards, London.
BS5837:2012 - Trees in Relation to Design, Demolition and Construction – Recommendations. BSI, London.
National House Building Council (2008). NHBC Standards Chapter 4.2 - Building Near Trees. NHBC, Amersham.
National Joint Utilities Group (2007). Volume 4: NJUG Guidelines For The Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees (Issue 2) – Operatives Handbook.

APPENDICES

TREE SURVEY SCHEDULE FOR ARBORICULTURAL IMPACT APPRAISAL			
Site:	Land off Houghton Main Colliery Roundabout, Park Springs, Barnsley, South Yorkshire	Survey Date:	27 February 2014
Agent for Client:	Enzygo Ltd	Job Reference:	BTC602

No.	Species	Height	Stem Diam.	Branch Spread	Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m²)	RPA Radius (m)
T1	Common Oak	12	360	N 2 E 3 S 5 W 4	N/A 1.5	SM	G	▪ Located at boundary fence. ▪ Moderately biased crown to south.	▪ Retain in context of proposals. ▪ Ensure protection of RPA, as far as is practicable, throughout development process.	40+	B1/2	59	4.32
T2	Common Oak	12	360	N 1 E 2 S 5 W 4	N/A 2	SM	G	▪ Located at boundary fence. ▪ Moderately biased crown to south.	▪ Retain in context of proposals. ▪ Ensure protection of RPA, as far as is practicable, throughout development process.	40+	B1/2	59	4.32
T3	Common Oak	10	2x300 2x270 (ms)	N 6.5 E 6.5 S 6.5 W 6.5	N/A 0.5	EM	G	▪ Standing on top of steep banking. ▪ Multi-stemmed from ground level.	▪ Retain in context of proposals. ▪ Ensure protection of RPA, as far as is practicable, throughout development process.	40+	A1/2	147	6.85
T4	Ash	9	1x250 1x190 2x150 (ms)	N 6 E 6 S 6 W 6	N/A 3	SM	M	▪ Multi-stemmed from ground level.	▪ Retain in context of proposals. ▪ Ensure protection of RPA, as far as is practicable, throughout development process.	20+	B1	65	4.55
T5	Ash	12	1x350 2x250 (ms)	N 6 E 6 S 6 W 6	N/A 4	SM	M/P	▪ Multi-stemmed. ▪ Crown showing signs of a substantial reduction in vitality.	▪ Retain in context of proposals. ▪ Ensure protection of RPA, as far as is practicable, throughout development process.	10+	C1	112	5.97
T6	Silver Birch	8	190	N 2 E 1 S 1.5 W 2	N/A 2	SM	G	▪ Moderate lower stem curvature. ▪ Moderately biased crown to west.	▪ Retain in context of proposals. ▪ Ensure protection of RPA, as far as is practicable, throughout development process.	40+	C1	16	2.28
T7	Common Oak	8	2x220 1x150 (ms)	N 4.5 E 4.5 S 4.5 W 4.5	0.3 0.5	SM	G	▪ Standing on top of steep banking. ▪ Multi-stemmed from ground level.	▪ Retain in context of proposals. ▪ Ensure protection of RPA, as far as is practicable, throughout development process.	40+	A1/2	64	4.52

Headings and Abbreviations:

No.	Allocated sequential reference number - Tree ('T'), Group ('G'), Woodland ('W') or Hedge ('H') reference number - refer to plan and to numbered tags where applicable
Species:	Common name
Height:	In metres, to nearest half metre – where possible approximately 80% are measured using an electronic clinometer and the remainder estimated against the measured trees. In the case of Groups and Woodlands the measurement listed is that of the highest tree
Stem Diam.:	Stem diameter in millimetres, to nearest 10mm - measured and calculated as per Annex C of BS5837:2012. MS = multi-stemmed, TS = twin-stemmed
Branch Spread:	Crown radius measured (or estimated where considered appropriate) from the four cardinal points (north, east, south and west) to give an accurate visual representation of the crown
Branch & Canopy Clearances:	Existing height above ground level, in metres, of first significant branch and direction of growth (e.g. 2.5-N) and of canopy at lowest point – to inform on crown to height ratio, potential for shading, etc.
Life Stage:	Estimated age class - Y = young, SM = semi-mature, EM = early-mature, M = mature, PM = post-mature
PC:	Physiological Condition - a measure of the tree'(s)' overall vitality, i.e. D = Dead, MD = Moribund, P = Poor, M = Moderate, G = Good
General Observations and Comments:	Comments relating to the tree'(s)' overall condition and any other pertinent factors including structural defects, current and potential direct structural damage, physiological decline, poor form, etc.
Management Recommendations:	Either Preliminary or In Consideration of the Proposal - In the case of Arboricultural Constraints Surveys the recommended management works only take exiting site and tree circumstances and conditions into account and not proposed developments. Arboricultural Impact Assessment and Method Statement related Surveys take the proposed development into consideration with recommendations made accordingly. More than one option may be given if considered appropriate
ERC:	Estimated Remaining Contribution - in years as per BS5837:2012 (i.e. <10, 10+, 20+, 40+)
Cat. Grade:	Category Grading - tree retention value listed as U, A, B or C - in accordance with BS5837:2012 Table 1
RPA m²:	Root Protection Area in m² - calculated area around the tree that must be appropriately protected throughout the development process in order avoid root damage
RPA Radius (m):	Root Protection Area Radius - in metres measured from the centre of the stem to the line of tree protection
# (Estimated Dimensions):	Where trees are located off-site, or are inaccessible for any other reason, and accurate measurements or other information cannot be taken then the information provided is estimated and is duly suffixed with a "#" symbol

TREE SURVEY SCHEDULE FOR ARBORICULTURAL IMPACT APPRAISAL		Surveyor:	Phill Harris – Chartered Arboriculturist	Page: 2 of 2
Site:	Land off Houghton Main Colliery Roundabout, Park Springs, Barnsley, South Yorkshire	Survey Date:	27 February 2014	
Agent for Client:	Enzygo Ltd	Job Reference:	BTC602	

No.	Species	Height	Stem Diam.	Branch Spread		Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m^2)	RPA Radius (m)
G1	approx. 35no. Goat Willow	≤ 8	≤ 3x150 (ms)	N E S W	≤ 4.5 ≤ 4.5 ≤ 4.5 ≤ 4.5	N/A ≥ 0	Y-SM	G	▪ Linear group along boundary standing in young Hawthorn hedge. ▪ Part of longer group extending to south. ▪ All are multi-stemmed.	▪ Retain group in context of proposals. ▪ Ensure protection of RPAs, as far as is practicable, throughout development process. ▪ Consider removal of every third Willow and replacement with large growing species such as Oak and Lime. ▪ Lay hedge in 5 years' time.	40+	B1/2	≤ 31	≤ 3.12
G2	Silver Birch, Downy Birch, Goat Willow, Common Oak	≤ 8	≤ 150	N E S W	≤ 2.5 ≤ 2.5 ≤ 2.5 ≤ 2.5	N/A ≥ 0	Y	G	▪ Very closely spaced group of very young self-set trees. ▪ Some individuals and smaller groups on edges. ▪ Mainly Birch with very small percentage of Oak and some more established Goat Willow.	▪ Remove in order to construct development as proposed.	40+	C1	≤ 10	≤ 1.8
G3	Silver Birch, Goat Willow, Common Oak	≤ 13	≤ 2x200 (ts)	N E S W	≤ 5 ≤ 5 ≤ 5 ≤ 5	N/A ≥ 0	Y-SM	G	▪ Very closely spaced group of mostly semi-mature Birch. ▪ Number of Goat Willow to eastern edge.	▪ Remove in order to construct development as proposed.	40+	B1/2	≤ 36	≤ 3.39
G4	Silver Birch, Goat Willow, Common Oak, Hawthorn	≤ 10.5	≤ 6x150 (ms)	N E S W	≤ 4 ≤ 4 ≤ 4 ≤ 4	N/A ≥ 0	Y-EM	G	▪ Loose group of approximately 10 to 15 trees. ▪ Oaks and Hawthorns are young.	▪ Remove part of group in order to construct development as proposed.	20+	B1/2	≤ 61	≤ 4.41
G5	Hawthorn	≤ 4	≤ 6x40 (ms)	N E S W	≤ 1.5 ≤ 1.5 ≤ 1.5 ≤ 1.5	N/A ≥ 0.5	Y	G	▪ Linear group on steep banking, made up mainly of Hawthorn.	▪ Retain in context of proposals. ▪ Ensure protection of RPAs, as far as is practicable, throughout development process.	40+	C1	≤ 4	≤ 1.18
G6	Silver Birch, Downy Birch, Common, Oak, Goat Willow	≤ 6	≤ 100	N E S W	≤ 2 ≤ 2 ≤ 2 ≤ 2	N/A ≥ 0	Y	G	▪ Very closely spaced group of very young self-set trees along bund. ▪ Mainly Birch with very small percentage of Oak and Goat Willow.	▪ Remove in order to construct development as proposed.	40+	C1	≤ 5	≤ 1.2
H1	Hawthorn	≤ 2.5	N/A	≤ 2 wide		N/A ≥ 0	Y	G	▪ Recently planted hedge.	▪ Retain in context of proposals.	40+	C1	N/A	N/A

BS5837:2012 Table 1 – Cascade Chart for Tree Quality Assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	▪ Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) ▪ Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline ▪ Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *Note: Category U trees can have existing or potential conservation value which it might be desirable to preserve; see BS5837:2012 paragraph 4.5.7.*			Red
	1 **Mainly arboricultural qualities**	**2** **Mainly landscape qualities**	**3** **Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	Green
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	Blue
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	Grey

- TEMPORARY PROTECTIVE FENCING SPECIFICATION -

Construction Exclusion Zones (CEZs), enclosed by **Temporary Protective Fencing**, as detailed below and to be agreed with the Local Planning Authority (LPA), shall:

1. be retained in place throughout the development process, as specified in the 'Temporary Protective Fencing Construction' section below and detailed in BS5837:2012 Figure 2 (overleaf);
2. be sited in the area(s) defined by the Root Protection Areas or, if applicable, the Construction Exclusion Zones, as detailed on the associated Tree Plan;
3. be erected prior to any construction, demolition or excavation works and remain in place for the duration of the project;
4. preclude any delivery of site accommodation and/or materials and/or plant machinery;
5. preclude all construction related activity, with the sole exception of specified arboricultural works and any other works to be carried out under supervision that have been agreed by all parties; and
6. preclude the storage of all development related materials and substances including fuels, oils, additives, cement and/or any other deleterious substance.

Any incursion into CEZs must be by prior arrangement, following consultation with the LPA.

Temporary Protective Fencing Construction

1. Temporary protective fencing panels shall be weldmesh "Heras" panels of at least 2.0 metres in height.
2. The panels shall butt together and be securely fixed to a scaffold framework, as per 3 to 5 below.
3. The scaffold framework shall comprise of upright poles of at least 3.0 metres in length driven no less than 0.6 metres into the ground at maximum 3.0 metre centres with horizontal and diagonal poles fixed to the uprights, as per 4 to 5 below.
4. The two horizontal rail poles shall be attached to the uprights at heights of 0.6 and 1.8 metres with 3 no. clamps to each joint.
5. The diagonal scaffold pole struts be clamped to the top rail of the scaffold framework at a 45º angle and extend back into the CEZ and clamped to a 0.7 metre length of scaffold tube that shall be driven no less than 0.5m into the ground.
6. No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to tree roots when locating posts.
7. A 600mm x 300mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure 1, below) shall be fixed to every 10.0 metre length of protective fencing.
8. On completion and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the LPA shall inspect and approve the Temporary Protective Fencing.

Figure 1: CEZ Warning Sign

– TREE PROTECTION AREA –
KEEP OUT!

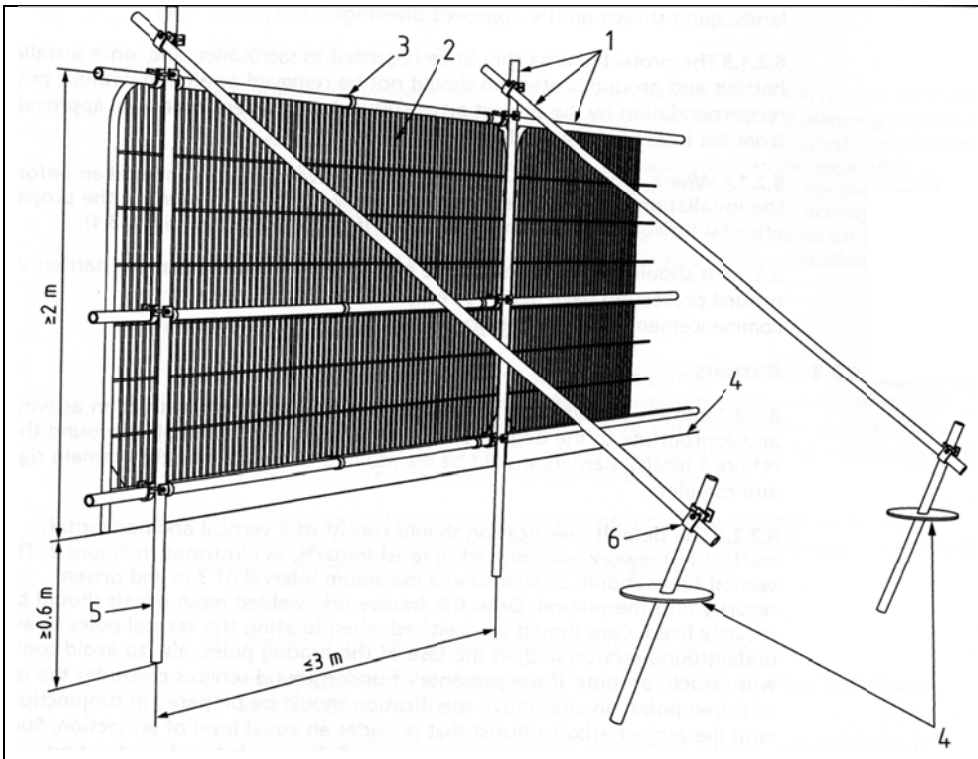
(TOWN & COUNTRY PLANNING ACT 1990)
THE TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR SUBJECTS OF A 'TREE PRESERVATION ORDER', THE CONTRAVENTION OF WHICH MAY LEAD TO CRIMINAL PROSECUTION

THE FOLLOWING MUST BE OBSERVED BY ALL PERSONNEL:

- **THE PROTECTIVE FENCING MUST NOT BE MOVED**
- **NO PERSON SHALL ENTER THE CONSTRUCTION EXCLUSION ZONE**
- **NO MACHINE, PLANT OR VEHICLES SHALL ENTER THE EXCLUSION ZONE**
- **NO MATERIALS SHALL BE STORED IN THE EXCLUSION ZONE**
- **NO SPOIL SHALL BE DEPOSITED IN THE EXCLUSION ZONE**
- **NO EXCAVATION SHALL OCCUR IN THE EXCLUSION ZONE**
- **NO FIRES SHALL BE LIT IN THE EXCLUSION ZONE**

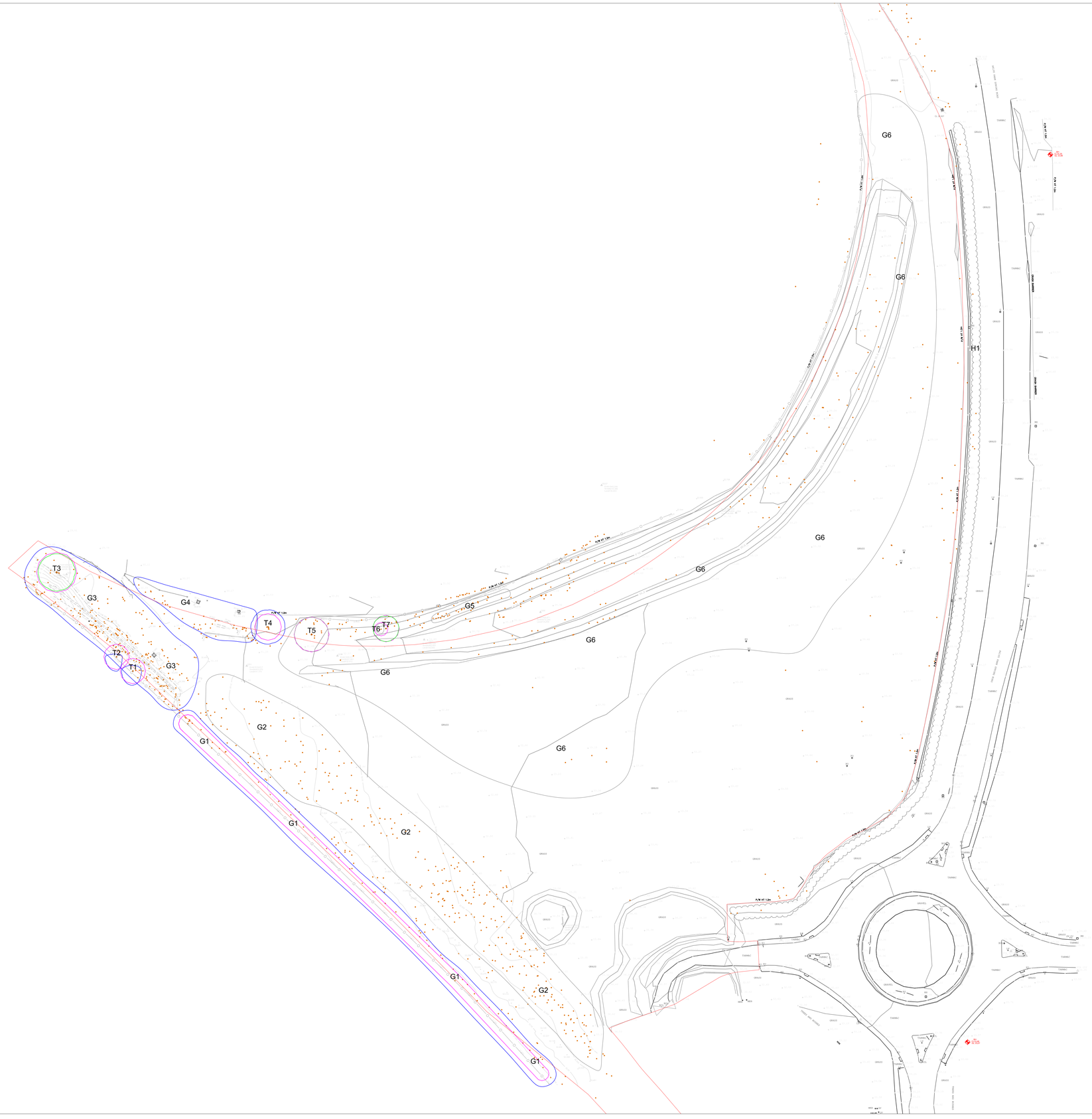
ANY INCURSION INTO THE EXCLUSION ZONE MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

Figure 2: BS5837:2012 Default specification for protective barrier



Key

1. Standard scaffold poles.
2. Heavy gauge 2 metre tall galvanised tube and welded mesh infill panels
3. Panels secured to uprights and cross members with wires ties
4. Ground level
5. Uprights driven into the ground until secure (minimum depth 0.6 metres)
6. Standard scaffold clamps


N
T1
T2
T3
T4
T5
T6
T7
G1
G2
G3
G4
G5
G6
H1
T/KERB
GRASS
TARMAC
GRAVEL
FW ref 1.2m
DRAIN MANH
DRAIN MANH
DRAIN MANH

N

Dismantled Railway

PARK SPRING ROAD

Surface Water Storage Lagoon

Buffer tanks

WWPF boundary

Fuel oil storage tank and bund (double skin)

Standby generator

Ash storage silos

Fire water tank

Fire water pumps enclosure

ACCs

Gas Holder

flare

Stack

Process Building

Service access

Switchgear Room

Ctrl. Rm First Floor

Turbine

Offices/ Workshop

Reception Hall

Out weighbridge

Loading access

Cycle shelter

Car park 10 bays inc. 2x disabled

Manouevring Apron

Waste Wood Processing Facility

HGV access to this elevation via 2 no.roller shutters

In weighbridge + bypass lane

Queuing - 2 x HGVs

Adjacent to In & Out weighbridges + bypass lane

Admin/ Welfare

Sludge tanks

AD Facility

HOUGHTON MAIN COLLIERY ROUNDABOUT

Access maintained

Electricity Generating Station

El Sub Sta

Def

T1 T2 T3 T4 T5 T6 T7

G1 G2 G3 G4 G5 G6

H1

KEY

T = Surveyed Individual Tree
G = Surveyed Group of Trees
H = Surveyed Hedge

Please refer to associated Tree Survey Schedule for specific details in respect of items below:

Tree Categorisations:

Those to be Considered for Retention:

Category 'A' Tree/Group/Hedge
Those of a High Quality with an Estimated Remaining Life Expectancy of at Least 40 Years

Category 'B' Tree/Group/Hedge
Those of a Moderate Quality with an Estimated Remaining Life Expectancy of at Least 20 Years

Category 'C' Tree/Group/Hedge
Those of Low Quality with an Estimated Remaining Life Expectancy of at Least 10 Years, or Young Trees

Those Unsuitable for Retention:

Category 'U' Tree/Group/Hedge
Those in Such a Condition that they Cannot Realistically be Retained as Living Trees in the Context of the Current Land Use for Longer Than 10 Years

Root Protection Areas (RPAs):

RPAs
Area(s) of Ground Around Trees that Should be Protected Throughout Development Works with Protective Fencing to form a Construction Exclusion Zone - please see appended Temporary Tree Protection Specification

Note: The extents and locations of the groups were estimated and, as such, cannot therefore be considered to be exact, and this should be taken into consideration when planning for tree retention within the context of the design proposal

Important: The original version of this plan was produced in colour, which is essential to the plan's interpretation and usability. As such, a monochrome copy should not be relied upon

Project:
PARK SPRING ROAD
LITTLE HOUGHTON
SOUTH YORKSHIRE
SG72

Agent for Client:
ENZYGO LTD

Title:
TREE IMPACT PLAN
of Proposed Timber Resource Recovery Centre and Anaerobic Digestion Facility

Scale:	1:500@A0
Date:	April 2014
Drawn by:	PH

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Ref: BTC602-TIP Rev: