

**Arboricultural report on trees situated on a proposed development site at
Forge Farm, Pont y Blew, Chirk, Wrexham SY11 2NN**

August 2013

Sylvan Resources Ltd. forestry and arboriculture

Dog Field House, Abcott, Clungunford, Craven Arms, Shropshire SY7 0PX

tel: 01588 660547 **e-mail: jon@sylvanresources.co.uk**

Instructions and scope of this report

My instructions are.

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- 1) To undertake a BSS 5837 (2012) survey of the trees on this site.
- 2) To provide a report commenting on the general condition of the trees, a tree survey schedule, a tree survey plan, root protection area plan and arboricultural impact assessment relevant to proposals to construct a new house on the site.

The location of the site is indicated on the appended plan. (SR 1) 1)

Instructions received from.

Roger Parry & Partners Ltd

Designations

I am informed that the trees on this site are protected by a Tree Preservation Order.

Tree survey

The trees were surveyed in accordance with British Standard Specification 5837 (2012). The Standard applies to trees whose diameters exceed 75mm measured 1.5 metres from the ground. The findings of the survey are appended and should be read in conjunction with SR 1. The drawing indicates the locations of the trees, the extent and shape of their crowns, and the BS 5837 category into which they have been placed. The survey method is described in BSS (2012) "Trees in Relation to Construction." A detailed inspection of individual trees with respect to decay, defects and hazards was not made. Neither were investigations undertaken to determine the impact of the trees on existing structures both within and outside the boundaries of the property. Such inspections and investigations fall outside the scope of BSS 5837.

Site description

The site occupies part of a field to the east of some agricultural buildings. The land slopes gently eastwards and the presence of two over mature fruit trees suggest that it might have once been an orchard or managed for a different purpose.

Arboricultural Impact Assessment

Development proposals prepared by Roger Parry and Partners are indicated on the drawing SR02. The drawing indicates that Tree 4 must be removed in order to accommodate a new drive to the property.

BSS 5837 describes a Root Protection Zone (RPZ) and the tree it encloses as concentric circles. For single stemmed trees the radii of RPZs are assumed to be twelve times the diameters of the enclosed trees, and for multiple stemmed trees the radii are derived from the square root of the squared sum of the diameters of the stems. Irrespective of these rules, the Standard indicates that the radius of an RPZ should rarely (if ever) exceed 15 metres. The area and shape of an RPZ may be changed if local conditions dictate or the tree's condition indicates that a larger zone is required. The circles indicated by the broken red lines on SR02 show the boundaries to the Root Protection Zones of the retained trees. They indicate that the RPZs of Trees 1, 2, and 3 will be breached by development.

Where canopy spreads of trees unaffected by development exceed their RPZ boundaries it may be preferable to extend the RPZ to the edge of the canopy boundary. This affords greater root protection and ensures that canopies are less likely to be damaged during construction. SR02 shows the boundaries of Tree Protection Zones (TPZs) which enclose trees unaffected by development. Subject to compliance with the following method statements the development proposals are not considered to present a major threat to any of the retained trees.

Arboricultural Method Statements

Preconstruction tree protection

Prior to redevelopment the trees indicated on SR02 shall be enclosed by fencing erected along the TPZ boundary lines indicated on this plan. White painted wooden marker pegs whose locations shall be checked by the competent person responsible for the protection of the trees, shall be driven into the ground along these boundaries. Where existing hard surfaces prevent the use of these pegs, boundaries shall be marked with paint. "Heras" type fencing is to be erected along the perimeters indicated by the marker pegs and paint. This shall be located a minimum distance of 25mm from the boundary marks and comply with the Tree Protection Fence described in BSS 5837 (2012). The area enclosed by this fencing is described in the following text as the protection zone.

SR02 indicates that the RPZs of Trees 1,3, 5 and 6 overlap an existing track which provides access to the development site and other land to the north. The ground crossed by this track is higher than the ground on which the trees are situated and it is retained by a wall which runs very close to the trunk of Tree 6. The land retained by this wall is compacted and stone has been laid into the track crossing it. Whilst these features make this ground hostile to tree roots they may occur beneath it.

Prior to construction work commencing Trees 2 and 4 shall be removed. The trees may be dismantled or felled into the field away from their neighbours to avoid collateral canopy damage. Stumps shall either be left in situ or ground down to 100mm below ground level. Under no circumstances shall they be removed by excavating. Dead and other unsafe wood shall be removed from the canopies of the trees adjacent to the access track in accordance with BSS 3998. All tree work shall be carried out by competent qualified tree surgeons.

To avoid damaging areas of root protection zones crossed by the proposed driveway a no dig construction method shall be followed, specifically.

- (i) Loose surface material shall be scraped off by hand and any tall vegetation shall be cut by hand or flails and the arisings shall be disposed of offsite.
- (ii) Existing ground levels shall not be lowered. Where the ground is uneven it shall be built up using inert granular fines or top soil.
- (iii) A water permeable geotextile membrane shall be laid over the ground.
- (iv) Loading which would otherwise result in ground compaction and damage shall be dissipated within the RPZs by the installation of ground protection comprising Cellweb or a similar cellular confinement system laid over the geotextile membrane and filled with washed no fines stone. Further specifications relevant to the use of Cellweb are available at http://www.geosyn.co.uk/products/cellweb-trees.asp?product_id=21.

The area over which these specifications apply is indicated on the drawing SR02. Plant used to install the drive way shall work into the site by installing the full ground protection system in front of it. Under no circumstances are machines to cross unprotected areas of RPZs.

Throughout the construction stage access to the site shall be restricted to this route.

Although it may be tempting to construct a temporary access to the site by breaching the boundary near to Trees 7 and 8, access shall only be via the track indicated on SR03.

Working methods relevant to the development stage

The following specifications apply to working methods and practices on the whole site. Their purpose is to reduce damage to retained trees.

Water levels shall remain unchanged in the protection zones. Permeable surfaces may be used where surface water is unlikely to be contaminated by

toxins. Land drainage may be required if excess water is likely to accumulate, but drains should not be located within root protection areas.

Fires shall not be lit within 20 metres of trees or at times when smoke and flames may be driven into their canopies.

Work is to be planned to avoid the contamination of protection zone through the discharge of chemicals, oils, fuels and mixer washings. Any liquid materials spilt on site will be removed immediately.

When planning work, care shall be taken to ensure that wide or tall loads, and plant with booms, jibs and counterweights can operate without coming into contact with trees.

Plant moving or working near to trees shall be supervised by a banks man to ensure that adequate clearance is maintained at all times. Where this cannot be maintained, trees may be pruned, but subject to the work being specified and supervised by an arboriculturalist. Particular care shall be taken to ensure that the canopies or trunks of trees adjacent to the access route are not damaged by construction traffic.

Notice boards, telephone cables or other services shall not be attached to trees.

No materials, vehicles, plant or personnel will be permitted into protection zone at any time without the prior written consent of the Local Authority Arboricultural Officer.

Working methods relevant to additional unforeseen breaching of Protection Areas

The Contractor will notify the Client, Arboricultural Consultant and Local Authority Arboricultural Officer of any proposals to breach the Protection Zones. In such circumstances the extent of breaching shall be agreed with the supervising arboriculturalist and Local Authority Arboricultural Officer.

Breaches shall be the minimum required to permit development. Within affected areas measures to reduce soil compaction and contamination shall comprise.

- i) Protecting the ground in accordance with BSS 5837.
- ii) Gaining access by using loaders, telescopic platforms and other lifting or access equipment to reach into the breached area from outside the Protection Area boundary.
- iii) Removing all building waste materials from the Protection Zone at the end of each working day.

iv) Storing building materials, plant and machinery outside the breached areas.

Post Development Protection, general tree protection, site works and landscaping

Introduction

This section provides specifications for works which may be undertaken over the whole site including landscaping within the Protection Zones.

Weed control

Where required, ground cover vegetation shall be killed using an appropriate contact herbicide.

Levels

Soil surfaces shall not be skimmed to establish new levels. Loose organic matter and/or turf shall be removed and new surfaces established above former levels. An inert granular fill may be used to raise levels within Protection Zones. Suitable granular materials include, no-fines gravel, washed aggregate, or cobbles. If necessary load suspension layers such as a cellular confinement system may be installed.

Soil, gas and water

To maintain soil gas and water levels new impermeable surfacing within the protection zone shall not exceed a maximum width of 3 metres and shall be situated tangentially to one side of the tree, or confined to an area no greater than 20% of the trees' root protection area. Permeable surfaces may be used where surface water is unlikely to be contaminated by materials toxic to trees. If contamination is likely, an impermeable surface may be specified.

Drainage

Soil drainage shall remain unchanged, except in areas where it is already impeded by inadequate or excess water is likely to accumulate.

Future growth

Where paths and other structures have to be placed near to trees, their design and construction should allow for future growth. Roots below structures may be bridged and sufficient space left for their future growth.

Completion of the access drive breaching the RPZs .

The drive shall be completed by surfacing with a layer of washed no fines gravel. If the sub- base is heavily contaminated with soil it may be covered by a water permeable geotextile membrane before surfacing. The level of the drive may be raised by installing additional Cellweb or similar and filling this with no fines stone. The extent of the area shown on SR02 as being covered in Cellweb exceeds the area of the drive. This is to protect the trees during the construction phase. After construction, Cellweb outside the area occupied by the drive shall be removed and the ground lightly forked over to restore it to its former condition.

Hard surfaces and their suitability in proximity to trees

If a hard surface is proposed it should be permeable and gas-porous. Suitable products and specifications for their use are discussed below.

Washed gravel

Unconsolidated washed gravel retains its porosity and is useful where changes of level occur or an irregular shape is needed around the stem of a tree. Gravel is easily renewed or topped up. Although it can be colonised by weeds, these are easily controlled.

Paving slabs and blocks

These can be laid with spaces left between individual slabs and blocks to allow air and moisture to penetrate the root zone.

Concrete and bitumen paving

These form impermeable surfaces, therefore falls and openings should be provided to enable water and air to enter the soil. This can be achieved by forming 50 mm diameter holes in the slab. The holes should be regularly spaced at 300–600 mm (as determined by an engineer) and back-filled with washed gravel or aggregate.

Edge supports to hard surfaces within Protection zones

Timber boards may be used to provide edging for light structures, such as footpaths. Additional support on slopes may be provided by gabions. Supporting structures may be linked or pinned together.

Remedial tree surgery

Remedial treatment of trees damaged during construction work may be required. The work shall be specified by the Contract Administrator and carried out in accordance with BSS 3998.

New planting and amelioration of existing planting sites

Amelioration work to improve soil conditions and the introduction of fertiliser and suitable mycorrhizae might assist the establishment and growth of existing and new trees.

Pruning shall be carried out by a competent person and completed in accordance with BSS 39338. Consideration may be given to removing other branches from the lower canopy in order to achieve a more symmetrical and balanced crown. No more than three whorls of branches shall be removed from the lower canopy.

Prepared by J C Terry, MSc, MICFor, MRICS, CEnv

September 2012

References

BSI, BSS. 5837 (2005) Trees in Relation to Construction.

BSI BSS 3998 Recommendations for Tree Work

Sylvan Resources

Site: **Pont y Blew**

Tree Survey Schedule

Surveyor: **J Terry**

date of survey: **14/09/2012**

KEY TO NOTATIONS USED

KEY:

STEM D = Stem diameter (mm) at 1.5m above ground level

BRANCH S = Branch spread (m)

C.C = Height of crown clearance (m)

R.C = Remaining Contribution (yrs)

AGE CLASS:

Y = Young

M = Middle aged

Ma = Mature

O = Over mature

Veteran

Category Grading

A = High quality & value

B = Moderate quality & value

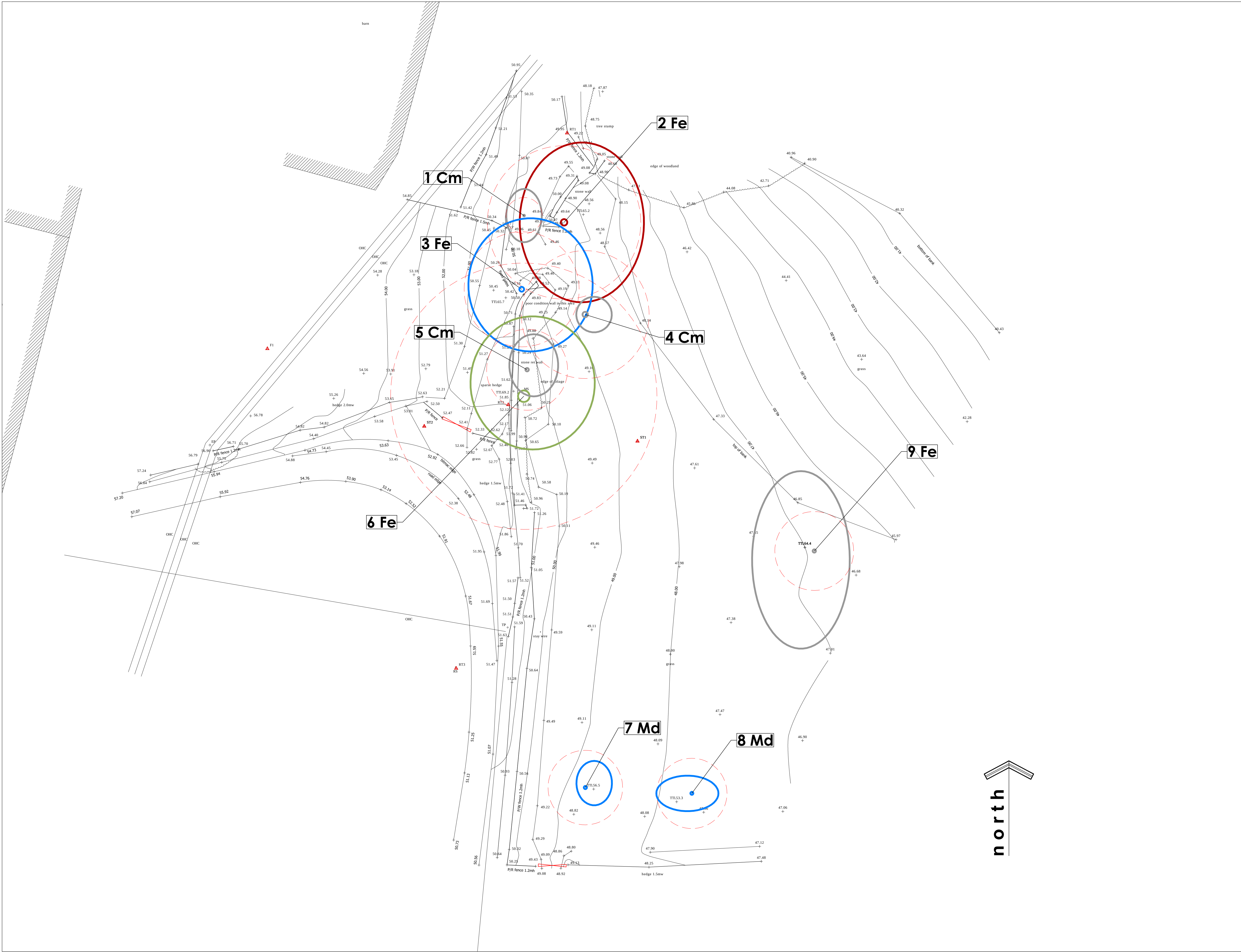
C = Low quality & value

R = In need of removal

Notes Tree have been graded in accordance with the opinions of the local authority tree officer.

V =

NO	SPECIES	HEIGHT m	STEM DIAMETER mm	RPZ's	BRANCH SPREAD m				AGE CLASS	C.C m	PHYSIOLOGICAL CONDITION	STRUCTURAL CONDITION	R.C	PRELIMINARY MANAGEMENT /COMMENTS	CATEGORY GRADING
					N	E	S	W							
1	Crataegus monogyna Hawthorn	9.0	170	2.04	3	2	3	2	Ma	0.6	Good	Multistemmed from base, former hedge plant.	20-40	No action required	C
2	Fraxinus excelsior Common ash	20.0	720	8.64	9	9	9	5	O	2.0	Extensive basal decay with fungal fruiting bodies. Lost scaffold to east, shattered scaffold to west.	Safety may be compromised by decay.	5+	Monitor and review.	U
3	Fraxinus excelsior Common ash	18.0	540	6.48	8	8	7	6	O	4.0	Occluded wire and gate hinge. Decay in trunk,	Stability may be compromised by decay in trunk.	10+	Monitor and review.	B1
4	Crataegus monogyna Hawthorn	7.0	600	7.2	2	3	2	1	Ma	0.0	Good	Multistemmed from base, former hedge plant.	10-20	No action required	C
5	Crataegus monogyna Hawthorn	8.0	380	4.56	4	3.5	3	2	Ma	0.0	Good	Multistemmed from base, former hedge plant.	10-20	No action required	C
6	Fraxinus excelsior Common ash	20.0	1300	15.6	9	8	6	6	Ma	0.6	Good	Good	10-20	No action required	A2
7	Malus domestica Apple	9.0	350	4.2	3	3	2	1	O	1.2	Very poor, extensive decay in stem, low vigour	Stability may be compromised by decay	10+	No action required	B3
8	Malus domestica Apple	8.0	330	3.96	2	3	2	4	O	1.2	Decay in north scaffold limb extending into the trunk	Stability may be compromised by decay	10+	No action required	B3
9	Fraxinus excelsior Common ash	20.0	370	4.44	9	4	11	7	O	4.0	Basal fungal decay, dead wood in canopy which is mostly defoliated.	Stability may be compromised by decay	5+	Consider removal	C2



KEY

Tree Survey and Tree Categorisation carried out in accordance with: BS 5837:2012 'Trees in relation to construction recommendations'

Trees / groups of trees of high quality and value (Grade A): estimated remaining life expectancy of at least 40 years.

Trees / groups of trees of moderate quality and value (Grade B): estimated remaining life expectancy of at least 20 years.

Trees / groups of trees of low quality and value (Grade C): estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

Trees / groups of trees to be considered for removal (Grade 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.

Tree reference number & species: to be read in conjunction with Sylvan Resources Tree Survey Schedule dated 14/09/12 carried out by JT. Abbreviations to species listed below.

TREE SPECIE KEY
Cm Crataegusmonogyna (Hawthorn)
Fe Fraxinus excelsior (Ash)
Md Malus domestica (Apple)

This tree survey was carried out by JT, Sylvan Resources on 14/09/12.

ROOT PROTECTION AREAS

Root Protection Area (RPA): root protection area radius typically equivalent to 12 times the stem diameter of a single stem tree and 10 times the basal diameter of a multi stemmed tree. See Sylvan Resources Tree Schedule dated 14/09/12.

NOTES

This Tree Survey has been based on Wilmac Geomatics Topographical Survey 542-0313-T
Drawings to be read in conjunction with:
SR01 Tree Survey
SR02 Tree Removal, Retention & Protection

THIS DRAWING SHOULD BE PLOTTED IN COLOUR

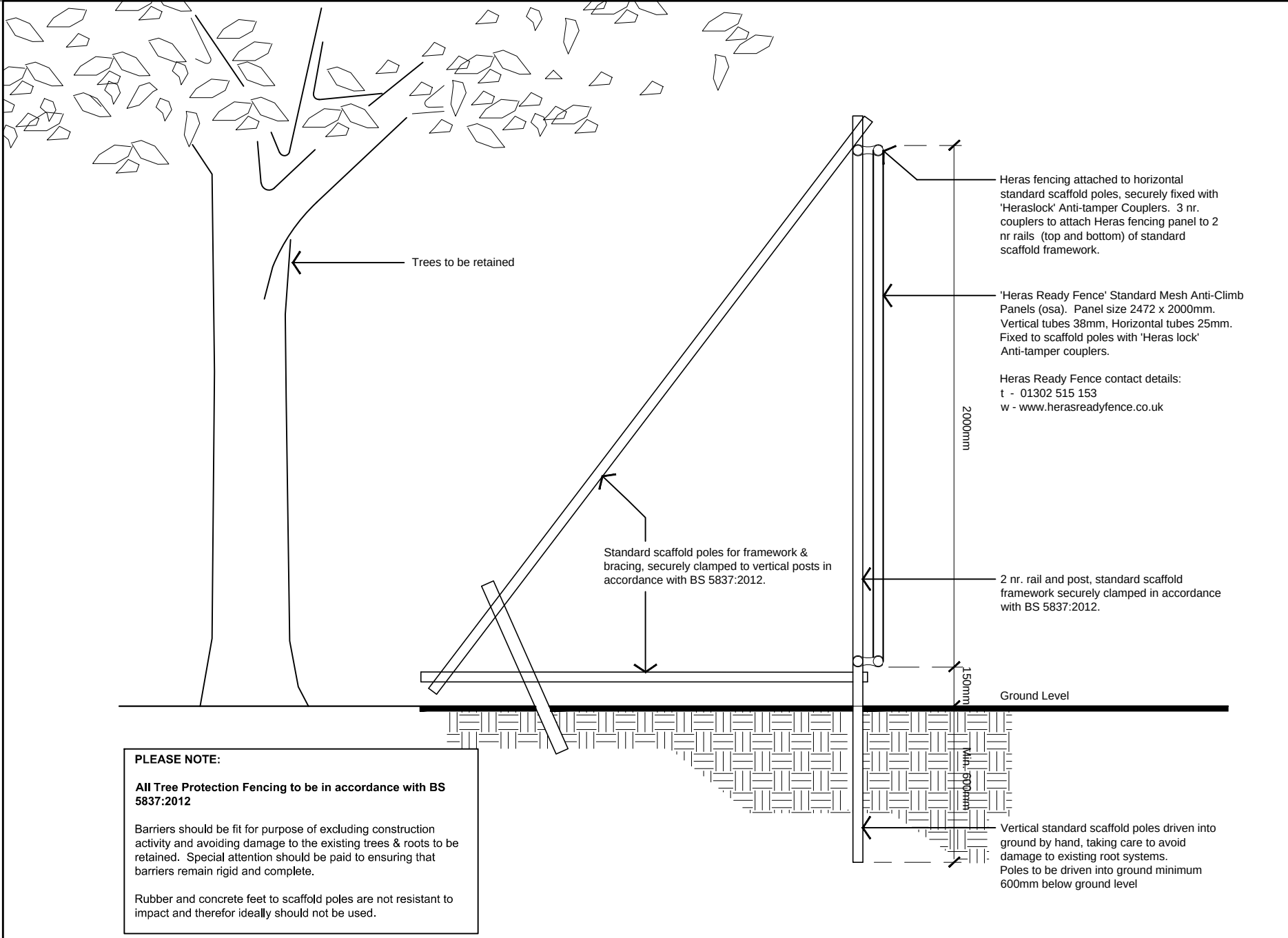
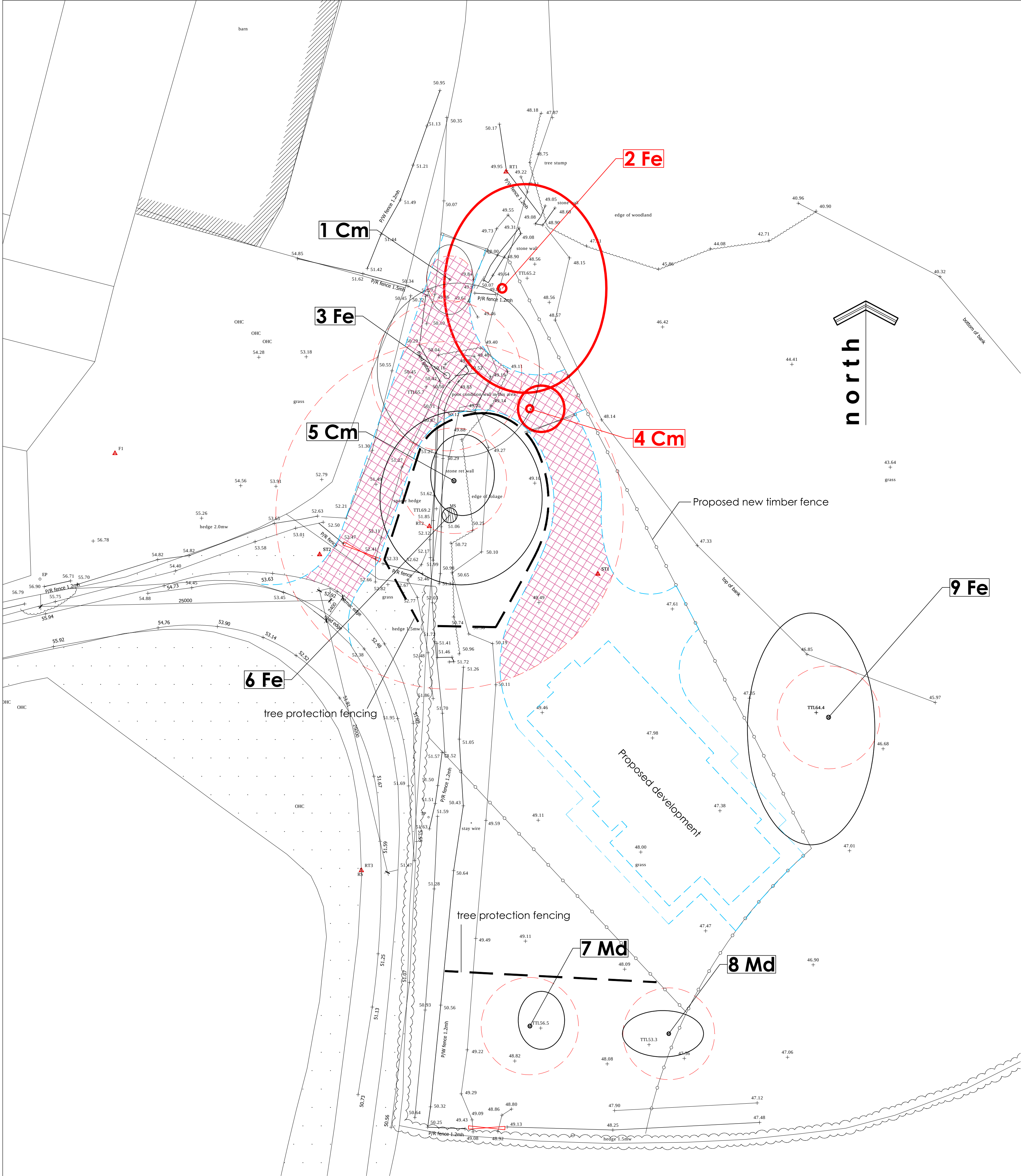
Sylvan Resources
Environmental Consulting
Forestry & Arboriculture • Planning • Litigation

Dog Field House
Abcoit
Clunjunford
Craven Arms
Shropshire SY7 0PX

t: 01588 660 547
m: 07977 187 399
e: jon@sylvanresources.co.uk

client:	Roger Parry & Partners LLP Shrewsbury, SY5 0HZ		
project:	JE Evans & V Evans & Son Ponty Blew Chirk, Wrexham, LL14 5BH		
drawing:	TREE SURVEY		
drawing no:	SR01	rev: -	scale: 1:200 @ A1 date: 27.06.13

NOTE: Do not scale from this drawing. Discrepancies between this drawing and information given elsewhere must be reported to Sylvan Resources for clarification before proceeding.
THIS DRAWING IS NOT FOR CONSTRUCTION



F1. TYPICAL HERAS TREE PROTECTION FENCING DETAIL
1:20 @ A1

KEY
Tree Survey and Tree Categorisation carried out in accordance with: BS 5837:2012 'Trees in relation to construction recommendations'

- Trees to be retained and protected during construction period to BS 5837: 2012 .
- Tree reference number & species: trees to be retained.
- Trees to be removed.
- Tree reference number & species: trees to be removed.

Tree reference number & species:
to be read in conjunction with Sylvan Resources Tree Survey Schedule dated 14 / 09/2012 carried out by JT. Abbreviations to species listed below.

TREE SPECIE KEY
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ROOT PROTECTION AREAS

- Root Protection Area (RPA):**
root protection area radius typically equivalent to 12 times the stem diameter of a single stem tree and 10 times the basal diameter of a multi stemmed tree. See Sylvan Resources Tree Schedule dated 14 / 09/ 2013.
- Location of proposed Cellweb within construction working area of RPA's:**
ground to be covered with Cellweb (osa) containing inert granular fill in accordance with manufacturers recommendations.

TREE PROTECTION FENCING

- Location of proposed Heras tree protection fencing:**
Min. 2.0m high Fencing to comply with BS 5837:2012. See typical Detail F1.

Tree Protection Fencing - Notes
All tree protection fencing to be in accordance with BS 5837:2012. Wherever site constraints allow - tree protection fencing to be erected along boundaries of Root Protection Areas or a minimum of 1.0m outside of the existing tree canopy - whichever is greatest.

Once erected, all protective fencing should be regarded as sacrosanct, and should not be removed or altered without approval by the Planning Authority.

All weather notices should be erected on the tree protection barriers saying 'Protection area - No operations within Fenced Area'.

At all times care should be taken to avoid any equipment striking the trunk, branches or foliage. No rubbish, debris, topsoil, machinery etc. to be stored within the compounded area of the tree protection fencing.

- Outline of Proposed Development.**

NOTES

This Tree Survey has been based on Wilmac Geomatics Topographical Survey 542-0313-T
Drawings to be read in conjunction with:
SR01 Tree Survey
SR02 Tree Removal, Retention & Protection

THIS DRAWING SHOULD BE PLOTTED IN COLOUR

Sylvan Resources
Environmental Consulting
Forestry & Arboriculture • Planning • Litigation

Dog Field House
Abcott
Clunjunford
Craven Arms
Shropshire SY7 0PX

t: 01588 660 547
m: 07977 187 399
e: jon@sylvanresources.co.uk

client:	Roger Parry & Partners LLP Shrewsbury, SY5 0HZ		
project:	JE Evans & V Evans & Son Ponty Blew Chirk, Wrexham, LL14 5BH		
drawing:	TREE REMOVAL, RETENTION & PROTECTION		
drawing no:	SR02	rev: -	scale: 1:200 @ A1 date: 23.07.13

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