

MYNYDD TIMBER SERVICES LIMITED

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Company Number 5250394

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Pre-development Arboricultural Report (Final)

For:

Greenearth Hydro

(Mr Dylan Jones – Ty Mawr, Malwyd)

05th March 2023

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1. BACKGROUND INFORMATION

1.1. Description of Proposed Development.

Installation of a micro hydro scheme with intake weir, penstock and power house in Nant Llyn Coch-hwyad, and the installation of underground cable to transmit power to upgraded transformer by farm buildings at Ty Mawr, Mallwyd.

1.2. Brief.

To carry out a tree survey in accordance with BS 5837 2012, in order to assess the implications posed by any arboricultural features on the site in relation to the above development, and to detail any necessary measures to be taken in order to both facilitate the development, to protect any arboricultural features that are to be retained and to mitigate for any losses.

1.3. References:

The British Standard Institute publication: BS 5837:2012 ‘Trees in relation to design, demolition and construction - Recommendations’ is referred to throughout this report. This is a nationally recognised standard typically used by Local Planning Authorities (LPAs) to assess planning applications. It is frequently referred to in planning conditions to enforce protection or control of works that may be harmful to trees both on and off the site.

1.4. Terms and Definitions

- 1.4.1. Arboricultural Impact Assessment (AIA) – Evaluates any constraints found in the survey in relation to the proposed development.
- 1.4.2. Arboricultural Method Statement (AMS) – Demonstrates how any operations in close proximity to trees that are to be retained can be carried out with minimal adverse impact.
- 1.4.3. Root Protection Area (RPA) – These represent below ground constraints. Work in these areas works should be avoided where possible. Where work in these areas cannot be avoided, it should be carried out in accordance with an Arboricultural Method Statement.
- 1.4.4. Tree Constraints Plan (TCP) – This plan shows above and below ground constraints that may impact on a planning proposal such as the tree branch spread and Root Protection Areas.
- 1.4.5. Tree Protection Plan (TPP) – This shows the layout of protective measures for retained trees. This drawing is intended to be used for planning purposes and also as a reference on-site.

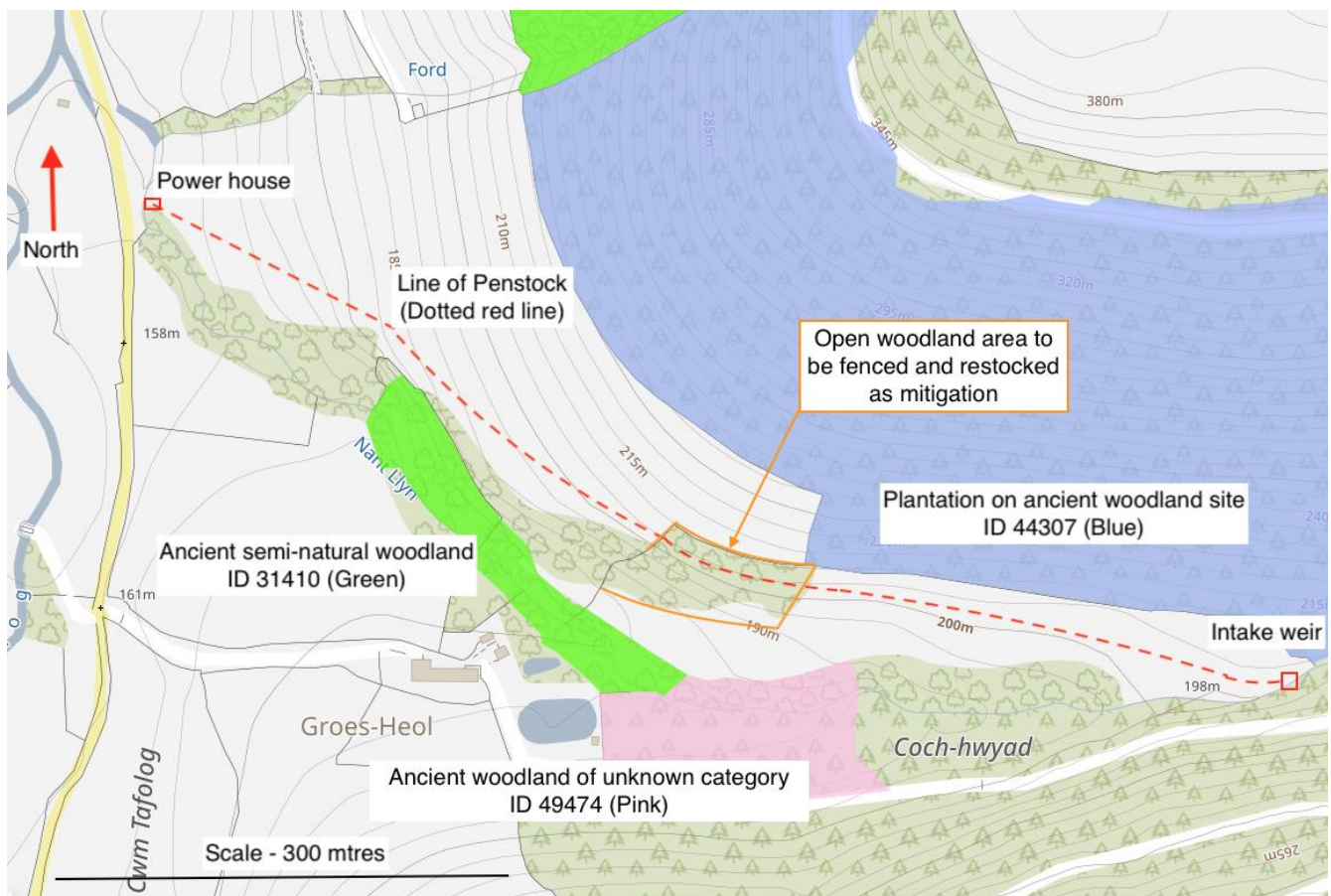
2. EXECUTIVE SUMMARY [SEP]

2.1. Survey.

A site survey was carried out by Mynydd Timber Services on 27th February 2023 . A total of 54 arboricultural features were recorded, including 48 trees, 3 groups of trees and 3 hedgerows. The majority of the trees recorded are recorded as individuals. [SEP]

The area consists of open fields, hedgerows, riparian woodland. The trees in the upper area of the development form a linear woodland edge and an area of semi-natural woodland through which the Penstock will be routed.

The adjacent woodlands consist of a Plantation on Ancient Woodland Site (PAWS) to the north (Unique ID 44307), an Ancient Semi Natural Woodland (ASNW) to the South (Unique ID 31410) and also an Ancient Woodland Site of Unknown Category (AWSUC) also to the South (Unique ID 49474). The proposed development does not impact on these features.



The open woodland area has little in the way of regeneration and the Ash trees in this area are infected to some degree with Ash Dieback.

There is a mix of trees, consisting of native and naturalised species, mostly mature or over

mature with no regeneration within the heavily grazed woodland area. The majority of the trees were assigned category B and C with 38 category B and 11 category C, 4 category U and 1 category A tree.

The proposed development will impact the RPA's of 3 hedgerows and 5 trees where the underground cable is installed to transmit power from the powerhouse to an uprated transformer at Ty mawr farm.

The Power house and outfall pipe will require the removal of Sycamore pollards (T16).

The installation of the underground penstock will not impact any trees, and where it approaches Ash (T22), it will be raised to rest on the ground surface whilst it runs through the area of open woodland. The penstock will again be buried as it exits the woodland. It will impact the RPA of Alder (T49) before reaching the intake weir.

The construction of the intake weir will require the removal of a large Sycamore (T50) and two semi-mature Ash (T51 & T52).

3. ARBORICULTURAL IMPACT ASSESSMENT.

3.1. Introduction.

BS 5837:2012 provides a methodology for determining the above and below ground constraints presented by trees on and adjacent to the site. These have been recorded on the following appended documents.

3.2. Associated Documents.

3.2.1. Tree Constraints Plan (TCP) Appendix I

3.2.2. Tree Survey Data Table Appendix VII

3.3. Tree Survey.

3.3.1. Survey Methodology.

Data was collected in accordance with the requirements of British Standard 5837:2012. All observations were from ground level without detailed or invasive investigations. Measurements were taken using a diameter tape and laser measure. Where this was not possible or reasonably practical, measurements have been estimated by eye. ^[L]_[SEP]

The trees were surveyed and assessed impartially and irrespective of the proposed development. Management recommendations should be implemented regardless of any proposed development for reasons of sound arboricultural management or safety. ^[L]_[SEP]

Appendix II shows the methodology set out in BS5837:2012 for categorising trees according to their quality.

BS 5837:2012 requires retention of better quality (category A and B trees) where possible.

Planning permission overrides a Tree Preservation Order and Conservation Area. Furthermore, trees are a material consideration in the UK planning system irrespective of their legal status. It is therefore not considered necessary to highlight or give additional merit to trees that have legal protection. Trees in land adjacent to the site are considered where they may be impacted by development. For example when roots or branches encroach onto the site.

Trees may be recorded as a tree group or woodland where the canopies touch, the trees have more group value than individual merit, they are part of a formal landscape feature like an avenue, or it is impractical to record them individually. Trees within groups or woodlands etc. are only recorded individually where it is necessary to distinguish them from others.

- 3.4. Arboricultural Implications. (Starting from the new transformer by Ty Mawr farm and working towards the intake weir in Nant Llyn Coch Hywad).
 - 3.4.1. The underground (U/G) cable will be routed through a hedgerow at a gateway where it will impact the RPA of the hedgerow (H1).
 - 3.4.2. The U/G cable will be routed to the west side of the gateway in the vicinity of T2 and H3. It will avoid the RPA of the Oak (T2) but will impact the RPA of hedgerow (H3).
 - 3.4.3. The U/G cable will be routed between two Ash coppice stands. It will not impact the RPA's of either.
 - 3.4.4. The cable will cross the Afon Tafalog via a girder bridge and will be buried between the RPA's of Hazels T8 and T9. It will have a minor impact on the RPA of Hazel T9, but as the tree is rooting lower on the river bank, it is not likely to be significantly impacted.
 - 3.4.5. The cable will cross Hedgerow (T10) through a natural gap, but may impact the RPA of the hedgerow to either side.
 - 3.4.6. The cable will be buried on the riverside bank on the west side of the Afon Coch-hwyad before crossing the river on a girder bridge. It may impact the RPA of the mature Oak (T11).
 - 3.4.7. The cable and tailrace with its associated retaining wall will impact the RPA of Sycamore pollards (T16).
 - 3.4.8. The buried penstock will be routed to avoid impacting the RPA of the broadleaf woodland on the north side of Afon Coch-hwyad up to the vicinity of Peg 300. The larger trees on this section have been sampled, both Ash (T20 and T21) to give an indication of the likely extent of the RPA's of this woodland edge.
 - 3.4.9. The penstock will emerge onto the surface outside the RPA of Ash (T22) and rest at ground level. On this steep side-slope, the penstock will be maintained in position with metal stakes (25mm solid steel bars) driven in on the down-hill side to prevent movement. The penstock will be laid to avoid

contact with any tree stems and will rest on the RPAs of T22-T47. Where any large roots are exposed on the ground, the penstock will be supported off the roots by packing beneath the penstock either side of the root.

- 3.4.10. The installation of the penstock may require the removal of Oak (T40) and Hazel (T42), both fallen stems lying across the route of the penstock.
- 3.4.11. The penstock will be buried again from peg 300 to the intake weir. The buried penstock is routed far enough to the north of the riparian woodland to avoid impacting the RPA's of these trees, as indicated by Alder (T48), the largest and closest of these trees.
- 3.4.12. The excavation for the buried penstock will impact the RPA of the Alder (T49), and its lower branches on the north side may be impacted by machinery opening the trench
- 3.4.13. The construction of the intake weir will require the removal of large mature Sycamore (T50) and two diseased Ash trees (T51 and T52)

3.5. Tree Protection Measures Required.

- 3.5.1. Tree protection fencing as detailed on the Tree Protection Plan and tree protection measures as detailed in the Arboricultural method statement to prevent damage to retained stems.
- 3.5.2. Ground protection as detailed on the Tree protection plan.
- 3.5.3. Pruning of 3 Trees, Oak (T15) with damaged and hanging branches to the SE of the power-house, Alder (T18) with large crown heavily weighted towards the power house. And Alder (T49) who's lower branches may obstruct the excavation of the trench for the penstock on its north side.
- 3.5.4. Removal of 6 trees, one Category B tree (Sycamore pollard (16) and Sycamore T50) and four Category U trees (Wind blown Oak (T40) and Hazel (T42) and diseased Ash (T51 & T51)
- 3.5.5. Supervision of all works as detailed in the Arboricultural Method Statement.

The arboricultural impact is relatively low, and can be mitigated with the tree works detailed in the Tree Works Schedule, the protective barriers as shown on the Tree Protection Plan and the arboricultural supervision as set out in the Arboricultural Method Statement and by mitigation and re-instatement measures (Fencing and restocking woodland area) as mentioned in 4.6.

4. ARBORICULTURAL METHOD STATEMENT

- 4.1. Description of intended works in close proximity to trees.

- 4.1.1. From Transformer to Power-house- Installation of underground Low Voltage cable with associated river crossings to the Power-house. This will involve the excavation within RPA's and should be supervised by an arborist, ready to prune any exposed roots if exposed.
- 4.1.2. Erection of Power-house and headwall for Tail-race pipe. Preliminary work will require the removal of dangerous branches from Oak (T15) and the pollarding at 6m and the removal of its lower branch (South side) of Alder (T18) to reduce the probability of injury to personnel and damage to equipment. The installation of the tail-race will require the removal of Sycamore pollards T16 and the excavations may expose roots from T15 and T18 which would require careful pruning by an arborist.
- 4.1.3. The installation of the underground Penstock from the Power-house eastwards will avoid the RPA's of the woodland edge, and when the penstock reaches the vicinity of Peg 465, the penstock will emerge onto the surface.
- 4.1.4. From the vicinity of Peg 465 the penstock will lie on the ground surface and be routed through the woodland area to avoid contact with the stems and buttresses of retained trees. Two fallen trees, an Oak (T40) and a Hazel (T42) are across the route of the Penstock, and may have to be removed to facilitate the installation. It will be necessary to protect the tree stems on the lower side of the penstock during the installation phase by wrapping the stems in an abrasion resistant mat (Piece of rubber matting strapped around the stem) extending up the tree stem to 600mm. This mat can be moved once the retaining stakes are in place and the Penstock cannot move.
- 4.1.5. The Penstock should be retained on this steep side slope by the installation of solid steel stakes (25mm Dia) driven into the ground on the down hill side of the penstock at appropriate intervals to prevent any movement of the penstock and to keep the penstock from contacting and abrading any retained tree stems. These stakes should be as far as possible away from tree stems, to avoid damage to roots. If any surface roots become exposed during the installation of the penstock through the woodland, the penstock should be raised and packed out on both sides of the roots to reduce any pressure and abrasion on the roots.
- 4.1.6. From 10m East of Peg 300, the Penstock will again be buried, and will avoid impacting the RPA's of the riparian woodland by keeping to the indicated route. It will impact the RPA of outlying Alder (T49) and the branches on the north side of the canopy may obstruct access for machinery. It should be possible to retain this tree give the limited amount of RPA affected, and the limited amount of side pruning which will require a 2 metre reduction of branches on north side of tree.
- 4.1.7. The construction of the intake weir and its wings will require the removal of mature Sycamore (T50) and two Ash trees (T51 and T51) These trees will require careful removal due to the limited space, the lean of the trees, and the potential weakness of the Ash trees which are affected by Ash Dieback and may be extremely brittle.

4.2. Tree Works.

4.2.1. All tree works should be carried out by professional arboricultural contractors with appropriate qualifications, experience and public liability insurance. The work should be carried out in accordance with British Standard document number 3998:2010 “Recommendations for Tree Work”.

4.2.2. Where possible, all arisings should be retained on site, in the case of branch wood and stems over 100mm in diameter, these should be cut into handle-able lengths, no longer than 1 meter long, and stacked within area to be enclosed within tree protection barriers for retention as deadwood habitat.

4.2.3. Branch wood less than 100 mm in diameter should be stacked in “eco-piles” and allowed to break down naturally.

4.3. Excavations within Root Protection Areas.

4.3.1. Where the development footprint encroaches onto the RPA of any trees or hedges, any excavation should be undertaken with great care, and arboricultural supervision is advised for all works in this area. Any tree roots found during excavations, up to a diameter of 25mm can be pruned back with sharp secateurs leaving a wound of the smallest diameter possible. If any roots over 25mm are found, these must be retained undamaged, wrapped in Hessian and re-buried as soon as possible. Root pruning is to be carried out by the project arborist only.

4.4. Tree Protection.

4.4.1. Tree Protection Barriers.

The barriers shall be installed and removed in accordance with the timing of operations detailed below, and laid out as specified on the Tree Protection Plan. The notices detailed in Appendix V should be used to create all weather notices that must be fixed to the tree protection barriers at suitable intervals.^[1]_[SEP]

Appendix IV shows three specifications for tree protection barriers. The left hand diagram shows the default specification: A vertical and horizontal scaffold framework braced to resist impacts. The vertical tubes are spaced at a maximum interval of 3m and these are driven securely into the ground. Welded mesh panels are securely attached to the frame.

During installation it is important to consider the position of below ground services and structural roots, which must not be damaged. Where these constraints prevent the use of this specification, the following alternative specification should be used: 2 metre tall welded mesh panels standing in rubber or concrete feet joined using a minimum of two anti-tamper couplers installed so they can only be removed from inside the protected area. The fence couplers should be at spaced least 1 m apart, but uniformly across the whole barrier. These panels must be supported within the protected area with struts attached to a base plate secured by ground pins This specification is illustrated in Appendix IV (top right diagram).

Where the fencing is installed above retained hard surfacing and or it is otherwise not feasible to use ground pins (e.g. due to underlying services or structural roots), the struts can be

mounted on a block trays. This specification is illustrated in Appendix IV (bottom right diagram).

No alterations or variations shall be made to the approved tree protection measures without consultation with the project arboriculturalist.

4.4.2. Ground protection.

The objective of temporary ground protection is to avoid the compaction of soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root function is not impaired.

Temporary ground protection shall be installed and removed in accordance with the timing of operations detailed below, and located as specified on the Tree Protection Plan.

The temporary ground protection should be capable of supporting any traffic entering the site without being distorted or causing compaction of underlying soil.

For wheeled or tracked construction traffic exceeding 2 tons gross weight, pre-cast reinforced concrete slabs or other proprietary systems to an engineering specification designed to accommodate the likely load to which it will be subjected is required.

An example proprietary temporary root protection matting system is illustrated in Appendix VII.

4.4.3 Tree stem protection.

When the penstock pipeline is being installed through the woodland area as detailed in 4.1.4, it will be necessary to protect retained tree stems from mechanical damage caused by winch cables or the penstock itself abrading tree stems as the penstock is pulled through the woodland. A large heavy duty rubber mat (A piece of old conveyor belt 600mm x 1000mm) can be wrapped around any stems likely to be abraded whilst the installation is in progress, and then removed once the penstock has been stabilised by the placement of retaining metal stakes on the downhill side of the penstock.

4.5. Timing and order of operations.

4.5.1. The development must be carried out in the following order. Each step must be completed before moving onto the next:

1. Preliminary Tree Works as set out in the Tree Works Schedule.
2. Installation of Tree Protection Barriers and Temporary Ground protection as specified on the Tree Protection Plan.
3. Construction works undertaken in accordance with the Arboricultural Method Statement.
4. Removal of the remaining ground protection and barriers on completion of all works.

4.6. Mitigation and re-instatement.

4.6.1 In mitigation for the removal of trees as listed above, the Owners will fence off the wooded area through which the penstock passes at ground level with stock proof fencing, and underplant 50 saplings of native species (Oak , Rowan, Birch, Hawthorn, Holly) to offset the loss of trees, and to ensure a continuing tree cover in view of the future loss of Ash trees within this woodland. The saplings will be protected with guarding and stakes to prevent damage by rabbits and hares.

The exclusion of stock will also encourage the development of other ground flora and encourage regeneration of existing trees, which will reduce the visual impact of the pipe, and prevent the excessive erosion of the soil caused by livestock in the vicinity of the pipe.

Where hedgerows have been impacted, the hedgerow will be reinstated with Hawthorn and Blackthorn saplings planted in double rows at staggered 300mm centres, with the new plantings protected by temporary stock proof fencing.

4.7. Prohibited Activities.

The following must not be carried out under any circumstances:

Cutting down, uprooting, damaging or otherwise destroying any retained tree.

Lighting a fire within 10 metres of the canopy of any retained tree. ^[1]_[SEP]

Equipment, signage, fencing, tree protection barriers, materials, components, vehicles ^[1]_[SEP] or structures shall not be attached to or supported by a retained tree.

Mixing cement, use of chemical toilets and other use or storage of anything that would be harmful to trees shall not take place within, or close to a Root Protection Area (RPA). The distance away from the RPA must be sufficient, and the slope of the site must be such that contamination of soil in the RPA would not occur if there were spillage, seepage or displacement. ^[1]_[SEP]

No plant machinery or equipment or vehicle with a hydraulic arm such as a mini digger shall be operated within striking distance of the stem and branches or the RPA of any retained tree.

4.8 Arboricultural Supervision.

4.8.1 Arboricultural monitoring and supervision will be required as detailed in the table below:

Stage of Process	Requirement
Prior to commencement of works.	Preliminary arboricultural operations as detailed in Works schedule. Supervision of erection of tree protection

	fencing.
Excavation of trenches for U/G cable, Tail-race and Power-house and Intake Weir and wings.	Supervision of works by an Arborist (To deal with any exposed roots)
Installation of Penstock through Woodland area as detailed in 4.1.4	Supervision of works by an Arborist.
On completion of works.	Supervision of removal of tree protection fencing. Checking of levels and position of Penstock within woodland
Mitigation and Re-instatement as detailed in 4.6.1	Fencing off of woodland area where Penstock is on the surface Restocking /Enrichment planting, guarding and staking.

4.9 Responsibilities.

Successful implementation of tree protection measures and long term tree retention depends on co-ordination between the client and key personnel involved in the development. [L] [SEP]

4.9.1 The client and agent shall ensure that:

- The site manager and all other personnel are provided with this document; [L] [SEP]
- All planning conditions relating to underground works, services, trees and landscaping [L] [SEP] are cleared before development commences;
- All requirements of this Tree Protection Scheme are adhered to;
- The site manager is updated of any approved changes or variations to this document. [L] [SEP]

The client and site manager shall ensure that:

- A copy of this document together with the associated Tree Protection Plan is easily accessible for site personnel to refer to before and during the time construction activity is taking place;
- All personnel working on the site are made aware of the tree protection plan and arboricultural method statements covering any activities they

will undertake. This duty includes delegating the task of briefing personnel in the absence of the site manager;

- Site personnel are updated of any approved changes or variations to the approved tree protection measures;
- Personnel work in accordance with this document at all times, or in accordance with approved variation;
- The tree protection measures are left in place until the construction phase of development is completed.

4.6. Procedures for Incidents.

4.6.1. If any breach of the approved tree protection measures occurs:

The senior environment officer shall be immediately notified.

The site manager must be informed.

Swift action must be taken to halt the breach and prevent any further breach. [SEP]

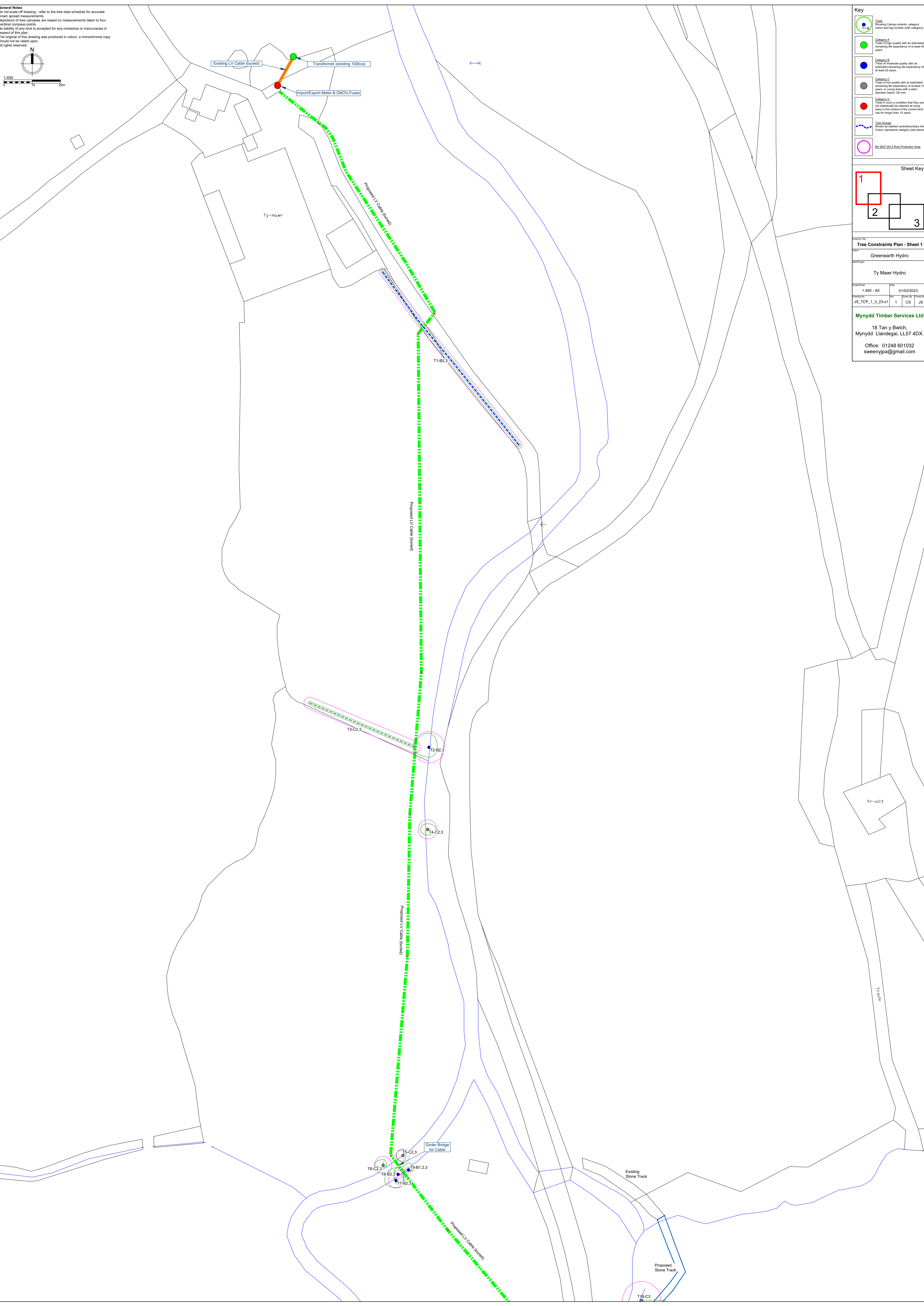
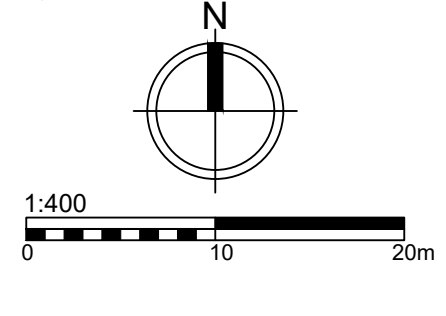
Damage mitigation measures appropriate to the scale of the incident will be deployed [SEP] where required. [SEP]

5. CONTACT INFORMATION

Name	Position	Address	Telephone
Mr Liam Brown	Project Engineer	Greenearth Hydro Ltd Shop Newydd, Rhiw, Pwllheli. LL53 8AE	01691648378 07980670046
Mr Dylan Jones	Client	Ty Mawr, Malwyd, Machynlleth, Powis SY20 9HS	
TBA	Project Arboriculturalist		

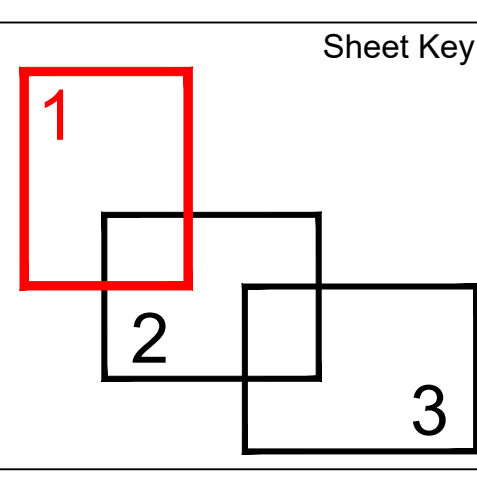
Appendix I: Tree Constraints Plans

General Notes
 Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.
 Depictions of tree canopies are based on measurements taken to four cardinal compass points.
 No liability of any kind is accepted for any omissions or inaccuracies in respect of this plan.
 The original of this drawing was produced in colour; a monochrome copy should not be relied upon.
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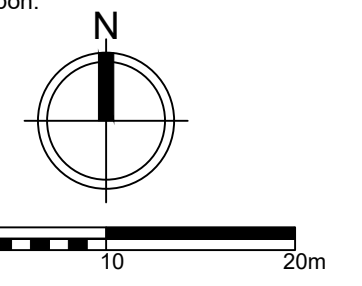
Key

- Tree
Showing Canopy extent, category colour and tag number (with category).
- Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- Category C
Trees of low quality with an estimated remaining life expectancy of at least 10 years. Of young trees with a stem diameter below 100mm.
- Category D
Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
- Tree Groups
Shown as dashed centreline/line. Colour represents category (see above).
- BS 5837:2012 Root Protection Area



Project No: **Tree Constraints Plan - Sheet 1**
 Client: **Greenearth Hydro**
 Site Name: **Ty Mawr Hydro**
 Scale: 1:400 - AD Date: 01/03/2023
 Drawing No: JS_TCP_1_3_23-s1 1 CS JS
Mynydd Timber Services Ltd
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Key

- Trees Showing Canopy extents, category colour and tag number (with category)
- Category A: Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B: Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- 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 50 mm.
- Category U: Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
- Tree Orange: Shown as dashed centreline boundary line. Colour represents category (see above).
- BS 5837:2012 Root Protection Area

Sheet Key

Tree Constraints Plan - Sheet 2

Greenearth Hydro

Ty Mawr Hydro

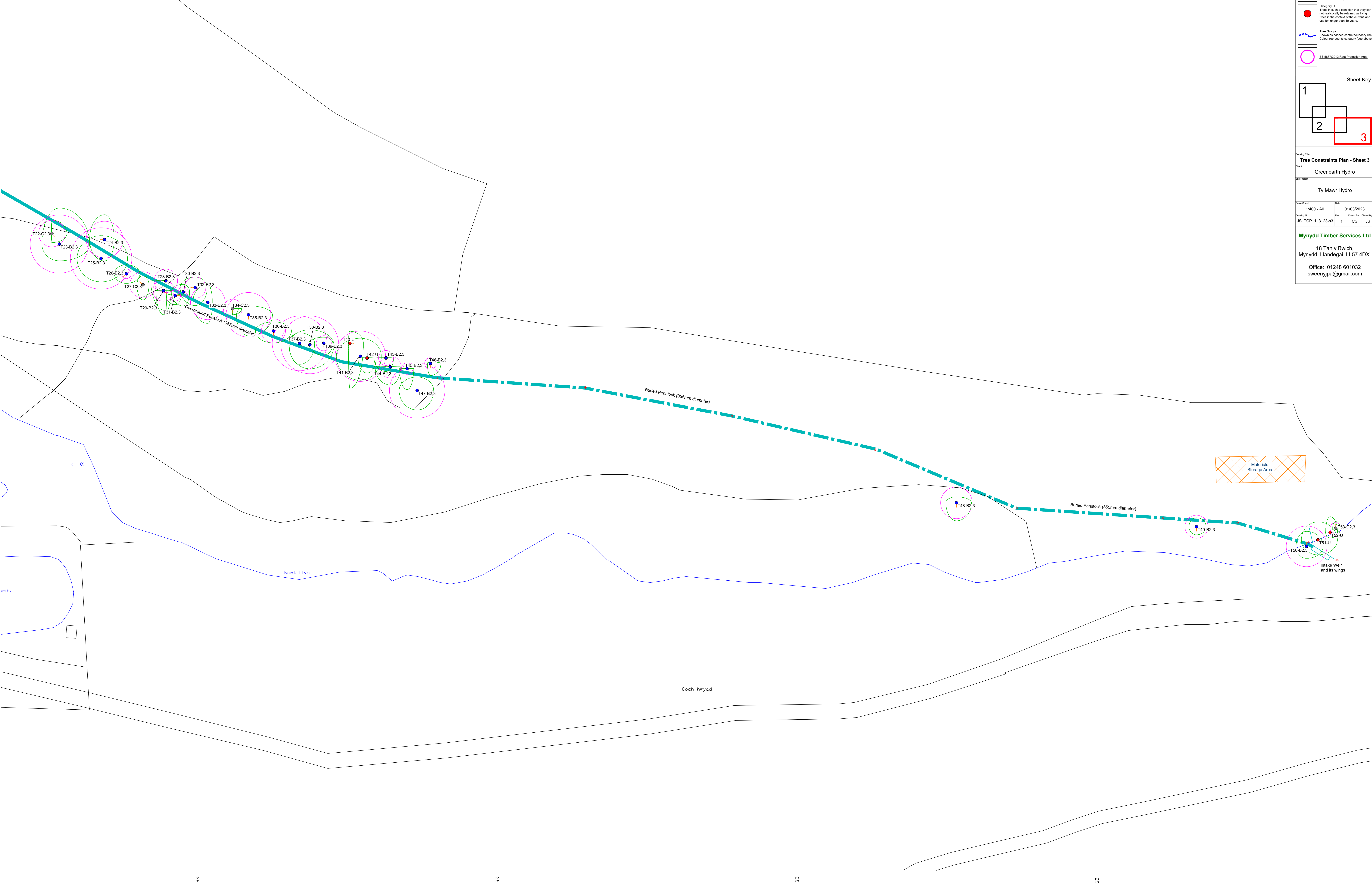
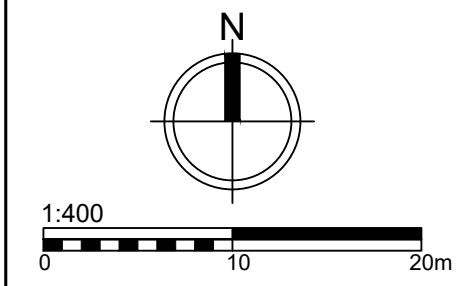
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Author: JS_TCP_1_3_23-42 No: 1 CS JS

Mynydd Timber Services Ltd

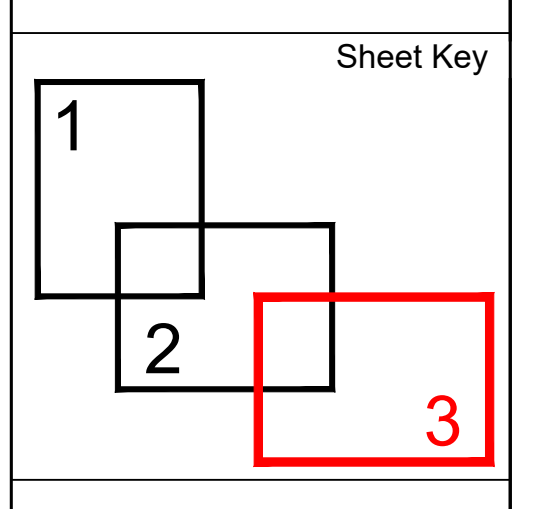
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Key

- Trees Showing Canopy extents, category colour and tag number (see category)
- Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- 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.
- Category U Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
- Tree Groups Shown as dashed centreboundary line Colour represents category (see above)
- BS 5837:2012 Root Protection Area



Tree Constraints Plan - Sheet 3

Project: Greenearth Hydro

Client: Ty Mawr Hydro

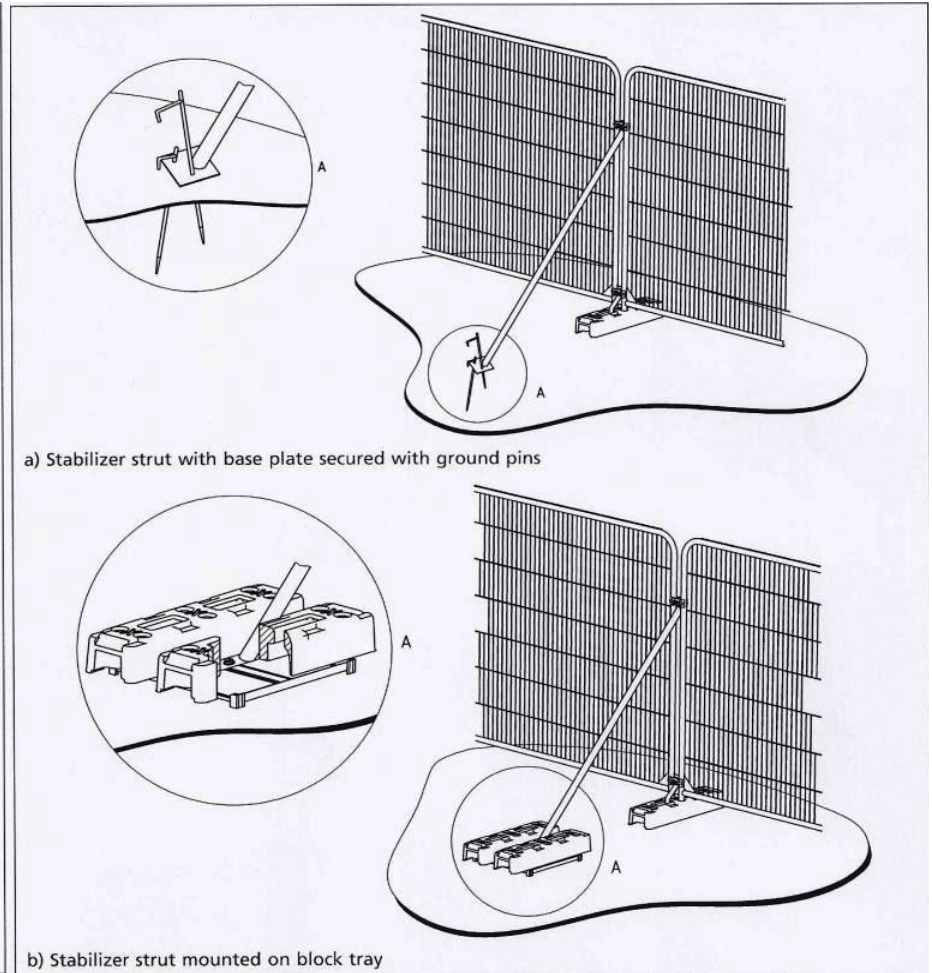
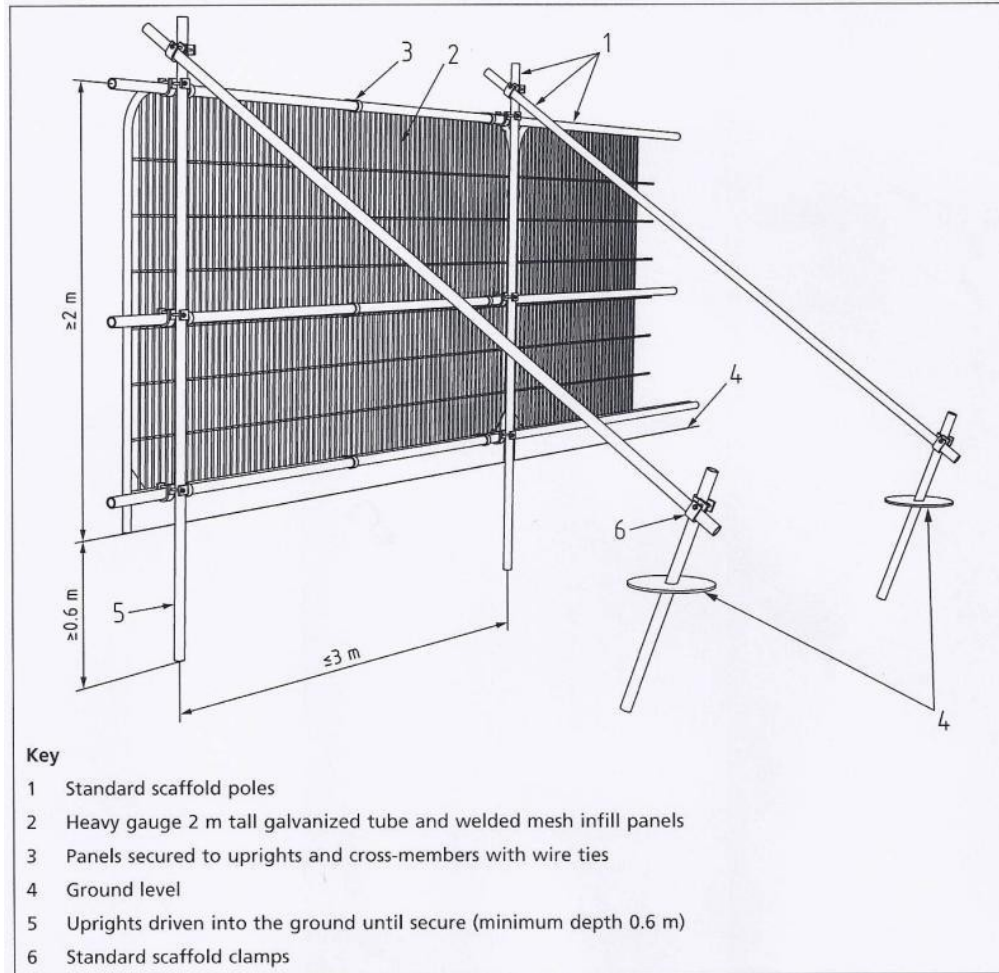
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Drawn by:	JS_TCP_1_3_23-43	Checked by:	CS JS

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Appendix II: BS5837:2012 Cascade Chart for Tree Quality Assessment

TREES FOR REMOVAL				
Category and Definition	Criteria			Identification on Plan
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	<ul style="list-style-type: none"> 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 U Category trees (i.e. 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) e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality. <p style="font-size: small; margin-top: 10px;">NOTE: <i>Category U trees can have existing or potential conservation value which might be desirable to preserve; see section 4.7.5</i></p>			DARK RED
TREES TO BE CONSIDERED FOR RETENTION				
Category and Definition	Criteria Subcategories			Identification on Plan
	1, Mainly arboricultural values	2. Mainly landscape values	3. Mainly cultural values, including conservation	
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 essential components of groups, or of 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-pastures)	LIGHT GREEN
Category B Those 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 area	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
Category C Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in the higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit.	Trees with no material conservation or other cultural value	GREY

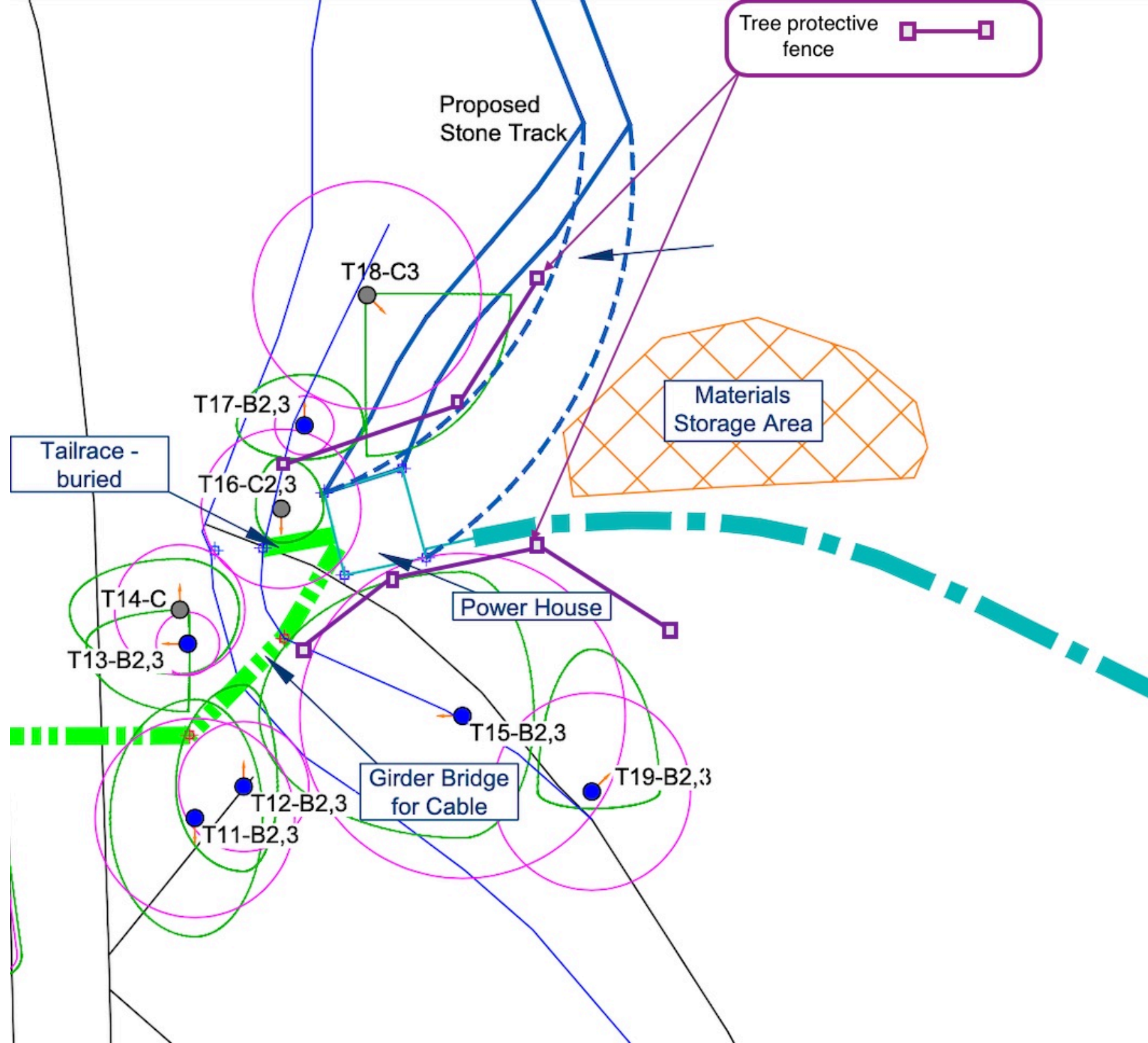
Appendix III Tree Protective Fence Detail.



Appendix IV: Tree Protection Notices

 <p>PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.</p>	 <p>TREE PROTECTION AREA KEEP OUT ! (TOWN & COUNTRY PLANNING ACT 1990) TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER. CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION</p> <p>ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY</p>
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Appendix V: Tree Protection Plan



Appendix VI. Tree Works Schedule

Schedule	Tree Number	Works	Completed
1.	T16.	Fell to facilitate installation of tail-race.	
2.	T15	Remove damaged and hanging branches on North side (hazard to personnel working on site)	
2.	T18	Pollard at 6m and reduce lower large branch growing towards site of Power house.	
3.	T40 and T42	Remove fallen stems restricting access for penstock installation	
4.	T49	Side prune lower branches by 2m to allow access for excavations	
5.	T50,T51,T51	Dismantle / fell to facilitate construction of intake weir	
6.	N/A	Fencing and replanting woodland area and hedgerows damaged by works	
7	N/A	Removal of tree protective fencing.	

Appendix VII Tree Survey Data Tables

Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11	Column12	Column13	Column14	Column15	Column16	Column17	Column18	Column19	Column20	Column21	Column22	Column23	Column24	Column25	Column26	Column27	Column28
Coling	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11	Column12	Column13	Column14	Column15	Column16	Column17	Column18	Column19	Column20	Column21	Column22	Column23	Column24	Column25	Column26	Column27	Column28
SITE: Ty mawr hydro	Type	TAG	Hgt (m)	Crown spread (m)	1.8				Height Canopy (M)	Height of 1st Branch (M)	Bearing of 1st branch	DBH1	DBH2	DBH3	DBH4	DBH5	Average DBH (more than 5 stems)	No stems (more than 5)	Species	Age	Estimated remaining contribution (yrs)	Condition	General Observations	Implications and preliminary recommendations	Standard RPA	BSS837 Quality	BSS837 Quality
				N	E	S	W																Area (m ²)	Radius (m)			
1	Hedge	507	1.2	0.5	0	1	0	0.1	0	SW	5	6	4	4				Hazel & Blackthorn	SM	20+	Fair			4.207220882	1.157238091	B	2.3
2	Tree	508	7	5	3	3.5	5	3	2.7	NE	46							Sessile oak Quercus petraea	SM	40+	Fair			95.72558479	5.52	B	2.3
3	Hedge	509	1.2	0.5	0	1	0	0.1	0	SW	12	9	8					Hazel & Blackthorn	SM	20+	Fair			13.07405199	2.04	C	2.3
4	Tree	510	11	2	3	2	2.5	5	5	SW	28							Ash Fraxinus excelsior	SM	<10	Poor	ADB class 3		35.46732442	3.36	C	2.3
5	Tree	511	8	2	1	2	2.5	2	0	S	12	13	8					Ash Fraxinus excelsior	Y	<10	Poor	Coppice stool ADB class 2		17.0550782	2.329978541	C	2.3
6	Tree	512	9.5	2	1.2	0.7	3	3.5	3	N	20	16						Ash	Y	<10	Poor	ADB class 2		29.67674084	3.07349634	C	2.3
7	Hedge	513	10	4.5	3	2.5	4	1.8	0	NW	22.5							Oak	Y	40+	Fair	Rooted on embankment. RPA within excavation area for trench, lower branches on NE side may require pruning to allow installation of LV	RPA and lower branches within DZ	22.90221044	2.7	B	2.3
8	Tree	514	5.5	2.5	2	3.5	1.5	2.5	2	NW	10	4	7					Hazel coppice stool	Y	40+	Fair	Rooted on embankment. RPA within excavation area for trench, lower branches on NE side may require pruning to allow installation of LV	RPA and lower branches within DZ	7.464424145	1.541427909	B	2.3
9	Tree	515	2.2	2.5	1.5	0.5	2	1	1	E	7	4	3					Hazel coppice stool	Y	40+	Fair	Rooted on embankment. RPA within excavation area for trench, lower branches on NE side may require pruning to allow installation of LV	RPA and lower branches within DZ	3.347681132	1.032279032	B	1.2,3
10	Tree	516	1.2	1.2	0.6	0.3	0.5	0.7	0.2	E	6	4	3					Hazel hedgerow	SM	20+	Poor	Heavily flailed	LV to pass to N of tagged stem, in natural gap in hedge	2.759574987	0.937229961	B	2.3
11	Tree	517	18	7	4	7	5	6	6	S	49							Oak	SM	40+	Good			108.618681	5.88	B	2.3
12	Tree	518	20	6	2	5	4	11	11	N	32							Ash Fraxinus excelsior	SM	20+	Fair			46.32466863	3.84	B	2.3
13	Tree	519	8	2	0	4	6	2.5	2.3	W	15.5							Ash	Y	20+	Fair			10.86865394	1.86	B	2.3
14	Tree	520	17	3	3.5	3.8	6.5	6	3	N	32							Ash Fraxinus excelsior	SM	20+	Poor	ADB class	5 N of lv line	46.32466863	3.84	C	
15	Tree	521	21	8.5	4.2	7.2	12	18	3.5	W	80							Oak	SM	40+	Fair	Multiple damaged and hanging branches and deadwood on north side of crown	Remove damaged and hanging branches which may impact construction area around turbine house	289.529179	9.6	B	2.3
16	Tree	522	5	3	2.5	2	1.5	0.5	0.5	S	23	15	28					Sycamore pollards x3	SM	20+		Rooted in E side of stream bed, pollarded at 1.5m 3 or 4 years ago.		69.57748092	4.706081172	C	2.3
17	Tree	523	8	3	3.5	2	4	0.3	1.2	N	14.5							Rowan	Y	40+	Good			9.511485918	1.74	B	2.3
18	Tree	524	16	0	8.5	9.5	0	1	3	SE	56							Alder	SM	40+	Fair	Heavily weighted to SE	Pollard at 6m and reduce first branch to SE over TH	141.8692977	6.72	C	3
19	Tree	525	18	8.4	4	1	3.2	1.24	4	NE	48.5							Oak	SM	40+	Good			106.413283	5.82	B	2.3
20	Group	526	18.5	7.5	8	7.5	7	1.5	1.4	SW	38.5	53						Ash	SM	40+	Good			184.1315764	7.860915977	A	1.2,3
21	Tree	527	17.5	10.2	10.5	4.5	8	1.5	4	W	47	41						Ash Fraxinus excelsior	SM	40+	Good			175.9794541	7.484383742	B	2.3
22	Tree	528	15.5	4.5	5	3	0	4.5	5.5	SE	37							Ash	SM	20+	Poor	ADB class 2		61.93210094	4.44	C	2.3
23	Tree	529	22	12	10.1	5.6	5.8	0.5	2	SE	41.5	46.5	51.5					Ash Fraxinus excelsior	SM	40+	Good	ADB class 1		295.7156302	9.702020408	B	2.3
24	Tree	530	19	8.3	3.2	7.1	5	1.8	2.3	W	51							Oak	SM	40+	Fair	Hanging branch at 8m on NE side	Remove hanging branch	117.8664679	6.12	B	2.3
25	Tree	531	18.5	7.6	8.8	7.8	8	0	2	N	56.5	64						Oak	SM	40+	Fair			329.7126623	10.24454977	B	2.3
26	Tree	532	5	3	4.5	3.2	4	1.2	1.5	SW	13.5							Hazel	Y	40+	Good			8.24479576	1.62	B	2.3
27	Tree	533	14	3	2	5	2	6	5.5	NW	25	26.5						Ash	SM	10+	Poor	ADB class 3		60.04337543	4.371773096	C	2.3
28	Tree	534	18	0	0.3	10	5	8	6	S	32.5							Ash	SM	20+	Fair	Codorn tom out at 6m and resting in adjacent tree to SW		47.78362426	3.9	B	2.3
29	Tree	535	19	0	2.5	8	2.5	8	6.5m	SE	29.5							Ash	SM	20+	Fair			39.3691825	3.54	B	2.3
30	Tree	536	5.3	2.5	2.1	4.7	4	1	1.2	S	14							Hazel	Y	40+	Good			8.866831105	1.68	B	2.3
31	Tree	537	6	0.5	2	3	3	4	2	E	15							Hazel	Y	40+	Good			10.1787602	1.8	B	2.3
32	Tree	538	16.5	3.5	4	6	5	7	4.5	W	29.5							Oak	SM	40+	Good			39.3691825	3.54	B	2.3
33	Tree	539	15	6	1.5	7	5	7	7	S	48							Oak	SM	40+	Good			104.2305044	5.76	B	2.3
34	Tree	540	6.5	0	3	2	0	2.5	1.6	S	14.5	9	20					Hazel coppice stool	SM	10+	Poor			31.27141327	3.154996038	C	2.3
35	Tree	541	15.5	3	8	7	4	6	2.4	S	62							Oak	SM	40+	Good			173.8984631	7.44	B	2.3
36	Tree	542	6	3	6	4	6	1.5	0.8	S	15.5	19	20	11				Hazel group	SM	40+	Fair	Group with stems spaced 6m E to W, 3m N to S		50.76939392	4.02	B	2.3
37	Tree	543	14.5	3.5	5	7	3.5	2	2	SE	76							Oak	SM	40+	Good			261.300084	9.12	B	2.3
38	Group	544	17.5	5	8	8	7	5	0.7	S	60.5	37	37.5					Oak	SM	40+	Good			291.1391611	9.626588181	B	2.3
39	Tree	545	5	2	3	4	5	0.7	1.2	S	21							Hazel	SM	20+	Fair			19.95036999	2.52	B	2.3
40	Group	546	15	4	4.5	15	0.5	0	0	E	45							Oak	SM	40+	Fair	Windblown to S, Rootplate lifted.	Lying across route of PS	91.60884178	5.4	U	1.2,3
41	Tree	547	15.5	6	7	8	8	1.5	2.5	SW	70							Oak	SM	40+	Fair			221.6707776	8.4	B	2.3
42	Tree	548	6	0	3	5	3	1	1.8	S	16	15						Hazel	SM	20+	Fair	Windblown to S, Rootplate lifted.	Lying across route of PS	21.75992736	2.631805464	U	2.3
43	Tree	549	6.5	0	2.5	4.5	4	1	0	S	17	12						Hazel	SM	20+	Fair			19.58845851	2.497038246	B	2.3
44	Tree	550	14	0	3.5	6	5	2.2	2.7	S	30.5							Ash Fraxinus excelsior	SM	40+	Good			42.08351855	3.66	B	2.3
45	Tree	551	7	0	2.2	7	2.5	0	0	S	16							Hazel	SM	20+	Fair			11.58116716	1.92	B	2.3
46	Tree	552	4.5	0.5	3.5	4	1	1	1.2	S	16							Hazel	SM	20+	Fair			11.58116716	1.92	B	2.3
47	Tree	553	16	4.5	5.5	6.5	6	0.7	1.3	S	46	47	40					Oak	SM	40+	Fair			268.0406852	9.236882591	B	2.3
48	Tree	554	15.5	2	5	6	3.5	2	1.7	S	44							Oak	SM	40+	Fair			87.58257663	5.28	B	2.3
49	Tree	555	7	3	3.2	2.7	2.5	0.8	1.7	S	32							Alder	SM	40+	Good			46.32466863	3.84	B	2.3
50	Tree	556	14	5	5.5	4	3.5	1.3	1	N	56.5							Sycamore	SM	40+	Good			144.4139877	6.78	B	2.3
51	Tree	557	15	6	6.5	5	5.5	2	0.2	S	49	24	23	19				Sycamore	SM	40+	Good						