THE ENVIRONMENT PARTNERSHIP



# HYDRO ALUMINIUM

# WREXHAM

# ARBORICULTURAL IMPACT ASSESSMENT

# JUNE 2024

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# Executive Summary

1. TEP has been commissioned by Pace Architecture to conduct a survey of land at Hydro Aluminium, Wrexham and a review of designations, policies and other instruments of relevance to arboriculture. This report presents the results and effects of proposed development.

2. 4 groups of trees; 1 woodland compartment; and 1 hedge were recorded within influencing distance of the application site.

3. The tree population comprises a mixture of screening and amenity planting within the site with an area of woodland to the north.

4. The desktop review and site survey identified no Tree Preservation Orders; no trees within a Conservation Area; 1 ancient woodland; no veteran trees; no trees within a Community Forest; and a Broadleaved, Mixed and Yew Woodland Habitat of Principal Importance.

5. The proposed development comprises the construction of a new recycling materials sorting facility, raw materials storage and finished goods storage with associated areas for vehicle movements incorporating an existing weighbridge and parking.

6. Tree groups comprising approximately 0.0306ha would be removed. None of these are outside the application boundary.

7. The development would give rise to no adverse effects that cannot be mitigated. A scheme of new planting is proposed, including new woodland edge, hedgerow and scattered tree planting. The development would therefore result in a net gain of tree cover once the new trees become established.

8. Tree protection measures to be observed during construction are proposed in the form of a Tree Protection Plan at Drawing 3. The correct installation and maintenance of temporary barrier fencing should be a condition of any planning consent.

9. This report constitutes a valid basis for the evaluation of impacts on trees resulting from the proposed development for a period not exceeding 2 years from the survey date. After this, it would be necessary to review baseline data and conclusions to ensure reliability.

10. All trees that would be retained can be protected in accordance with BS5837:2012. Where the recommendations of this report have been followed, any future deterioration in tree condition shall not be attributable to the development.

# 1.0 Scope

1.1 TEP has been commissioned by Pace Architecture to conduct an arboricultural survey of land at Hydro Aluminium in Wrexham Industrial Estate and to make an assessment in accordance with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.

1.2 This report has been produced to support a planning application. It describes the findings of field and desktop surveys; the effects that granting planning permission would have on arboriculture; and measures that are and/or should be incorporated in the proposed development.

### Survey

1.3 The survey was undertaken on 21st February 2023 in accordance with BS 5837 by a qualified arboriculturist. The survey method is included at Appendix B.

1.4 A topographical survey was used to record the position of trees and vegetation (drawing reference: 5967/01). Where trees were not shown on the topographical survey, their locations were estimated[1].

1.5 Trees on private land outside the application boundary, and at inaccessible locations[2] were surveyed insofar as was practicable. Whilst reasonable effort has been made to ensure the accuracy and comprehensiveness of such records, it cannot be guaranteed.

### Limitation

1.6 This report relates to a specific development proposal and should not be interpreted as advice in any other circumstance, including but not limited to the promotion or assessment of alternative schemes; the design of foundations; management of tree risk; and tree-related subsidence.

1.7 This report constitutes a valid basis for the evaluation of impacts on trees resulting from the proposed development for a period not exceeding 2 years from the survey date. After this, it would be necessary to review baseline data and conclusions to ensure reliability.

1.8 Where the recommendations of this report have been followed, any future deterioration in tree condition shall not be attributable to the development.

[1] Estimated feature locations are marked on Drawing 1
[2] Limitations to the survey are described at Appendix A

# 2.0 Baseline

## The Site

2.1 The site is situated in the southern part of Wrexham Industrial Estate, at the corner of Bridge Road and Clywedog Road East. It is centred on UK Grid Reference SJ375492.




*Figure 1 Site location and approximate boundary (OS Open Map 1:5,000)*

*Contains data from OS Zoomstack © Crown copyright and database right 2023*

2.2 The majority of the site is flat and comprises a hard surfaced industrial yard. There is a large embankment to the south-west and a smaller one to the north-east. It is bordered to the south-east and south-west by roads, the north-east by the main industrial building, and to the north-west by a woodland.

2.3 At the time of the survey, the site was an active aluminium recycling plant.

## Tree Survey

2.4 4 groups of trees; 1 woodland compartment; and 1 hedge were recorded within influencing distance of the application site.

2.5 Feature locations, their quality categories, canopy spreads and root protection areas are shown on Drawing 1. The following table provides the total canopy area for mapped trees and the total length of mapped hedgerow on Drawing 1. In some cases, this may be more than the absolute area of cover due to canopy overlap between adjacent features.

*Table 1 Existing canopy coverage*

| Trees | Groups | Woodland | Hedgerow |
|---|---|---|---|
| 0ha | 0.5713ha | 0.7892ha | 57.7m |

2.6 All arboricultural information recorded during the survey is presented at Appendix A.

Overview

2.7 Tree cover within the site is a mixture of self-set native trees, screen planting along the south-western edge of the site, and amenity trees. There is an area of woodland to the north of the site and a single cypress hedge (H1) within the survey area.



*Figure 2 View north showing ancient woodland W1*

2.8 The most prominent areas of tree cover are woodland W1 to the north of the site and group G2 to the south-west. Woodland W1 is ancient woodland as shown on the Natural Resources Wales mapping. It comprises a mixture of large oaks, sycamore, common ash and Scots pine with smaller hawthorn and goat willow. There are few notable trees but they have large amounts of dead wood throughout as well as some cavities and decay pockets. There is a security fence and hard surfaced yard to the south.

2.9 A further large linear group of tree cover (G2) is present along the south-western edge of the site, situated on top of a large bank. It comprises a mixture of native broadleaf and coniferous species and still has some degraded stakes and ties present in places. There are occasional failed trees but it forms an effective screen between the road and the site.

2.10 Further tree cover consists of small groups of scrubby trees (G1 and G3) within the yard and some formally planted amenity trees (G4) towards the southern part of the site.

Tree Quality

2.11 Under BS 5837 trees are objectively assigned one of four categories to describe their quality. The table below includes a description of each category and the amount of trees within it. This information is presented by canopy area to allow comparison between features of varying size and maturity. Hedgerows have not been categorised.

*Table 2 Summary of BS 5837 quality categorisation[3]*

| Category | Description | Total existing |
|---|---|---|
| A | Trees of high quality, typically with a long remaining life expectancy; and with clear and identified merit as specimens, visually, culturally or for conservation. | 0.7892ha |
| B | Trees of moderate quality, typically with at least a medium remaining life expectancy; with remediable defects only; or low quality but with collective merit. | 0.4651ha |
| C | Trees of low quality, typically with at least a short remaining lift expectancy; unremarkable trees; young or small trees that could be replaced. | 0.1057ha |
| U | Trees that cannot realistically be retained in the current land use for 10 years; with serious and irremediable defects, pathogens or decline. | 0ha |

2.12 The largest proportion of tree cover is of high quality (Category A), although this is comprised of a single large area of woodland outside the site boundary to the north with only some minor overhang. Trees within the site are mostly of moderate quality (Category B) with the screening group along the south-western boundary forming the majority of this. There is only a small amount of low quality (Category C) tree cover present on site and no Category U trees.

Root Protection Areas

2.13 Using the results of the field survey a Root Protection Area (RPA) has been calculated in accordance with BS 5837 using each tree's stem diameter at 1.5 metres[4]. The RPA represents the minimum area around each tree that must be left undisturbed to ensure its survival.

2.14 Where a tree's rooting pattern is considered to have been influenced by site conditions the RPA has been adjusted or offset to most accurately represent the likely spread of roots[5]. On this site, influences on root morphology are considered to be existing hard surfacing and earthworks.

[3] Refer to Appendix B for the full table
[4] Refer to Appendix A for RPA area calculations
[5] See Drawing 1 for RPA shapes

## Policy, designations and protection

Planning Policy

2.15 All trees are a material consideration in the planning process. Effects on trees will therefore be considered by the consenting authority. Adverse effects that cannot be mitigated and which are not acceptable on balance against other benefits may weigh against the granting of planning permission.

2.16 There should be a common sense ambition to limit tree loss to that which is strictly required to facilitate the proposal, and to achieve a good design. Trees which are retained should not be harmed and the proposal should present a reasonable account of the prospects for tree retention in accordance with BS 5837.

*Planning Policy Wales*

2.17 Planning Policy Wales[6] states that 'Planning authorities must protect trees, hedgerows, groups of trees and areas of woodland where they have ecological value, contribute to the character or amenity of a particular locality, or perform a beneficial and identified green infrastructure function'[7]. The retention, protection and integration of trees, woodlands and hedgerows should be identified within planning applications, where they are present, and should be retained where surveys identify these features capable of making a significant contribution to the area[8].

2.18 Proposed services and utilities infrastructure should be considered as part of the development proposal and should avoid the loss of trees, woodlands and hedges[9]. Where permanent removal of trees, woodland and hedgerows would occur as a result of development, this will only be permitted where it would achieve significant and clearly defined public benefits[10]. Where loss is unavoidable, compensatory planting will be required at a 'ratio equivalent to the quality, environmental and ecological importance of the tree(s) lost'; preferably planted on-site, or immediately adjacent, if on-site planting is not possible; and at a 'minimum ratio of at least 3 trees of a similar type and compensatory size planted for every 1 lost'[11].

2.19 There is a strong policy presumption against loss or deterioration of irreplaceable natural resources such as semi-natural woodlands, ancient woodland and individual ancient, veteran or heritage trees. These trees are to be afforded protection from development which would result in their loss or deterioration unless very exceptionally there are significant and clearly defined public benefits[12]. This protection must prevent potentially damaging operations and their unnecessary loss[13].

[6] Planning Policy Wales, Edition 12, February 2024
[7] Planning Policy Wales paragraph 6.4.39
[8] Planning Policy Wales paragraph 6.4.40
[9] Planning Policy Wales paragraph 6.4.40
[10] Planning Policy Wales paragraph 6.4.42
[11] Planning Policy Wales paragraph 6.4.42
[12] Planning Policy Wales paragraph 6.4.43
[13] Planning Policy Wales paragraph 6.4.43

*Local Planning Policy*

2.20 Wrexham Council has an adopted Unitary Development Plan that contains policies of relevance to trees. In particular Policy EC4 Hedgerows, Trees and Woodlands which states:

*Development proposals should provide for the conservation and management of hedgerows, trees, orchards, woodland, wildlife and other natural landscape and water features, and include new planting in order to enhance the character of the landscape and townscape. Development which results in the loss or significant damage to valuable trees, important hedgerows or ancient woodland sites will not be permitted.*

2.21 In addition, the council has published supplementary information that gives guidance on the interpretation and application of local planning policy. Local Planning Guidance Note 17 is of relevance and is intended to amplify and support policy EC4 and assist with policy interpretation. It details the WCBC's stance on the importance of trees within proposed development and what will be expected of anyone developing a site containing trees including requirements for additional protection in relation to significant ancient, veteran and/or historic champion trees (BS5837 Category A3 trees); and The Tree & Woodland Strategy 2016-2026 which sets out 7 objectives relating to trees and how local planning policy will be used to deliver these objectives.

**Objective 1:** Increase urban canopy cover relative to available planting space and aim to increase overall urban tree canopy cover to a minimum of 20% by 2026.

**Objective 2:** Ensure that the County Borough's tree population is healthy, varied in age and diverse in species.

**Objective 3:** Sustainably manage, protect and enhance the County Borough's tree population to maximise ecological, social and economic benefits.

**Objective 4:** Manage the risks to people, property and infrastructure from trees ensuring that they are as low as reasonably practicable, taking into account best practice, legal obligations and the costs of undertaking action in relation to the benefits that trees provide.

**Objective 5:** Appropriately manage and protect 'Trees of Special Interest' (ancient, veteran & notable trees) ensuring none within the control of the Council are lost due to preventable reasons.

**Objective 6:** Ensure sufficient data and resources are in place to enable the efficient and sustainable management of the County Borough's tree population.

**Objective 7:** Promote the value of trees and actively involve the community in the management, protection and enhancement of the County Borough's tree population.

<u>Tree Preservation Orders</u>

2.22 A check with the local authority was undertaken on 10th June 2024. John Brewin, Arboricultural Officer confirmed that no trees on or adjacent to the site are covered by TPO.

2.23 Works to TPO trees must only be undertaken with the written consent of the Local Authority, given in the form of a planning permission (other than an outline planning permission), discharge of reserved matters, or via a TPO application.

2.24 In the context of a planning application, the presence of a TPO is material but it does not necessitate the retention of protected trees within proposed development. Equally, the lack of a TPO does not mean that removal of any particular tree would be without significant impact. The existence of a TPO may indicate the local authority's view regarding priorities for tree retention and amenity value. BS 5837 recommends that TPOs should be considered in the design process.

Conservation Areas

2.25 A check with the local authority was undertaken on 10th June 2024. The online mapping system confirmed that no trees within or adjacent to the site are within a Conservation Area.

Ancient Woodland

2.26 Ancient Woodland is defined in Wales as sites that have been continuously wooded since before 1600AD[14] and is regarded as 'irreplaceable'[15]. The distribution of Ancient Woodland has been assessed on the basis of Natural Resources Wales Ancient Woodland Inventory 2021 via DataMapWales (gov.wales)[16].

2.27 There is an ancient woodland adjacent to the site. It is situated between the existing Hydro Aluminium plant and a new development to the north.




*Figure 3 Extract from Natural Resources Wales Map showing Ancient Woodland and approximate red line boundary*

[14] Woodlands for Wales: Glossary (p.61)
[15] Planning Policy Wales paragraph 6.4.43
[16] New map | DataMapWales (gov.wales)

2.28 To comply with planning policy[17], development must not result in loss or deterioration of ancient woodland unless there are significant and clearly defined public benefits. In practice, harm to ancient woodland would constitute grounds for refusal of the majority of planning applications that cannot demonstrate the public benefits would outweigh the loss or harm to ancient woodland. This represents a high bar and is typically interpreted narrowly. It is therefore necessary to demonstrate no adverse effects would occur to remove planning risk in this respect.

2.29 No prescriptive guidance is provided with regards to protection of ancient woodland within planning policy. Therefore all protection recommendations, with the central objective being the avoidance of harm to ancient woodland, are based on professional judgement, experience, and relevant guidance documents.

Veteran Trees

2.30 Veteran trees are defined as those which, because of great age, size or condition, are of exceptional value culturally, within the landscape, or for wildlife[18]. All ancient trees are veteran trees. Not all veteran trees are ancient, though they tend to be relatively old for the species. Ancient and veteran trees are regarded as 'irreplaceable'[19].

2.31 There is no comprehensive national register of veteran trees. The Woodland Trust maintains an inventory of significant trees which includes some ancient and veteran individuals[20]. At the time of writing it contained no records of relevance to the site.

2.32 An assessment of each tree was made by a qualified arboriculturist as part of the tree survey. There are no veteran trees within or adjacent to the site.

Habitats of Principal Importance

2.33 A list[21] of habitats which are of principal importance for the purpose of maintaining and enhancing biodiversity is published by Welsh Ministers[22], the definitions of which appear to be based on the UK Biodiversity Action Plan (UK BAP)[23]. The list includes habitat types that are defined by woody vegetation, which are listed below. All features surveyed have been assessed against these definitions and those that meet the definition of a Habitat of Principal Importance have been listed in accordance with their habitat type below.

2.34 Habitats of Principal Importance provide a means of evaluating effects on biodiversity, and thereby a metric to demonstrate the discharge of this duty. In the context of planning, adverse effects on Habitats of Principal Importance that cannot be mitigated are material to decision making.

2.35 There is no mapping available of Habitats of Principal Importance for Wales. Habitat surveys were not completed as part of the tree survey.

[17] Planning Policy Wales paragraph 6.4.26
[18] Woodlands for Wales: Glossary (p.55)
[19] Planning Policy Wales paragraph 6.4.26
[20] https://ati.woodlandtrust.org.uk/
[21] https://www.biodiversitywales.org.uk/File/57/en-GB
[22] Environment (Wales) Act 2016, 7 (1)
[23] http://jncc.defra.gov.uk/page-5706

*Broadleaved, Mixed and Yew Woodland*

2.36 Five distinct types of woodland[24] are amalgamated in the Section 7 list of Habitats of Principal Importance[25] under the habitat type 'Broadleaved, Mixed and Yew Woodland'.

2.37 The feature that best fits the description of a Broadleaved, Mixed and Yew Woodland Habitat of Principle Importance (HoPI) is W1.

*Wood Pasture and Parkland*[26]

2.38 Wood-pasture and parkland are mosaic habitats valued for their trees, especially veteran and ancient trees, and the plants and animals that they support. They are exclusively associated with some species of insects, lichens and fungi which depend on dead and decaying wood. Grazing animals and continuity of management are fundamental to the existence of the habitat and it can be a type of ancient woodland.

2.39 No surveyed features fit the definition of a Wood Pasture and Parkland.

*Traditional Orchards*[27]

2.40 Traditional orchards are defined, for priority habitat purposes, as groups of fruit and nut trees planted on vigorous rootstocks at low densities in permanent grassland; and managed in a low intensity way. Habitat structure rather than vegetation type, topography or soils, is the defining feature of the habitat.

2.41 No surveyed features fit the definition of a Traditional Orchard.

*Hedgerow*[28]

2.42 Hedgerow is any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps are less than 20m wide. It may include banks, walls, ditches, herbaceous vegetation, climbing plants or trees within 2m of the centre line. All hedgerows which comprises at least 80% woody native species are included.

2.43 The survey identified 1 hedgerow[29] which does not meet the description of the Habitat of Principal Importance.

Protected Species

2.44 No assessment of the presence of protected species has been made during the production of this report. Features of possible interest that were observed incidentally during the tree survey are recorded in Appendix A.

[24] Upland oak woodland; Lowland beech and yew woodland; Upland mixed ash woodland; Wet woodland; Lowland mixed deciduous woodland
[25] https://www.biodiversitywales.org.uk/File/57/en-GB
[26] Wood-pasture and parkland (UK BAP Priority Habitat description) – Revised 2011 (jncc.gov.uk)
[27] Traditional orchards (UK BAP Priority Habitat description) (jncc.gov.uk)
[28] Hedgerows (UK BAP Priority Habitat description) (jncc.gov.uk)
[29] See Appendix A

2.45 Works to and around trees have the capacity to affect protected species where present, particularly including birds, bats, great crested newts, badgers, dormice, otters and water voles. Contractors should be familiar with the locations and sensitivities of any protected species that are present and take reasonable avoidance measures or comply with the requirements of any licence agreement in accordance with the advice of an ecologist.

*Birds*

2.46 Intentional harm to a wild bird, egg, or a nest that is in use or being built is an offence[30]. Disturbance of certain wild birds that are building a nest, or are in, on or near a nest containing eggs or young, or disturbance of dependent young is also an offence[31].

2.47 All trees are a potential habitat for nesting birds so tree work should ideally, but not essentially, be undertaken outside the bird nesting season. Between March and August, a detailed inspection of each tree should be undertaken by a qualified ecologist to confirm the absence of nesting birds immediately prior to works.

2.48 Some birds nest outside the core nesting season. If an active nest is found at any time of year, work likely to affect the nest must be halted until the nest becomes inactive. This will vary depending on the species of bird but is typically up to six weeks. The advice of an ecologist regarding the duration and size of a protection buffer around the nest should be sought.

*Bats*

2.49 It is an offence to damage, destroy or obstruct access to any structure or place which is used for shelter or protection[32], or breeding or resting[33] by a bat. Mature trees often contain cavities, splits and ivy, which may be attractive to bats.

2.50 The Preliminary Ecological Appraisal (9871.002) identified no trees with features suitable for nesting bats.

2.51 If the presence of a bat, or a roost or resting site is suspected whilst undertaking works on any trees, operations must be halted and the advice of appropriately licensed ecologist should be sought.

[30] Wildlife and Countryside Act 1981, 1 (1)
[31] Wildlife and Countryside Act 1981, 1 (5)
[32] Wildlife and Countryside Act 1981, 9 (4)
[33] The Conservation of Habitats and Species Regulations 2017, 43 (1)

# 3.0 Effects

3.1 In simple terms, the effects on arboriculture comprises an account of which existing trees, groups of trees, hedgerow and woodland would not be retained within the proposed development; what significance they have; and whether adverse effects would or can be mitigated or offset.

### Proposed development

3.2 The proposed development comprises construction of a new recycling materials sorting facility, raw materials storage and finished goods storage with associated areas for vehicle movements incorporating an existing weighbridge and parking.

3.3 The proposed layout is shown on Drawing 2 and Drawing 3 and is based on drawing 2027 – P – Hydro – Proposed Site Plan provided by Pace Architecture.

3.4 An external works plan showing the detail and arrangement of drainage, levels, retaining structures and utilities was not available to inform the production of this assessment.

### Tree Removal

3.5 This section details all tree removal which is proposed as part of the development. All trees not identified for removal can be retained in accordance with BS 5837.

3.6 In total, tree groups comprising approximately 0.0308ha would be removed.

*Table 3 Reference number and location of features that would be removed*

| | Trees | Groups | Woodland | Hedgerow |
|---|---|---|---|---|
| Remove (on-site) | - | (G1), G3 | - | - |
| Remove (off-site) | - | - | - | - |

(Features in brackets are those of which a part would be removed and part retained)

3.7 If planning permission is granted with reference to this report, the removal of any feature not listed above and shown on Drawing 2 for removal would constitute a material amendment and may therefore require an application to vary the consent.

3.8 The following table provides an overview of the quantity and the percentage of trees that would be removed and a breakdown of the number of instances of removal by quality category. It uses canopy area to describe effects on Trees, Groups and Woodland. The reported areas may be higher than the absolute area of tree cover on the site due to overlap between adjacent features.

*Table 4 Quantity and percentage of trees to be removed*

| Feature | Number of features affected | | | | |
|---|---|---|---|---|---|
| | Category A | Category B | Category C | Category U | Hedges |
| Trees | - | - | - | - | - |
| Groups | - | - | 2 | - | |
| Woodland | - | - | - | - | |
| Total loss | 0ha | 0ha | 0.0380ha | 0ha | 0m |
| Proportion of existing | 0% | 0% | 36% | 0% | 0% |

3.9 Tree removals comprise group G3, small trees on a bank internal to the site; and a small section from the southern end of group G1.

3.10 These trees have some minor screening and amenity value which can be readily mitigated for with new planting within the site.

## Effects on designated or protected features

Ancient Woodland

3.11 The proposed development would not result in loss of ancient woodland.

3.12 The proposed development would not result in deterioration of ancient woodland.

3.13 Development includes construction of new sorting and storage facilities in close proximity to ancient woodland. These will be positioned entirely on existing hard surfacing currently used for material storage. Encroachment into the footprint of the woodland will be prevented by the existing boundary fence.

3.14 Indirect effects on woodland ecology associated with construction and operational noise and lighting lie outside the scope of this report.

Habitats of Principal Importance

3.15 Loss of or harm to a Habitat of Principal Importance, without mitigation, constitutes an adverse effect that is likely to be regarded by the consenting authority as contrary to its duty to conserve biodiversity.

*Broadleaved, Mixed and Yew Woodland*

3.16 The proposed development would not result in loss or harm of Broadleaved, Mixed and Yew Woodland.

Protected Species

3.17 The effects of the proposed development on protected species and significance thereof is considered by the relevant ecology reports including the Preliminary Ecological Appraisal (Ref: 9871.002).

# 4.0 Mitigation

4.1 This section describes opportunities to mitigate or offset adverse effects described by the previous section. It summarises measures that are part of the proposed development and which are relied upon by this report, and measures that are not proposed but could be secured by planning condition or agreement. Conclusions are drawn regarding overall effects, and the requirements that should be imposed in order to secure the outcomes described.

4.2 The table below provides an overview of effects on the receptors described in the preceding sections. Within it, Column (1) describes the outcome for each receptor without mitigation; Column (2) reflects whether any mitigation would be secured by the current application; Column (3) represents whether predicted effects are (or could be rendered) neutral or positive; and Column (4) defines the outcome in simple terms.

*Table 5 Summary of effects and mitigation*

| Receptor | (1) Adverse effect* | (2) Mitigation proposed | (3) Mitigation possible | (4) Residual effect |
|---|---|---|---|---|
| Tree cover | Yes | Yes | Yes | Positive |
| Tree condition[34] | Yes | Yes | Yes | Neutral |
| Ancient Woodland | No | N/A | N/A | Neutral |
| Broadleaved, Mixed and Yew Woodland | No | N/A | N/A | Neutral |
| Hedgerow | No | N/A | N/A | Neutral |

**Without mitigation*

4.3 ***Positive*** residual effects represent benefits that would be delivered by the proposed development.

4.4 ***Neutral***[35] residual effects are those that should have no weight in decision making.

4.5 ***Negative*** residual effects cannot be mitigated or offset and represent adverse effects of the proposed development. They may be acceptable in the planning balance on consideration of other benefits delivered by the proposed development.

4.6 ***Pending*** residual effects are those for which mitigation or offsetting can be secured after consent has been granted, typically by planning condition. It is assumed by this report that they would be.

[34] In this context, whether there would be a risk of harm to existing trees during development (without protection)
[35] Including negligible and non-material effects

## Proposed measures

4.7 The following measures are proposed and would be secured by a planning permission referencing and requiring compliance with this report:

Layout

4.8 The retention of trees that has been assessed as possible within the proposed layout would be observed by the developer and all appointed contractors; tree removal would be limited to that illustrated on Drawing 2.

Tree Protection

4.9 A Tree Protection Plan is provided at Drawing 3. It shows the arrangement of temporary protection measures that would be installed prior to the commencement of any works, including ground investigation, setting out, compound establishment or delivery of any plant or materials.

4.10 Tree protection measures will follow the specification provided at Drawing 4.

4.11 Temporary protection measures would be maintained as shown during the entire construction process and would not be removed or realigned until all buildings, structures, hard surfaces, utilities, drainage, demolition and the removal of scaffolding, plant, compounds and surplus material has been completed.

Planting

4.12 The proposed development would result in the loss of 0.0308ha of tree group canopy cover.

4.13 New planting is proposed and detailed on the Detailed Planting Plan (D9871.002) and includes 25 new individual trees, over 0.08ha of new woodland edge planting and 60m of new hedgerow.

4.14 The proposed planting comprises more trees than would be removed. There would therefore be a permanent net gain in tree cover by the time the new trees are mature.

4.15 The planting scheme includes a greater range of species than would be removed and therefore would enhance biodiversity in this respect.

4.16 The average mature size of tree species on the site would be unaffected by the proposed development and planting scheme.

4.17 The distribution and connectivity of tree cover would be slightly improved by the proposed development and planting scheme.

# APPENDIX A: Arboricultural Survey Data

# APPENDIX A: Arboricultural Survey Data Sheets

**Surveyor** Angus Blankenstein
**Survey Date** 21.02.2023
**Site** Hydro Aluminium, Wrexham
**Drawing Ref** D9871.001

*Italicised Feature Ref: Inspection of this feature was restricted*
*Italicised Values: Feature value was estimated*

| Ref | Species | Height | Canopy Ground Clearance | Stem Diameter (or range) | No. of stems/ individuals | Crown Spread North | Crown Spread South | Crown Spread East | Crown Spread West | Lowest Branch Height | Lowest Branch Direction | Maturity | Condition | Comments on form, condition, health and significant defects | Management recommendations in current context | BS 5837 Quality Category | Estimated Remaining Contribution |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (m) | (m) | (mm) | arising below 1.5m | (m) | (m) | (m) | (m) | (m) | (N,S,E,W) | Young, Middle Age, Mature | Good, Fair, Poor, Veteran | | | A,B,C,U (1,2,3) | Long, Medium, Short, Very Short |
| **Groups** | | | | | | | | | | | | | | | | | |
| G1 | Common hawthorn, Common ash, Goat willow | *2 to 5* | 0.5 | *50 to 160* | *60* | | | | | | | Young to Middle Age | Fair | Scrub and small trees on bund next to balancing pond. Dense undergrowth and close spacing prevents access. Some multistemmed forms | | C ,2 | Long |
| G2 | Field maple, Silver birch, Common hawthorn, Scots pine, Blackthorn, Crack willow | *4 to 11* | 0.5 | 75 to 270 | *150* | | | | | | | Middle Age | Fair | Mixed species screening group on top of bund. Tall narrow forms. Some multistemmed. Occasional failed trees. Signs of stakes and ties in places. Dead wood throughout | | B ,2 | Long |
| G3 | Common hawthorn, Blackthorn, Pedunculate oak | *2 to 5* | 0.5 | 75 to 160 | *25* | | | | | | | Young to Middle Age | Good | Small trees and scrub on low bund. Some new planting. Dense undergrowth in places. | | C ,2 | Long |
| G4 | Himalayan birch | *6 to 6.5* | 1.5 | 160 to 170 | 3 | | | | | | | Middle Age | Good | Group of 3 amenity trees at front of plant. Some pruning wounds and small stubs. Typical forms | | B ,2 | Long |
| **Woodlands** | | | | | | | | | | | | | | | | | |
| *W1* | Sycamore, Common hawthorn, Common ash, Scots pine, Pedunculate oak, Goat willow | *3 to 14* | 2.5 | *75 to 800* | *150* | | | | | | | Mixed Age | Fair | Strip of ancient woodland. Few large trees. Variable age and size structure. Some multistemmed forms. Dead wood in large oaks. Recent construction to North. Security fence and hardstanding to south. | | A ,2, 3 | Long |
| **Hedges** | | | | | | | | | | | | | | | | | |
| H1 | Leyland cypress | 3 to 3.5 | | n/a | n/a | | | | | | | Middle Age | Fair | Typical cypress hedge. Dense crowns. Overpruned in some areas | | n/a | n/a |

# APPENDIX B: Survey Method

### Limitation

Trees are dynamic living organisms with a constantly changing structure; even healthy trees can change or decline. Survey information is presented as being correct at the time of survey. Limitations to the reliability of the survey data are noted within Appendix A and the main report text.

### Scope

All woody vegetation with a stem diameter exceeding 75mm is recorded. Below this threshold, vegetation may also be recorded at the discretion of the surveyor. The survey includes woody vegetation within a defined boundary, and on adjacent land where the characteristics, location or context of the tree mean that activity within the boundary could affect the tree, or be influenced by it. This is typically up to 15m outside the boundary.

### Resolution

Vegetation is recorded as either an individual *Tree*, *Group* of trees, *Woodland*, or *Hedgerow*. This is done at the discretion of the surveyor to provide a useful resolution to the survey data, to differentiate between features with varying attributes and group those with common attributes, and collective value or function.

Typically, *Trees* are recorded where they are arranged separately; different from adjacent trees; or where the assessment would benefit from greater detail. *Groups* are coherent arboricultural features comprising trees with a collective form, function, history or management opportunities. *Woodland* is recorded where areas of tree cover have the qualities of a woodland habitat, including age and species structure, natural regeneration, and associated non-arboreal features. *Hedgerow* describes linear features largely comprising woody vegetation that are under, or could be returned to, regular hedgerow management. It should be noted that these terms are also used in other assessment types, sometimes with different definitions.

### Tree locations

The location of trees is based on stem locations and canopy spreads taken from a topographical survey, where available. Where this information is not available, this is noted in Appendix A and locations should be regarded as approximate. Approximate locations are based on one or more of: GPS data captured during the survey; aerial photographs; and measurement from known points of reference. Approximate stem locations are typically accurate to within a few metres. Stem locations are shown for all *Trees*.

*Groups*, *Woodland* and *Hedges* are principally described in terms of their canopy outline, although stem locations may also be shown. Individual tree canopy outlines are projected on Drawings based on measurements taken as described below (see Crown Spread). *Groups*, *Woodland* and *Hedges* canopy outlines are projected based on the same hierarchy of source data as stem locations.

### Tree survey

The survey is conducted from ground level by an arboriculturist, taking account of the tree, and its context. The nature of the soil is not assessed. Non-invasive assessment tools may be used as appropriate, including hypsometer, measuring tape, probe and nylon mallet.

The following attributes are recorded for each feature (see Arboricultural Survey Data Sheets at Appendix A):

| | |
|---|---|
| **Reference Number** | A unique code per feature, typically but not necessarily a chronological sequence, in the form T*n* for *Trees*; G*n* for *Groups*; W*n* for *Woodlands*; and H*n* for *Hedgerows* |
| **Species** | The common name is given. All species are listed for *Groups*, *Woodland* and *Hedgerows*. The Latin name may also be given if further clarification is required. |
| **Height** | Top height recorded in metres, or the range for *Groups*, *Woodland* and *Hedgerows* |
| **Canopy Ground Clearance** | The height of the canopy above ground level in metres |
| **Stem Diameter** | A measurement taken at 1.5 metres above ground level, or the nearest representative point below, in millimetres. For multi-stemmed trees a single figure is calculated according to BS5837 4.6. For *Groups*, *Woodland* and *Hedgerows,* the range of diameters |

| | |
|---|---|
| **No. of Stems / Individuals** | The number of stems arising below a height of 1.5 metres, or for *Groups*, *Woodland* and *Hedgerows* an estimate or count of the number of trees |
| **Crown Spread** | Radial branch spread in metres at cardinal points (N, S, E, W) from the location of the *Tree* stem at ground level (for *Groups*, *Woodland* and *Hedgerows*, see *Tree Locations*) |
| **Lowest Branch Height** | The height of the first significant branch at the point of attachment (*Trees* only) |
| **Lowest Branch Direction** | The direction of growth of the first significant branch from the point of attachment (*Trees* only) |
| **Maturity** | Classification describing age relative to the species, and size and growth potential, in order to inform management decisions<br>• ***Young*** means small and/or recently planted and could be relocated, or replaced on a like for like basis<br>• ***Middle Age*** means established and independent, within the growth stage of life, and with potential to continue increasing in height and/or spread<br>• ***Mature*** means having reached ultimate height and/or spread, given the location and surroundings; further increases will be slow or limited<br>• ***Mixed Age*** (*Groups*, *Woodland* and *Hedgerows* only) means comprising all three maturity classes |
| **Condition** | An overall assessment of a feature's physiological and structural state, informing longevity and quality categorisation, and supported by *Comments*<br>• ***Good*** condition means with vitality and resilience commensurate with species and age, and without significant defects or pathogens<br>• ***Fair*** condition means with tolerable reduction of vitality and resilience, and/or remediable or tolerable defects and/or pathogens<br>• ***Poor*** condition means with declining or significant loss of vitality and resilience, and/or significant and irremediable defects and/or pathogens<br>• ***Dead*** condition means without photosynthetic or metabolic capacity, or moribund and in imminent terminal decline<br>• ***Mixed*** (*Groups* and *Woodland*) means comprising more than one condition class<br>• ***Veteran*** means trees of exceptional value, meeting recognised criteria including age, size and characteristics. Classification is partly informed by the sustained presence of structural defects, physiological decline, and pathogens, and their contribution to biodiversity. Undesirable characteristics in ordinary trees may be desirable in veteran trees, therefore *Veteran* can be understood as a superlative *Condition* that supersedes other categories (excluding *Dead*). |
| **Comments** | A description of all significant characteristics of the feature and its context that are not described by other attribute fields; including observations to support the classification of *Condition*, *Quality Category* and *Estimated Remaining Contribution* as appropriate |
| **Management Recommendations** | Recommendations for arboricultural works based on the current land use, in the interests of good arboricultural practice. These are incidental to the primary survey purpose, and not a comprehensive schedule in pursuit of any particular objective. |
| **BS 5837 Quality Category** | Tree quality assessment based on Table 1 of BS 5837:2012 (see below) comprising quality categories **A**, **B**, **C** and **U** and sub-categories **1**, **2** and **3** |
| **Estimated Remaining Contribution** | A forecast of the durability of the feature in its current form and context, and therefore the reliance that can be placed on any benefits or functions it provides. This is influenced by *Species* and *Condition*, and is not necessarily a forecast of life expectancy.<br>• **Long** means more than 40 years<br>• **Medium** means 20 to 40 years<br>• **Short** means 10 to 20 years<br>• **Very Short** means less than 10 years |

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**<br>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)<br>• Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline<br>• 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<br>*NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.* | | | See Table 2 |
| | **1 Mainly arboricultural qualities** | **2 Mainly landscape qualities** | **3 Mainly cultural values, including conservation** | |
| **Trees to be considered for retention** | | | | |
| **Category A**<br>**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) | See Table 2 |
| **Category B**<br>**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 | See Table 2 |
| **Category C**<br>**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 | See Table 2 |

**Table 1:** Extract from **British Standards Institution (2012)** *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*, page 9

***Note on Root Protection Areas:***

Data is captured during the survey to inform the design of Root Protection Areas (RPA). These are a design tool, representing the area around a tree in which restrictions to some activities may be required to avoid significant harm, particularly to roots and soil. The RPA is a function of *Stem Diameter*, and additional considerations including management history, barriers to root growth, topography, ground conditions and tree characteristics. These factors are combined by an arboriculturist to produce a buffer zone for each feature from which the exclusion of construction activities would ensure the continued reliability of the survey data at Appendix A, including *Condition*, BS 5837 *Quality Category* and *Estimated Remaining Contribution*.

For *Trees*, RPA is defined as a circle with a radius 12 times the *Stem Diameter*, which may be modified to reflect the considerations above.

For *Groups* and *Woodland* RPA is based on the size and location of peripheral constituent trees, and presented as an offset from the canopy edge giving equivalent or greater protection to all trees of any size, or modified to reflect significant variation in constituent tree sizes and/or the considerations above.

For Hedgerow, no RPA is shown. Typically, hedgerow requires a smaller stand-off than trees due to reduced crown dimensions. Any stand-off should include sufficient space for access and ongoing management and should therefore normally be based on the canopy spread rather than root spread.

# DRAWINGS

**Drawing 1 - Tree Constraints Plan**
**Drawing 2 - Tree Works Plan**
**Drawing 3 - Tree Protection Plan**
**Drawing 4 - Tree Protection Fencing Specification**




# KEY

*[This drawing must be reproduced in colour]*

- T1/G1/W1 Trees
- H1 Hedgerow
- Root Protection Area (RPA)
- Application Boundary

## Tree Quality Categorisation

(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)

- Category A (High quality)
- Category B (Moderate quality)
- Category C (Low quality)
- Category U (Unsuitable for retention)
- Hedgerow (Not categorised)

NOTE: This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).

| Rev | Description | Drawn | Approved | Date |
|---|---|---|---|---|


TEP | THE ENVIRONMENT PARTNERSHIP

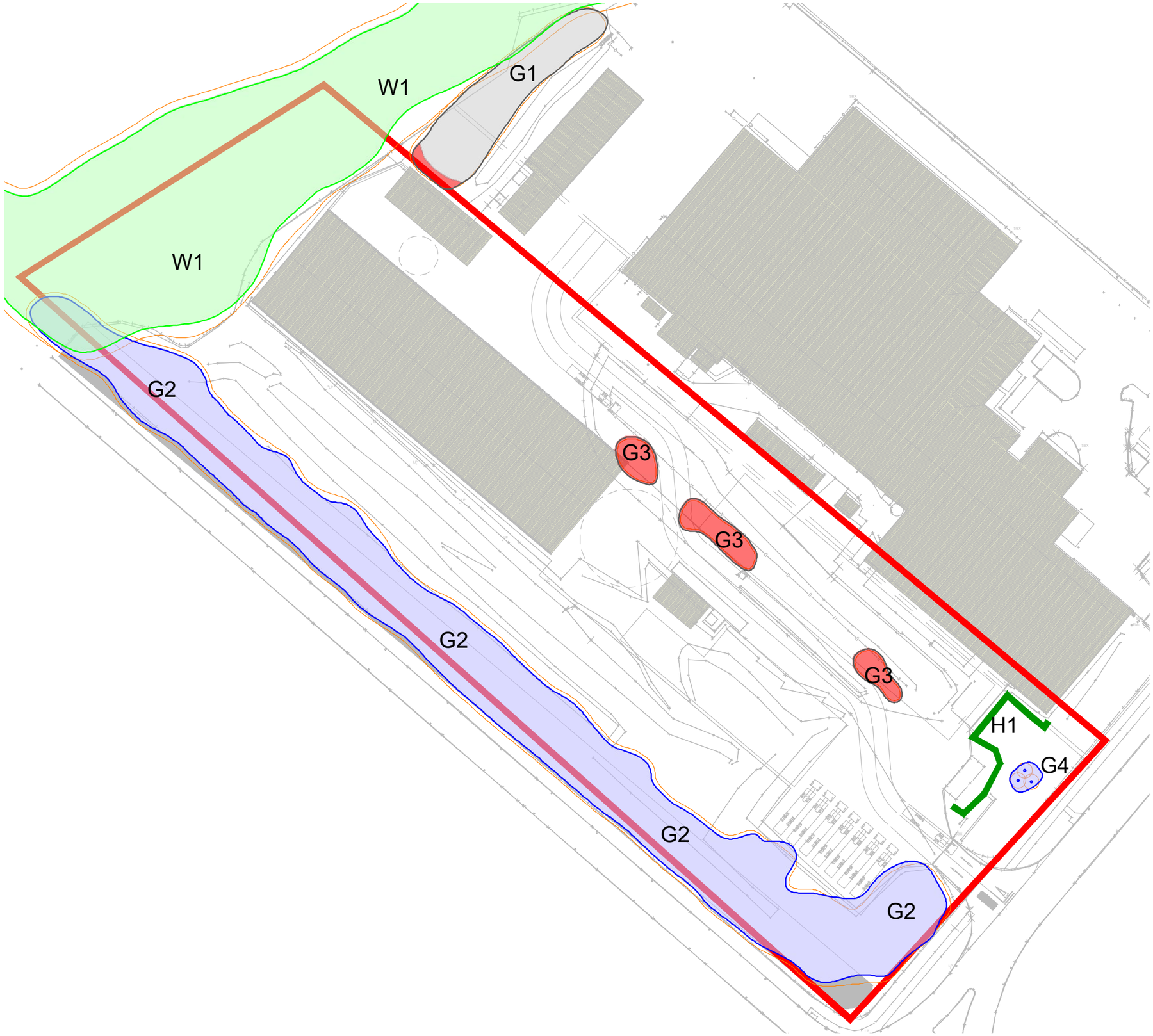
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
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Project
Hydro Aluminium, Wrexham
Arboricultural Impact Assessment

Title
Drawing 1: Tree Constraints Plan [BASELINE]

Drawing Number
D9871.001

| Drawn | Checked | Approved | Scale | Date |
|---|---|---|---|---|
| AAB | HEE | JGS | 1:1,000 @ A3 | 21/04/2023 |




# KEY

*[This drawing must be reproduced in colour]*

T1/G1/W1 Trees

H1 Hedgerow

Root Protection Area (RPA)

Application Boundary

Trees and hedgerow to be retained and protected

Category A
(High quality)

Category B
(Moderate quality)

Category C
(Low quality)

Category U
(May be retained for habitat value)

Hedgerow
(Not categorised)

Proposed tree works

Trees to be removed
(Canopy outline denotes tree quality category)

NOTE: This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).

| Rev | Description | Drawn | Approved | Date |
|---|---|---|---|---|

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Project
Hydro Aluminium, Wrexham
Arboricultural Impact Assessment

Title
Drawing 2: Tree Works Plan [EFFECTS]

Drawing Number
D9871.002

| Drawn | Checked | Approved | Scale | Date |
|---|---|---|---|---|
| AAB | HEE | RMG | 1:1,000 @ A3 | 07/06/2024 |




## KEY

*[This drawing must be reproduced in colour]*

- T1/G1/W1 Retained trees, groups and woodland
- H1 Retained hedgerow
- Root Protection Area (RPA)
- Application Boundary
- # Approximate location
  (Feature not shown on supplied topographical survey)
- Tree Protection Fencing (c.101.5m)
  (Must be installed prior to works commencement)
- Existing Boundary Fencing in Lieu of Protective Fence

| Rev | Description | Drawn | Approved | Date |
|---|---|---|---|---|
| | | | | |

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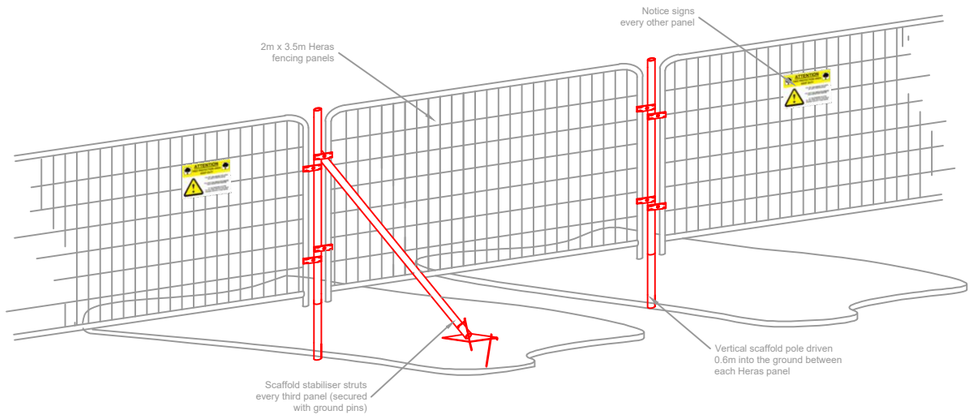
Project
Hydro Aluminium, Wrexham

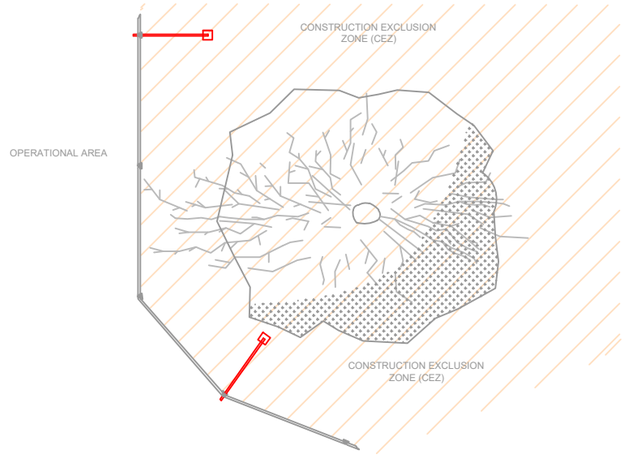
Title
Drawing 3: Tree Protection Plan [EFFECTS]

Drawing Number
D9871.003

| Drawn | Checked | Approved | Scale | Date |
|---|---|---|---|---|
| AAB | HEE | RMG | 1:1,000 @ A3 | 07/06/2024 |

Tree Protection Fencing for use on soft surfaces

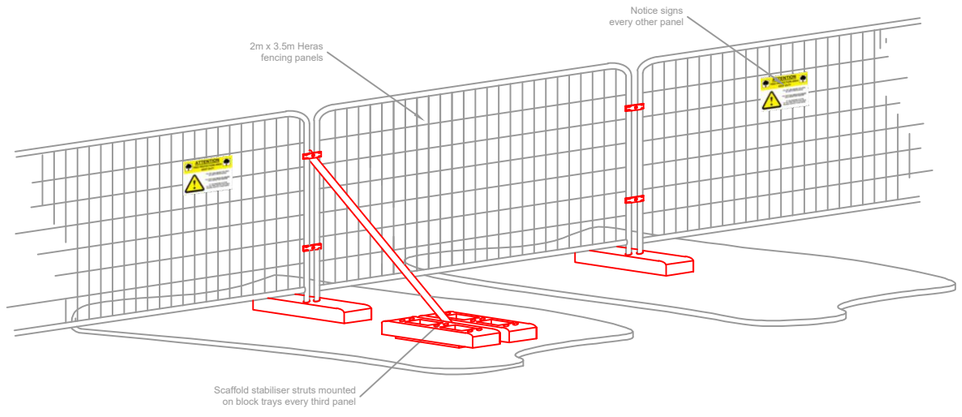


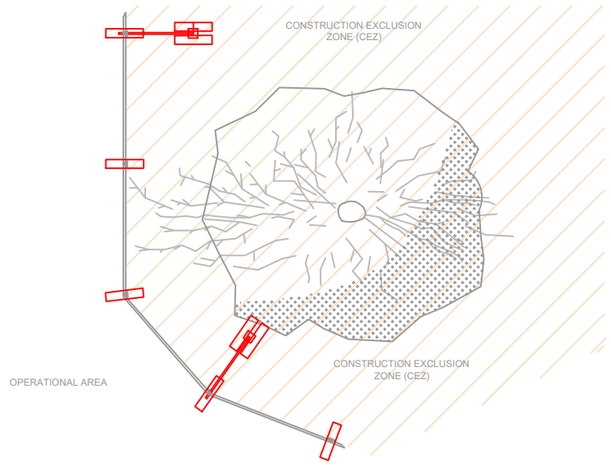




| Per 3No. Heras panels (10.5m) | |
|---|---|
| Component | Quantity |
| 2m x 3.5m Standard Heras panels | 3 |
| 3m Galvenised steel scaffold pole | 3 |
| Heras fecurity fence clip | 12 |
| Heras stabilising support bar | 1 |
| Stabilising pin | 2 |
| Tree protection notice | 2 |

**Notes:**

Tree Protection Fencing for use on hard surfaces




| Per 3No. Heras panels (10.5m) | |
|---|---|
| Component | Quantity |
| 2m x 3.5m Standard Heras panels | 3 |
| Rubber fencing block tray (footing) | 5 |
| Scaffold clamp double coupler | 6 |
| Heras stabilising strut support bar | 3 |
| Tree protection notice | 2 |
| | |

**Notes:**

| Rev | Description | Drawn | Approved | Date |
|---|---|---|---|---|
| | | | | |

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Project

Title
Temporary tree protection fencing specifications

Drawing Number
TEP.ARB.FEN.003

| Drawn | Checked | Approved | Scale | Date |
|---|---|---|---|---|
| TDP | RMG | JGS | (not to scale) @ A3 | 09/07/2019 |

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