

ADDENDUM 2

TO

TREE SURVEY

EDGEHILL PARK

PHASE 3

WHITEHAVEN

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Rev A	10/11/20	Impact assessment updated and text amendments	AMT	JCCR	WJT
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1. INTRODUCTION

Ajt Environmental Consultants were commissioned to undertake a checking survey and assessment of the existing trees in relation to the proposed Phase 3 of residential development at Edgehill Park, Whitehaven.

A previous Tree Report¹ dated March 2013, was submitted to support the residential development of land at High Road, Rhodia, Whitehaven, reference Copeland Borough Council outline planning consent 4/13/2235/001 and full planning consent 4/15/2134/0F1. Due to the period of seven years since the original survey was undertaken, it was considered a checking survey was required to assess any changes on the site in relation to the presence of trees and their health and condition and for public safety, with recommendations for management actions where appropriate.

In addition, an Arboricultural Impact Assessment and Tree Protection Plan has been prepared showing the revised layout for the Phase 3 development, and assessment of impact with tree mitigation measures, including tree protection during construction. This addendum should be read in conjunction with the previous submitted Tree Report.

The site location is shown on **Figure 1**.

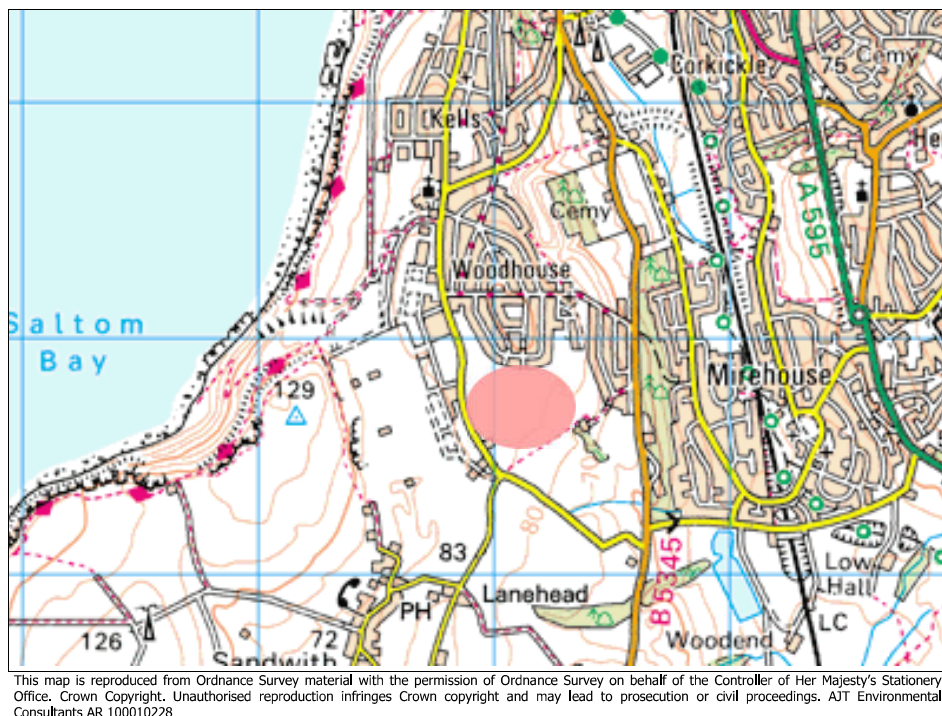


Figure 1: Location plan of Phase 3 development, Edgehill Park, Whitehaven

¹ *Tree Survey, Land at High Road, Rhodia, Whitehaven.* (2013). AJT.

2. SURVEY AND ASSESSMENT

2.1 Survey Method

In relation to the proposed Phase 3 of development, a checking survey of trees was undertaken which lie within the proposed development area.

The checking survey has followed the guidance of BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'. A walking visual inspection was made of the trees to assess the health, vigour and condition, any structural defects and life expectancy, public safety, and effects on property. Recommendations for a management regime for the trees are given and appropriate remedial work where required.

The Root Protection Area (RPA) of each tree was calculated using Table D.1, Annex D of BS5837: 2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations', and this is a minimum area in m² which should be left undisturbed around each tree.

The survey and assessment findings have been used to inform the development proposals for Phase 3 and to allow appropriate mitigation to be implemented where required.

2.2 Survey Assessment

The several mature trees comprising old coppice willows are situated around the boundaries of former reservoirs on the site, subsequently removed in the past, with localised patches of more recent developing willow scrub.

The mature broadleaved trees are in fair condition, however they show signs of the effects of growing in an intensively farmed and exposed coastal environment.

The age of the trees range from approximately 50 to 100 years old with some younger regeneration occurring on the site, and reflect the stages of land use and management that have taken place within the site.

A schedule of the checking survey has been prepared and is included in **Appendix 1**. The SULE method for assessing trees remaining life span is included in **Appendix 2**.

The influence the trees have on and adjacent to the site development were plotted on **Figure 4**, which shows the below ground constraints, represented by the Root Protection Area (RPA) and above ground constraints the trees pose by virtue of their size and position.

The amenity value of the trees was assessed using a number of factors, which include the size and composition of trees, position in the landscape, viewing population, presence of other trees and any other special factors. The trees are wind shaped and set within the rolling landscape and surrounding area and are visible from certain viewpoints.

The trees are considered overall to be of moderate amenity value with few other trees present and some importance of position in the landscape as viewed from a public vantage point.

A series of photograph plates are provided below and overleaf, to illustrate the form, condition and location of the trees in context of the site and surrounding area. The location and survey reference of the trees is shown on **Figure 4**.



View looking south east towards mature former coppice willow T1, as shown in Plate 1.



View looking at former coppice boles of T1, a multistem with 7 boles, as shown in Plate 2.



View looking north east towards T2, growing in close proximity to T3, as shown in Plate 3.



View within the north east section of the wide spreading former coppice boles of T2, a multistem with 12 boles. A small area of *Ganoderma sp.* present to north east bole highlighted in red, as shown in Plate 4.



View looking north west towards a wide spreading former coppice willow, as shown in Plate 5.



View within west part of wide spreading former coppice boles of T3, a multistem with 20 boles. Evidence of domestic fly tipping beneath wide spreading canopy, as shown in Plates 6.



View within east part of wide spreading former coppice boles of T3 with further evidence of domestic fly tipping, as shown in Plate 7.



View looking east along the northern boundary of the site towards localised stands of regenerating willow scrub, as shown in Plate 8.

2.3 Legal Protection of Trees

The trees within the site are not subject to any known legal protection. However, through careful planning and design as set out in the original Masterplan for the development, the effects of the proposed development upon the existing trees will be mitigated. Replacement tree planting for trees lost to development will be undertaken in combination with a sympathetic new comprehensive tree planting scheme and management to ensure a harmony between the development, and the landscape character and amenity of the site and the surrounding area.

2.4 Impact Assessment of Development Proposals

The proposal at the site includes the construction of 335 residential dwellings and gardens with associated access and infrastructure arrangements. The proposals also include landscape works and open space provision set within the boundaries of the site.

The impact of the proposed development upon the existing trees has been assessed and 3 trees, reference T1, T2 and T3 would be adversely affected by the proposed development, including provision of a cleared area within the site for the County Council to develop a primary school.

It is considered that with appropriate measures in place to replace the trees to be removed along with additional new tree, shrub and hedgerow planting, the proposed development would not affect the long-term conservation of tree cover or adversely harm the appearance of the landscape setting or visual amenity of the site, adjacent residents or the surrounding area.

Protection of existing trees and mature vegetation to be retained in proximity to development will be required during the construction works in accordance with best practice and to BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'. Appropriate protective barriers, any other relevant physical protection measures including ground protection and construction exclusion zones to protect the root protection areas, will be provided to avoid physical damage to trees and root plates during construction. These measures are shown on **Figure 4** and set out in **Appendix 3** - Method Statement for Contractor. Measures include:

- Protection against potential damage on site by barrier fencing and/or ground protection before any materials or machinery are brought onto the site, and before any development or stripping of soil commences in accordance with the recommendations for the type of barrier given in BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations' and as shown on **Figure 5**. Appropriate root protection areas (RPA) will be provided where necessary to avoid physical damage to roots during construction activities and from construction traffic.
- Areas of retained structural planting such as scrub, or designated for new structural planting, should be similarly protected.

- The protected area should be regarded as sacrosanct, and, once installed, barriers and ground protection should not be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the local planning authority.
- Where required, pre-development tree work may be undertaken before the installation of tree protection measures, with the agreement of the project arboriculturist or local planning authority if appropriate.
- Any branches, which extend beyond the minimum distance for tree protection where they are liable to impact, will be shortened back to a fork in accordance with the recommendations of BS 3998. This will avoid damage and will be undertaken under the supervision of a specialist in arboriculture.
- Confirmation is required by the project arboriculturist that the barriers and ground protection have been correctly set out on site prior to the commencement of any other operations.
- Where construction working space or temporary construction access is justified within the RPA and approved by the project arboriculturist, this should be facilitated by a set-back in the alignment of the tree protection barrier. Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site. New temporary ground protection should be capable of supporting traffic entering or using the site without being distorted or causing compaction of underlying soil. All works to be undertaken under the direction of the project arboriculturist and an engineer as appropriate in accordance with Clause 6.2.3 of BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations', in order to protect the tree from potential damage or harm during construction and safe guard future survival.
- Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning should be undertaken where necessary to maintain this

clearance and in some instances, local planning authority consent for pruning might be required.

- Fires on sites are not permitted.
- Any materials whose accidental spillage would cause damage to a tree should be stored and handled well away from the outer edge of its RPA.
- Careful consideration of foundation design may be required to avoid damage to tree roots if found to be present within the location of a proposed structure within the Root Protection Areas. Root damage can be minimised by using a combination of the following:
 - a) Piles or radial strip footings, both of which should be located to avoid major roots;
 - b) Beams, slabs, suspended floors, where all should be laid at or above ground level and cantilevered as necessary to avoid tree roots identified by site investigation.

In order to arrive at a suitable solution, site specific and specialist advice would be sought regarding foundation design from the arboriculturist and engineer.

- To avoid damage to tree roots, existing ground levels should be retained within the RPA. Intrusion into soil (other than for piling) within the RPA is generally not acceptable, and topsoil within it should be retained in situ. However, limited manual excavation within the RPA might be acceptable, subject to justification and only following consultation with an arboriculturist. Such excavation should be undertaken carefully, using hand-held tools and preferably by compressed air soil displacement.
- Roots, whilst exposed, should immediately be wrapped or covered to prevent desiccation and to protect them from rapid temperature changes. Any wrapping should be removed prior to backfilling, which should take place as soon as possible. Roots smaller than 25 mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or of 25 mm diameter and over should be severed only following consultation with an arboriculturist; as such roots might be essential to the tree's health and stability. Prior to backfilling, retained roots should be surrounded with topsoil or uncompacted sharp sand (builders' sand should not be used because of its high salt content, which is toxic to tree roots), or other loose inert granular fill, before soil or other suitable material is replaced. This material should be free of contaminants and other foreign objects potentially injurious to tree roots.

- If excavations have to be close to a tree where roots are likely to be encountered, particular care should be taken to avoid damage. Any excavations should be undertaken by hand, avoiding damage to the protective bark covering larger roots. The roots should be surrounded with sharp sand before replacing soil or other material in the vicinity. Roots smaller than 25mm diameter may be pruned back, preferably to a side branch using a proprietary cutting tool. Roots larger than 25mm should only be severed following consultation with an arboriculturist, as they may be essential to the health and stability of the tree.
- Where it is necessary to include hard surfacing close to a tree, consideration should be given to constructing the final surface before the main building works, to provide protection for the roots. No trenching or construction works within the RPA to avoid causing any undue stress to the trees.
- Where it is necessary to incorporate part of the protected area of a tree within proposed hard surfaces, precautions are essential to maintain the condition and health of the root system. New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA. It is proposed that new paving will be established above the former ground level, using granular fill leaving the underlying soil intact with a permeable and gas-porous finished surface. Where a permeable surface is to be used by vehicular traffic, a geotextile should be used at the base of construction to help prevent pollution contamination of the rooting area below. Any excavations close to the trees will be undertaken by hand and specialist arboricultural advice will be sought for any work within this protected area.
- The excavation needed for the placement of kerbs, edgings and their associated foundations and haunchings can damage tree roots. Within the RPA, this should be avoided either by the use of alternative methods of edge support or by not using supports at all.
- Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local soil hydrology in a way that adversely affects the health of the tree. Particular care should be taken in the routeing and methods of installation of all underground apparatus. Wherever possible, apparatus should be routed outside RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA. Where underground apparatus is to pass within the RPA, detailed plans showing the proposed

routeing should be drawn up in conjunction with the project arboriculturist. In such cases, trenchless insertion methods should be used (see Table 3, BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'), with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected, excavation using hand-held tools might be acceptable for shallow service runs.

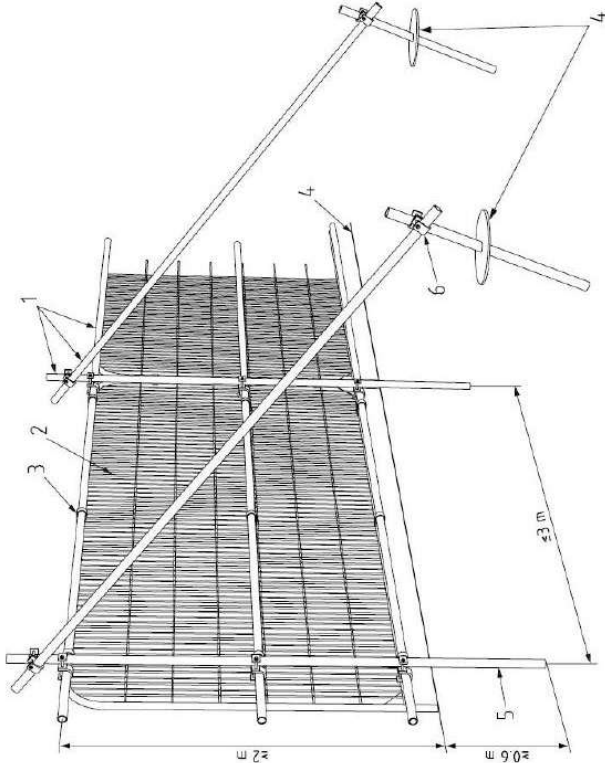
- The extent of the root system to trees is very irregular and therefore difficult to predict and further investigation may be required to establish the extent of the rootplate. Where construction is found to conflict with the actual root system on site, and severance or damage to roots may impair the stability of the tree and make it dangerous, advice will be sought from the project arboriculturist and engineer as appropriate. Specialist construction or design modification may be required to mitigate any adverse impact.
- New development can have an effect on the existing drainage pattern and ground water levels of a site, due to level changes, increased areas of hard surface and new drainage installations. The root systems of mature trees do not generally adapt as well as younger specimens to alterations to groundwater. Expert advice on both drainage and trees should be taken where groundwater conditions are liable to change.

NOTE It is both good practice and, in many cases, a regulatory requirement to maintain existing groundwater conditions within, and reduce run-off from, a development site. This can be achieved, for example, through the use of permeable hard surfaces and techniques associated with sustainable urban drainage systems (SUDS). Such techniques can be designed and implemented to benefit both existing and new trees. (SUDS water might need to be treated/filtered and/or tree rooting areas protected from direct contamination in risk areas.)

- Those contractors involved in construction will be informed of the presence of existing trees with a method statement outlining appropriate working practices and procedures to ensure their protection from damage during the works.
- All works will follow an auditable/audited system of arboricultural site monitoring, including a schedule of specific site events requiring input or supervision by the project arboriculturist and an engineer as appropriate. Refer to **Appendix 5** for Arboricultural Inspection Proforma. The site inspection and recommendations by the arboriculturist will be recorded on the inspection proforma and issued by the arboriculturist to the site management.

Figure 5: Barriers and Ground Protection

Default specification for protective barrier



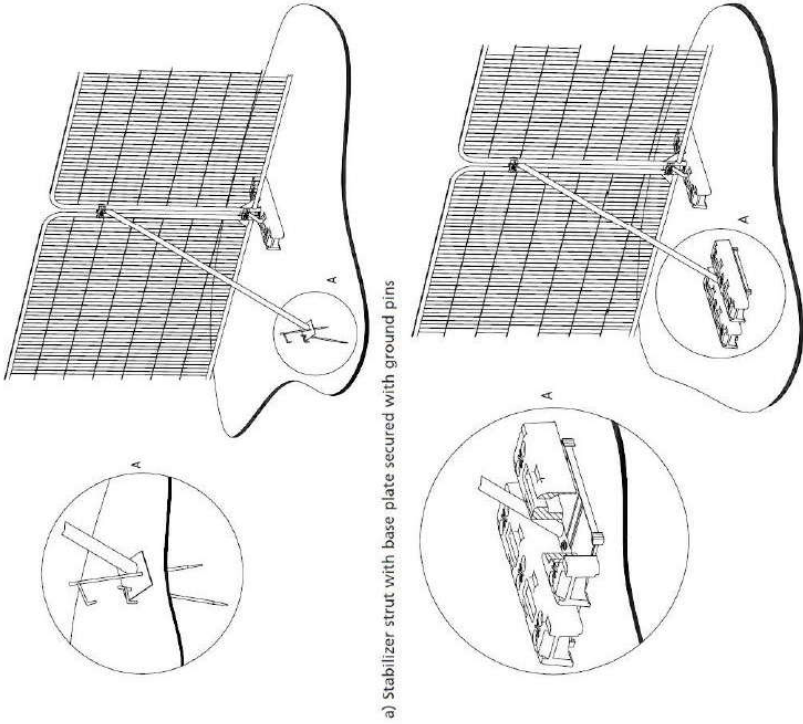
Key

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

NOTE: All-weather notices should be attached to the barrier with words such as: "CONSTRUCTION EXCLUSION ZONE - NO ACCESS".

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Alternative protective fencing for trees on development sites



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

Revisions		ENVIRONMENTAL CONSULTANTS CHARTERED LANDSCAPE ARCHITECTS ajit	
Project PLANNING INFORMATION		The Studio, 30 The Grove High Wycombe, Bucks HP12 3JH Tel: 01494 202 2610 Fax: 01494 211 2517 Email: ajit@ajit.co.uk	
Date: 15-10-20	Drawing number	STORY HOMES EDGEHILL PARK PHASE 3 BALANCE, WHITEHAVEN	
Drawn by: BS	Figure 5		
Created by: JT	Scale: NTS		
©		PROTECTION OF EXISTING TREES AGAINST DAMAGE ON SITE	

3. MANAGEMENT RECOMMENDATIONS

3.1 Management Strategy

The trees proposed for removal and replacement should be agreed with the Local Authority prior to any works commencing. The agreed trees to be felled should have work carried out by an approved arboricultural contractor and all felling operations shall be implemented in accordance with both BS 3998: 'Tree Work – Recommendations' and the 'Guide to Good Climbing Practice' 2005 Edition, Arboricultural Association. The felling to the trees should be undertaken in the dormant season.

A tree strategy to rejuvenate and increase the stock is desirable for the long term value both for the site itself, and the backdrop it provides to this part of Whitehaven, where there is low tree cover.

Trees are dynamic and are constantly changing. A healthy tree cover has a variety of ages and heights of trees within it with canopy gaps and edges providing a range of habitats for species to colonise. Regular inspections should be undertaken so that changes in the trees can be monitored and management prescriptions devised and implemented to ensure maintenance of a healthy woodland cover and for public safety. This should be undertaken as part of a Tree Strategy and Management Plan for the site.

A programme of felling, replacement and new planting is to be carried out as part of the tree management recommendations to achieve a healthy tree cover and matrix of native trees, understorey and shrub/scrub edge that will enhance and conserve the visual amenity and biodiversity within this locality.

It is considered that with appropriate mitigation measures, the proposed development would not adversely affect the long term tree cover of the site or harm the appearance, landscape setting or visual amenity of the site and surrounding area.

3.2 New Planting

Within the proposed development, there is scope to provide new trees, shrub and hedgerows in locations where they can reach maturity and potentially develop in harmony with the proposed development, its landscape setting and surrounding area.

With the use of appropriate native species, new planting will benefit wildlife conservation, contribute to local biodiversity, and meet the requirements of the Cumbria BAP. In accordance with the guidance contained in the national Biodiversity Action Plan (BAP), Natural England and Cumbria BAP, the detailed design proposals will ensure that the value of created habitats are maximised through new planting and management of the landscape.

3.3 Trees and Bats

The trees were checked for potential or actual bat roost sites in accordance with the guidance set out within 'Bat mitigation Guidelines', English Nature 2004. No actual bat roosts or evidence of bats were observed.

For proposed developments such as this, it is essential to ensure that no bat roosts are damaged, destroyed or obstructed, that no harm comes to bats as a result of the works, and that the conservation status of bats in the area is maintained or enhanced.

Under the Countryside and Rights of Way Act 2000 (CROW Act) the offence in section 9(4) of the 1981 Act of damaging bat roosts or disturbing bats is extended to cover reckless damage or disturbance.

Should any tree management works including felling be required or undertaken, the trees prior to works should be investigated further to establish the presence of any roosting bats, whereupon the necessary mitigation measures would be undertaken. Refer to **Appendix 4**, Method Statement for Contractor (Bats and Trees).

3.4 Trees and Birds

Implementation of best practice measures during the removal of sections of scrub and felling and management of trees should be adopted to minimise disturbance for breeding birds, e.g. avoid felling, pruning works, clearance or disturbance of the existing land and vegetation, during the breeding bird season.

Under the Wildlife and Countryside Act 1981 (as amended), it is illegal to damage or destroy active bird nesting sites and arboricultural works should be undertaken outside of the breeding bird season.

3.5 Survey Timing and Personnel

The checking survey was undertaken on 28th August 2020 during daylight hours with good visibility and in dry weather conditions that were sunny with light breeze (6°C). The survey was undertaken by two experienced and competent arboriculturists of AJT with relevant training and expertise.

3.6 Survey Limitations

Although the report has been produced with the intention of establishing the condition and health status of the trees within the site, it is not to be regarded as a definitive assessment of all the trees present.

In particular, it should be noted that the survey methodology undertaken is a walking visual checking survey and further investigation, where recommended, should be undertaken of trees to be retained but of poor condition and of particular concern regarding structural stability and public safety.

The visual assessment of trees requiring further investigation provides evidence for example of mechanical defects, the presence of fruiting bodies, presence of cavities, crown die back, general loss of vitality and poor crown. The potential target area should such trees fail has to be considered. For example, trees which are located adjacent to roads, footpaths, lanes and properties, all have a high target potential and carry significant risk to life or property should a tree fail.

Further investigation would involve detailed assessment to detect and evaluate any internal incipient and advanced decay, ascertain health/vitality and provide information as to the structural integrity of the tree, whether the defects are remediable and the effect on the tree's remaining value.

APPENDIX 1

TREE SURVEY SCHEDULE

TREE SURVEY DATA RECORDS		Site Location: Edgehill Park, Whitehaven – Phase 3 Weather and site conditions: Dry, bright with an air temperature of 17°C. August 28th, 2020 Dry site conditions													
Condition and survey notes Roots, Base, Canopy clearance, Physiological condition, structural condition, Species and reference no including TPO Key NPBH = No potential bat habitat observed. PBH = Potential bat habitat		H m ↑ ↓	G / dia cm ↔	Crown spread metres				Age	Ultimate Height m	Ultimate Spread m	SULE*	BS grade	RPA Radius m	Proposed works and long-term management	
				N	S	E	W								
T1 Grey Willow – <i>Salix cinerea</i> Multi-stem with 7 boles. Old coppice willow. Base and bole appear sound. Mature in fair condition. NPBH.		6	320 100 x 7	4	5	5	4	c.50	10	25	L	C1	3.2 x 7	To be removed for development and replaced with suitable native species	
T2 Grey Willow – <i>Salix cinerea</i> Multi-stem with 12 boles. Old coppice willow. Base and bole appear sound. Small area of <i>Ganoderma</i> sp. to bole to north east. Mature in fair condition. NPBH.		5	420 135 x 6 300 95 x 6	5	6	10	5	c.100	10	25	L	C1	5.6 x 12	To be removed for development and replaced with suitable native species	
T3 Grey Willow – <i>Salix cinerea</i> Multi-stem with 20 boles. Old coppice willow. Base and bole appear sound. Wide spreading base with 12 suckering stems and 8 large boles. Evidence of domestic fly tipping beneath wide spreading canopy. Mature in fair condition. NPBH.		7	450 145 x 8 320 100 x 12	7	7	10	8.5	c.100	10	25	L	B2	4.9 x 8 4.2 x 12	To be removed for development and replaced with suitable native species	

*Safe Useful Life Expectancy refer to Appendix 2 for Arboricultural method of assessing the trees remaining safe life span

APPENDIX 2

SAFE USEFUL LIFE EXPECTANCY (SULE)

SAFE USEFUL LIFE EXPECTANCY (SULE)

An Arboricultural method of assessing the trees remaining safe life span.

1. **Long** SULE – 40+ years

- a) Structurally sound trees that are located in suitable positions that can easily accommodate future growth.
- b) Damaged trees with minor defects that could be made suitable for their retention through remedial tree work.
- c) Trees with a special value either for historical, commemorative or rarity reasons, thus warranting particular effort to ensure their retention.

2. **Medium** SULE – 15-40 years

- a) Trees whose life span is estimated at around 15-40 years
- b) Trees whose estimated life span may exceed 40 years but may be removed to allow for safe development of better specimens.
- c) Trees whose estimated life span may exceed 40 years but may be removed for normal management or for safety reasons.
- d) Damaged trees with defects that could be made suitable for retention in the Medium term via remedial tree works.

3. **Short** SULE – 5-15 years

- a) Trees whose life span is estimated at around 5-15 years.
- b) Trees whose estimated life span may exceed 15 years but may be removed to allow the safe development of better specimens.
- c) Trees whose estimated life span may exceed 15 years but may be removed for normal management or for safety reasons.
- d) Damaged trees with defects that could be made suitable for retention in the Short term via remedial tree works.

4. **Remove** – Within a maximum of 2-3 years.

- a) Dead trees.
- b) Dying trees.
- c) Dangerous or unstable trees.
- d) Dangerous trees due to structural defects e.g. cavities, serious fungal decay present.
- e) Unsafe to retain.
- f) Trees that may become dangerous after the removal of other trees.

5. **Young** or Small trees.

- a) Trees with a height of less than 5 metres.
- b) Trees with a greater height than 5 metres but an estimated age of less than 15 years.

APPENDIX 3

METHOD STATEMENT FOR CONTRACTOR

ARBORICULTURAL METHOD STATEMENT FOR CONTRACTOR

This statement should be copied to the site owner, designers and to those contractors whose work may affect trees including those involved in site access, excavation and construction works.

Those contractors involved in site development and construction will be informed of the presence of existing trees, with a method statement outlining appropriate working practices and procedures to ensure their protection from damage during the works.

All works will comply with BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'.

A precautionary approach towards tree protection should be adopted and any operations, including access, proposed within the RPA (or crown spread where this is greater) should be undertaken under the supervision of the project arboriculturist in order to ensure minimal risk of adverse impact on trees retained.

Legislation

Trees

The trees within the site are not subject to any known legal protection.

Trees and Bats

All bat species are specially protected under Schedule 5 of the Wildlife and Countryside Act of 1981. As a result it is illegal to:

- Intentionally kill, injure or take bats.
- Deliberately disturb bats.
- Damage, destroy or obstruct access to bat roosts.

Under the Countryside and Rights of Way Act 2000 (CROW Act) the offence in section 9(4) of the 1981 Act of damaging bat roosts or disturbing bats is extended to cover reckless damage or disturbance. Fines of up to £5000 per bat affected and confiscation of vehicles used can be imposed for deliberate or reckless disturbance of bats or damage to a roost site.

Bats are also protected under The Conservation (Natural Habitats, &c.) Regulations 1994. Under these regulations licenses are required for works that may adversely affect bats.

Trees and Birds

Implementation of best practice measures during the felling and management of trees should be adopted to minimise disturbance for breeding birds, e.g. avoid felling, pruning works, clearance or disturbance of the existing land and vegetation, during the breeding bird season.

Under the Wildlife and Countryside Act 1981 (as amended), it is illegal to damage or destroy active bird nesting sites and arboricultural works should be undertaken outside of the breeding bird season.

Working Approach

Trees

Appropriate working methods must be utilised to ensure protection during construction works and the risk of trees being harmed by the works is minimised. These working methods will also minimise the risk of causing reckless damage or disturbance to trees.

Appropriate working methods for the site are as follows:

- Protection against potential damage on site by barrier fencing and/or ground protection before any materials or machinery are brought onto the site, and before any development or stripping of soil commences in accordance with the recommendations for the type of barrier given in BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations' and as shown on **Figure 5**. Appropriate root protection areas (RPA) will be provided where necessary to avoid physical damage to roots during construction activities and from construction traffic.
- Areas of retained structural planting such as hedgerows and scrub, or designated for new structural planting, should be similarly protected.
- The protected area should be regarded as sacrosanct, and, once installed, barriers and ground protection should not be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the local planning authority.
- Where required, pre-development tree work may be undertaken before the installation of tree protection measures, with the agreement of the project arboriculturist or local planning authority if appropriate.
- Any branches, which extend beyond the minimum distance for tree protection where they are liable to impact, will be shortened back to a fork in accordance

with the recommendations of BS 3998. This will avoid damage and will be undertaken under the supervision of a specialist in arboriculture.

- Confirmation is required by the project arboriculturist that the barriers and ground protection have been correctly set out on site prior to the commencement of any other operations.
- Where construction working space or temporary construction access is justified within the RPA and approved by the project arboriculturist, this should be facilitated by a set-back in the alignment of the tree protection barrier. Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site. New temporary ground protection should be capable of supporting traffic entering or using the site without being distorted or causing compaction of underlying soil. All works to be undertaken under the direction of the project arboriculturist and an engineer as appropriate in accordance with Clause 6.2.3 of BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations', in order to protect the tree from potential damage or harm during construction and safe guard future survival.
- Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning should be undertaken where necessary to maintain this clearance and in some instances, local planning authority consent for pruning might be required.
- Fires on sites are not permitted.
- Any materials whose accidental spillage would cause damage to a tree should be stored and handled well away from the outer edge of its RPA.
- Careful consideration of foundation design may be required to avoid damage to tree roots if found to be present within the location of a proposed structure within the Root Protection Areas. Root damage can be minimised by using a combination of the following:

- c) Piles or radial strip footings, both of which should be located to avoid major roots;
- d) Beams, slabs, suspended floors, where all should be laid at or above ground level and cantilevered as necessary to avoid tree roots identified by site investigation.

In order to arrive at a suitable solution, site specific and specialist advice would be sought regarding foundation design from the arboriculturist and engineer.

- To avoid damage to tree roots, existing ground levels should be retained within the RPA. Intrusion into soil (other than for piling) within the RPA is generally not acceptable, and topsoil within it should be retained in situ. However, limited manual excavation within the RPA might be acceptable, subject to justification and only following consultation with an arboriculturist. Such excavation should be undertaken carefully, using hand-held tools and preferably by compressed air soil displacement.
- Roots, whilst exposed, should immediately be wrapped or covered to prevent desiccation and to protect them from rapid temperature changes. Any wrapping should be removed prior to backfilling, which should take place as soon as possible. Roots smaller than 25 mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or of 25 mm diameter and over should be severed only following consultation with an arboriculturist; as such roots might be essential to the tree's health and stability. Prior to backfilling, retained roots should be surrounded with topsoil or uncompacted sharp sand (builders' sand should not be used because of its high salt content, which is toxic to tree roots), or other loose inert granular fill, before soil or other suitable material is replaced. This material should be free of contaminants and other foreign objects potentially injurious to tree roots.
- If excavations have to be close to a tree where roots are likely to be encountered, particular care should be taken to avoid damage. Any excavations should be undertaken by hand, avoiding damage to the protective bark covering larger roots. The roots should be surrounded with sharp sand before replacing soil or other material in the vicinity. Roots smaller than 25mm diameter may be pruned back, preferably to a side branch using a proprietary cutting tool. Roots larger than 25mm should only be severed following consultation with an arboriculturist, as they may be essential to the health and stability of the tree.

- Where it is necessary to include hard surfacing close to a tree, consideration should be given to constructing the final surface before the main building works, to provide protection for the roots. No trenching or construction works within the RPA to avoid causing any undue stress to the trees.
- Where it is necessary to incorporate part of the protected area of a tree within proposed hard surfaces, precautions are essential to maintain the condition and health of the root system. New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA. It is proposed that new paving will be established above the former ground level, using granular fill leaving the underlying soil intact with a permeable and gas-porous finished surface. Where a permeable surface is to be used by vehicular traffic, a geotextile should be used at the base of construction to help prevent pollution contamination of the rooting area below. Any excavations close to the trees will be undertaken by hand and specialist arboricultural advice will be sought for any work within this protected area.
- The excavation needed for the placement of kerbs, edgings and their associated foundations and haunchings can damage tree roots. Within the RPA, this should be avoided either by the use of alternative methods of edge support or by not using supports at all.
- Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local soil hydrology in a way that adversely affects the health of the tree. Particular care should be taken in the routeing and methods of installation of all underground apparatus. Wherever possible, apparatus should be routed outside RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA. Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routeing should be drawn up in conjunction with the project arboriculturist. In such cases, trenchless insertion methods should be used (see Table 3, BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'), with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected, excavation using hand-held tools might be acceptable for shallow service runs.
- The extent of the root system to trees is very irregular and therefore difficult to predict and further investigation may be required to establish the extent of the rootplate. Where construction is found to conflict with the actual root system

on site, and severance or damage to roots may impair the stability of the tree and make it dangerous, advice will be sought from the project arboriculturist and engineer as appropriate. Specialist construction or design modification may be required to mitigate any adverse impact.

- New development can have an effect on the existing drainage pattern and ground water levels of a site, due to level changes, increased areas of hard surface and new drainage installations. The root systems of mature trees do not generally adapt as well as younger specimens to alterations to groundwater. Expert advice on both drainage and trees should be taken where groundwater conditions are liable to change.

NOTE It is both good practice and, in many cases, a regulatory requirement to maintain existing groundwater conditions within, and reduce run-off from, a development site. This can be achieved, for example, through the use of permeable hard surfaces and techniques associated with sustainable urban drainage systems (SUDS). Such techniques can be designed and implemented to benefit both existing and new trees. (SUDS water might need to be treated/filtered and/or tree rooting areas protected from direct contamination in risk areas.)

- Those contractors involved in construction will be informed of the presence of existing trees with a method statement outlining appropriate working practices and procedures to ensure their protection from damage during the works.
- All works will follow an auditable/audited system of arboricultural site monitoring, including a schedule of specific site events requiring input or supervision by the project arboriculturist and an engineer as appropriate. Refer to **Appendix 5** for Arboricultural Inspection Proforma. The site inspection and recommendations by the arboriculturist will be recorded on the inspection proforma and issued by the arboriculturist to the site management.
- If issues become evident during work with regard to trees, bats or nesting birds, the arboricultural and ecological consultant will be contacted and consulted immediately (Ajt Environmental Consultants, Tel: **0191 285 5910**).

All contractors shall be made aware of the potential presence of bats, of their legal protection and the requirement to contact Natural England if they are found during works. They shall also be made aware of the legal protection afforded to nesting birds.

If bats are found during the works, work should cease immediately in that area and the advice of the consultant ecologist (AJT Environmental Consultants, Tel 0191 2855910) must be

sought and Natural England or the Bat Advice Line should be consulted for further advice. These contact numbers should be left with the contractors on site.

APPENDIX 4

METHOD STATEMENT FOR CONTRACTOR (BATS AND TREES)

METHOD STATEMENT FOR CONTRACTOR (BATS AND TREES)

This statement should be copied to the site owner and arboricultural contractor whose work may affect trees with bat roost potential.

Trees to be felled or pollarded should have work carried out by an approved arboricultural contractor and all felling operations shall be implemented in accordance with both BS 3998: 'Recommendations for Tree Work' and the 'Guide to Good Climbing Practice' 2005 Edition, Arboricultural Association. The works to the trees should be undertaken in the dormant season.

Trees and Bats

All bat species are specially protected under Schedule 5 of the Wildlife and Countryside Act of 1981. As a result it is illegal to:

- Intentionally kill, injure or take bats.
- Deliberately disturb bats.
- Damage, destroy or obstruct access to bat roosts.

Under the Countryside and Rights of Way Act 2000 (CROW Act) the offence in section 9(4) of the 1981 Act of damaging bat roosts or disturbing bats is extended to cover reckless damage or disturbance. Fines of up to £5000 per bat affected and confiscation of vehicles used can be imposed for deliberate or reckless disturbance of bats or damage to a roost site.

Bats are also protected under The Conservation (Natural Habitats, &c.) Regulations 1994. Under these regulations licenses are required for works that may adversely affect bats.

Trees and Birds

Implementation of best practice measures during the felling and management of trees should be adopted to minimise disturbance for breeding birds, e.g. avoid felling, pruning works, clearance or disturbance of the existing land and vegetation, during the breeding bird season.

Under the Wildlife and Countryside Act 1981 (as amended), it is illegal to damage or destroy active bird nesting sites and arboricultural works should be undertaken outside of the breeding bird season.

Working Approach

Trees and Bats

Bats use trees as resting places throughout the year. Trees may serve as maternity roosts, mating roosts, hibernation roosts and/or temporary/transitory roosts. Mature trees, particularly oak, ash, beech, sycamore and Scots pine, are most frequently used as roosts, but bats will use any tree with suitable cavities or crevices.

Temperature and light are important factors when bats select roosts. Roost preferences depend on bat species, the time of year and the breeding status of the bat but include selecting:

- Naturally warm sites, such as sheltered trees receiving some sunshine during the day.
- Highly insulated sites such as a tree hole with a small space and thick wood surrounding it.

It is rare for bats to restrict themselves to a single tree roost. An individual tree may be used by different species for bats, sometimes at the same time. Most bats change roost sites throughout the year in response to their individual needs. Once a tree is used for roosting, there is a high likelihood of it being used again as bats are very long lived. This is one reason why in mixed age stands, older trees have a higher chance of containing roosts than younger trees.

The most effective time to look for potential bat roosts is during winter when the trunk and crown are visible without leaves being present. Use binoculars during good daylight to look for:

- Trees that have been damaged irrespective of age, such as significant wind blow or damage from falling mature trees;
- Obvious holes, cavities, splits and loose bark (old woodpecker holes are particularly favoured);
- Dark staining and streaks on the tree below the hole (although this is often due to water seepage);
- Staining around the hole from oils in bat's fur particularly in autumn;
- A maze of tiny scratch marks from the bat's claws around the hole, often around top edge. These are often only visible close up.

During the summer it may be possible to notice:

- Droppings below the hole – these have the appearance of rodent's droppings but crumble to a powder of insect fragments;
- Noise of squeaking/chittering coming from hole, especially on a hot day in high summer or just before dusk as bats are getting ready to emerge;
- Strong smell of ammonia or flies close to a hole.

Standard working methods, to minimise the risk to bats, and avoid causing reckless damage or disturbance, will include the following:

- Undertake a tool box talk by the project ecologist for the contractor prior to any works being carried out on site to inform him of the correct methods for felling and risks of bats being present and the correct action to take if any are found;
- Keep tree work to a minimum retaining all potential roosts where possible;
- A precautionary inspection of the tree(s) by the tree work contractor looking for signs of bats should be carried out before starting work. This should include an inspection of all holes and niches using a torch and preferably an endoscope. If bats or signs of bats are found, no work should start and Natural England and the Project Ecologist should be contacted for further advice;

- Where possible, avoid cross cutting in proximity to cavities or hollows;
- Limbs with internal fissures should be pruned carefully to maintain integrity of features as potential roost sites;
- Any sections felled containing cavities should be lowered carefully and left on the ground (preferably for 24 hours) with the openings clear, allowing anything inside an opportunity to escape;
- Split limbs that are under tension may need to be wedged open to prevent their closure when pressure is released, potentially trapping bats;
- If ivy covers areas of a tree's trunk or branches, there is roosting potential behind it. Dealing with ivy-covered trees depends on the amount of growth. If there is a thick mass of ivy growth, it may be practical to consider felling the tree on the basis that the thickness of the foliage will soften the fall and reduce the shock. This tree can then be inspected on the ground and if possible left for 24 hours, before section cutting. If the tree is only partially covered, pruning or sectioning may be more appropriate. If the works are not urgent, cutting the ivy at its base and completing the work when the ivy is dead will reduce the bat roosting potential. Where stems of ivy create a dense mass against the trunk, there will always be roosting potential;
- Be aware that most bird nests are also protected if working in the spring.

If bats are discovered when branches are removed or trees felled (particularly in winter), work must stop immediately and Natural England and/or the project ecologist (0191 285 5910) contacted. Advice will be given on how to proceed, including collecting up any bats with gloved hands and putting them into a bat box, if appropriate.

APPENDIX 5

ARBORICULTURAL INSPECTION PROFORMA

ARBORICULTURAL INSPECTION PROFORMA			
			
ARBORICULTURIST REPORT			
Site Name		Date	
Arboriculturist		Time	
Client Name		Weather Conditions	
Activities			
Recommendations			
Further Work Required			
Signed			
DELIVERY OF RECOMMENDATIONS/FURTHER WORK			
Works must be complete by			
Works undertaken by			
Date / Time Works undertaken			
Works Supervised / Overseen by			
Works Supervised / Overseen by			
Signed			
<i>Upon completion of the arboricultural work this form should be signed by site staff and returned to -</i> AJT Environmental Consultants Environmental Consultants • Chartered Landscape Architects The Studio, 20 The Grove, Newcastle Upon Tyne, NE3 1NE Tel: 0191 285 5910 • Fax: 0191 213 5517 • Email: ajtec@ajt.co.uk			