The Tree File
Consulting Arborists

Additional Information
Reg Ref: SD21A/0042

Arboricultural Report
Trees at Proposed Site
within the townland of Ballymakaily,
West of Newcastle Road (R120),
Lucan
Co. Dublin
November 2021

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Contents

Associated Drawings

This report is for reading in conjunction with the drawings noted below

	Drawing Title	Drawing Subject
1)	EdgeConneX Tree Constraints Plan	Tree Constraints Plan A plan depicting the predevelopment location, size, calculated constraints, and simplified tree quality category system
2)	EdgeConneX Tree Impacts Plan	Tree Impacts Plan This plan represents the effects of the proposed development works on the above tree population and depicts trees to be retained and removed.
3)	EdgeConneX Tree Protection Plan	Tree Protection Plan This plan depicts the nature, location and extent of tree protection measures required for sustainable tree retention.

1 Report Summary

1.1 This report addresses item 6 of the Clarification of Additional Information regarding Reg Ref SD21A/0042 regarding the proposed development by EdgeConneX Ireland Limited of a proposed data centre with associated office facilities and infrastructure

1.2 The site supports little vegetation of Arboricultural interest, other than an agricultural field hedge system. The "red line" area supports only three trees, each of which are of poor quality and are not intended for retention. The site is adjoined, to the north, by a number of trees, but these are positioned outside of the site red line and thus are beyond the site's jurisdiction.

1.3 Though variable, many of the agricultural field boundary hedges are in reasonable condition and a majority offer good sustainability if managed over time.

1.4 The proposed development of the site will unavoidably consume or otherwise modify a large proportion of the site area. Of the sites 7no. trees, 4no. will be removed to facilitate works (though 3no. of these are recommended for removal because of poor condition). Notwithstanding this, there is the potential to retain 3no trees and circa 755 metres within the site. This is in addition to the entire boundary hedge along the western and southern boundaries.

1.5 The retention of this vegetation will be achieved by using tree protection measures. This will comprise "construction exclusion fencing", erected prior to the commencement of site works and maintained in situ until the completion of all construction related works.

1.6 With the provision of suitable tree protection measures, the proposed development can be achieved with the loss of only 4no. tree (3 of which are recommended for removal on grounds of poor quality) and circa 670 metres of hedging.

2 Introduction

2.1 This report was commissioned by-
Westar Investments Ltd.

This report was prepared by-
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Report Brief

2.2 An Arboricultural report has been requested in respect of the proposed development. As "BS5837: 2012 Trees in Relation to Design, Demolition and Construction – Recommendations" is the accepted framework for such reports. its composition. inclusions and recommendations being followed as a general basis for such reporting.

Report Context

2.3 This report includes an Arboricultural review of the proposed development project. The report includes an assessment of the sites existing tree population within its current context. The report assesses their potential for sustainable retention in the post-development scenario. The report also describes the likely effects and repercussions of the development and construction process upon those trees. It also provides information regarding the necessary tree protection and the avoidance of damage to trees during the construction process, necessary to achieve sustainable tree retention.

2.4 This assessment summarises the Arborists findings and recommendations. These findings were developed after reviewing the proposed project details as provided by the design team, and after an evaluation of trees as defined and described in the tree survey at "Appendix 2". This report also includes a preliminary "Arboricultural Method Statement" at "Appendix 1" as well as a Tree Protection Plan. This plan illustrates the requisite conservation and protection methodologies necessary to maintain tree sustainability. This report is not intended as a critique of the proposed development but is an impartial assessment of the development implications relating to the sustainable retention of trees, whether that be any, some, or all trees. This report is for planning purposes only and may be deficient for construction phase use.

Report Limitations

2.5 This report relates the Arborists interpretation of information provided to him before the report compilation and gained by him during the undertaking of the site review and tree survey. The site review data is subject to the limitations set out under "Inspection and Evaluation Limitations and Disclaimers" in "Appendix 2" of this report. The findings and recommendations made within this report are compiled based upon the knowledge and expertise of the inspecting Arborist.

2.6 The "Implication Assessment" element of the report builds on assumptions and estimates, particularly in respect of how construction works might proceed on a day to day basis and appreciates the "design" stage of the project, as opposed to "detail design" or "construction" detail.

2.7 In line with the "design" stage of the development dtails, many elements of the "Arboricultural Method Statement" are deliberately broad and generic. They will require review, amendment and consolidation at the construction stage, for example, in respect of the size and nature of the equipment, plant and machinery that might be utilised by any potential building contractor and any details as may change at "detail design" or "construction detail" stages.

2.8 Accordingly, this assessment is premised on all its elements/recommendations, and the omission or alteration of any part of it, particularly the application of tree protection methodologies, can radically alter outcomes regarding sustainable tree retention.

3 Site Description

3.1 The site in question is located south of Lucan, Co Dublin and to the south of the Grand Canal with the sites eastern boundary being adjoined by the Lucan to Newcastle road. The site appears broadly level and comprises agricultural land divided into various fields. Towards the north of the site area and adjoining the canal towpath there are several derelict buildings and farm yards.

3.2 In comparison to the current context, he 18th century historical mapping notes a single building group referred to as The Grange accessed from the Newcastle Road and within the townland of Ballymakailly. To the west of the house, there appears to have been areas of quarrying.

3.3 Much of the vegetation associated with the site is associated with field or paddock demarcations with the site supporting a larger number of hedges and alignments than it does individual trees. All of the hedges remaining to date are noted on historical mapping, though it appears that some hedges have been removed during the 20th century. The 1837-42 mapping suggests most field demarcations supported vegetation, most likely hedges. If trees had existed, there is nothing remaining still on the site that would date from this period.

3.4 During the review, the bulk of the central and southern portion of the site exhibited evidence of recent agricultural use however, the northern area, south of the towpath and associated with the derelict buildings and outbuildings appears to have undergone varying degrees of disturbance and modification in the recent past.

4 Pre-Development Arboricultural Scenario

4.1 This survey builds upon an earlier review of site vegetation, from which no substantive changed have been recorded. However, the northern site has become increasingly overgrown. Additionally, a greater proportion of the young emergent Elm population has now been affected by Dutch Elm Disease

1.2 Much of the material associated with this site relates to its original agricultural usage. All described hedge lines being represented on both the 1837-42 and the 1888-13, though the historical mapping shows that some hedges, particularly to the south of the site have been lost. Current field demarcation is dominated by hedges, that appear to be associated with topographical features including ditches and embankments. In some instances, the features are large however, in other instances, for example towards the north of the site, such features tended to be of a smaller scale and in some instances have been partially eroded out. Nonetheless and in respect of any intent to retain such material, it must be appreciated that the retention of hedges is intrinsically linked with the retention and preservation of the ditches or embankments that support them.

1.3 Many of the hedges appear to have originated as Hawthorn alignments. While many of these Hawthorns remain, many hedges are now becoming invaded by other species,

most notably Blackthorn, Elder, Bramble, Ash and Wych Elm. Many of the hedges retain reasonable continuity however, such continuity is not always provided by the original Hawthorn.

1.4 Regarding the southernmost areas of the site, note is made of the numbers of emergent Elms arising from hedgerows. Since the survey undertaken in 2018, it is noted that many more trees have died because of ongoing Dutch Elm disease attack. It is likely that many is not all remaining Elm on the site will be lost to the disease in the near future.

1.5 Similar concerns are developing in respect of Ash. Chalara Canker disease is developing widely in Ireland, with many specimens already affected or dead. Therefore Ash should not be relied upon as part of sustainable tree retention strategy as the Ash on the site at present may be lost in the near future.

1.6 Within the region of the outbuildings and farm yards towards the north of the site, note is made of substantial, apparently recent environmental change and vandalism that has seen substantial ground works and ground disturbance as well as fire damage. Many such hedges are beyond any reasonable suitability for retention.

1.7 It is about the north of the site that we see most individual tree specimens. Unfortunately, very few specimens can be regarded as being suitable for retention and indeed some are recommended for immediate removal.

1.8 With regard to the western end of the site's northern boundary, note is made that though located outside of the site confines, the embankment descending towards the Grand Canal supports a developing tree population typically including Sycamore, Alder and Ash. Many such trees would be suitable for retention and have immense potential for ongoing growth over time. Note should however be made that there is evidence to suggest substantial fill and disturbance along the boundary line that may have disturbed both trees directly adjoining and some metres outside of the site. Note is also made that some trees in this area and particularly a Crack Willow, are in particularly poor condition. As noted within the survey, an Ash and Sycamore have been harshly cut back because of their position beneath high tension cables and the Crack Willow has collapsed affecting another described Ash. These poorly condition trees are located substantially outside of the site confines but potentially close enough to influence them as result of ongoing growth over time.

1.9 In conclusion it is worthy of note that the site supports little material of Arboricultural interest though it is appreciated that some elements may have ecological and heritage value. Regarding the tree population very few specimens would be regarded as valuable though it is appreciated that some of the hedges, dependent upon the context within which they might be retained, do offer some degree of sustainability.

5 Planning Scenario in Respect of Tree

5.1 In respect of trees as they relate to planning within the **South Dublin County Council** area, note is made of two areas of guidance including - **The South Dublin County Council Development Plan 2016-2022** and **South Dublin County Council's Tree Management Policy 'Living with Trees'.**

5.2 **South Dublin County Council's Tree Management Policy 'Living with Trees'** "and the Amendments to Tree Management Policy 2015-2020 'Living With Trees' (as well as an interim internal review in February 2019) that incudes substantial amounts of information in respect of tree management, planting and pertinent to this application. information pertaining to trees on development sites as outlined in Section 7, Trees and Development.

5.3 Within the **South Dublin County Council Development Plan 2016-2022,** trees and tree issues are dealt with regularly, including **Chapter 4, Economic Development and Tourism,** section 4.3.3, ET3 Objective 5 calling for the retention of trees on commercial development sites. Under Chapter 6, Transport and Mobility notes that the design of urban roads and street should incorporate tree planting.

5.4 As expected, trees are mentioned widely in **Chapter 8, Green Infrastructure**, with objectives to protect, and preserve trees and woodlands as per G2 Objective 9 and G6 Objective 1 and well as to include new tree planting as per Objective G2 Objective 11.

5.5 Also, **Chapter 10, Heritage, Conservation and Landscapes**, mentions trees, particularly HCL10 Objective 3, HCL11 Objective 5, HCL15 Objective 3 and HCL17 Objective 1. Within Chapter 10, trees are also mentioned specifically in respect of Section 9.2.4 GRAND CANAL where trees are considered an integral part of the canal landscape.

5.6 Specifically, **Chapter 10, Heritage, Conservation and Landscapes**, includes Section 9.5.0 Tree Preservation Orders, including their application as well as defining the 4 existing orders located at, St. Brigid's (now Newlands Garden Centre), New Road, Clondalkin, Beaufort Downs, Rathfarnham, Townland of Quarryvale and Brooklawn, Palmerstown and Newcastle Road, Lucan.

5.7 In **Chapter 11, Implementation** and under "Masterplan Considerations", "Open Space and Landscape" and particularly "Section 11.5.5 Landscape" again mentions the importance of retaining trees and hedges.

5.8 The site area supports not tree preservation orders. To the north of the site, there are a number of protected structures recorded (118, 119, 125 and 127), but are positioned outside of the site area.

5.9 The site is adjoined along its northern edge by the Grand Canal "Proposed Natural Heritage Area" (pHNA No. 002104) that may increase conservation and protection requirements associated with the area.

6 Other Legislative and Legal Constraints

6.1 Under the Forestry Act 2014, the felling of a tree standing in a county area requires a felling license unless the trees are exempted under Section 19 of the Act. An exemption applies where trees are being felled in line with a specific detail of a grant of planning permission.

6.2 Some "Section 19" exemptions are not applicable to the development scenario, for example, those applying to fire control, forest survey or gene pool protection relating to horticultural use or Christmas tree production.

6.3 Some exemptions are pertinent to the development scenario, particularly Section 19(1)(M)(ii), where "the removal of which is specified in a grant of planning permission".

6.4 Other non-specific exemptions may also be applicable, including-

- Trees standing in an urban area.
- Trees within 30 metres of a building (other than a wall or temporary structure), but excluding any building built after the trees were planted.
- Trees removed by a public authority in the performance of its statutory functions.
- A tree that is, in the opinion of the planning authority, dangerous on account of its age, condition or location.
- A tree within 10 metres of a public road and which, in the opinion of the owner (being an opinion formed on reasonable grounds), is dangerous to persons using the public road on account of its age or condition.

6.5 The above derogations do not apply where-

- The tree is within the curtilage or attendant grounds of a protected structure under Chapter 1 of Part IV of the Act of 2000.
- The tree is within an area subject to a special amenity area order
- The tree is within a landscape conservation area under section 204 of the Act of 2000.
- The tree is within a monument or place recorded under section 12 of the National Monuments (Amendment) Act 1994, a historic monument or archaeological area entered in the Register of Historic Monuments under section 5 of the National Monuments (Amendment) Act 1987, or a national monument in the ownership or guardianship of the Minister for the Arts, Heritage and the Gaeltacht under the National Monuments Acts 1930 to 1994 or is within a European Site or a natural heritage area within the meaning of Regulation 2(1) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011)

6.6 For further clarification, contact should be made with Forest Service (Department of Agriculture, Fisheries and Food). The Felling Section of the Forest Service is based in Johnstown Castle, Co. Wexford

6.7 Other legislation may affect tree cutting and felling. Particular note should be made of the "Wildlife Act 1976 (as amended), as well as the EU Habitats Directive. These offer protection to animals, including Bats that often root or even breed in trees. The protection afforded by the above legislation means that particular care must be taken in the pruning of felling of trees that may contain Bats. For this reason, specific specialist advice should be sought.

7 Construction Activities and their Effect on Trees

General

7.1 As with all living things, trees are highly reliant upon their environment, the changing of which can undermine health and sustainability. The survival of the plant requires water and various nutrients provided by the soil in which the tree is rooted. The continuity of ground conditions is of particular importance in maintaining tree health and sustainability. Any change to ground conditions extending beyond the short-term, has the potential to affect a tree's metabolism, health, and sustainability.

7.2 Development and construction activities can easily result in the loss, alteration or denaturing of the soil upon which a tree is dependant. Any action that removes, disturbs or denatures the existing soil environment in respect of chemistry, pH, gas flux, hydrology, soil strength or bulk density can damage tree roots and render a soil incapable of supporting plant root function. Therefore, these effects must be avoided in the areas upon which a tree is reliant.

7.3 Tree retention is costly in respect of available space. There is a substantial difference between physically retaining a tree in situ and gaining any realistic expectation of it surviving into the future. Sustainable tree retention is commonly dependent upon the extent and nature of protection it can be afforded during construction.

7.4 Any structure or activity that results in the issues noted above must be regarded as contrary to sustainable tree retention. In many instances where such issues arise within the minimum "root protection area" as defined under "BS5837-2012", then the sustainability of the tree may be affected.

Construction Specific Issues

7.5 New structures, their foundations as well as underground infrastructure and services all require the excavation of ground space. These digs are often substantially larger than the footprint of the structure. Some structures, including roads and paths, require that the ground beneath is compacted to provide a necessary bearing ratio. The combination of these activities typically results in the loss or denaturing of the soil volume that a tree may be reliant upon.

7.6 Most modern construction involves the use of substantial plant, equipment, and vehicles. The movement and activity of such machinery quickly compacts and denatures the ground, destroying the soil profile upon which trees are reliant.

Contextual Issues

7.7 Tree removal may be justified because of poor-quality, ill-health or other deterioration that raise safety considerations. Many such trees would be removed regardless of any site development. However, some poorer-quality trees, for example, if located in areas of reduced sensitivity, might offer some degree of limited or interim retention, dependant on the retention context and the threat they may present.

7.8 Where the site context changes in respect of occupation and use near trees, repercussions may include a requirement for greater scrutiny and management. Some trees may require specific attention, including structural pruning improve their safety status within the changed context, as well as to deal with issues of exposure and shelter loss.

7.9 Trees should be considered in respect of shadow-cast, light admission and blockage of views. Trees can have a material effect on these issues and can lead to post development request for more tree removal, for example based on a requirement for artificial light during daylight hours.

7.10 Foliage shedding can be subject to local wind patterns, creating local drifts and accumulations. This requires management and can lead to drainage issues including the blockage of drains and gullies, or to the creation of slippery surfaces. Similarly, some trees are subject to seasonal insect infestations. Issues such as Aphid "honeydew" and the creation of stick residues and/or slippery surfaces should be considered.

8 Nature of Project Works

8.1 Construction of two single storey data centres with associated office and service areas; and three gas powered generation plant buildings with an overall gross floor area of 24,624sq.m that will comprise of the following: Demolition of abandoned single storey dwelling, remaining agricultural shed and derelict former farm building; Construction of 2 single storey data centres (12,797sq.m), both with associated plant at roof level, with 24 standby diesel generators with associated flues (each 25m high) that will be attached to a single storey goods receiving area/store and a single storey office area (2,404sq.m) located to the west of the data centres as well as associated water tower and sprinkler tank and other services; Amendments to the internal access road and omission of access to loading bay permitted under SDCC planning Ref. SD19A/0042/ABP Ref. PL06S.305948 that include the relocation of permitted, and new, internal security gates; and new internal access roads to serve the proposed development that will provide access to 39 new car parking spaces (including 4 electric and 2 disabled spaces) and sheltered bicycle parking to serve the new data centres; The

development will also include the phased development of 3 two storey gas powered generation plants (9,286sq.m) within three individual buildings and ancillary development to provide power to facilitate the development of the overall site to be located within the south-west part of the overall site. Gas plant 1 (3,045sq.m) will contain 20 generator units (18+2) with associated flues (each 25m high) will facilitate, once operational the decommissioning of the temporary Gas Powered Generation Plant within its open compound as granted under SDCC Planning Ref. SD19A/0042/ABP Ref. PL06S.305948. Gas plant 2 (3,045sq.m) will contain 20 generator units (18+2) with associated flues (each 25m high). and, Gas plant 3 (3,196sq.m) will contain 21 generator units (19+2) with associated flues (each 25m high). These plants will be built to provide power to each data centre, if and, when required. The gas plants will be required as back up power generation once the permitted power connection via the permitted substation is achieved; New attenuation pond to the north of the site; Green walls are proposed on the southern elevation of each power plant, as well as to the northern elevation of the generator compound of the data centres, and enclosing the water tower/pump room compound, and a new hedgerow is proposed linking east and west of the site; Proposed above ground gas installation compound to contain single storey kiosk (93sq.m) and boiler room (44sq.m). The development will also include ancillary site works, connections to existing infrastructural services as well as fencing and signage. The development will include minor modifications to the permitted landscaping to the west of the site as granted under SDCC planning Ref. SD19A/0042/ABP Ref. PL06S.305948. The site will remain enclosed by landscaping to all boundaries. The development will be accessed off the R120 via the permitted access granted under SDCC planning Ref. SD19A/0042/ABP Ref. PL06S.305948. An EPA-Industrial Emissions (IE) licence will be applied for to facilitate the operation of the gas powered generation plant. An Environment Impact Assessment Report (EIAR) has been submitted with this application. All on a site of 22.1hectares.

8.2 Considering the scope and scale of the proposed development, then many of the issues dealt with at "Construction Works and Trees" above could apply if trees are not protected during construction works, including-

a) Direct conflict with proposed structures, thus requiring tree removal.
b) A partial conflict where the "Root Protection Area" is encroached upon by works or ground amendments and cannot be preserved/protected in full.
c) Environmental damage e.g. compaction, capping, sealing – changing the existing ground environment to one that can no longer support tree root function.
d) Construction activity and the use of large plant and machinery that can denature the ground.
e) A change in site context or a change in occupation or use which makes a tree unsuitable for retention.

9 Development Related Issues and Arboricultural Concerns

9.1 The greatest issues affecting trees has been the consumption of site space and encroachment on trees ostensibly retainable trees and hedges.

9.2 This means that successful tree retention will be subject to the limitation of construction related disturbance and the provision of suitable tree protection during the construction phase.

10 Design Iterations and Arboricultural Considerations

10.1 This report relates to clause 4.4.2.1 of BS5837-2012 in that its finding relate to a predefined concept that was issued for review. Accordingly, the report assesses Arboricultural implications and impacts of the proposals, making recommendations in respect of tree protection relating to those trees that might be retained and as outlined below.

11 Identification of Development Impacts to Trees

11.1 The expected tree impacts have been represented graphically on the tree impacts drawing **"EdgeConneX Tree Impacts Plan"** and within the narrative of this report. This drawing combines the tree constraints plan information with the current stage development details, including the architectural and services layouts below, thereby allowing for simple direct comparisons between the existing site context and the development proposals regarding new structures.

11.2 In this drawing, trees denoted with "Broken Pink" crown outlines are to be removed, and those denoted with "Continuous Green" crown outlines are to be retained.

11.3 Detail of the development proposals where gained from drawings provided by-

- Kevin Fitzpatrick Landscape Architecture, (combining Architectural and Engineering detail)

11.4 The evaluation is primarily based on minimum protection ranges as defined in paragraphs 4.6.1, 4.6.2 and 4.6.3 of BS5837:2012. Any structure, action or apparent need to enter or otherwise disturb/convert the "root protection area" of a site tree has been considered likely to have a negative impact, with the potential to render a tree wholly unsuitable for retention, unsafe or unsustainable.

11.5 Where applicable, this assessment attempts to consider both direct and indirect implications. The assessment is based on perceived construction requirements and how a tree will likely interact with the development. The assessment appreciates issues including growth, hazard development, light blockage and other social concerns regarding the changing context, including its effect on tree amenity value.

12 Tree Retention and Loss

12.1 The drawing "EdgeConneX Tree Impacts Plan" comprises the tree survey drawings overlaid by the development drawings, thus providing a graphic representation of the relationship between tree constraints and the development elements. In this drawing, the trees that will be removed, are highlighted in "pink dashed" outlines.

12.2 While additional trees exist to the north of the site, the "red line" area supports a total of only 7no. individually described trees. The site supports or is adjoined by 19 hedges. In respect of trees, these include -

- No category "A" trees
- No category "B" trees
- 4no. category "C" trees
- 3no. category "U" trees

12.3 Normally, all category "U" trees (3 in total across survey area) identified in the survey would be removed. Most such material should be removed regardless of development works. In this instance, this would include tree nos. 12, 14 and 15

12.4 The proposed development will result in the removal of no good-quality category "B" trees.

12.5 Of the site's 4no. category "poor" quality "C" trees, the development works appears to require the removal of no. 3 only.

12.6 The tree loss breakdown for the proposed developemnt will be-

- No Category "A" trees
- No Category "B" trees
- 1 category "C" trees
- 3 category "U" trees

In addition to tree losses, the development will require the removal of

- Circa 670 metres of hedging.

12.7 Total development related tree loss – 4No. trees/groups

13 Tree Protection within the Scope of a Development

13.1 The design and management recommendations as set out in "BS5837:2012" are considered as "best practice" regarding the selection, retention, protection, and management of tree within the scope of new developments.

13.2 In respect of tree protection, whether vertical or horizontal, all must conform or equate to the recommendations of Section 6, BS5837: 2012, must be fit for purpose and

commensurate with the nature of development and the expected day-to-day activities of the site works.

13.3 This report provides a "Preliminary Arboricultural Method Statement" at "Appendix 1" to this report, as well as the associated "Tree Protection Plan" drawing "EdgeConneX Tree Protection Plan".

13.4 In the drawing, the "Construction Exclusion Zone" is defined by an orange hatching with bold "Orange" lines representing the proposed location of the primary protective "Construction Exclusion Fencing".

13.5 The above drawing provides only a representation of the protection locations and extents that must be located, positioned and erected under the guidance of the project Arborist. This drawing may require referral to a figured and dimensioned, "construction stage" version of the "Tree Protection Plan" drawing. All recommended protection measures will be installed before the commencement of any site works and must remain in situ (unless under the guidance of the site Arborist) until the completion of all site works.

14 Preliminary Management Recommendations

14.1 Provided in the tree survey table (Table 1) are "Preliminary Management Recommendations". These recommendations relate to the trees as they existed at the time of the tree review. Therefore and in line with the changing context of the site, such recommendations may no longer apply. Examples include where the felling of trees or other specific works are necessary to facilitate development requirements.

14.2 Many of the concerns raised in the tree survey relate to evidence suggesting mechanical failure to trees, ill-health or contextual issues. These may continue to a point where the suitability of a tree for retention may change over time.

14.3 Additionally, any development related loss of trees can result in exposure and shelter loss issues. Therefore all retained trees must be reviewed immediately after the primary site clearance works. A review will allow for the updating and amending of the "preliminary management recommendations" of the primary survey. Such amendments would address such issues as may arise and may include additional structural pruning works. Regular reviews of all retained trees must be maintained, so that early and prompt intervention and action can be applied as required.

15 Bibliography

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A1 Appendix 1 - Arboricultural Method Statement (and Tree Protection Plan)

Method Statement Outline

A1.1 This method statement intends to provide guidance in respect of tree protection on a development site. This is a broad and prescriptive method statement, intended to provide general advice and guidance in respect of trees and tree protection on a typical development site, dealing with issues known at planning stage.

A1.2 Any inability to conform to the recommendations of this method statement or the associated tree protection plan could readily change the sustainability of trees and/or their suitability for retention.

A1.3 This method statement addresses, amongst others, two primary issues, those being –

a) The avoidance/prevention of physical damage to a tree to be retained.

b) The avoidance/prevention of physical damage or disturbance to the ground/earth upon which a tree is reliant.

Drawings

A1.4 This Arboricultural Method Statement must be read with the associated "Tree Protection Plan" drawing, "EdgeConneX Tree Protection Plan". The "planning stage" drawing must be updated for "Construction" stage purposes, to include tree protection ranges/dimensions as defined for that tree within the tree survey table or unless otherwise defined by the project Arborist.

Method Statement Use

A1.5 This Method Statement should be used under the direct guidance of the project Arborist. As limited "construction stage" detail was available at planning stage, it may require amendment and adjustment to address construction stage issues.

Amendments and Modifications to Tree Protection Plan

A1.6 Any amendment to the tree protection plan must be agreed with the project Arborist, including the adoption of specific methodologies and/or procedures and structures for access into/use of certain parts of the above defined "Construction Exclusion Zones". Such procedures, including the provision of suitable ground protection may allow for the relocation of the "Construction Exclusion Fencing" to provide access to and across the previously protected areas.

Works Related Impacts

A1.7 In respect of any necessary and unavoidable structures/works required within or entry into the "RPA" zone, all efforts must be made to minimise impacts. Aerial issues may

require "access facilitation pruning" or clearance pruning. Subterranean works that require excavation must, by design, location, and action, minimise impacts to trees.

Tree Works Specification Updates

A1.8 Many of the tree management recommendations stipulated within the "Preliminary Management Recommendation" section of the primary tree survey, relate to the "as was" site scenario. Because of changing site contexts, these may no longer apply and may require modification to account for the changes that the built project will cause.

General Method Statement

1.0) Overview and Implementation

1.1 **Prior to any site works or construction/demolition related works or access, this method statement will be addressed and discussed by all member of the construction team management.**

1.2 The project Arborist or another suitably qualified person will oversee the application of all tree protection measures and any necessary modifications to this Method Statement (any issues as may have arisen in respect of planning conditions or details as may have changed between the design stage) to provide a basis upon which tree protection will be managed on the construction site.

1.3 Any situation that requires entry into the "root protection zones" of a tree intended for retention must be brought to the attention of the Project Arborist regarding the adoption/amendment of suitable tree protection measures.

1.4 As unforeseen tree losses may compromise project planning permissions, it is imperative that issues relating to tree protection and/or tree damage be brought to the immediate attention of the project Arborist for review and possible discussion with the relevant planning authority.

2.0) Works Sequence

2.1 No construction related works or mechanised site access will occur until the agreed level of tree protection, in accordance with the "Tree Protection Plan", is completed.

2.2 The only exception to the above will relate to the undertaking of tree works and felling as defined in the Arboricultural report and/or grant of permission.

2.3 On completion of tree felling/site clearance works, the tree management plan will be reviewed, accounting for (if necessary) the updating of the "preliminary Management Recommendations" stipulated in the original Tree Survey.

2.4 Any revised pruning/cutting works will be agreed with the local authority and applied at the earliest possible opportunity.

2.5 After the completion of primary tree clearance, but prior to the commencement of construction works, all "Construction Exclusion" and "Protective" fencing must be erected and "signed-off" as complete, by the Project Arborist.

2.6 Only on completion of all construction works will any/all tree protective measures be removed, and only then in a manner, that does not compromise the "Protection Zones". Such works must be agreed and overseen by Project Arborist.

2.7 At construction works completion stage, all retained trees will be reviewed regarding their condition and longer-term management recommendations and regarding site hand-over,

3.0) Tree Protection

3.1 All tree protection measures and locations must be agreed, overseen, and verified by the Project Arborist prior to works commencement.

3.2 All construction, works or access areas must be enclosed and defined by protective fencing, this comprising the "Construction Exclusion Zone" based upon drawings "EdgeConneX Tree Protection Plan" (Construction Stage version).

3.3 Unless specifically stipulated by the project Arborist, the default minimum range of the protective fencing from a tree is the range stipulated for that tree within the "RPA" (root protection area) column of the original survey.

3.4 Such a fence must be fit for purpose and commensurate with the nature of activity expected upon the site and should comply with "Section 6.2" of BS5837: 2012.

3.5 The fence should be affixed with notification signs such as "TREE PROTECTION AREA - KEEP OUT"

3.6 Structures such as "lock-ups", offices or other temporary site building, not requiring excavation or underground ducting, might be positioned such as to comprise part of the "Construction Exclusion Zone" fencing. All remaining fencing must be continuous with such features and effectively prevents access to protected ground.

3.7 If entry into the "RPA" (Root Protection Area) zones becomes unavoidable, ground protection systems agreed with the project Arborist, will be utilised.

3.8 No amendment, alteration, relocation, or removal of the tree protection fencing shall occur without prior liaison and approval from the Project Arborist.

4.0) Provision of Ground Protection (If Required)

4.1 No vehicular/mechanised access whatsoever will be allowed onto unprotected "Construction Exclusion Area" ground.

4.2 Ground protection can comprise the use of proprietary materials/structures (installed to manufacturer's specifications and recommendations) or procedures that avoid ground damage/disturbance/compaction, or the use of procedures that avoid such effects e.g. manual/pedestrian installation procedures.

4.3 Any system utilised must effectively spread load-weight, avoid compaction, maintain drainage/percolation/aeration, and be installed in a manner that avoids these issues.

4.4 Newly provided access will be strictly limited to the area of the new protection structure.

4.6 Protection installation will require a progressive laying down of ground protection, with previously laid material providing vehicular access to the next zone will be accepted as an approved methodology.

5.0) Works within "RPA" Zone

5.1 Only works and construction practices, agreed with the Project Arborist prior to commencement, will be allowed in the "RPA" area.

5.2 All works will be undertaken under the supervision and guidance of the Project Arborist who will have the authority to stop works if activities are considered such as to have the potential to damage trees.

5.3 Preference must be given to manual labour and techniques within the fenced "RPA" zone.

5.4 On completion of the required works, the area will be inspected by the Project Arborist regarding the reinstatement of the original protection and the relocation of the protective fencing to a position relating to the original "RPA" area.

6.0) Service Installation

6.1 The "Project Arborist" must be consulted for advice and procedural recommendations, in respect of any installation of services within or requiring entry into the "Root Protection Area" of any tree intended for retention.

6.2 Any such works found to be unavoidable, must be undertaken with special care, incorporating the recommendations of both "BS5837: 2012 and the National joint utility groups, guidelines for the planning, installation and maintenance of utility services in proximity to trees (NJUG 10)

6.3 Preference must be given to trench-less techniques including Mole-piping, Directional-drilling manual hydro-trenching (high-pressure water). "Air-Spade" or broken-trench techniques.

7.0) Tree Management and Works

7.1 All tree works should be undertaken under the guidance of the project Arborist

7.2 The primary site clearance and felling should be undertaken at the earliest stage of the overall development works, to enable the re-assessment of all ostensibly retainable trees and the updating of the "Preliminary Management Recommendations" to account for context changes and construction access and/or other issues coming to light.

7.3 All Tree Works must adopt safe work procedures and must be undertaken by staff suitably trained for the purpose at hand and compliant with all legislative, safety and insurance requirements.

7.5 All additional works will be agreed with the local authority and/or other stakeholders and applied at the earliest possible opportunity.

7.6 On completion of site works, the retained tree population will be reviewed and re-evaluated regarding its ongoing condition and the likely requirements of any ongoing or future monitoring or management needs.

8.0) Demolition

8.1 All demolition procedures must be agreed and overseen by the Project Arborist or other suitably skilled staff to monitor for damage and to protect exposed roots/cut-trim exposed roots/oversee backfilling of exposed roots.

8.2 Where access into unprotected "RPA" zone becomes unavoidable then suitable ground protection, provided in accordance with an engineer's direction and agreed with the Project Arborist will be installed.

8.3 Care will be taken to avoid damage to soil volumes beneath and adjoining demolished structures that may contain tree root material.

8.4 Whilst existing foundations/structures may provide temporary protected access to areas within the "RPA" zone, preference must be given to the location of demolition plant outside of the "RPA" zone.

8.5 Where tree(s) exist near a structure to be demolished then the demolition should be undertaken inwards within the footprint of the existing building (top down, pull back).

8.6 Underground structures (services etc.) within the "RPA" zone should be reviewed with regards to decommissioning and retention in situ in the interest of avoiding tree damage.

8.7 Preference should be given to the retention existing sub-bases where hard surfaces are removed, particularly if the hard surface is to be replaced.

9.0) Ancillary Precautions

9.1 The methodologies as set out in this document apply to all undertakers of work upon or adjoining the site as may require access to the "Construction Exclusion Zone" or the "RPA" area of any tree.

9.2 This document will be disseminated to all persons requiring access to the work site, with all persons undertaking works either before or after the principal development (site investigation works, Landscape Contractors) are subject to the above requirements

9.3 Works outside the "Construction Exclusion Zone" must be controlled to create no potential secondary hazard to tree health.

9.4 Large loads accessing the site must be reviewed regarding clearance and potential tree damage.

9.5 Care must be taken regarding materials that may contaminate the ground. No concrete mixings, diesel or fuel, washings or any other liquid material may be discharged within 10 metres of a tree.

9.6 No fires can be lit within 5 metres of any tree canopy extent.

9.7 No tree will be used for support regarding cables, signs etc.

9.8 The trees should be reviewed on a regular basis throughout the development process and on completion. At that time, additional recommendations regarding tree management may be required.

9.9 Any issue that has the potential to affect site trees must be brought to the attention of the Project Arborist for review and comment.

9.10 Any circumstances that become known whilst the development project is ongoing that either involves trees or access to/works within the construction exclusion zone must be brought to the attention of the Project Arborist for evaluation and advice regarding approach and methodology.

9.11 It is possible that liaison/agreement will be required with the Local Planning Authority regarding compliance with, as well as the verification of the required tree protection measures.

A2 Appendix 2 - Tree Survey

Nature of Survey

A2.1 The criteria put forward in "BS5837:2012 – Trees in Relation to Design, Demolition and Construction – Recommendations" have provided a basis for this report.

A2.2 The data collected has been represented in table form as "Table 1" within "Appendix 1" to this report. This appendix includes a Survey Methodology, Survey Key, Survey Abbreviations, Condition Category Definitions and a brief resume of the typical application of Tree Protection measures as defined within the above standard and as relates to the "RPA" zones defined both within the survey table and on the "TCP" drawing.

A2.3 The survey, its findings and management recommendations relate to the site and the conditions thereon at the time of the survey. It relates to a "do nothing" or "as is" scenario and intends to provide an impartial representation of the site's tree population, regardless of any possible development works. It is likely that changes in site usage, development or other environmental changes will require an amendment of any tree's potential retention status and its preliminary management recommendations, and in some instances, may require the re-classification of a tree's suitability for retention.

Drawing References

A2.4 The survey must be read with the "Tree Constraints Plan" drawing "EdgeConneX Tree Constraints Plan" regarding the representation of tree positions, crown forms, "RPA" extents and colour reference to category systems. Trees omitted from the supplied drawing may be "sketched in" to "EdgeConneX Tree Constraints Plan". Any such trees should be located and plotted by professional means to identify the constraints such trees have upon the site.

A2.5 A green coloured outline represents each tree crown. It is scaled to represent the north, east, south, and west crown radii as denoted in the survey table. Each tree (categories A-green, B-blue, and C-grey only) have been apportioned a "Root Protection Area" (RPA see below) denoted as a dashed orange circle.

A2.6 The development of a Tree Constraints Plan (TCP) provides a design tool regarding tree retention. Such a plan combines the topographical land survey drawing with additional information as provided by the tree survey. The aspects of the tree's existence recorded on the "TCP" are, firstly, the tree canopies, represented by the four cardinal compass point radii (Sp: R in survey Table 1). Secondly, and following paragraphs 4.6.1, 4.6.2 and 4.6.3 of BS5837: 2012, we represent each tree's "Root Protection Area" (RPA). For design purposes, it approximates the position of the tree protection fencing to be erected before the commencement of any site works, thus excluding all site

activities other than those dealt with by way of the "Arboricultural Implication Assessment" and "Arboricultural Method Statement".

A2.7 The "Tree Constraints Plan" (TCP) depicts the extent and location of constraints, placed upon the site by the trees. The "TCP" represents both the true canopy form (north, east, south, and west radii) but also the "RPA" as defined above. These constraints are provided to advise regarding the design and layout of a proposed development.

Survey Intent and Context

A2.8 This document intends to highlight the extent and nature of the material of Arboricultural interest on the site in question.

Survey Data Collection and Methodology

The Survey

A2.9 An earlier survey was updated in March 2021. This survey portion of the overall report is not an Implication Assessment though but provided some of the basic information regarding its compilation. The compilation of this survey was guided by the recommendations of BS 5837: 2012. This survey typically includes trees of stem diameters exceeding 150mm at approximately 1.50 metres from ground level. The survey relates to current site conditions, setting and context.

A2.10 Each tree in the survey has a consecutive number that relates directly to the survey text. Measurements are metric and defined in metres and millimetres. All trees referred to in the survey text have been measured to provide information regarding canopy height and canopy spread (north, east, south, and west radii), level of canopy base and stem diameter at 1.50 meters from ground level. The dimensions provided are intended to provide a reasonable representation of a tree's size and form. While efforts are made to maintain accuracy, visual obstruction, especially regarding trees in groups, requires that some tree dimensions be estimated only.

Inspection and Evaluation Limitations and Disclaimers

A2.11 The information set out in this report relates to the review of a tree population on the site in question. As such, the information provided is based on a general review of trees and does not constitute a detailed review of any one of the individual specimens. Such an evaluation (tree report) would require the gathering of substantially more information than that dealt with in this survey.

A2.12 The survey is not a safety assessment and the parameters reviewed within this survey context would be substantially deficient in extent to provide for a reliable safety assessment. The survey is intended to provide a general and qualitative review to assist

in gauging the suitability of an individual tree for retention within a development context. All trees are subject to impromptu failure and damage. The assessment of risk as may be presented by a tree requires the review of numerous factors more than those noted herein and as such, remains outside the scope of this document and any attempt to use the information herein for such proposes will render the information invalid.

A2.13 A competent and experienced Arborist has completed all inspection and tree assessment. The inspection involves visual tree assessment (Mattheck and Breloer 1994) only, which has been carried out from ground level. No below ground, internal, invasive, or aerial (climbing) inspection has been carried out.

A2.14 Trees are living organisms whose health, condition and safety can change rapidly. All trees should be re-evaluated regarding their condition on an annual basis or after substantial trauma such a storm event, other damage, or injury. The results and recommendations of this survey will require review and reassessment after one year from the date of execution. This survey does not constitute a review of tree or site safety. Attempts to use the contents herein for such purposes will render the contents invalid.

A2.15 Throughout the undertaking of the survey, several factors acted against the inspectors, contriving to reduce the accuracy of the survey.

Seasonality

A2.16 Various surveys have been completed during different seasons. Some of the signs, typically symptomatic of ill-health or defect within a tree, may not have been available to view at the time of the survey or may have been obscured by seasonality related factors. Some of the fruiting bodies of various fungi, parasitic upon or causing decay or disease in trees, may have been out of season and unavailable to view. This survey can only comment upon symptoms of ill-health or defects visible at the time of the inspection.

Survey Key

Species	Refers to the specific tree species
Age	Referred to in generalised categories including: -
Y - Young	A young and typically small tree specimen.
S/M - Semi-Mature	A young tree, having attained dimensions that allow it to be regarded independently of its neighbours but typically, would be less than 50% of its ultimate size.
E/M - Early-Mature	A specimen, typically 50% - 100% of ultimate dimensions but with substantial capacity for mass and dimensional increase remaining.
M - Mature	A specimen of dimensions typical of a full-grown specimen of its species. Future growth would tend to be extremely slow with little if any dimensional increase.

O/M - Over-Mature	An old specimen of a species having already attained or exceeded its naturally expected longevity.
V - Veteran	An extremely old, veteran specimen of a species, usually of low vigour and typically subject to rapid decline and deterioration or of very limited future longevity.
Tree Dimensions	All dimensions are in meters. See notes regarding limitation of accuracy.
Ht.	Tree Height
CH	Lowest canopy height
N, E, S, W	Tree Canopy Spread measured by radii at north, east, south, and west
Dia.	Stem diameter at approx. 1.50m from ground level.
RPA	Root Protection Area, as a radius measured from the tree's stem centre.
Con	Physical Condition
G Good	A specimen of generally good form and health
G/F Good/Fair	
F Fair	A specimen with defects or ill health that can be either rectified or managed typically allowing for retention
F/P Fair/Poor	
P Poor	A specimen whom through defect, disease attack or reduced vigour has limited longevity or maybe un-safe
D Dead	A dead tree
Structural Condition	Information on structural form, defects, damage, injury, or disease supported by the tree
PMR – Preliminary Management Recommendations	Recommendation for Arboricultural actions or works considered necessary at the time of the inspection and relating to the existing site context and tree condition. Works considered as urgent will be noted.
Retention Period	
S – Short	Typically, 0 -10 years
M – Medium	Typically, 10 -20 years
L – Long	Typically, 20 – 40 years
L+	Typically, more than 40 years
Category System	The Category System is intended to quantify a tree regarding its Arboricultural value as well as a combination of its structural and physical health.
Category U	Particularly poor quality, dangerous or diseased trees that offer no realistic sustainability
Category A	A typically a good quality specimen, which is considered to make a substantial Arboricultural contribution
Category B	Typically including trees regarded as being of moderate quality
Category C	Typically including generally poor-quality trees that may be of only limited value. The above categories are further subdivided regarding the nature of their values or qualities.

Sub-Category 1	Values such as species interest, species context, landscape design or prominent aspect.
Sub-Category 2	Mainly cumulative landscape values such as woods, groups, avenues, lines.
Sub-Category 3	Mainly cultural values such as conservation, commemorative or historical links.

Table 1 – Tree Data Table

No.	Species	Age	Con	Ht	CH	N	E	S	W	Stm	Dia	RPA	Structural Condition	PMR	Yrs	Cat
12	Ash *(Fraxinus excelsior)*	M	P	12.00	3.00	5.00	3.50	3.50	2.00	1	471	5.65	A poor-quality specimen in a state of ongoing decline and exhibiting evidence of Polyporus infection. Is wholly unsuitable for retention in roadside position.	Remove immediately.	N/A	U
13	Sycamore *(Acer pseudoplatanus)*	M	F	10.00	2.00	5.00	5.50	4.50	4.50	1	681	8.17	Is of variable vigour and vitality, arising from what appears to be disturbed ground. Note is made of buttress root damage and localised bark loss about buttress zone.	Review regarding retention context.	M	C2
14	Horse Chestnut *(Aesculus hippocastanum)*	M	P	8.00	2.00	5.00	5.00	5.00	5.00	1	993	11.92	Crudely decapitated and affected by chronic limb loss and decay. Is unsuitable for retention.		N/A	U
15	Sycamore *(Acer pseudoplatanus)*	M	D	11.00	2.00	4.00	4.00	4.00	4.00	1	780	9.36	Completely dead and in a state of ongoing collapse.	Remove immediately.	N/A	U
16	Ash *(Fraxinus excelsior)*	E/M	F	12.00	2.25	4.00	4.00	3.00	4.00	1	376	4.51	Relatively young and still vigorous. Arises from disturbed bank and area of dumped spoil between Canal towpath and area of hardstanding. Vigour and vitality appear reasonable however much of tree is obscured by dense Ivy cover.	Cut Ivy and rereview.	M	C2
17	Ash Group *(Fraxinus excelsior)*	E/M	F/P	12.00	3.00	5.00	5.00	4.00	4.50	4	462	5.54	Close-knit group of multiple stems arising from disturbed spoil between Canal towpath and area of hardstanding. Eastern and south-eastern stems have sustained notable mechanical damage. Broader crown appears be maintaining reasonable vigour and vitality.	Review regarding retention context.	M	C2

No.	Species	Age	Con	Ht	CH	N	E	S	W	Stm	Dia	RPA	Structural Condition	PMR	Yrs	Cat
18	Crack Willow *(Salix fragilis)*	E/M	F/P	10.00	1.00	3.00	5.00	5.00	5.00	3	493	5.92	Distorted and apparently naturally arising comprises part of a broader multi-stemmed thicket development to north and north-east. Tree vigour and vitality remains good though tree has been subject to prior mechanical damage and has sustained notable bark wounding to south of lower stems.	Review regarding retention context.	M	C2
19	Ash Group *(Fraxinus excelsior)*	E/M	F	9.00	2.50	0.00	4.50	4.00	4.00	1	290	3.48	One-sided and typically unbalanced to south as a result of being part of a broader group that extends down embankment to north and towards Canal. Tree appears broadly vigorous though has been affected by substantial dumping and creation of embankment to south of stem.		M	C2
20	Ash *(Fraxinus excelsior)*	S/M	F	6.00	1.00	1.00	2.00	2.00	1.50	1	207	2.48	Suppressed distorted and affected by failure of Willow from Canal embankment.	Review regarding retention context.	M	C2
21	Ash Group *(Fraxinus excelsior)*	E/M	P	12.00	0.00	5.00	4.00	3.00	2.00	5	592	7.10	A broader multi-stemmed group arising from lower embankment above Canal. Has been crudely decapitated in past presumably in respect of position adjoining and beneath high-tension power cables. Is of poor quality and ill-suited to retention.	consider early removal.	S	C2
22	Sycamore *(Acer pseudoplatanus)*	M	P	13.00	0.00	6.00	4.00	2.00	5.00	1	579	6.95	Crudely decapitated with much of southern upper crown removed to facilitate clearance of overhead power cables. Is of dubious sustainability.		S	C2

Tree Lines, Groups and Hedges

Tree Lines and Hedges

H1	Hedge 1 Hawthorn *(Crataegus monogyna)* Blackthorn *(Prunus spinosa)* Wych Elm *(Ulmus glabra)* Ash *(Fraxinus excelsior)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)* Privet *(Ligustrum ovalifolium)* Spindle *(Euonymus europaeus)* Dog Rose *(Rosa canina)*	M	F	3.00-6.00	0.00	Spread 4.00-6.00m	m/s	207	2.48	A broadly can tenuous but highly variable hedge arising from the descending slope of a shallow embankment that descends to a ditch circa 1.50 m below field levels to the South. the original Thorn is of variable continuity with notable gaps, particularly where suppression has occurred as a result of ash, elder and Bramble infestations. There are multiple sections where hedge continuity is provided solely by low level Bramble thicket. suitability for retention will be context dependent and dependent upon management needs/potential. The alignment supports a notable, emergent tree population, typically dominated by ash and which Elm. All trees are present can be readily regarded as semimature most not exceeding 5 – 6.00 m. Note is made of the proportion of elms that have died, presumably as result of Dutch Elm disease. Those remaining alive are not expected to last beyond imaging short-term.	M	C2

H2	Hedge 2 Hawthorn *(Crataegus monogyna)* Blackthorn *(Prunus spinosa)* Wych Elm *(Ulmus glabra)* Ash *(Fraxinus excelsior)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)* Privet *(Ligustrum ovalifolium)*	M	F	1.25-7.00	0.00	Spread 1.50-4.00m	m/s	207	2.48	This hedge is associated with a shallow but nonetheless raised embankment located on the western side of a substantial ditch. A large proportion of the material associated with this alignment arises from the eastern bank of the ditch and appears to include a distinct hedge format at the upper edge of the ditch embankment that has been added to by natural thicket development extending to the east by circa 3 – 4.00 m. Elements of this hedge exhibit evidence of mechanical cutting to circa 1.25 m though other areas are substantially outgrown. Continuity is again a result of plant combinations with substantial elements comprising Bramble thicket only. This alignment supports a more significant emergent tree population, this time dominated by ash though all specimens remain young with most being between a semi maturity and early maturity. Suitability for retention will again be context and management potential dependent.		M	C2

H3	Hedge 3 Hawthorn *(Crataegus monogyna)* Blackthorn *(Prunus spinosa)* Wych Elm *(Ulmus glabra)* Ash *(Fraxinus excelsior)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)* Elder *(Sambucus nigra)*	M	F	4.00-6.00	0.00	Spread 5.00-7.00m	m/s	207	2.48	The hedge alignment arises predominantly to the north of a substantial ditch and in association with a raised embankment. The original hedge thicket has been substantially contributed to by extensive thicket development, typically dominated by Blackthorn and Bramble. Note is made of a substantial number of emergent trees that at this time would be regarded as semimature including both ash and which Elm. Already, numerous specimens of the Wych Elm exhibit evidence of Dutch Elm disease suggesting limited sustainability and an unlikelihood of survival beyond the immediate short-term.	M	C2
H4	Hedge 4 Hawthorn *(Crataegus monogyna)* Blackthorn *(Prunus spinosa)* Wych Elm *(Ulmus glabra)* Ash *(Fraxinus excelsior)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)*	M	F	1.50-3.50	0.00	Spread 5.00m	m/s	207	2.48	A broadly continuous alignment arising from the ascending embankment to a notable ditch to the west with the embankment to the east. Small elements of this alignment have been destroyed through fire damage though elsewhere the alignment tends to be broadly continuous however, continuity tends to be as a result of vegetation combinations as opposed to the original Thorn hedge. In this respect, note is made of the substantial proportion of the hedge continuity is provided by Bramble.	M	C2

H5	Hedge 5 Hawthorn *(Crataegus monogyna)* Blackthorn *(Prunus spinosa)* Wych Elm *(Ulmus glabra)* Ash *(Fraxinus excelsior)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)* Holly *(Ilex aquifolium)*	M	F	2.50-6.00	0.00	Spread 4.00-6.00m	m/s	207	2.48	Continuity within this hedge remains good notwithstanding the proportion provided by Bramble at lower levels. The hedge supports only a small number of emergent Ash that could readily be regarded as semimature only with singular poor-quality poplar at its northernmost end. Once again, this hedge exists in association with a ditch and embankment feature with the more significant material arising from the north-western embankment of the ditch.		M	C2
H6	Hedge 6 Hawthorn *(Crataegus monogyna)* Blackthorn *(Prunus spinosa)* Wych Elm *(Ulmus glabra)* Ash *(Fraxinus excelsior)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)*	M	F	1.00-2.50	0.00	Spread 3.00m	m/s	207	2.48	Substantially smaller than previously reviewed hedges with an apparent reduced degree of maturity. Continuity within the line is substantially contributed to by Bramble thicket at lower levels. In keeping with other hedges, the materials associated with a substantial ditch and embankment feature with most of the significant material arising from the northern bank of the ditch feature.		M	C2

H7	Hedge 7 Hawthorn *(Crataegus monogyna)* Blackthorn *(Prunus spinosa)* Wych Elm *(Ulmus glabra)* Ash *(Fraxinus excelsior)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)*	M	F	5.00-7.00	0.00	Spread 5.00-7.00m	m/s	207	2.48	A mature hedge, originally dominated by Hawthorn but where broader continuity is now provided by a combination of plants, most notably elder and emergent ash. Eradication of invasive species would leave a particularly fragmented alignment. Note is made that many of the emergent trees tend to be of poor quality, namely being distorted as result of prior decapitation presumed to be associated with original hedge management works.		M	C2
H8	Hedge 8 Hawthorn *(Crataegus monogyna)* Blackthorn *(Prunus spinosa)* Wych Elm *(Ulmus glabra)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)* Elder *(Sambucus nigra)*	M	F	2.50-5.50	0.00	Spread 3.00-4.00m	m/s	207	2.48	A broadly mature hedge alignment of reasonable continuity associated with the eastern ascending embankment from a ditch feature. General continuity amongst the thorns tends to be broadly good though suppression is developing as result of more invasive plants such as Elder and ash. The hedge alignment is affected by only a small number of gaps where continuity is provided for only by lower level Privet and Bramble Scrub.		M	C2

H9	Hedge 9Hawthorn *(Crataegus monogyna)* Elder *(Sambucus nigra)* Ivy *(Hedera helix)* Bramble *(Rubus fruticosus)* Ash *(Fraxinus excelsior)*	M	F	2.50-5.50	0.00	Spread 3.00-4.00m	m/s	207	2.48	A broadly continuous hedge associated with a raised embankment on the eastern side of a drainage ditch. Some continuity tends to be reasonable though imperfect with the small number of gaps being filled by invasive species such as Elder and Bramble. The alignment supports only a small number of emergent trees typically not exceeding 6.00 m and regarded as being of poor quality being distorted as a result of prior hedge management related decapitation.	M	C2
H10	Hedge 10 Hawthorn *(Crataegus monogyna)* Elder *(Sambucus nigra)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)* Blackthorn *(Prunus spinosa)*	M	F/P	5.00-6.00	0.00	Spread 5.00-6.00m	m/s	207	2.48	A remnant of an original Thorn based hedge however, at this time for you of the thorns remain with the broader alignment continuity being provided for by emergent elder. In individual terms, most plants are reasonable but overall the hedge alignment is of broadly poor quality. Substantially eroded, the hedge appears to be associated with a shallow ditch and embankment feature.	M	C2

H11	Hedge 11 Hawthorn *(Crataegus monogyna)* Elder *(Sambucus nigra)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)* Blackthorn *(Prunus spinosa)* Dog Rose *(Rosa canina)*	M	P	0.00-4.00	0.00	Spread 3.00m	m/s	207	2.48	A particularly overgrown and effectively defunct hedge comprising a broad corridor of material loosely based around an original Hawthorn alignment. The original alignment appears to be associated with a raised and embankment though this is substantially dilapidated and broadly eroded, particularly considering earthworks having occurred at its northernmost end. Additionally, note is also made at circa 30 m of the hedge at its northernmost end has been destroyed by what appears to be recent fire damage.		N/A	U
H12	Hedge 12 Hawthorn *(Crataegus monogyna)* Elder *(Sambucus nigra)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)* Blackthorn *(Prunus spinosa)*	M	P	7.00	0.00	Spread 6.00-7.00m	m/s	207	2.48	A dilapidated section of hedging originally comprising a Thorn hedge but now supporting only an intermittent alignment of plants, some of which have been affected by either ground disturbance or by fire damage. The few remaining Hawthorne's are substantially affected by chronic Ivy cover to the point where there are effectively defunct and unworthy of retention.	Consider early removal.	N/A	U
H13	Hedge 13 Elder *(Sambucus nigra)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)* Sycamore *(Acer pseudoplatanus)*	M	P	3.00-4.00	0.00	Spread 5.00	m/s	207	2.48	Effectively comprises a thicket development only with no evidence remaining of any original Thorn based hedge. The material arises from both sides of an apparent field drainage ditch.		M	C2

H14	Hedge 14 Sycamore *(Acer pseudoplatanus)* Ash *(Fraxinus excelsior)* Hawthorn *(Crataegus monogyna)* Bramble *(Rubus fruticosus)* Elder *(Sambucus nigra)* Ivy *(Hedera helix)*	M	P	1.50-5.00	0.00	Spread 3.00m	m/s	207	2.48	A relic an old hedge now substantially disturbed by ongoing earthworks. Original ground contours in vicinity of this hedge have effectively been lost and the few remaining plants are considered unsuitable for retention.	Remove.	N/A	U
H15	Hedge 15 Hawthorn *(Crataegus monogyna)* Blackthorn *(Prunus spinosa)* Bramble *(Rubus fruticosus)* Elder *(Sambucus nigra)* Ivy *(Hedera helix)* Dog Rose *(Rosa canina)*	M	F	2.50-3.00	0.00	Spread 3.00m	m/s	207	2.48	A short remnant section of hedging disturbed to its eastern side as result of ongoing roadworks. The hedge appears to be broadly young and in general terms remains continuous however, a notable proportion of the hedge alignment continuity is provided by spurious invasive plants such as Bramble.	Review regard retention context.	M	C2

H16	Hedge 16 Hawthorn *(Crataegus monogyna)* Elder *(Sambucus nigra)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)* Snowberry *(Symphoricarpos Sp.)* Cherry Laurel *(Prunus laurocerasus)*	M	P	4.50-5.00	0.00	Spread 3.00-4.00m	m/s	207	2.48	A dilapidated and effectively defunct remnant of an original hedge now best defined by low level thicket development. Is considered Unsuitable for retention.	Remove.	N/A	U
H17	Hedge 17 Elder *(Sambucus nigra)* Cherry Laurel *(Prunus laurocerasus)* Lawson Cypress *(Chamaecyparis lawsoniana)*	M	D	4.50-5.00	0.00	Spread 4.00-6.00m	m/s	207	2.48	Effectively defunct and much material is now dead as a result of fire damage.	Remove.	N/A	U
H18	Hedge 18 Sycamore *(Acer pseudoplatanus)* Elder *(Sambucus nigra)* Bramble *(Rubus fruticosus)* Hawthorn *(Crataegus monogyna)* Ivy *(Hedera helix)*	M	P	2.00-4.00	0.00	Spread 5.00m	m/s	207	2.48	A defunct thicket now dominated by Bramble. Unsuitable for retention.	Remove.	N/A	U

H19	Hedge 19 Hawthorn *(Crataegus monogyna)* Elder *(Sambucus nigra)* Bramble *(Rubus fruticosus)* Ivy *(Hedera helix)*	M	F/P	4.00-6.00	0.00	Spread 4.00-5.00m	m/s	207	2.48	A dilapidated and disturbed remnant of an original hedge now affected by spoil dumping. Ground conditions in vicinity of hedge are substantially disturbed. Very few of the original Hawthorn is remain suggesting limited sustainability.	Consider early removal.	N/A	U