Langstone, Newport
Green Infrastructure Statement
edp8992_r002

QA: ESe/KHe_FMi/GGi_100725

1 INTRODUCTION

1.1 This Green Infrastructure Statement (GIS) has been prepared by The Environmental Dimension Partnership Ltd (EDP) on behalf of United Welsh Housing Association (hereafter referred to as 'the Applicant') in relation to the proposed development at Langstone, Newport (hereafter referred to as 'the Site').

1.2 EDP is an independent environmental planning consultancy with offices in Cardiff, Cirencester and Cheltenham. The practice provides advice to private and public sector clients throughout the UK in the fields of landscape, ecology, archaeology, cultural heritage, arboriculture, rights of way and masterplanning. Details of the practice can be obtained at our website (www.edp-uk.co.uk).

1.3 The proposals concern the submission of a planning application for the construction of nine residential units with associated parking and landscaping. The Site Layout is provided at **Appendix EDP 1**.

1.4 Planning Policy Wales (PPW) defines Green Infrastructure (GI) as:

"...the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places."

1.5 Planning Policy Wales Edition 12, published in February 2024, requires that all planning applications are supported with a GIS. Paragraph 6.2.12 states:

"A green infrastructure statement should be submitted with all planning applications. This will be proportionate to the scale and nature of the development proposed and will describe how green infrastructure has been incorporated into the proposal. In the case of minor development this will be a short description and should not be an onerous requirement for applicants. The green infrastructure statement will be an effective way of demonstrating positive multi-functional outcomes which are appropriate to the site in question and must be used for demonstrating how the step-wise approach (Paragraph 6.4.15) has been applied".

1.6 At paragraph 6.4.12, PPW further states:

"Having worked iteratively, in line with Figure 12, through the stages of the step-wise approach below, and providing evidence in the Green Infrastructure Statement that the step-wise approach has been followed, a scheme of enhancements must be provided to ensure a net benefit for biodiversity.

Where biodiversity enhancement proportionate to the scale and nature of the development is not proposed as part of an application, significant weight will be given to its absence, and unless other significant material considerations indicate otherwise, it will be necessary to refuse permission."

1.7 This document, therefore, identifies how GI has been incorporated into the landscape design for the Site and provides the relevant avoidance, mitigation and/or compensation measures incorporated into the design to ensure the continued functioning of GI assets both within and adjacent to the Site.

Site Context

1.8 The Site is centred approximately at Ordnance Survey Grid Reference (OSGR) ST 36814 89885. The Local Planning Authority (LPA) is Newport City Council. The extents of the Site alongside those habitats supported are illustrated on **Plan EDP 1**.

1.9 The Site measures circa 0.7 hectares (ha) and is located within Langstone, a village north-east of Newport. It comprises a single arable field subject to recent ploughing at the time of the survey and likely managed as arable ley. Other features on-site include boundary hedgerows, scattered trees and scrub. A machinery shed (building **B1**) is located within the north-west corner of the Site, whilst an unnamed stream runs along the southern boundary, culverted beneath the current vehicular entrance to the Site. The Site is surrounded by existing residential development to the immediate north, east, south and west, with an area of public open space supporting a swale feature situated adjacent to its south-western extent. Land use within the wider landscape includes agricultural fields with parcels of woodland to the north, east and south, a golf course to the north-west, and the built-up area of Newport to the south-west.

2 ECOLOGY AND GREEN INFRASTRUCTURE BASELINE

2.1 To establish the ecological baseline of the Site and subsequently inform a planning application submission for proposed development, a desk study and Extended Phase 1 Habitat Survey was initially undertaken by EDP in September 2024. In addition, further detailed surveys with respect to protected species were also completed by EDP, including surveys for bats and great crested newt (*Triturus cristatus*) during 2024 and 2025.

2.2 Habitats supported by the Site are detailed at **Plan EDP 1**, with the findings of the surveys fully detailed within EDP's Ecological Appraisal Report (report reference edp8992_r001) prepared as part of the planning application submission and further summarised below.

2.3 The Site comprises a single arable field, likely managed as arable ley and recently ploughed at the time of the survey. False oat-grass (*Arrhenatherum elatius*) is dominant, with smooth meadow-grass (*Poa pratensis*) and bristly oxtongue (*Helminthotheca echioides*) also present. Field margins are supported, including a c.2-3m wide margin along the eastern boundary of the Site utilised as an access track, with gravel and some vegetation establishing. Field margins otherwise measure between c.1-2m wide, broadening to c.7m along the northern boundary.

2.4 The Site is bound by a number of hedgerows. The eastern (**H1**), northern (**H2**) and southern (**H4** and **H5**) hedgerows are dominated by non-native species including Leyland cypress (*Leylandii x cupressus*) and laurel (*Laurus* sp.), with some occurrences of dogwood (*Cornus sanguinea*) and non-native privet (*Ligustrum sp.*). In contrast, hedgerow **H3**, located along the western boundary of the Site, is a native, unmanaged hedgerow dominated by bramble (*Rubus fructicosus* agg.), with hazel (*Corylus avellana*), Leyland cypress saplings, dogrose (*Rosa canina*), laurel, oak (*Quercus* sp.) saplings, semi-mature willow (*Salix* sp.), blackthorn (*Prunus spinosa*), sycamore (*Acer pseudoplatanus*) and other non-native ornamental species present.

2.5 With respect to the trees, the vast majority occur in association with the hedgerows, with the exception of a line of scattered apple (*Malus sylverstris*) trees located along the southern boundary of the Site. All trees within the Site are of moderate to low arboricultural quality. The findings of the arboricultural survey are further detailed within ArbTS's Arboricultural Report (**Appendix EDP 2**) prepared as part of the planning application submission.

2.6 Additionally, an unnamed watercourse is located along the southern boundary of the Site and a machinery shed (building **B1**) is located within the north-west corner of the Site.

2.7 Such habitats provide suitable, albeit limited, opportunities for a range of protected and notable species. Detailed surveys and desk study assessments completed for the Site noted the following:

- Building **B1** supports a confirmed night roost/feeding perch for brown long-eared bat (*Plecotus auritus*), although the building is not considered to have suitability to support day/maternity/hibernation roosting;

- Hedgerows and trees likely provide suitable nesting habitat for the local breeding bird assemblage, in addition to providing suitable foraging and commuting habitat for the local bat population;

- Given the proximity of nearby records for dormouse (*Muscardinus avellanarius*), boundary hedgerows may facilitate opportunistic foraging and dispersal during optimum periods, albeit such opportunities are considerably limited given the nature of the Site and those habitats supported therein;

- The unnamed watercourse aligning the Site's southern boundary, whilst relatively sub-optimal, could facilitate opportunistic dispersal of otter (*Lutra lutra*) should they be present in the locality; and

- Vegetated field boundaries may also offer some, albeit limited, potential to badger (*Meles meles*), and other notable mammals such as European hedgehog (*Erinaceus europaeus*), common reptiles, and amphibians, should a local population be present in the vicinity.

2.8 Of further pertinence is the presence of an approximate 0.2ha area of Ancient Semi-natural Woodland (ASNW) c.290m north of the Site, in addition to the broader network of statutory and non-statutory designated sites within the wider landscape (**Plans EDP 1-3**). In combination, these contribute to the wider GI network at both the local, county, national, European and international level.

3 DEVELOPMENT PROPOSALS AND GREEN INFRASTRUCTURE STRATEGY

3.1 In respect of the ecological resource present within and adjacent to the Site, a Site Layout (**Appendix EDP 1**) has been designed to retain and protect those valued ecological resources listed above as far as possible, ensuring connectivity (where existing) with GI assets identified in the wider landscape is maintained.

3.2 These design principles have been considered in the context of recent updates to PPW 12; specifically, the requirement to deliver net benefits for biodiversity and resilience of ecosystems by maximising those attributes of the DECCA framework[1], and through the adoption of a step-wise approach, as described below.

3.3 In adopting a stepwise approach, development should seek to address adverse environmental effects in the following order:

- Avoid – In the first instance, development should seek to avoid loss of/damage to valuable habitats and species and ecosystem functioning wherever possible;

- Minimise – Where all locational, siting and design options for avoiding damage to biodiversity has been exhausted, development must seek to minimise the initial impact on biodiversity and ecosystems through the retention and maintenance of existing biodiversity features;

- Mitigate – Following the implementation of avoidance and minimisation measures, where impacts on biodiversity still remain, mitigation should be provided to address the specific negative effects by repairing damaged habitats and disturbed species, with restoration in excess of like for like, accounting for disturbance and time lags for the recovery of habitat and species whilst building ecosystem resilience;

- Compensate – Where all above steps have been exhausted, and where conditions or obligations are not sufficient to secure biodiversity outcomes, further compensation must be provided, of a significant magnitude to fully compensate for any loss and with

[1] The DECCA framework comprises five key attributes which must be taken into account when demonstrating steps taken towards securing a net benefit for biodiversity, including the Diversity, Extent, Condition, Connectivity and Adaptability to change of habitats, species and ecosystems.

such compensation to be delivered on-site or immediately adjacent, with off-site compensation being a last resort;

- Enhancement – Development must identify and deliver opportunities to ensure the delivery of net benefits to biodiversity and ecosystem resilience; and

- Long-Term Management – Each stage of the step-wise approach must be accompanied by a long-term management plan of agreed and appropriate avoidance, minimisation, mitigation/restoration and compensation measures alongside the agreed enhancement measures. The management plan should set out the immediate and on-going management of the Site, future monitoring arrangements and for all secured measures, whilst clearly identifying any funding mechanisms necessary to meet the management plan objectives.

3.4 These steps are considered under the following sub-headings, summarising the measures incorporated within the proposals as further detailed within an Ecological Appraisal Report (report reference: edp8992_r001) and summarised below.

Avoidance Measures

3.5 Avoidance measures adopted during the development design include the retention of valued habitats within and adjacent to the Site as follows:

- Retention of native hedgerow **H3**, non-native hedgerows **H2**, **H4**, **H5** and the majority of non-native hedgerow **H1**, albeit with exception to the removal of a c.10m section of hedgerow **H1** to facilitate access;

- The retention of all trees and their root protection areas within the Site; and

- Retention of the unnamed stream located along the southern boundary.

3.6 Of further pertinence is the inclusion of sustainable drainage features across the Site, including an attenuation basin and rain gardens to manage surface water run-off during the operational phase of proposed development, so as to avoid adverse effects upon local hydrology and hydrologically sensitive designations in the wider landscape. Such features will also provide multi-functional benefits to climate regulation, adaptation and resilience as well as biodiversity.

Minimisation Measures

3.7 Overall, the development has been sensitively designed to avoid important ecological features, most of which occur around the peripheries of the Site, with the proposed development footprint confined to the arable field of negligible ecological importance, whilst ensuring the retention of the vast majority of habitats of greater ecological value.

3.8 In addition, impacts to the hedgerow network have been minimised as far as possible, with only one break to the Site's eastern boundary (non-native hedgerow **H1**) proposed to facilitate access, measuring no more than 10m wide.

3.9 Retained habitats will be further protected from loss/damage/degradation through the inclusion of habitat buffers incorporating the root protection zones of retained vegetation.

3.10 Additional measures proposed for adoption within a mitigation strategy to further minimise ecological effects upon valued habitats and species include:

- Minimising the spillage of artificial lighting on retained and new roosting, foraging and commuting/dispersal habitats for wildlife through implementation of a sensitive lighting strategy during the construction and operational phases;
- Installation and regular inspection of appropriate fencing and signage to demarcate ecological protection zones in addition to the implementation of good working practices including adherence to Pollution Prevention Guidelines (PPG) during the construction phase;
- Completion of pre-commencement checks for protected species including dormouse, bats, otter, badger, nesting birds and common reptiles where required prior to construction related activities;
- Habitat clearance to be sensitively timed and undertaken following precautionary methodologies as detailed within an Ecological Construction Method Statement (ECMS); and
- Implementation of development in accordance with those requirements set out within any future development licence(s) approved by NRW in respect of protected species confirmed/assumed present on-site.

3.11 Such measures, typically detailed within a Construction Environmental Management Plan (CEMP) and ECMS, can be secured via pre-commencement planning condition(s).

Mitigation and Enhancement Measures

3.12 To facilitate development, proposed habitat loss is largely confined to the arable field, scattered scrub, building **B1** and a c.10m section of non-native hedgerow **H1**.

3.13 To compensate for the loss of c.10m of non-native hedgerow **H1**, new native hedgerow planting is proposed to enhance sections of the retained lengths of hedgerow **H1**, with a minimum replacement ratio of 2:1. New hedgerow planting will therefore ensure a quantitative net gain in provision of this habitat, increasing its extent across the Site whilst also seeking to strengthen the existing wildlife corridor.

3.14 Tree and shrub planting is also proposed across the development maintaining nesting habitat for a breeding bird assemblage whilst contributing to climate regulation and soil stabilisation. New planting will seek to enhance the biodiversity value of the Site through the inclusion of a broader mix of native, broadleaved species of value as a foraging/nesting/breeding resource for protected and notable species. Additionally, wildflower seeding is also proposed within areas of green open space, providing benefits to recreation and visual amenity as well as providing opportunities for habitat creation and biodiversity benefits.

3.15 The provision of sustainable drainage features across the Site, including an attenuation basin and rain gardens is also proposed. Such features will be subject to new planting, to include seeding with a wildflower seeding mix suitable for wetlands, of value as a foraging resource to wildlife.

3.16 To compensate for the loss of building **B1**, a confirmed brown long-eared bat night roost/feeding perch, the provision of an open-fronted unlit car barn/garage is proposed. This feature is to be located adjacent to plots 6 and 7 and western boundary hedgerow **H3**, allowing fly-in access for night roosting brown long-eared bats.

3.17 To further complement the above, additional ecological enhancements are recommended for the Site to ensure an overall delivery of net benefits for biodiversity and ecosystem resilience. These include:

- The provision of new features for bats and birds, to include the provision of bat boxes/tubes and bird boxes/nesting chambers, for installation upon suitable trees to be retained, or for integration into built development;
- The creation of hibernacula and log piles to provide suitable refugia and niche habitats for a common amphibian/reptile and invertebrate population; and
- The provision of gaps beneath curtilage boundaries to facilitate movement of European hedgehog.

Long-Term Management

3.18 All retained habitats within the Site will necessarily be subject to a long-term management, maintenance and monitoring regime so as to secure their condition and functional integrity in the long-term.

3.19 Management measures will include those which seek to maximise the botanical and structural diversity of habitats necessary to promote foraging, dispersal, breeding, and hibernation resources for wildlife through:

- The implementation of a sensitive hay cutting regime across newly created areas of informal grassland and wildflower meadow planting, so as to promote a structurally diverse and species-rich sward, which also maximises the value of foraging, dispersal, breeding and hibernation resources for protected/notable species;
- The management of retained hedgerows to maintain their condition and promote structural diversity, including rotational cutting and ecotone planting to achieve a continuous (<10% gaps), dense and bushy 'A' shaped structure whilst maintaining heights at no less than 3m and widths of at least 2m;
- The selective removal of scrub around establishing young trees/shrubs to facilitate natural regeneration across retained and newly created habitats;
- The selective removal of species-poor/bramble scrub, as required, along the unnamed watercourse to maintain open sections of value for maintaining in stream diversity; and

- The provision of log piles and deadwood utilising arisings from tree works undertaken on-site, so as to maximise habitat structure and foraging availability for protected and notable species.

3.20 In so doing, management measures will enhance the ecological condition of the Site and its overall biodiversity value to protected and notable species, whilst also ensuring the continued delivery and further strengthening of ecosystem services including those regulatory, supporting, and cultural service benefits via the ecological and GI network proposed for the Site. Such measures will therefore ensure that continued delivery of net benefits for biodiversity and ecosystem resilience over the long-term.

4 SUMMARY AND CONCLUSIONS

4.1 Overall, the proposed development will result in the reduction of available semi-natural habitat across the Site, with subsequent impacts upon the existing GI resource. Such habitat losses are, however, largely confined to the arable field of low ecological value. However, impacts to more valued habitats are required to facilitate development, including the loss of a c.10m section of hedgerow **H1** along the eastern boundary and loss of the confirmed night roost/feeding perch within building **B1** proposed for demolition. Such habitats are otherwise of value to protected/notable species and also maintain connectivity between the Site and habitats/GI habitats in the wider landscape.

4.2 Inherent within the Site Layout (**Appendix EDP 1**) is the retention of all trees and hedgerows, albeit with exception to the removal of a c.10m section of hedgerow **H1** to facilitate access, in addition to the retention of the unnamed stream located along the southern boundary. Such features to be retained will be further protected from loss/damage/degradation through the provision of habitat buffers incorporating the root protection zones of retained vegetation.

4.3 This will be combined with the provision of habitat features including:

- Creation of new native hedgerow planting along the retained lengths of hedgerow **H1**, together with additional tree, shrub and wildflower seeding/planting across the development to compensate for hedgerow loss whilst maintain and further strengthening habitat connectivity across the Site;

- The provision of sustainable drainage features across the Site, including an attenuation basin and rain gardens subject to suitable planting to further enhance the diversity of habitats supported by the Site;

- Creation of an open-fronted unlit car barn/garage to compensate for the loss of building **B1**, a confirmed brown long-eared bat night roost/feeding perch; and

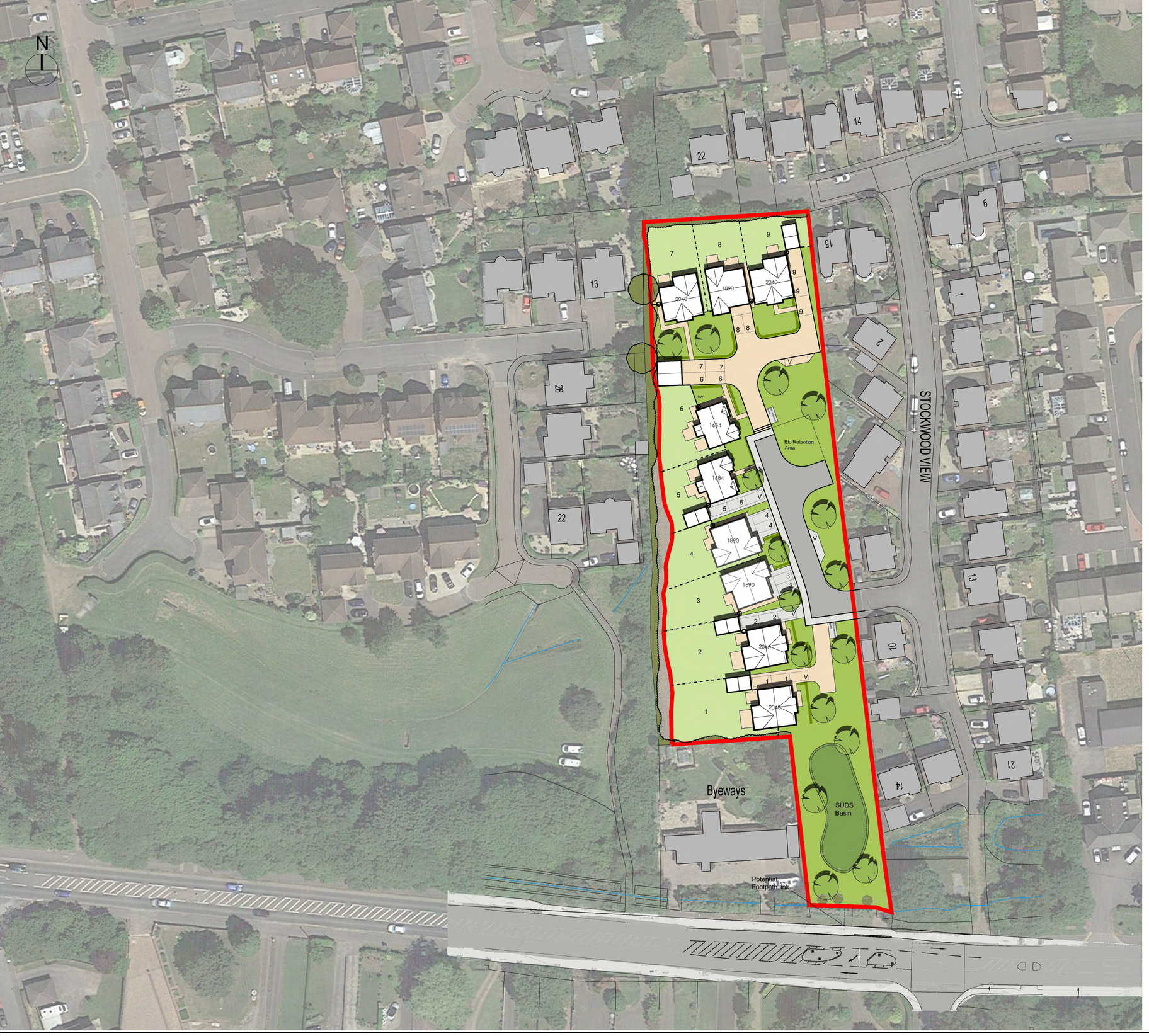
- The provision of habitat features including bird boxes/nesting chambers, bat boxes/tubes, hibernacula/refugia for herpetofauna, and gaps beneath curtilage boundaries to facilitate continued movement of European hedgehog and other wildlife.

4.4 Such enhancements will provide/enhance opportunities for wildlife post-development and thus deliver net benefits to biodiversity. Additionally, the implementation of management and monitoring of GI assets on-site will further protect and strengthen such features over the long-term.

4.5 Overall, therefore, those habitat retention, enhancement and creation measures described above will ensure the extent, diversity and connectivity of those most valued habitat features on-site are maintained and further strengthened to ensure their continued functionality in the provision of suitable habitat for a range of protected and notable species, necessary to maintain viable populations which are resilient to future change. More broadly, such measures will also ensure the protection and continued delivery of ecosystem service benefits on-site whilst ensuring the delivery of net benefits to biodiversity and ecosystem resilience.

4.6 Subject to implementation of the above measures, it is considered that that the scheme is capable of maintaining and integrating GI within the development design, whilst delivering benefits to biodiversity as well as connectivity and ecosystem resilience.

Appendix EDP 1
Site Layout
(Drawing Reference: 2342-01 Rev G)



N

SITE KEY

- Site Boundary
- Indicates potential locations for mature tree planting
- Indicates existing trees & hedgerows
- Indicates opportunities for soft landscaping
- sw — 1.8m High brick screen wall with brick piers
- 1.8m High timber hit & miss fence
- 1.8m High lockable timber gate

Accommodation Schedule

Ref	Description	m²	No.
1684	4 Bedroom Detached	156.5	2
1890	4 Bedroom Detached	175.6	3
2040	4 Bedroom Detached	198.5	4
	Total		9

Status: PLANNING

rev	date	description	by
A	20.05.19	Access Amended	CC
B	26.06.19	Amended Accommodation Schedule	MN
C	16.08.19	Plot 8 & 9 substituted	CC
D	08.07.20	Access amended	CC
E	22.09.20	Footpath & SUDS added	CC
F	08.10.20	Footpath amended	CC
G	24.01.21	Footpath omitted,Bin collection points & visitor spaces added	CC

Drawn: MN
Checked: CTW
Date: 06.02.2019
Scale: 1:500 @ A1 & 1:1000 @ A3

Client: Waterstone Homes
Project: Langstone, Chepstow
Title: Site Layout
Ref: 2342 - 101
Rev: G

spring design
Unit 2 Chapel Barns | Merthyr Mawr
Bridgend | CF32 0LS | 01656 656267
mail@spring-consultancy.co.uk

Appendix EDP 2
Arboricultural Report
(ArbTS, December 2024)

ArbTS - Arboricultural Technician Services Ltd

(Tree Consultancy Services)

Stephen Lucocq *BSc (Hons), Tech Cert (ArborA), M.Arbor.A*

Professional Member of the Arboricultural Association

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Arboricultural Report

Including:

Tree Survey Data &

Tree Constraints Plan,

Arboricultural Impact Assessment,

Tree Protection Plan and Arboricultural Method Statement

To the British Standard 5837:2012

(Trees in relation to design, demolition and construction. Recommendations)

Date – 10th December 2024

Site – Langstone

Project Reference – ArbTS_719.4_Langstone

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- 5 Tree Photographs

1.0 Introduction

1.1 The purpose of this report is to give an assessment to the quality of the trees at Langstone, assess the arboricultural impact of the proposed development design and provide details regarding the protection of retained trees during construction work.

1.2 This report identifies the quality of the trees on this site as categorised by the *British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations*. The survey and findings as reported here, represent an unbiased third party opinion offering professional advice as to the value of the trees on or adjacent to this site. To illustrate the constraints identified trees pose to the design of future development a Tree Constraints Plan (TCP) has been drawn as found at Appendix 2.

1.3 Arboricultural constraints within the surveyed site relates primarily to the preservation of trees recommended for retention. Identified trees must be protected during the construction phase through the employment of a combination of tree protection methods as illustrated in Appendix 4 Tree Protection Plan and detailed within Section 6 - Arboricultural Method Statement.

1.4 The trees' root system and the associated soil structure is often over looked during the construction process and can be damaged or altered by compaction causing major damage to the health of the tree. Generally the entire root system of the tree is within the top 600mm of soil where it can be easily damaged. A calculated area of ground around the tree should be protected for the duration of the onsite construction phase. In this report it is referred to as the Root Protection Area (RPA).

2.0 The Tree Survey

2.1 The tree survey was conducted by *Stephen Lucocq BSc (Hons), Tech Cert (ArborA), M.Arbor.A* on 6th October 2022 and resurveyed on 5th December 2024.

2.2 Trees over 75mm were tagged where appropriate with numbered metal identification tags at around 2.0 metres above ground level.

2.3 All observations were made from the ground with the aid of an acoustic sounding hammer. No invasive decay detective instruments were used.

2.4 The survey was carried out in accordance to *British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations.* This standard gives a systematic, consistent and transparent evaluation method to tree surveying.

2.5 The tree survey was conducted with the aid of a topographical survey.

2.6 **Preliminary management recommendations:** The survey has identified preliminary management recommendation for the trees on or adjacent to this site. Details regarding these identified operations are given in this report (See Appendix 1 - Tree Survey Data). Where work priority is stated to be H – High due to safety reasons these operations should be carried out as soon as practically possible. Where work

priority is stated to be M/H – medium/high or higher these operations should be undertaken before commencement of any works on site.

2.7 **Limitations of the tree survey**: Whilst every effort is made to ensure an accurate assessment of the tree's condition is made during survey, no responsibility can be taken for resultant damage or injury occurred by a failing tree. The survey only gives a snap shot of what is visible and is not obscured on the day of the survey. The survey identifies trees of varying quality and their above ground/below ground constraints. This survey does not constitute to a full tree condition survey/tree risk assessment of the site and this report is only valid for 12 months from the date of the tree survey.

3.0 The Trees

3.1 The full tree survey data can be found in Appendix 1A Tree Survey Data

3.2 Tree Survey Summary Table (See Appendix 3 for BS5837 category definitions). (A more detailed Tree Survey Data Summary can be found in Appendix 1B)

BS5837:2012 Quality Category	Total Number of Individual Trees Surveyed	Total Number of Tree Groups Surveyed	Total Number of Tree Areas Surveyed	Total Number of Woodland Areas Surveyed	Total Number of Hedgerows Surveyed	Total
A (High - Most desirable for retention)	0	0	0	0	0	0
B (Moderate - Desirable for retention)	1	0	0	0	0	1
C (Low - Optional for retention)	3	4	0	0	5	12
U (Poor - Unsuitable for retention)	0	0	0	0	0	0
Total A,B,C,U	4	4	0	0	5	13

4.0 Tree Constraints Plan (TCP) Information

4.1 A Tree Constraints Plan (TCP) can be found at Appendix 2 of this report. An introduction to TCP can also be found at the start of this Appendix Section. For further information and details regarding TCP please see the *British Standard 5837:2012, Trees in relation to design, demolition and construction – Recommendations.*

5.0 Arboricultural Impact Assessment (AIA)

5.1 The following Arboricultural Impact Assessment has been made for the proposed development design.

5.2.1 Hedgerow Loss – AIA – LOW - The following hedgerow is required to be removed to facilitate the construction of the proposed development design.

5.2.2 Hedgerow Loss –

- Hedgerow H1 – Length 10 metres - C category (under BS:5837)

5.2.3 Overall Tree Loss –

A small 10 metres section of hedgerows is required to be removed to create access to the site. The loss of this hedgerow should not present a constraint on developing the site.

5.3 Root Protection Area (RPA) – AIA – LOW - RPA potential damage can all be managed through the installation of tree protective fencing as designed by an Arboriculturist will ensure that no significant long term adverse impact will occur to any of the retained trees.

5.4 Future Tree Pressures – AIA – LOW - Overall, the design has considered the size and value of the trees on this site to minimise any future pressures to heavily prune or fell the higher value trees.

5.5.1 Conclusion – Overall AIA – LOW - The site has a number of Arboricultural constraints that needed to be considered in the development design phase. A small 10 metres section of hedgerow is required to be removed to create the access. The loss of this hedgerow should not present a constraint on developing the site.

5.5.2 The construction of the proposed development whilst complying to the tree protection scheme as detailed in section 6 will ensure that no significant long term adverse Arboricultural impact occurs onto the health of any retained trees on or adjacent to this site or to the long term amenity of the area.

6.0 Arboricultural Method Statement

6.1 The Tree Protection Plan to facilitate the construction of the development design can be found in Appendix 4 of this report. The Tree Protection Plan must comply with all of the following:

- Be regarded as sacrosanct and follow the sequence of events as detailed in the table below
- Be installed before commencement of any demolishing or construction works on site
- Must not be removed or altered without prior approval of the local planning authority

6.2 The following table below provides a detail sequence of events that must occur in order to ensure the protection of the retained trees during all stages of the construction process. These methods must be clearly communicated to the entire construction team prior to commencement of any work on site.

Stage	Arboricultural Method Statement (In sequence of events)
1.) Preconstruction *(Prior to any construction work on site including demolition work, site material storage etc.)*	**1.1 – Design** areas for **construction site storage** by site supervisor and the appointed Arboriculturist.
	1.2 – Design position, form and construction methods of **all utility services** with Arboricultural consideration. All underground service designs MUST conform to the NJUG Volume 4 Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees. The full document is available at http://www.njug.org.uk/. Local Planning Authority to be consulted on utility service design details and if satisfied to be approved in writing prior to installation during the construction phase.
	1.3– Tree surgery work to be carried out as detailed on the Tree Protection Plan (Appendix - 4) of this report and to the *British Standard:3998:2010: Recommendation for tree works.*
	1.4 – Tree protective fencing installed in the position and form as detailed on the Tree Protection Plan (Appendix - 4). Installation to be supervised by the appointed Arboriculturist. All weather tree construction exclusion zone posters to be secured to fencing at regular intervals.
	1.5 – Site storage area containers etc. installed as designed and supervised by site supervisor and the appointed Arboriculturist.
	1.6 – Appointed Arboriculturist to document all tree protection methods in situ and photographs taken for reference purposes. Copy of document report sent to all parties.
2.) Construction	**2.1 – Site supervisor** to be **briefed** by the appointed Arboriculturist regarding the Tree Protection Plan/Methods and a laminated copy of the plan/methods to be secured onto the wall in the site supervisor's office. Contact details of the appointed Arboriculturist, Council's Tree Officer to be included. Emphasis made to site supervisor on the importance of the Tree Protection Plan/Methods and possible planning enforcement action (Stop Notice), problems with discharging tree protection conditions and/or legal action of noncompliance with these tree protection methods.
	2.2 – All contractors to be **briefed** by site supervisor and/or the appointed Arboriculturist regarding the tree protection plan and methods before starting work on site. Emphasis made to contractors on the importance of the Tree Protection Plan/Methods and possible planning enforcement action (Stop Notice), problems with discharging tree protection conditions and/or legal action of noncompliance with these tree protection methods.
	2.3 – Construction phase begins
	2.4- Tree Safe Construction (Throughout Site) – areas outside of the construction exclusion zones as shown on the tree protection plan must adhere to the following: •Building materials and fuels such as oil, bitumen or cement should not be stacked or discharged within 20 metres of the trees stem. •Fires will not be lit beneath any tree or in a place where flames could extend to within 10 metres of the tree. •Trees that are to be retained and be protected should not be used as anchorage for services or equipment. •The use of cranes and large machinery on site should be planned and care taken not to damage the trees during the process.

	2.5 – Unforeseen issues which require the alteration of the Tree Protection Plan/Methods, required tree surgery work or immediate remedial work will be summited to the Local Planning Authority for approval in writing.
3.) Post Construction *(Once all construction work has been completed, this includes all utility services)*	**3.1** – **Tree Protection fencing Removed.**
	3.2 – **Hard and soft landscaping commence -** All landscape team members to be briefed regarding tree protections by an Arboriculturist.
	3.3 – **Any required remedial tree action taken,** such as Leaf Mulch Application, soil de-compaction methods, contamination clean up etc. to be carried out.

7.0 Conclusion

7.1 Adhering to the tree protection details as found within this report the proposed development can be constructed without any significant long-term adverse impact onto the retained trees or the amenity of the area.

8.0 Further Information & Qualifications

Stephen Lucocq has been involved in Arboriculture within South Wales for over twenty years. He has worked as an Arborist for many of these years and has a good working knowledge of the practical side of the profession. He has always taken an active interest in all areas of Arboriculture and kept up to date with current research and developments.

Qualifications

- First Class BSc (Hons) Degree – Combined Studies - Biology and IT
- Arboricultural Association Technicians Certificate – Level 4 - (Merit)
- PTI - Professional Tree Inspection (Lantra Awards)
- 2D Computer Aided Design (City and Guilds - Level 3)
- Quantified Tree Risk Assessment (QTRA) – Mike Ellison
- Visual Tree Assessment (VTA) – Mike Ellison
- Arboriculture and Bats (Lantra)
- Industrial Rope Access Trade Association (IRATA)
- Practical Arboriculture Qualifications (NPTC)

Membership

- Arboricultural Association Professional Member (M.Arbor.A)

9.0 Web Information & Bibliography

Web Information

- Arboricultural Association

  http://www.trees.org.uk/

- Cellular Confinement System

  GeoWeb - GreenFix

  CellWeb - Geosynthetics Cellweb

- Underground Utilises Installation

  http://www.njug.org.uk/

Bibliography

- British Standards 3998 (2010) Recommendations for Tree Work UK; British Standards Intuition
- British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations UK; British Standards Intuition
- Coombes, A.J (1992) Trees London; Dorling Kindersley
- Lonsdale, D (1999) Principle of Tree Hazard Assessment and Management Edinburgh; Forestry Commission
- Mattheck, C (2007) Field Guide for Visual Tree Assessment Germany; Karlsruhe Research Centre
- Shigo, A.L (1991) Modern Arboriculture USA; Shigo and Trees, Association
- Sterry, P (2007) Collins Complete British Trees London; Collins
- Strouts, R.G (2000) Diagnosis of ill-health in trees Edinburgh; Forestry Commission
- Weber,K & Mattheck, C (2003) Manual of wood decay UK; Arboricultural Association

10.0 Appendix 1A -Tree Survey Data

Tree ID #	Tree Species	Age	Stems	Stem Diam (mm)	Cat	Height + (Lower Branch Height)	Nrth	Est	Sth	Wst	Phys Cond	Struc Cond	Est. Remain Contrib	Comments		Preliminary Management Recommendations		Work Priority	RPR (m)	RPA (m2)
G2	Corylus avellana (Hazel),Crataegus monogyna (Hawthorn),Acer pseudoplatanus (Sycamore),X Cupressocyparis leylandii (Leyland Cyp),Salix caprea (Goat Willow)	EM	1	150	C2	5(0)	2	2	2	2	G/F	F	10+		boundary group of trees and shrubs, untidy and sprawling in form that have received little recent management				1.8	10.18
G3	Fruit tree spp (Fruit tree spp)	EM	1	150	C3	3(1)	2	2	2	2	G/F	F	10+		group of three small fruit trees				1.8	10.18
G4	Betula pendula (Silver Birch),Acer platanoides (Norway Maple)	EM	1	275	C2	10(2)	3	3	3	3	G/F	N/A	10+	Located on private land preventing a close inspection of the tree therefore all observations and measurements are estimated.	group of two small suppressed in form trees, reduced in height by pruning				3.3	34.22
G5	X Cupressocyparis leylandii (Leyland Cyp)	EM	1	150	C2	6(0)	2	2	2	2	F	F	10+		boundary tree group of fair to poor form				1.8	10.18
H1	X Cupressocyparis leylandii (Leyland Cyp)	EM	1	75	C2	2.5(0)	0.75	0.75	0.75	0.75	G/F	G/F	10+	A hedgerow with no noticeable gaps noted. Received some regular recent maintenance.					0.9	2.55
H2	Corylus avellana (Hazel),privet (privet)	EM	1	75	C2	3(0)	0.75	0.75	0.75	0.75	G/F	G/F	10+	A hedgerow with no noticeable gaps noted. Received some regular recent maintenance.					0.9	2.55
H3	Prunus laurocerasus (Cherry Laurel),Cypress spp (Cypress spp),Salix caprea (Goat Willow)	EM	1	150	C2	5.5(0)	2	2	2	2	F	F	10+	Received little noticeable recent maintenance. A sprawling hedgerow.	untidy overgrown high hedgerow				1.8	10.18
H4	Cypress spp (Cypress spp)	SM	1	100	C2	3(0)	1	1	1	1	F/P	F/P	<10	Received little noticeable recent maintenance.	conifer hedgerow overgrown in ivy				1.2	4.52
H5	Prunus laurocerasus (Cherry Laurel),Fruit tree spp (Fruit tree spp),Crataegus monogyna (Hawthorn)	EM	1	100	C2	4(0)	1.5	1.5	1.5	1.5	F	F	10+	Received little noticeable recent maintenance. A sprawling hedgerow.	mainly cherry laurel, untidy high hedgerow				1.2	4.52
T1	Fraxinus excelsior (Ash)	EM	2	707	B2	12(1)	10	7	8	8	G/F	N/A	20+	Located on private land preventing a close inspection of the tree therefore all observations and measurements are estimated.	tree of fair to good form, located on side of small water ditch bank, twin stems from near ground level				8.48	225.9

Tree ID #	Tree Species	Age	Stems	Stem Diam (mm)	Cat	Height + (Lower Branch Height)	Nrth	Est	Sth	Wst	Phys Cond	Struc Cond	Est. Remain Contrib	Comments		Preliminary Management Recommendations		Work Priority	RPR (m)	RPA (m2)
T2	Sorbus aucuparia (Rowan)	SM	1	100	C2	5(2)	2	1	2	2	G/F	N/A	10+	Located on private land preventing a close inspection of the tree therefore all observations and measurements are estimated.	small multistemmed tree				1.2	4.52
T3	Cypress spp (Cypress spp)	EM	1	300	C2	10(2)	2	2	2	2	G	N/A	10+	Located on private land preventing a close inspection of the tree therefore all observations and measurements are estimated.	small to medium sized conifer, topped by pruning				3.6	40.72
T4	Ilex aquifolium (Holly)	EM	1	150	C2	5(2)	2	2	2	2	G/F	F	10+		large holly bush				1.8	10.18

10.0 Appendix 1B – Detailed Tree Survey Data Summary

(Please see Appendix 3 - Tree Survey Key)

Field Usage Results.		
Total Records: 13		
Type	Count	% of Total
T	4	30.8
G	4	30.8
H	5	38.5
Tree Species	Count	% of Total
Fraxinus excelsior (Ash)	1	7.7
X Cupressocyparis leylandii (Leyland Cyp)	2	15.4
Fruit tree spp (Fruit tree spp)	1	7.7
Sorbus aucuparia (Rowan)	1	7.7
Cypress spp (Cypress spp)	2	15.4
Ilex aquifolium (Holly)	1	7.7
Average Stem Diameter	Count	% of Total
<100	2	15.4
<150	3	23.1
<250	5	38.5
<500	2	15.4
<750	1	7.7
Cat	Count	% of Total
B2	1	7.7
C2	11	84.6
C3	1	7.7
Age	Count	% of Total
SM	2	15.4
EM	10	76.9
M	1	7.7
Height	Count	% of Total
<5	5	38.5
<10	5	38.5
<15	3	23.1

Phy Cond	Count	% of Total
G	1	7.7
G/F	7	53.8
F	4	30.8
F/P	1	7.7
Stuc Cond	Count	% of Total
G/F	2	15.4
F	6	46.2
F/P	1	7.7
N/A	4	30.8
Est. Remain Contrib	Count	% of Total
<10	1	7.7
10+	11	84.6
20+	1	7.7
RPR	Count	% of Total
<5	12	92.3
<10	1	7.7
RPA	Count	% of Total
<5	5	38.5
<15	5	38.5
other	3	23.1