Image EDP A2.4: Hedgerow **H4** delineating the southern extent of the western site boundary.

Image EDP A2.5: Hedgerow **H5** delineating the eastern extent of the southern site boundary.

Native Hedgerows

A2.14 Hedgerow **H3**, delineating the northern extent of the western boundary of the Site, comprises an unmanaged hedgerow 3-4m high by 2m wide, with a 10m line of semi-mature Leyland cypress trees (see **Image EDP A2.6**). Bramble (*Rubus fructinosus* agg.) dominates in some sections and obscures much of the hedgerow, with hazel, 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 also present.

A2.15 Native hedgerows comprise a priority habitat for Wales and are thus considered to be of Local level importance.

Image EDP A2.6: Hedgerow **H3** delineating the northern extent of the western site boundary, looking south.

Scattered Broadleaved Trees

A2.16 A line of scattered apple trees are present along the southern boundary of the Site, adjacent to the unnamed watercourse and hedgerow **H5** (see **Image EDP A2.7**). Here, bramble, cypress saplings and holly (*Ilex aquifolium*) form an understorey.

A2.17 Scattered broadleaved trees are considered to be of Site level importance, with some potential value to a limited assemblage of protected/notable species for foraging and nesting, as well as a source of deadwood for invertebrates.

Image EDP A2.7: Line of scattered apple trees along the southern site boundary, adjacent to the unnamed watercourse and hedgerow **H5**.

Scattered Scrub

A2.18 An area of scattered scrub lies adjacent to building **B1** at the north-west corner of the Site, dominated by bramble.

A2.19 Scrub provides suitable refuge and foraging opportunities for a range of protected and/or notable species, including bats and birds. As such, with scrub being common and widespread within the wider landscape, this habitat is considered to be of Site level importance.

Running Water

A2.20 An unnamed watercourse is located along the southern boundary of the Site (see **Image EDP A2.8**). The channel is approximately 2m wide and supports a variable flow. The substate is characterised by cobbles with boulders in the margin of the stream and some patches of gravel. The watercourse is heavily shaded by the trees and hedgerow **H5** located along the top of the bank. Bankside vegetation is dominated by common ivy with bramble, some bracken and Hart's tongue fern (*Asplenium scolopendrium*).

A2.21 Running water is a priority habitat and thus the stream is considered to be of Local level importance.

Image EDP A2.8: Unnamed stream along the southern site boundary.

Building

A2.22 A single building is present within the Site, comprising a machinery shed (**B1**) located within the north-west corner of the Site (see **Image EDP A2.9**).

A2.23 Buildings are considered to be of negligible ecological importance per se, albeit requiring consideration for their potential to support protected and notable species, namely roosting bats and nesting birds.

Image EDP A2.9: A machinery shed, building **B1**, located at the north-west corner of the Site.

Appendix EDP 3
Bat Surveys

METHODOLOGY

A3.1 The scope of bat surveys undertaken at the Site was determined following completion of the Extended Phase 1 Habitat survey and review of relevant desk study findings and with reference to best practice guidelines published by the Bat Conservation Trust[20].

Tree Roost Surveys

Ground Level Tree Assessment

A3.2 Owing to the presence of suitably mature trees within or adjacent to the Site, a Ground Level Tree Assessment (GLTA) of these trees was undertaken to record any external evidence of roosting bats or any features capable of supporting roosting bats that can be seen from the ground.

A3.3 The survey was completed on 17 September 2024 by a bat licensed ecologist in accordance with the good practice guidelines referred to above. The trees were searched as thoroughly as possible from ground level with all elevations covered where these could be accessed.

A3.4 Suitable features for roosting bats (Potential Roost Features - PRFs) recorded (where present) include features formed by disease, decay, damage and association as listed within the guidelines published by the Bat Conservation Trust and detailed within the '*Bat Roosts in Trees*' book[21]. In addition, bat, bird and dormouse boxes are also considered to provide potentially suitable roosting opportunities.

A3.5 Signs of roosting bat presence recorded (where present) include seeing a bat within a PRF, or finding bat droppings within, around or beneath a PRF. Other signs which could indicate a roost include smoothing of the entrance to a PRF, staining around or beneath a feature, audible squeaking from the roost at dusk or during warm weather, and large/regularly used roosts may produce a distinctive odour.

A3.6 The roost suitability of each tree was categorised as either:

- None – Either no PRFs in the tree or highly unlikely to be any;
- Further Assessment Required (FAR) – Tree is of a size, age or condition that is likely to have PRFs, further assessment is therefore required to establish if PRFs are present in the tree;
- PRF – Tree supports at least one PRF which is visible from the ground; and

[20] Collins, J. (ed.) (2023). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*. The Bat Conservation Trust, London

[21] Andrews, H (2018). *Bat Roosts in Trees. A Guide to Identification and Assessment for Tree-Care and Ecology Professionals.* Pelagic Publishing, Exeter.

- Confirmed roost – Signs of roosting bat presence were found within or around a PRF.

A3.7 For those trees categorised as having a 'PRF', an estimate was made as to whether each PRF visible from the ground was likely to be suitable for individual bats (PRF-I) or multiple bats (PRF-M). It should be noted that this categorisation from ground level is an estimate only, as it is often not possible to establish the internal extent of a tree feature from ground level.

Limitations

A3.8 As with any ground level assessments of trees, certain features may not be visible or fully visible from the ground. However, visual assessments of trees for roosting bats can be undertaken at any time of year. As such, this assessment was not limited by seasonal or climatic factors.

A3.9 All trees were assessed from within the Site only, therefore some elevations were not visible to due access restrictions.

A3.10 It should be noted that this type of assessment is based on features visible from ground level and is not considered to be a definitive bat roosting survey.

Buildings/Built Structures

Preliminary Roost Assessment

A3.11 Owing to the presence of potentially suitable buildings within or adjacent to the Site, a Preliminary Roost Assessment (PRA) of these buildings was undertaken to record any evidence of roosting bats or any features capable of supporting roosting bats.

A3.12 The survey was completed on 17 September 2024 by a bat licensed ecologist and assistant in accordance with the good practice guidelines referred to above. All external features considered potentially suitable for bats were assessed using a high-powered torch and binoculars, from all aspects, where access allowed. In addition, an internal inspection of the building was undertaken where access was possible.

A3.13 Suitable features for roosting bats recorded (where present) include the following:

- Cracks/crevices in stone/brickwork/timber;
- Missing/broken/raised roof/ridge/hanging tiles;
- Loose/lifted lead flashing/bitumen felt;
- Loft voids (particularly if relatively undisturbed, potential bat access points present, clear flight space with simple truss formation, roof lining and insulation present);
- Gaps between lintels above doors and windows;
- Gaps in soffits, barge boards or facias; and
- Cavity walls with potential bat access.

A3.14 Signs of roosting bat presence recorded (where present) include the following:

- Bat(s) roosting *in situ*;
- Bat droppings or urine splashes within or beneath a feature/access point;
- Feeding remains (e.g., insect wings and beetle wing cases);
- Oily marks, smoothly worn surfaces or staining around a feature/access point;
- Audible squeaking from the roost; and
- Large/regularly used roosts may produce a distinctive odour.

A3.15 Based upon the evidence/features identified, each building was assigned to one of the following categories:

- Known or confirmed roost – Evidence of bat use found, European Protected Species (EPS) licence may be required for modifications, and will be required for demolition, to be completed lawfully;
- High suitability – Structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat;
- Moderate suitability - Structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only);
- Low suitability - Structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of year. These roost sites do not provide enough space, shelter, protection, appropriate conditions and suitable surrounding habitat to be used on a regular basis or by larger numbers of bats;
- Negligible suitability - No obvious features to support roosting bats, although some apparently unsuitable features present; and
- None – No features on site likely to be used by roosting bats at any time of year.

A3.16 During the PRA, an initial assessment of potential for winter roosting (hibernation) within each building was also undertaken, based on the presence of suitable features, accessibility for bats, surrounding habitat and the temperature and humidity conditions likely to be present within the building over the winter period.

Limitations

A3.17 PRAs of buildings can be undertaken at any time of year and these assessments were therefore not limited by seasonal or climatic factors.

A3.18 The external northern and western elevations of building **B1** were not assessed due to the proximity of the building to hedgerows **H2** and **H3**.

Environmental DNA (eDNA) Sampling

A3.19 Environmental DNA (eDNA) is DNA that is collected from the environment in which an organism lives. Samples of bat droppings were collected from within building **B1** during the PRA survey on 17 September 2024. Samples were sent to Swift Ecology to determine the species present, using species specific real-time (qPCR) assay methodologies.

RESULTS

Tree Roost Surveys

Ground Level Tree Assessment

A3.20 With respect to the trees subject to survey, none were confirmed to support suitable features for bat roosting (PRF) therefore these trees have not been mapped/described.

Buildings/Built Structures

Preliminary Roost Assessment

A3.21 The PRA/inspection identified the single building within the Site (**B1**) to have suitability for night roosting only. Indeed, building **B1** also contained evidence of roosting bats during the PRA. Building **B1** is not considered to have suitability to support bat breeding or day roosting however. Further details are provided in **Table EDP A3.1** and the building location is shown on **Plan EDP 3**.

Table EDP A3.1: Preliminary Bat Roost Assessment of Building **B1**

Photograph and Elevation	Description and Potential Bat Features (PRF)	Overall Roosting Suitability
	Building **B1** is a machinery shed located at the north-west corner of the Site, adjacent to hedgerows **H2** and **H3**. The building is of breeze block construction with a slanted corrugated metal roof supported by wooden beams. The building is open on the eastern elevation, allowing for light ingress during the day. There was no external access to the northern and western elevations due to adjacent scrub/hedgerow. Externally, the windows are covered with sheeting with wooden lintels. The building is covered by ivy, with ivy growth also protruding inside the building. The barge board on the southern elevation is broken and pulls away from the building creating an exposed cavity of negligible suitability for roosting bats. Internally, only one PRF suitable for crevice dwelling bats was identified within the building: PRF 1: Along the internal edge of the eastern elevation of the building, there is a small cavity along most of its length where the wooden beam roof support meets the eastern roof edge. This is considered to have negligible bat roost suitability as the PRF was fully visible from the ground and filled with dust/cobwebs. When inspected using an endoscope, no evidence of roosting bats was identified within the gap. No staining on the walls and no droppings were collected directly beneath this feature.	Confirmed brown long-eared bat night roost/ feeding perch. Negligible breeding suitability. Negligible day roost suitability. Negligible hibernation suitability.

Photograph and Elevation	Description and Potential Bat Features (PRF)	Overall Roosting Suitability
	On the rear wall, the join between the wall and roof well sealed and cemented over with no gaps/cavities. The brickwork is in good condition. The rest of the supporting wooden ceiling beams have no suitable PRFs for bats. Bat droppings and feeding remains comprising moth/butterfly wings were also found within the machinery shed.	

Environmental DNA (eDNA) Sampling

A3.22 The droppings collected from building **B1**, and analysed by Swift Ecology, were confirmed to be attributed to brown long-eared bat.

Appendix EDP 4
Great Crested Newt Survey

METHODOLOGY

HSI Assessment of Waterbodies

A4.1 A Habitat Suitability Index (HSI) Assessment is a standardised method[22] which uses a range of criteria, such as water quality, fish/waterfowl presence and surrounding terrestrial habitat quality, to derive a suitability score or 'index'. Waterbodies with high scores are more likely to support great crested newt compared to those with lower scores. HSI scores and the associated suitability categories for great crested newts are set out within **Table EDP A4.1**.

Table EDP A4.1: HSI Scores and Waterbody Suitability Categories

HSI Score	Suitability of Waterbody to Support Great Crested Newts
<0.5	Poor suitability
0.5–0.59	Below average suitability
0.6–0.69	Average suitability
0.7–0.79	Good suitability
>0.8	Excellent suitability

A4.2 An HSI Assessment was undertaken of all waterbodies on Site, and those within 250m of the Site (but not separated from the Site by significant dispersal barriers) to which access was granted. With reference to **Plan EDP 3**, waterbody **WB1** was assessed. The assessment was undertaken by a suitably experienced ecologist on 13 May 2025.

Limitations

A4.3 Due to access constraints, waterbodies **WB2a** and **WB2b**, located 5m and 30m east of the Site respectively within private land, were not assessed as access was denied.

A4.4 Due to the low water level and presence of a metal grate along the length of **WB1**, further surveying through environmental DNA (eDNA) was not possible.

RESULTS

A4.5 The results of the surveys of waterbodies are set out in **Table EDP A4.2**. In summary, **WB1** was assessed as below average suitability to support great crested newt.

A4.6 With respect to terrestrial habitat within the Site, scrub and hedgerows offer some, albeit limited, refuge, foraging and dispersal opportunities for great crested newt and other common amphibians. Such habitats are limited in extent and isolated in nature, being surrounded by residential development. The arable field dominating the Site is otherwise considered of

[22] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal 10 (4), 143-155

negligible value for this species, being subject to regular disturbance through ploughing and lacking structural and botanical diversity.

A4.7 Given the suboptimal nature of those terrestrial habitats present on-site, and with off-site waterbodies only present to the south of the Site, coupled with the distance of known records for this species, movement of great crested newt across the Site itself is considered unlikely. Great crested newt is therefore unlikely to pose a constraint to proposed development of the Site. Nevertheless, acknowledging the limitations of the survey effort, populations of great crested newt and other amphibian species may occur within the locality and are therefore considered to be of Site level importance.

Table EDP A4.2: Great Crested Newt Survey Results

Waterbody	Photograph	Description	HSI
Off-site Waterbodies			
WB1		A manmade swale with concrete vertical sides c.30cm high forming a c.40cm wide linear channel. A metal grate is present along its entire length. Low water level, with some almost dry sections. No vegetation is supported therein. The swale is located c.10m west of the Site and is surrounded by semi-improved grassland, with an area of woodland to the south and west and existing residential development to the north.	Below average.

Appendix EDP 5
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

Table of Contents

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/

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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

10.0 Appendix 2 - Tree Constraints Plan

An introduction to the Tree Constraints Plan (TCP)

Trees that have been identified to be retained should be treated as constraints to the design of future development. A Tree Constraints Plan has been drawn and can be found over leaf.

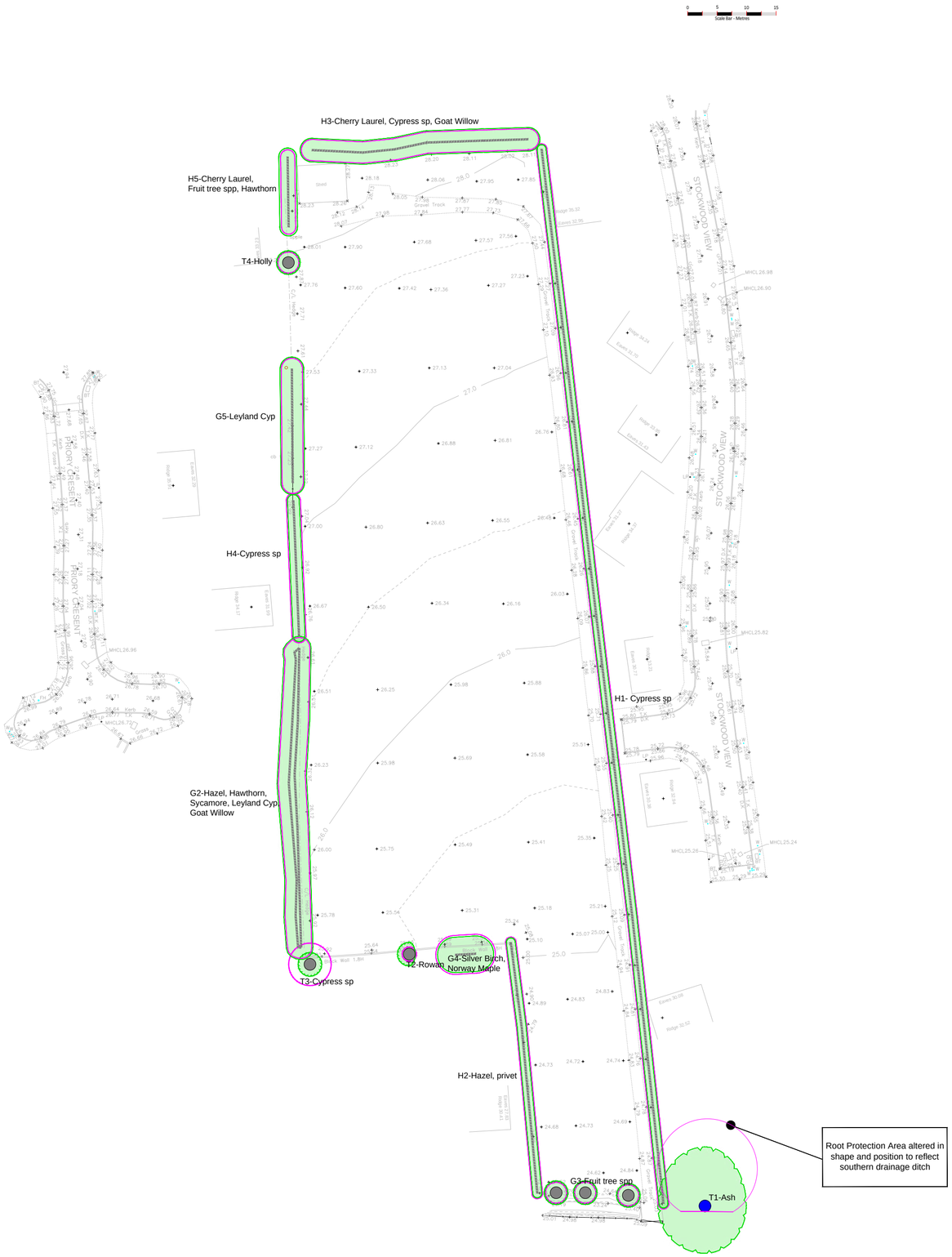
- **Tree Quality** - The TCP highlights the above and below ground constraint each tree poses to the design of future development schemes. Further to this the BS5837 tree quality category (A - High, B - Moderate, C - Low and U- Unsuitable for retention) are coloured coded as solid circles at the centre of the trees position.

- **Root Protection Area** – As shown as cyan circle on the TCP sets out root protection area (RPA). Within this area no construction work, alteration in ground levels or site traffic (machinery or persons) should occur. This prevents damage to tree roots and soil compaction. (Where possible an Arboriculturist can design suitable tree protection methods to facilitate construction work/site traffic within these areas).

- **Tree Canopy -** The green circle/oval on the TCP sets out the above ground constraints of tree canopy spread. Within this area no construction work or site traffic (machinery or persons) should occur if the tree is to be retained. This prevents damage to the tree branches and trunk. (Where possible an Arboriculturist can design suitable tree protection methods to facilitate construction work/site traffic within these areas).

- **Tree Shading** – Shade from the retained trees should be considered in the development design. The shade cast, depending on the trees height and width, will be from a North West to East pattern through the main part of the day.

- **Tree Future growth** - Within future development design, consideration should also be given to the ultimate height and extent of the canopy spread of all trees within the site identified to be retained.



Tree Constraints Plan

Site - Langstone

Project Ref - 719.4

Scale 1:600 @ A2

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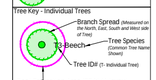
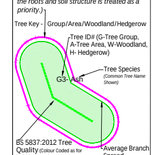
KEY BS 5837:2012 Tree Quality (Colour Coded) (Individual Tree)

- Category A (High) (*Highly desirable for retention*)
- Category B (Moderate) (*Desirable for retention*)
- Category C (Low) (*Optional for retention*)
- Category U (Poor) (*Unsuitable for retention*)

Tree Key - Individual Trees



Root Protection Area (RPA) *(A layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.)*



Shade Pattern - shade pattern not shown on plan (Early morning shade starting North West through to evening shade to the East)

Definitions of BS5837:2012 Categories for Trees, Woodlands and Hedgerows (Colour Coded):

A - Those of high quality with an estimated remaining life expectancy of at least 40 years. (*Highly desirable for retention*)

B - Those of moderate quality with an estimated remaining life expectancy of at least 20 years. (*Desirable for retention*)

C - Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. (*Optional for retention*)

U - Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. (*Unsuitable for retention unless provides high conservation value*)

Please Note:
Barriers and Ground Protection must be designed by an arboriculturist, installed before materials or machinery is bought onto site and before any demolition, development or stripping of soil commences. Once erected, barriers and ground protection should be regarded as sacrosanct, and should not be removed or altered without prior recommendation by an Arboriculturist and approval of the Local Planning Authority (LPA).

Tree Constraints Plan

Site - Langstone

Project Ref - 719.4

Scale 1:600 @ A2

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H3-Cherry Laurel, Cypress sp, Goat Willow

H5-Cherry Laurel, Fruit tree spp, Hawthorn

T4-Holly

G5-Leyland Cyp

H4-Cypress sp

H1- Cypress sp

G2-Hazel, Hawthorn, Sycamore, Leyland Cyp, Goat Willow

T3-Cypress sp

T2-Rowan

G4-Silver Birch, Norway Maple

H2-Hazel, privet

G3-Fruit tree spp

T1-Ash

Root Protection Area altered in shape and position to reflect southern drainage ditch

PRIORY CRESENT

STOCKWOOD VIEW

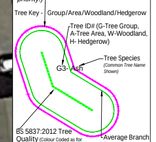
KEY

BS 5837:2012 Tree Quality (Colour Coded) - (Individual Tree)

- Category A (High) (*Highly desirable for retention*)
- Category B (Moderate) (*Desirable for retention*)
- Category C (Low) (*Optional for retention*)
- Category U (Poor) (*Unsuitable for retention*)

Tree Key - Individual Trees

Root Protection Area (RPA) (*A layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.*)



Shade Pattern - shade pattern not shown on plan (*Early morning shade starting North West through to evening shade to the East*)

Definitions of BS5837:2012 Categories for Trees, Woodlands and Hedgerows (Colour Coded):

A - Those of high quality with an estimated remaining life expectancy of at least 40 years. (*Highly desirable for retention*)

B - Those of moderate quality with an estimated remaining life expectancy of at least 20 years. (*Desirable for retention*)

C - Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. (*Optional for retention*)

U - Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. (*Unsuitable for retention unless provides high conservation value*)

Please Note:

Barriers and Ground Protection must be designed by an arboriculturist, installed before materials or machinery is bought onto site and before any demolition, development or stripping of soil commences. Once erected, barriers and ground protection should be regarded as sacrosanct, and should not be removed or altered without prior recommendation by an Arboriculturist and approval of the Local Planning Authority (LPA).

10.0 Appendix 3 - Tree Survey Data Key

- **Tree ID # -** Identifies the location of individual trees (T-ID Number), Groups of trees (G-ID Number), Area of trees (A-ID Number), Hedgerow (H-ID Number), Woodland (W-ID Number), Row of trees (R-ID Number) and tree Stumps (S-ID Number) on the accompanying plan. *(Please note: A group of trees here refers to two or more standing trees that form a visual whole, whereas an area of trees refers to dispersed individual trees standing within the site)*

- **Tree Species -** Scientific names and common tree name in brackets are generally shown.

- **Age**
  - (Y) Young – Less than 1/3 of life completed
  - (SM) Middle Aged - 1/3 - 2/3 of life completed
  - (EM) Early Mature – Just entering Maturity
  - (M) Mature – more than 2/3 of life completed
  - (OM) Over Mature - more than 3/3 of life completed and declining
  - (V) Veteran - (v) Veteran – Veteran trees have no precise definition but are trees considered to be of biological aesthetic or ecological value because of their age

- **Stems –** Number of tree stems used to calculate the RPR/RPA

- **Stem Diam** (mm) - Diameter of tree stem measured in millimetres for single stem trees or average stem diameter calculated for multi-stemmed trees as detailed in section 4.6 & Annex C of the British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations. The height above ground level where the stem measurement was taken will be shown if not measured at 1.5 metres above ground level. *(Please note: that the stem diameter of certain trees will have to be estimated due to difficulties in taking measurements or for trees with a large number of stems)*

- **Cat** – Tree Quality Category - British Standard 5837:2012 A, B, C, U + 1, 2, 3

  Based on BS5837:2012 categories A, B, C, U provides the basis of prioritising trees for retention:

  - A – Those of high quality with an estimated remaining life expectancy of at least 40 years. (*Most desirable for retention*)
  - B - Those of moderate quality with an estimated remaining life expectancy of at least 20 years. (*Desirable for retention*)
  - C – Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. (*Optional for retention*)
  - U – Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. (*Unsuitable for retention unless provides high conservation value*)

Retention Criteria Subcategories: Used for identifying subcategories

E.g. A2 = A high quality tree with a high landscape qualities (further details can be found in British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations UK; British Standards Intuition)

- 1 – Mainly Arboricultural qualities
- 2 – Mainly landscape qualities
- 3 – Mainly cultural values, including conservation

- **Height + (Lower Branch Height) -** Tree height in metres and in brackets height in metres of the crown (tree branches) clearance at its lowest point above adjacent ground levels.

- **Nrth, Est, Sth, Wst** - Crown Spread (Metres) -Tree branch spread in metres measured in four directions (North, East, South, West) from the trunk.

- **Phys Cond -** Physiological Condition Indicating the health of the tree -

  - (G) Good
  - (F) Fair
  - (P) Poor
  - (D) Dead

- **Struc Cond –** Structural Condition indicting the structural integrity of the tree -

  - (G) Good – No, or remediable physical defects or decay
  - (F) Fair - Physical non-remediable defects or decay present, not presenting imminent danger but should be monitored
  - (P) Poor - physical non-remediable defects or decay present, tree liable to imminent collapse or loss of major limbs.
  - (D) Dead

- **Est. Remain Contrib - (<10, 10+, 20+, 40+)**

  The trees estimated remaining contribution in years, recorded as:

  - <10 – less than 10 years
  - 10+ – at least 10 years
  - 20+ – at least 20 years
  - 40+ – at least 40 years

- **Comments –** Additional Comments if required

- **Preliminary Management Recommendations –** Work Recommendations, including further investigation of suspected defects that require more detailed assessment and pose potential for wildlife habitat.

- **Work Priority -** Work Priority -This gives a work priority rating of preliminary management for each tree.
    - H - High – Urgent work to be carried out as soon as practicable due to safety reasons (Within 14 days).
    - H/M – High - Medium – Work to be carried out within 6 months/or before construction phase begins
    - M - Medium – Work to be carried out in 12 months
    - L - Low – After consideration/Re-inspect in 18-24 months
    - Blank – No work required.

- **RPR –** Root protection radius / **RPA -** Root Protection Area **-** Is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. RPR is a circular area measured as a radius in metres from the centre of the tree or RPA is an area in metres squared. Where required this area may be changed in shape but not reduced in area whilst providing adequate protection of the tree's rooting system.

10.0 Appendix 4 – Tree Protection Plan

Tree Protective Fencing

- Trees for removal to be identified from the drawing and marked by an arboriculturist.
- No vehicles to enter the grass verge or root protection zone during tree removal or fencing installation/removal.
- Fencing to be installed prior to any construction works (including demolition, materials delivery, works compound installation).
- The location of the tree protective fencing is indicative only and must not be directly measured from this plan. Its true location must be surveyed accurately on site and where applicable be measured from the tree centre by the stated dimension value.
- Fencing to remain in place until all construction works have ceased.

BS5837: 2012 Recommendations (extract)

6.2.2.3 Where the site circumstances and associated risk of damaging incursion into the RPA do not necessitate the default level of protection, an alternative specification should be prepared by the project arboriculturist and, where relevant, agreed with the local planning authority.

Fencing Specification

For example : 2metre tall welded mesh panels on rubber or concrete feet might provide an adequate level of protection from cars, vans, pedestrians and manually operated plant. In such cases, the fence panels should be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The distance between the fence couplers should be at least 1 m and should be uniform throughout the fence. The panels should be supported on the inner side by stabilizer struts, which should normally be attached to a base plate secured with ground pins. Where the fencing is to be erected on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g.due to the presence of underground services, the stabilizer struts should be mounted on a block tray. (See Diagram Below)

Why Is Fencing Erected Around Trees?

- The major cause of damage to trees on construction sites is due to soil compaction.
- Roots use the spaces between soil particles to obtain Oxygen, Water and Nutrients.
- Heavy plant and machinery compresses (compacts) the soil, squashing out the air spaces and preventing root function.
- A compacted soil structure will stay compacted.
- Consequently the tree suffers and will show signs of branch die-back.
- Symptoms such as die-back may take several years to appear.
- Soil compaction over roots can be prevented by maintaining a fenced exclusion zone over the tree roots.
- The exclusion zone is calculated using British Standard 5837.
- Protective Fencing is installed around the calculated area.
- Protective Fencing is a condition of planning approval, if it is removed or repositioned the construction firm is in breach of a condition and may be subjected to legal action.

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Key : Tree Protection Methods

Temporary Tree Protective Fencing
(Not to be altered without prior approval from the Local Planning Authority)

Construction Exclusion Zone
(No access, storage of any building material or equipment at any time for the entire construction period)

Small section of hedgerow to be removed to facilitate construction work

Please Note:
Arboricultural Method Statement:
MUST be followed in sequence, include site supervision by an Arborculturist where specified and adhered to at all times. Noncompliance with this method statement may result in planning enforcement action or prosecution.

Tree Protection Plan

Site - Langstone

Project Ref - 719.4

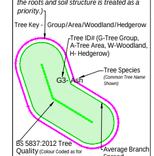
Scale 1:600 @ A2

KEY BS 5837:2012 Tree Quality (Colour Coded) (Individual Tree)

- Category A (High) (*Highly desirable for retention*)
- Category B (Moderate) (*Desirable for retention*)
- Category C (Low) (*Optional for retention*)
- Category U (Poor) (*Unsuitable for retention*)

Tree Key - Individual Trees

Root Protection Area (RPA) (*A layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.*)



Definitions of BS5837:2012 Categories for Trees, Woodlands and Hedgerows (Colour Coded):

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C - Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. (*Optional for retention*)

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Please Note:
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10.0 Appendix 5 – Tree Photographs

Tree ID#T1

Tree ID#H1

Tree ID#G3

Tree ID#H2

Tree ID#G4

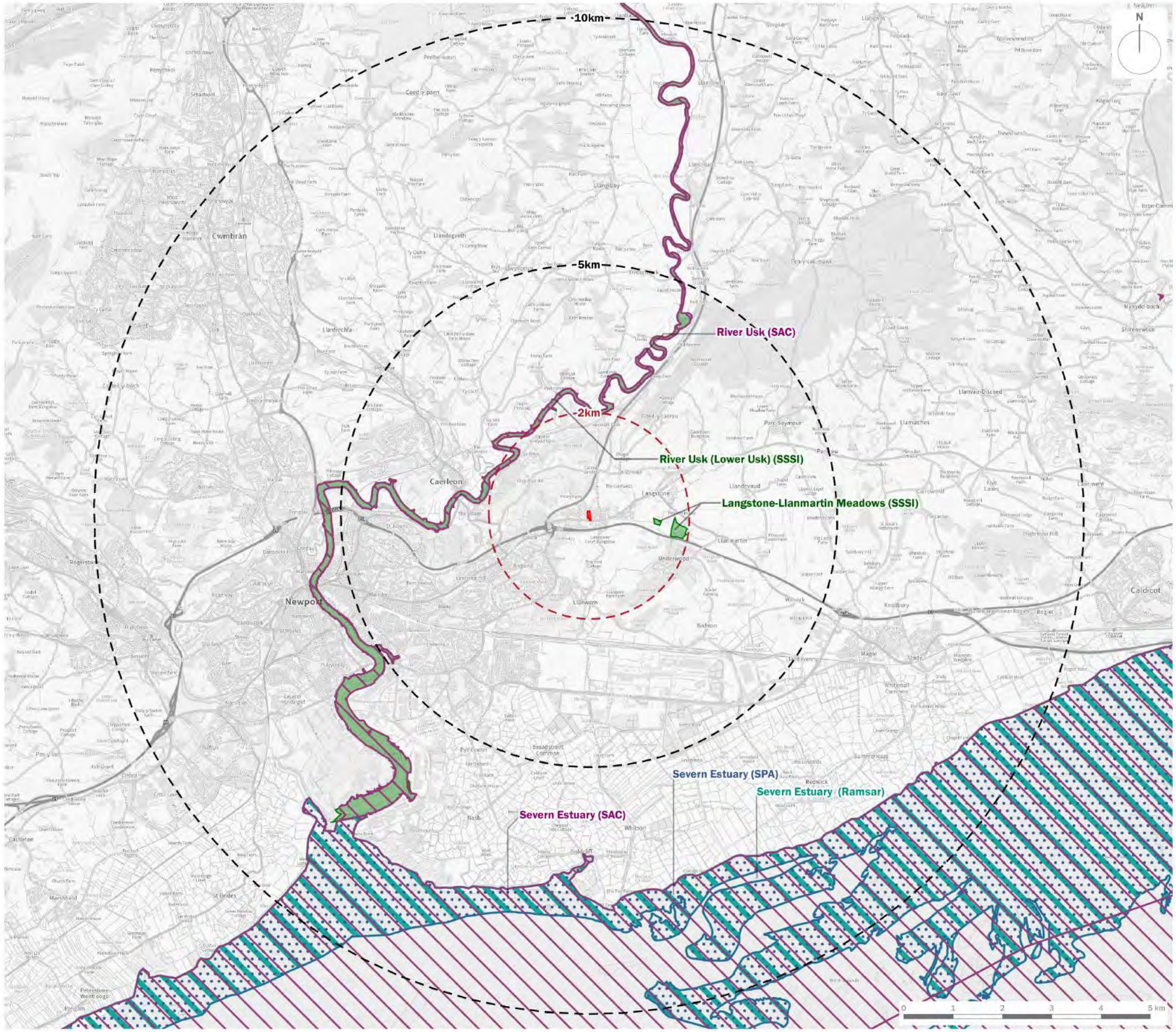
Western boundary

Plans

Plan EDP 1: Statutory Designated Sites
(edp8992_d002 26 November 2024 VMS/ESe)

Plan EDP 2: Non-statutory Designated Sites
(edp8992_d003 26 November 2024 VMS/ESe)

Plan EDP 3: Extended Phase 1 Habitat Plan
(edp8992_d001 26 November 2024 VMS/ESe)



Site Boundary

Range Rings (at 5km intervals)

2km Detailed Study Area

Internationally Important Statutory Designated Sites (within 10km of the Site)

Special Area of Conservation (SAC)

Special Protection Area (SPA)

Wetland of International Importance (Ramsar)

Nationally Important Statutory Designated Sites (within 2km of the Site)

Site of Special Scientific Interest (SSSI)

client

United Welsh Housing Association

project title

Langstone, Newport

drawing title

Statutory Designated Sites

date	26 NOVEMBER 2024	drawn by	VMS
drawing number	edp8992_d002	checked	ESe
scale	1:75,000 @ A3	QA	GYo

the environmental dimension partnership

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Site Boundary

Range Rings (at 1km intervals)

Priority Area (Lowland Wetland)

Priority Area (Woodland - PAWS)

Ancient Semi Natural Woodland

Plantation on Ancient Woodland Site

Restored Ancient Woodland Site

Ancient Woodland Site of Unknown Category

Wildlife Site/SINC (Adopted)

client

United Welsh Housing Association

project title

Langstone, Newport

drawing title

Non-statutory Designated Sites

date	**26 NOVEMBER 2024**	drawn by	**VMS**
drawing number	**edp8992_d003**	checked	**ESe**
scale	**1:17,500 @ A3**	QA	**GYo**

the environmental dimension partnership

Registered office: 01285 740427 - www.edp-uk.co.uk - info@edp-uk.co.uk

Site Boundary

Scattered Scrub

A — Arable

Standing Water

Building

Intact Species-poor Hedgerow

Running Water

Wet Ditch

Scattered Trees (Broadleaved)

client

United Welsh Housing Association

project title

Langstone, Newport

drawing title

Extended Phase 1 Habitat Plan

date	**26 NOVEMBER 2024**	drawn by	**VMS**
drawing number	**edp8992_d001**	checked	**ESe**
scale	**1:1,000 @ A3**	QA	**GYo**

the environmental dimension partnership

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URBAN DESIGN GROUP REGISTERED PRACTICE

IEMA CORPORATE PARTNER

Landscape Institute
Registered practice