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ASSOCIATED BRITISH PORTS (ABP)

NEW MANUFACTURING PLANT, NEWPORT

ARBORICULTURAL IMPACT ASSESSMENT

JANUARY 2020

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DATE ISSUED:	**JANUARY 2020**
JOB NUMBER:	**CA11637**
REPORT NUMBER:	**007**
VERSION:	**V1 REV G**
STATUS:	**FINAL**

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ARBORICULTURAL IMPACT ASSESSMENT

JANUARY 2020

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APPENDICES

DRAWINGS	TITLE	SCALE
CA11637-005 Rev. H	Tree Protection Plan	1:1000@A1

1 INTRODUCTION

1.1 Brief

1.1.1 Wardell Armstrong LLP (WA) was commissioned by Gleeds Management Services Ltd (Gleeds) on behalf of Associated British Ports (ABP) to undertake a BS 5837 tree survey and to assess and report on the impacts on the trees and hedgerows in connection with a new manufacturing plant at Newport Docks (Ordnance Survey grid reference ST 31361 84157). For the purpose of this report this will be referred to as the 'Site' hereafter.

1.1.2 The purpose of this report is to provide an Arboricultural Impact Assessment (AIA), in order to evaluate the direct and indirect effects of the proposed layout design on the trees and hedgerows surveyed. These include trees identified within the Site, as well as those located off-site but within influencing distance. Where there are impacts from the development proposal, this report recommends, where feasible, mitigation measures to be taken to ensure that important trees and hedgerows are adequately considered during the design process. Where trees and hedgerows must be removed to enable the development, potential mitigation measures are proposed.

1.1.3 The BS5837 tree survey was undertaken by Elisa Dore of Wardell Armstrong on 11th September 2019. This, in combination with the proposed layout, supporting documents/drawing and any liaison we have had with the design team and the LPA, forms the basis of our assessment.

1.1.4 If planning permission is granted for the proposal assessed in this report, it is usual for the Local Planning Authority (LPA) to condition an Arboricultural Method Statement (AMS). An AMS would set out the specifications and methodologies for the tree protection measures implementation and would also provide a methodology for any proposed works that either encroach within the root protection areas (RPAs) or retained trees and/ or that have the potential to result in loss or damage to them trees.

1.1.5 This AIA report and attached Tree Protection Plan (TPP) accords with the methodologies and guidance set out in British Standard BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* (The British Standards Institution, 2012).

1.1.6 This AIA report and the associated TPP is based on a topographical survey plan supplied by the client. Where tree stem locations are not shown on the topographical

survey, these are plotted using GPS plotting and/ or the utilisation of site features to manually plot the tree stem locations and canopy spreads for tree groups. Aerial photography is also utilised to plot tree group canopy spreads, where utilisation of GPS is not feasible. These methods provide a good representation of the surveyed trees; however, please note that the GPS used is not usually sub-metre accurate. WA cannot be held responsible for inaccurate tree locations where these are not shown on the topographical survey. Where we have plotted trees and hedgerows that are not shown on the topographical plan, this is recorded in the tree survey data schedule in Appendix 1.

1.2 Site Context

1.2.1 The Site is located in Newport Docks, with Alexandra Dock and dock buildings to the north, Tom Lewis Way to the east, the River Usk to the south and the Ebbw River to the west. The Site comprises of derelict land with self-seeded low-level vegetation.

1.2.2 Planning permission is sought for the redevelopment of the site, comprising of a Plasterboard Manufacturing Facility with a gross internal area of 15,140 m^2 and hardstanding for parking.

1.3 Trees and the Planning Process

1.3.1 Under s197 of the Town & Country Planning Act 1990, LPAs have a legal duty to consider the protection of trees and the planting of new trees on development sites when granting planning permission. LPAs must also consider the potential effects, whether detrimental or positive, that proposed developments will have on retained trees, and the effect that these trees will have on the users of the development.

1.3.2 The Site is located within the administrative boundaries of Newport City Council (NCC). Relevant saved policies from NCC's adopted Local Development Plan 2011-20126 is reproduced below:

'***Policy GP5: General Development Principle, Natural Environment***

Development will be permitted where, as applicable:

vii) The proposal includes appropriate tree planting or retention where appropriate and does not result in the unacceptable loss of or harm to trees, woodland or hedgerows that have wildlife or amenity value'.

1.3.3 Relevant national policies from Planning Policy Wales (Edition 10) are reproduced below:

'Policy 6.4.25: *Planning authorities should protect trees, hedgerows, groups of trees and areas of woodland where they have ecological value, contribute to the character or amenity of a particular locality, or perform a beneficial and identified green infrastructure function. Planning authorities should consider the importance of native woodland and valued trees, and should have regard, where appropriate, to local authority tree strategies or SPG. Permanent removal of woodland should only be permitted where it would achieve significant and clearly defined public benefits. Where woodland or trees are removed as part of a proposed scheme, developers will be expected to provide compensatory planting.*

Policy 6.4.26: *Ancient woodland and semi-natural woodlands and individual ancient, veteran and heritage trees are irreplaceable natural resources, and have significant landscape, biodiversity and cultural value. Such trees and woodlands should be afforded protection from development which would result in their loss or deterioration unless there are significant and clearly defined public benefits; this protection should prevent potentially damaging operations and their unnecessary loss. In the case of a site recorded on the Ancient Woodland Inventory, authorities should consider the advice of NRW. Planning authorities should also have regard to the Ancient Tree Inventory.*

Policy 6.4.27 *The protection and planting of trees and hedgerows should be delivered, where appropriate, through locally-specific strategies and policies, through imposing conditions when granting planning permission, and/or by making Tree Preservation Orders (TPOs). They should also be incorporated into Green Infrastructure Assessments and plans'*.

1.3.4 Table B.1 taken from British Standard BS 5837:2012 gives guidance on the level of information required by LPAs in order to make an informed decision on the impact of development on trees.

1.3.5 We have conducted a tree survey in accordance with BS5837 and have plotted the trees on the proposed layout so that the specific impacts on the trees can be assessed. This Arboricultural Impact Assessment (AIA) and the associated TPP fulfils the requirement to present the impacts of the proposed layout on the trees that are on, or immediately adjacent to the Site.

1.4 Statutory Legal Protection

1.4.1 The two main sources of protection afforded to trees are i) Conservation Area (CA) control and ii) Tree Preservation Orders (TPO).

1.4.2 Trees within Conservation Areas are protected under the *Town & Country Planning Act 1990 (as amended)*, which affords blanket[1] protection to trees with a stem diameter of 75 mm and above when measured at 1.5 m from ground level.

1.4.3 Trees may also be protected by a TPO under the Town & Country Planning Act 1990 (as amended), The Town and Country Planning (Tree Preservation) (England) Regulations 2012 and in Wales the Town and Country Planning (Trees) Regulations 1999.

1.4.4 It is a criminal offence to carry out any unauthorised works to trees that are either protected by a TPO or located within a CA, including:

- Cutting down, uprooting or wilfully destroying a tree, or wilfully damaging, topping or lopping a tree in such a manner as to be likely to destroy it;
- Any works that contravene the provisions of a TPO; and/or
- Any works in contravention to the regulations.

1.4.5 Penalties for non-compliance of a TPO and/or CA can be unlimited, if tried in a County Court, and up to £20,000 if tried in a Magistrates Court.

1.4.6 It should be noted that the felling of trees prior to receiving full planning permission may also require a felling licence under the *Forestry Act 1967*. This requires that any persons wishing to fell 5 m^3 of trees within any three-month period (i.e. January to March, April to June, July to September and October to December) apply for a felling licence from the Forestry Commission. There are a number of exemptions to this requirement, with some of the more relevant exemptions including:

- Pruning trees;
- Felling fruit trees or trees growing in a garden, orchard, churchyard or designated public open space;
- Felling trees that, when measured at a height of 1.3 m from the ground, have a diameter of 8 cm or less;

[1] Protection is similar to that afforded to trees protected by TPO.

- Felling trees immediately required for the purpose of carrying out development authorised by full planning permission;
- Felling necessary for the prevention of danger or the prevention or abatement of a nuisance[2] (e.g. threat/danger to a third party); and
- Felling necessary to prevent the spread of a quarantine pest or disease.

1.4.7 Other legislation that affords a lesser or indirect level of protection to trees includes the following:

- The Wildlife & Countryside Act 1981 (as amended);
- Conservation of Habitats and Species (amendment) Regulations 2018; and
- Hedgerow Regulations (1997).

1.4.8 All of the above provide for the identification and safeguarding of flora and fauna that may be found in association with trees and woodlands.

1.5 Protected Species

1.5.1 Trees can contain features such as cavities, cracks, splits and loose bark which can offer potential habitat to species such as bats. Bats and their roosts are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) as well as the Conservation of Habitats and Species Regulations 2017 (as amended) and are also listed under Section 41 of the Natural Environment and Rural Communities Act 2006.

1.5.2 Trees provide potential nesting habitat for birds and all UK birds and their active nests are protected under the *Wildlife & Countryside Act 1981 (*as *amended)*. Bird species that are listed on Schedule 1 of *The Act* are also protected against disturbance of their active nest(s).

[2] NB - This only applies when a real and/or immediate danger is present.

2 THE SURVEY

2.1 Tree Preservation Orders or Conservation Areas

2.1.1 WA contacted Newport City Council on 5th September 2019 to ascertain whether any trees within and/or immediately adjacent to the Site are protected by TPO and/or CA status.

2.1.2 Newport City Council confirmed by email on 10th September 2018 that no TPOs or CAs are present on/immediately adjacent to the Site at this time. However; be aware that this situation is liable to change as LPA's can assign TPOs at any time. Therefore, we advise that the protective status of these trees is checked again prior to undertaking any planned works.

2.2 Survey Methodology

2.2.1 The arboricultural survey was undertaken by Elisa Dore on 11th September 2019 using the methodology set out in BS5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations* (see Appendices 2 and 3).

2.2.2 Weather conditions during the survey were overcast but did not hinder the survey.

2.2.3 Each individual surveyed tree (T) and tree group (G) was given a sequential reference number.

2.2.4 The surveyed trees and hedgerows were then identified by their common and/or Latin name. Where a number of surveyed trees formed a cohesive feature, such as groups, woodland compartments or whole woodlands, they were recorded, assessed and plotted as groups (G). Whilst not every tree within groups are surveyed, a representative sample of the largest edge trees were measured in order to be able to plot the group or woodland crown spreads and RPAs. Where detailed plans show development proposed within a group or woodland, all trees within influencing distance of the development proposals are recorded, plotted and assessed.

2.2.5 A series of measurements were taken where appropriate, including:

- Stem diameters measured at 1.5 m above ground level with a standard diameter measuring tape to enable RPAs to be calculated;
- Tree height, crown height and height of first significant branch in the crown above ground level measured using a Truepulse 200L laser to inform on ground clearance, crown/stem ratio and shading; and

- Crown (branch) spreads measured with a Truepulse 200L at the four cardinal points (i.e. north, east, south and west) to enable an accurate representation of the crowns to be plotted on the TPP.

2.2.6 A description of the life stage of each surveyed tree is identified as follows:

- Young – Newly planted trees and self-seeded trees;
- Semi-mature – Large nursery stock that can be newly planted or self-seeded trees still in the early stages of establishment;
- Early mature – Trees in the first third of their life cycle which is characterised by their quickness of growth and subsequently significant increase in size;
- Mature – Trees in the second third of their life cycle, characterised by reaching their ultimate size and slowing of annual incremental growth;
- Late mature – Trees in the final third of their life cycle, often characterised by showing signs of decline; and
- Veteran – Trees that show ancient tree characteristics irrespective of their age, such as crown retrenchment and decaying wood habitat.

2.2.7 An assessment of each tree's physiological and structural condition is identified as G (good), F (fair), P (poor) or D (dead).

2.2.8 An estimated remaining contribution in years within the context of the current Site usage was identified as <10, 10+, 20+ or 40+.

2.2.9 The trees were then classified in accordance with the BS5837:2012 tree quality assessment categories 'A', 'B', 'C' and 'U' (see category criteria and grading within Appendix 3). 'A' and 'B' category trees are considered as 'high' and 'moderate' quality, respectively, and are considered as a constraint to development. As such, these trees should be retained and afforded appropriate protection during development. 'C' category trees are considered to be of 'lower' quality due to their condition or 'lower' amenity value and are, therefore not usually considered a constraint to development. 'U' category trees are those in such a 'poor' condition that they cannot usually be retained within the current Site context for longer than ten years. It should be noted that in some cases, category 'U' trees may have valuable habitat/ecological value despite being in poor condition. In such cases, where it is safe to do so, these trees may be recommended for retention and/or pruning works. Where trees are located outside of the red and blue line Site boundaries, irrespective of their BS 5837

categorisation, these should be considered as a constraint during the Site layout design process and protected during construction, as such trees are not within the control of the Site owner.

2.2.10 Root Protection Areas (RPAs) are calculated for individual trees utilising the methodology set out in BS 5837:2012, which is calculated by multiplying the stem diameter (measured at 1.5 m from ground level) by twelve for single-stemmed trees and a variant on this for multi-stemmed trees. For surveys in England (and outside England where it is a Local Planning Policy requirement), individual veteran trees are given a standard BS 5837 RPA and also a secondary veteran tree RPA, to accord with government's standing advice 'Ancient woodland, ancient trees and veteran trees: protecting them from development' [3] and local planning policy, which is based on a calculation of fifteen times the stem diameter or five metres beyond the crown spread, whichever is greater.

2.2.11 For tree groups, woodlands and hedgerows, the calculated RPAs are based on a set distance from the canopy edge of the tree groups, woodlands and hedgerows. This calculation is based on the largest stem diameter of the trees on the edge of the tree groups and woodlands and the crown spread measurement for these edge trees. A variant of the tree group and woodland RPA calculation is used to calculate hedgerow RPAs, with the calculation based on the largest stem diameter of the hedgerow woody plants and the hedgerow width.

2.2.12 Further details for each tree, and the groups of trees surveyed are set out in the Arboricultural Survey Schedule (see Appendix 1) and on the Tree Protection Plan Ref. No. CA11637-005 Rev. H.

2.3 Report Limitations

2.3.1 Trees are influenced by a variety of environmental variables, which can affect the health of trees causing biomechanical and physiological changes. All comments made on tree health reflects their physical condition at the time of the survey. Due to the changeable nature of trees and other site/environmental conditions, which may influence trees, the preliminary management recommendations/ further works for the surveyed trees undertaken, which can be found in Appendix 1 of this report, are only valid for a period of 12 months from the date of the Site survey (11th September

[3] https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences

2019). These recommendations relate specifically to the general maintenance of tree health and safety and do not affect the implications of this Arboricultural Impact Assessment and therefore, the results of the survey remain valid.

2.3.2 Although comments and recommendations on the safety of particular trees may have been made, this survey is not a Tree Risk Management Survey and thus should not be treated as such. All trees were surveyed from ground level only and in a solely visual nature. However, where trees have been identified as presenting an imminent safety risk due to structural defects, this has been brought to the attention of the client and treated as a separate matter. Should trees require further detailed assessment (decay detection, aerial inspections) and do not present an imminent safety risk, the information will be detailed within the survey schedules.

2.3.3 Any management recommendations have been made in accordance with BS3998: 2010 Tree Works – Recommendations; and/or industry best practice. Works have been recommended in accordance with any statutory obligations on the landowners or occupiers.

2.3.4 This survey did not include an ecological survey of vegetation or habitat areas. Any ecological issues incidentally observed during the survey are reported on in the tree schedule.

2.3.5 For the purpose of this report no samples where obtained from Site for analysis or any other reason.

2.3.6 The survey did not include soil sampling to determine whether the soil is shrinkable. Such analysis should be carried out by a specialist to ensure building foundations are adequate in accordance with current National House Building Council Guidelines (NHBC).

3 SURVEY RESULTS AND EVALUATION

3.1 Tree Population

3.1.1 The trees assessed included four individual trees and eleven tree groups which were surveyed on and immediately adjacent to the Site.

3.1.2 The majority of trees on site were self-set scrub trees reflecting the derelict nature of the site. The most significant trees and tree groups were recorded, however the scrub extended across the majority of the site.

3.1.3 The most significant trees on or adjacent to the site were within G6 and G7. The trees in these two groups appeared to be mature and early mature in age, however, due to dense vegetation in front of these two tree groups, the surveyor was not able to get close enough to be able inspect and measure the trees within these two groups. Their positions were not plotted on the topographical survey plan and they may be located on the riverbank. Due to the fact that we were unable to assess and measure these and record their positions using GPS, we have estimated their dimensions and positions and therefore their influence on the Site is approximate. It is recommended that the dense vegetation is cleared in front of these two tree groups, and the trees resurveyed as individuals prior to any construction work commencing on Site.

3.1.4 A hundred percent of the individual tree population was classified as category 'C' quality. Category 'C' quality trees are the second lowest quality grading in BS 5837:2012 quality, so are usually considered the second lowest constraint to development.

3.1.5 In terms of the surveyed tree groups, 36% were classified as category 'B' quality and 64% were classified as category 'C' quality.

3.1.6 The age class of the trees on site is predominantly young to semi mature. The trees within G6 were assessed as being mature although further assessment of these trees is required, as we were unable to get close enough to this tree group, to reliably assess the trees' age properly.

3.1.7 On this occasion, no early-mature or late-mature individual trees were found during the survey.

3.1.8 A detailed description of all trees and groups of trees surveyed and any recommended works to the trees can be found in the Tree Survey Schedule in Appendix 1. Table 1 and Table 2 below summarises the BS 5837 quality grading of the trees found on Site.

Table 1: Individual Trees Quality Assessment Summary				
Tree quality	**A**	**B**	**C**	**U**
Individual Trees Identification	None	None	T1, T2, T3, T4	None
Totals	**0**	**0**	**4**	**0**

Table 2: Tree Groups & Woodlands Quality Assessment Summary				
Tree quality	**A**	**B**	**C**	**U**
Tree Groups Identification	None	G1, G2, G6, G7	G3, G4, G5, G8, G9, G10, G11	None
Totals	**0**	**4**	**7**	**0**

3.1.9 To ascertain whether any veteran trees or ancient woodlands are located within influencing distance of the Site, a search using the Woodland Trust's Ancient Tree Inventory[4], and Natural Resources Wales' Ancient Woodland Inventory [5] was undertaken.

3.1.10 No veteran trees or ancient woodlands were recorded on Site during the survey. In addition, searches of the two aforementioned databases (see 3.1.8) did not identify any veteran trees or ancient woodlands within influencing distance of the Site.

3.2 General Tree Constraints

3.2.1 Tree impose a constraint to development in a variety of ways. These principally include their rooting areas, referred to as Root Protection Areas (RPAs), their current and future crown spread, and their species characteristics (e.g. branch and fruit drop, production of 'honey dew', density of foliage etc). Where located on shrinkable clay soils, trees can also contribute to subsidence damage to buildings.

3.2.2 Consideration should be given during the design stage for any incompatibilities between the design and tree retention. These include (but are not limited to) the effects on the amenity value provided by existing trees, working space required during construction, infrastructure/utility requirements, highway visibility requirements and foundation design to prevent the effects of subsidence.

[4] https://ati.woodlandtrust.org.uk/
[5] http://lle.gov.wales/map#m=-2.99369,51.55537,15&b=europa&l=60;126;

3.2.3 The RPA is calculated using the tree's diameter at 1.5m and represents the minimum area which should be left undisturbed around each retained tree to enable its survival following development.

3.2.4 Tree root morphology is influenced by many factors including, but not limited to; past land use, the presence of roads, structures and underground services, drainage and soils. Any of these factors may result in non-uniform root growth and therefore result in an RPA represented as a polygon RPA that reflects suitable protection of the root system.

3.2.5 The majority of tree roots are generally found within the top 600mm of soil, depending on soil types and profiles. Any disturbance or sudden changes to the rooting environment can result in damage being caused to roots and alterations to the roots physiological ability to absorb water, nutrients and undertake gaseous exchange.

3.2.6 Where alterations have been made within the trees' rooting environment, the damage can often be observed within the crown of the trees, reduced vitality and increased deadwood production. Trees are likely to decline progressively, or in some circumstances may become a hazard where stability and structural integrity has been compromised by Site operations.

3.2.7 The RPA must be protected by the installation of tree protection fencing prior to the commencement of development work on Site. The fencing provides a physical barrier that is secured, to prohibit activities considered detrimental to the retention of healthy trees (e.g. excavations, soil stripping, discharge of substances harmful to trees, storage of materials, fires). In addition to this, it may be necessary to install specialist temporary ground protection which enables access within the RPA, without causing long-term detriment to the health of the tree/s.

3.2.8 No traditional construction works should take place within the RPA of retained trees. However, in some circumstances and where there is an overriding requirement for construction and the retention of trees, it may be appropriate to employ techniques and use materials that allow trees to be retained, whilst enabling the construction. For hard surfacing, such as drives, roads and footways, utilising no-dig construction techniques and using three-dimensional geogrids and permeable wearing course materials may be appropriate. For built structures within RPAs, the use of pile and above ground level beam foundations and/or cantilevered engineering solutions can enable structures to be constructed within RPAs. The project arboriculturist should

be consulted on the appropriateness of building within retained tree RPAs, as this is not appropriate for all trees and soil types.

3.2.9 Where aerial parts of the tree crowns extend beyond the edge of the RPA, consideration should be given to protection of these parts, allowing for protection during development processes including working space. It may be appropriate to consider pruning of aerial parts to allow construction clearances and future nuisance abatement, this however must be considered by the project arboriculturist and the LPA. Where development proposals identify a need for working within the RPA/crown spread of retained trees and it can be demonstrated that retained trees remain viable, then it is important that the project arboriculturist is contacted to advise and prepare an AMS and identify appropriate stages of supervision.

3.3 Arboricultural Supervision

3.3.1 An auditable system of arboricultural site monitoring is recommended to ensure that (when construction activities commence) the tree protection measures are in place and maintained for the lifetime of the construction phase.

3.3.2 In addition, encroachments within retained tree's RPAs or Construction Exclusion Zones (CEZs) should be undertaken under arboricultural supervision and in accordance with an LPA approved AMS and TPP. Many LPAs will not discharge Tree Protection/AMS conditions unless adequate measures are put in place for supervision of tree protection measures and authorised works/ encroachment into RPAs/CEZs. To ensure compliance with conditions of consent and to prevent planning enforcement action, it is recommended that tree protection measures and authorised encroachments are supervised by the appointed arboriculturist.

4 DEVELOPMENT IMPACT TO RETAINED TREES

4.1.1 Implementation of the proposed scheme will necessitate the removal of two individual trees (T2, T3), four tree groups (G8, G9, G10, G11) and sections from two tree groups (G5, G7), as detailed in full in Table 3.

4.1.2 These trees are generally of low quality and therefore should not be a constraint to the development. Landscaping or ecological habitat creation/ management for the development will mitigate for the minor loss of low-quality trees from the Site.

4.1.3 In assessing the impacts of the proposed development on the trees on and adjacent to the Site and in proposing mitigation for these impacts, the planning application for development of the Site accords with the requirements of British Standard 5837:2012 and local and national planning policies for trees and development.

Table 1: Overview of Arboricultural Impacts and Proposed Mitigation				
Tree/ Group No.	**Proposed Works**	**Impact**	**Mitigation/Compensation**	**BS 5837 Quality Categorisation**
T2, T3, G8, G9, G10, G11, G5 (partial), G7 (partial)	The removal of trees to facilitate the proposed development	Low Impact In order to facilitate the proposed scheme, a number of trees will require removal. These include two very small category 'C' quality individual trees, three category 'C' groups and sections from another two category 'C' quality groups and one category 'B' group. In order to build the proposed earthworks a construction area beyond the actual bank will be required. This has been shown to the edge of the habitat corridor, as a maximum extent of tree removals, but may be narrower on site. The proposed removals will have a low impact on local amenity values.	Landscaping or ecological habitat creation/ management proposals for the development will mitigate for the loss of trees from the Site.	**B, C**
Self-seeded vegetation within ecological mitigation area.	Landscape/Ecology enhancement	Low Impact No trees are proposed to be removed as part of the landscape/ecological mitigation strategy for this area.	Should any trees with a stem diameter >75 mm need to be removed as part of the proposed works, then these will need to be inspected and their removal agreed with the project arboriculturist or the LPA tree officer.	**N/A**

5 SUMMARY AND RECOMMENDATIONS

5.1.1 The requirements of BS 5837:2012 have been complied with in assessing the arboricultural impacts arising from the proposed manufacturing development in this report.

5.1.2 There are no TPO or Conservation Area constraints on the site and there are no veteran trees or ancient woodlands within or adjacent to the Site.

5.1.3 Part of the dense vegetation within G7, which prevented access to tree group G6 (located to the east of tree group G6), is to be removed as part of the development. It is recommended that following this, the trees in G6 are re-surveyed prior to construction works commencing on site to confirm their RPAs and assess any potential risk / safety issues with respect to the Site.

5.1.4 Implementation of the proposed scheme will necessitate the removal of two trees, four groups and two sections from a further two groups. These trees are of low quality and value and therefore their loss will have a low impact on the amenity of the locality.

5.1.5 The trees that are to be retained on the Site will be protected during the proposed works with tree protection fencing. Unless otherwise stated, in an Arboricultural Method Statement (AMS), the protective fencing will comprise the default barrier described in BS5837:2012. A diagram of this fencing is included in Appendix 4, with the location of the protective fencing shown on the Tree Protection Plan CA11637-005 Rev. H. Signage on the fencing will also be required and an example of this is included in Appendix 5. The tree protection fencing shall be erected prior to all development works commencing on site, including ground works and shall not be removed until the development is completed. Any changes required to the location or erection and dismantling timescales of the tree protection fencing shall be notified to the LPA in writing, with these changes only being made after receiving written confirmation by the LPA that these changes can be made.

6 REFERENCES

- British Standard, BS 3998:2010 Tree work. Recommendations. (The British Standards Institution, 2010).
- British Standard, BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. (The British Standards Institution, 2012).
- NJUG Volume 4 - Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees (Issue 2:16th November 2007).
- Quantified Tree Risk Assessment User Manual, (QTRA User_Manual_V5.1.4_2015_01). (Incorporating extracts).
- Ministry of Housing, Communities and Local Government (2014) Tree Preservation Orders and Trees in Conservation Areas.

  https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas

- Forestry Commission (2007) Tree Felling – Getting Permission.
- Claus Mattheck (2007) Updated field guide for Visual Tree Assessment.
- Forestry Commission & Natural England (Updated 4th January 2018) Ancient Woodland and Veteran Trees: Protecting them from Development – Guidance.

  https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences#veteran-trees

APPENDICES

APPENDIX 1

Tree Survey Schedule

Location: Newport Docks (Job. No. CA11637)

Estimated Stem Diameters & Other Measurements highlighted in this colour

Surveyor: Elisa Dore

Weather: Overcast

Survey Date: 11/09/2019

					Crown Spread (m)											Condition										
Item type: T (tree), **G** (group), **H** (hedge), **W** (woodland)	**Tree/ Group Ref. No.**	**Botanical Name**	**Height(m)**	**Crown Clearance (m) & compass direction**	**North**	**East**	**South**	**West**	**Stem Diameter @ 1.5m (mm)**					**Number of stems**	**Age Class: Y** (Young), **SM** (Semi-Mature), **EM** (Early-Mature), **M** (Mature), **LM** (Late-mature), **V** (Veteran)	**Physiological Condition: G** (Good), **F** (Fair), **P** (Poor), **D** (Dead)	**Structural Condition: G** (Good), **F** (Fair), **P** (Poor)	**Estimated Remaining Contribution: (<10, 10+, 20+, 40+)**	**BS5837 Categorisation Grading**	**Sub Category**	**Comments**	**Preliminary management recommendations/ further works**	**Bat potential: L** (Likely) **U** (Unlikely)	**BS 5837 Root Protection Area (m²)**	**BS 5837 Root Protection Radius (m)**	**Veteran Tree Root Protection Radius (m)**
T	1	Willow	4	0	2	2	2	2	150					1	SM	G	G	20+	C	1	Self set tree in overgrown area. No significant defects observed. Plotted using GPS on site.	None required.	U	10	1.8	N/A
T	2	Willow	6	0	2.5	2.5	2.5	2.5	250					1	SM	G	G	20+	C	1	Self set tree. No significant defects observed. Plotted using GPS on site.	None required.	U	28	3.0	N/A
T	3	Willow	8	0	4	4	4	4	300					1	SM	G	G	20+	C	1,2	Larger self set specimen on boundary. No significant defects observed. Plotted using GPS on site.	None required.	U	41	3.6	N/A
T	4	Buddleia	4	0	6	4	6	4	350					1	SM	G	G	10+	C	1	Very large self set specimen on boundary. No significant defects observed. Plotted using GPS on site.	None required.	U	55	4.2	N/A

G	1	Elder, hawthorn	6	3	As per topographical survey and aerial photograph.	250					1	SM	G	G	20+	B	2	Group beyond boundary and along fence on bank of river, preventing a full inspection. No significant defects observed in crowns. Plotted using topographical survey and aerial photography.	None required.	U	To edge of canopy.	N/A
G	2	Goat willow, elder, hawthorn	6	0	As per topographical survey and aerial photograph.	200					1	SM	G	G	20+	B	2	Boundary trees beyond the fence line and on river bank, unable to fully inspect due to dense vegetation. No significant defects observed in crowns. Plotted using topotgraphical survey and aerial photography.	None required.	U	To edge of canopy.	N/A
G	3	Goat willow, buddleia	6	0	As per topographical survey and aerial photograph.	200					1	SM	G	G	20+	C	2	Scrub group in centre of site. No significant defects observed.	None required.	U	To edge of canopy.	N/A
G	4	Goat willow, birch, buddleia, white willow	4	0	As per topographical survey and aerial photograph.	150					1	Y	G	G	20+	C	2	Self set trees on stone pile. No significant defects observed.	None required.	U	To edge of canopy.	N/A
G	5	Goat willow, buddleia	5	0	As per topographical survey and aerial photograph.	150					1	SM	G	G	20+	C	2	Dense vegetation group with dog rose and brambles growing over vegetation. Situated along boundary, possibly on river bank. Plotted using topographical survey and aerial photography.	None required.	U	To edge of canopy.	N/A

G	6	Willow, unidentified	14	5	As per topographical survey and aerial photograph.	400					1	M	F	F	20+	B	1,2	Unable to fully inspect due to dense vegetation preventing access. Beyond G5, possibly on river bank. Unidentified tree is possibly holm oak. No symptoms of ill health evident in crowns. Plotted using aerial photography.	Clear dense undergrowth and re-inspect prior to land use intensification near group.	U	To edge of canopy.	N/A
G	7	Goat willow, hawthorn, birch, buddleia	10	0	As per topographical survey and aerial photograph.	250					1	EM	G	G	20+	B	2	Dense group with impenetrable vegetation in front. Larger trees possibly beyond the boundary. Some dead stems. Plotted using topographical survey and aerial photogaphy.	Clear dense vegetation and re-inspect prior to land use intensification near group.	U	To edge of canopy.	N/A
G	8	Willow, aspen, birch, goat willow	12	0	As per topographical survey and aerial photograph.	200					1	SM	G	G	20+	C	1,2	Dense group of predominantly self set trees. Larger specimens to north of group provide screening between site and neighbouring industrial unit.	None required.	U	To edge of canopy.	N/A
G	9	Goat willow, birch	4	0	Plotted using GPS on site and aerial phtography.	150					1	Y	G	G	20+	C	2	Self set group. No significant defects observed. Plotted using GPS on site.	None required.	U	To edge of canopy.	N/A
G	10	Goat willow, buddleia	6	0	Plotted using GPS on site and aerial phtography.	200					1	SM	G	G	20+	C	2	Scrub group, with some slightly larger specimens, but none significant as an individual. Plotted using GPS on site and aerial photography.	None required.	U	To edge of canopy.	N/A
G	11	Goat willow, buddleia	6	0	As per topographical survey, aerial photgraphy and GPS on site.	150					1	SM	G	G	20+	C	2	Self set boundary group. No significant defects observed.	None required.	U	To edge of canopy.	N/A

APPENDIX 2

Survey Methodology

Appendix 2

Survey Methodology

The following features of each tree, group of trees or woodland have been recorded in the Arboricultural Data Sheets:

- Species includes common names.
- Height measured in metres from the stem base. Where the ground has a significant slope, the higher ground is selected.
- Crown height is measured in metres and is an indication of the average height at which the main crown begins.
- Stem diameter is measured in millimetres at 1.5m above the adjacent ground level (upslope on sloping ground).
- Crown spread is measured in metres and taken at the four cardinal points to derive an accurate representation of the crown.
- Age class of the tree is described as young, semi-mature, early mature, late-mature, mature or veteran.
- Physiological condition is classed as good, fair, poor, or dead. This is an indication of the health of the tree and takes into account vitality, presence of disease and dieback.
- Structural condition is classed as good, fair or poor. This is an indication of the structural integrity of the tree and takes into account significant wounds, decay and quality of branch junctions.
- Life expectancy is classed as: less than 10 years (<10), at least 10 years (10+), at least twenty years (20+) or at least 40 years (40+). This is an indication of the number of years before the removal of the tree is likely to be required.
- Comments include a brief description of the tree with comments on the form, vitality, health and any significant defects that may be present.

APPENDIX 3

Tree Categorisation Method

Tree Categorisation Method

Table 1 **Cascade chart for tree quality assessment**

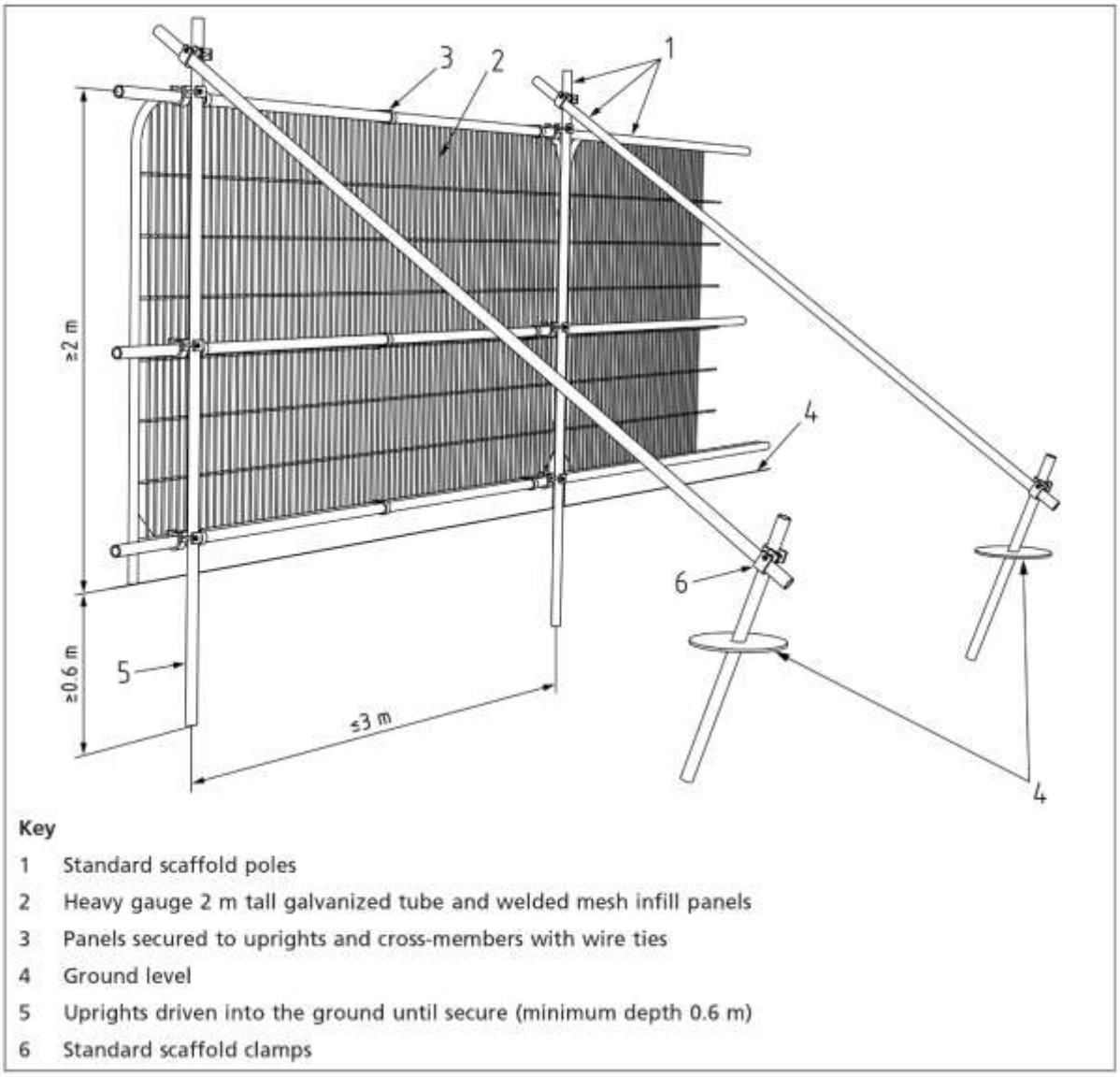
Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.*			See Table 2
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

A single tree, group or woodland can come under one or more sub-headings. This does not confer on it a higher value than a tree with a single value. For the purposes of this report.

APPENDIX 4

Tree Protection Fencing

Tree Protection Fencing



Key

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

APPENDIX 5
Tree Protection Signage

Tree Protection Signage

APPENDIX 6

Glossary of Common Terms Used in Arboriculture

Glossary of Common Terms Used in Arboriculture

Abscission. The shedding of a leaf or other short-lived part of a woody plant.
Abiotic. Pertaining to non-living agent's e.g. environmental factors.
Absorptive Roots. Non-woody short-lived roots, generally having a diameter less than one millimetre, the primary function of which is the uptake of water and nutrients.
Access Facilitation Pruning. One off pruning operation to provide access for development operation. Pruning that will not be detrimental to trees health or amenity.
Arboricultural Method Statement (AMS). A methodology for the implementation of development where encroachment within the RPA has the potential to cause damage or loss of retained trees.
Arboriculturist. Someone who through relevant training and experience has gained knowledge in the expertise of trees.
Adaptive Growth. The process by where wood formation rates increasing in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium.
Adaptive Roots. The adaptation of existing roots; or a production of new roots in response to damage or decay.
Adventitious Buds, Roots, Shoots. Which grow in other than primary apical control.
Anchorage. The process in which a tree uses its roots system to support itself within the soil structure.
Ancient: A tree that has passed beyond maturity and is old, or aged, in comparison with other trees of the same species.
Arisings. Parts of the tree that has been removed for disposal, branches, leaves, roots etc.
Canker. Area of dead cambium killed by overlying pathogenic tissues.
Cavity. A hole in the woody structure of the tree; often caused through decay.
Cleaning Out. The removal of dead, diseased crossing branches, damaged branches and alien structures.
Competent Person. Person with training and experience in accordance with the proposed matter being addressed, having an understanding of a particular matter being approached.
Condition. An indication of the physiological vitality of a tree, but not the stability of a tree.
Construction. A Site based operation that has the potential to affect retained trees.
Construction Exclusion Zone. An area based on the RPA from which construction activity is prohibited.
Coppicing. Removal of all aerial parts of the tree leaving a stump for regeneration of new shoot.
Crown/Canopy. The parts of the tree that supports the leaves.
Crown Lifting. The removal of limbs and small branches to a specified height above ground level.
Crown Thinning. The removal of a proportion of secondary branch growth throughout the crown to produce an even density well balanced crown structure.
Crown Reduction/Reshaping. Removal in the height to a specified description to maintain a flowing crown structure.
Deadwood. Non-functional branches which no longer support natural growing conditions of the tree but may be beneficial for the support of habitats and species, possibly including rare saproxylic invertebrates. Thus, may also be referred to as 'Decaying Wood Habitat' or 'Dysfunctional wood'. Size ranges for deadwood referred to in this report and/or Appendix 1: - Small (<75 mm diameter), Medium (76 – 150 mm), Large (151-300) mm and Very large >301 mm. For some species such as oak etc, the risk of deadwood falling from the tree can be lesser than for other species, due to the variety of wood strengths of different tree species.

Defect. Any area of the tree that longer has an optimal mechanical uniformity of stress, making the tree unsuitable for its location.
Dieback. Death of woody parts of the tree starting at distal ends of the tree.
Disease. Damage occurring to living organisms as a result of pathenogenic micro-organisms.
Distal. Furthest distance away from the main body of the tree.
Dysfunction. In woody tissues, the loss of physiological function, especially water conduction, in sapwood.
Epicormic Growth. Growth from dormant or adventitious buds, not developing from the first shoot.
Girdling Roots. A circling root which constricts the stem or roots, with the potential to cause death and the restriction of flow within the phloem.
Heartwood. Dysfunctional xylem which no longer has conductive properties, but which has become an integral structural part of the tree.
Heave. The swelling of shrinkable clay soils, often when vegetation has been removed allowing soil rehydration to develop, with the potential for listing structures (e.g. walls).
Included Bark/Acute Forks. Face to face contact of bark usually at fork unions, or branch unions.
Lopping/Topping. A term used to describe the removal of large sized branches
Monolith. Removing some or most of the trees crown and sometimes the upper stem, in order to retain as much of the tree as standing deadwood habitat for ecological reasons.
Pathogen. A micro-organism that causes disease within another organism.
Phytotoxic. Toxic to plants.
Pollarding. The removal of the tree canopy to produce knuckles where new growth develops and is removed cyclically usually performed on young trees.
Pruning. Selective removal of parts of the tree to achieve a desired outcome.
Root Protection Area (RPA). An area around a tree identified by multiplying the stem diameter at 1.5 m from ground level by 12 to produce a radial area or rooting volume around a tree to be protected Ref. BS 5837: 2012.
Service. Any above and below ground structure or apparatus for utility provision.
Size of part. Relating to risk assessments, identifying the size of the hazard, or parts of a tree which may cause harm if failure occurs.
Stem(s). The main structure from the ground up supporting the crown.
Stress. In plants, the physiological depletion as a result of environmental influences.
Structure. A manufactured object, such as building, roads, path, wall or excavated structures.
Structural Roots. The primary larger diameter roots which hold and support the aerial parts of the tree.
Subsidence. The shrinkage of soil through the absorption of water via vegetation and the sinking effects on surrounding architectural structures.
Targets. In risk assessment, persons or property at risk of harm as a result of a hazard (falling tree, branch, etc.).
Tree Protection Plan (TPP). A scaled drawing informed by descriptive text where necessary, based upon finalised Site proposals, showing trees for retention and illustrating the tree and landscape protection measures.

Veteran Tree. Tree that, by recognized criteria, shows features of biological, cultural or aesthetic characteristics of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.
Windthrow. The blowing over of a tree at its roots.

DRAWING

DO NOT SCALE FROM THIS DRAWING

KEY

- HEDGE
- TREES REMOVED DUE TO CONDITION AND/OR TO ENABLE DEVELOPMENT
- LOCATION OF TREE PROTECTION FENCING
- CATEGORY A CROWN SPREAD
- CATEGORY B CROWN SPREAD
- CATEGORY C CROWN SPREAD
- CATEGORY U CROWN SPREAD
- ROOT PROTECTION AREA
- VETERAN TREE ROOT PROTECTION AREA
- T1/G1/W1/H1 — TREE/TREE GROUP/WOODLAND/HEDGE NUMBER
- PLANNING APPLICATION BOUNDARY
- ABP LAND OWNERSHIP BOUNDARY

TREES
QUALITY CATEGORIES BASED ON BS5837:2012 TREES IN RELATION TO DESIGN, DEMOLITION AND CONSTRUCTION - RECOMMENDATIONS RPA - ROOT PROTECTION AREA
WHERE RPA IS NOT VISIBLE IT EXTENDS TO THE SAME DISTANCE AS THE CANOPY.
THE ORIGINAL OF THIS DRAWING WAS PRODUCED IN COLOUR - A MONOCHROME COPY SHOULD NOT BE RELIED UPON.

REVISION	DETAILS	DATE	DRAWN	CHKD	APP'D
H	New Site Layout Plan	23/01/20	MAB	ED	MS
G	New Site Layout Plan	20/01/20	MAB	ED	MS
F	New Site Layout Plan	17-12-19	DR	ED	MS
E	Red Line Boundary amended	11/12/19	DR	ED	MS
D	New Site Layout Plan and Red Line Boundary Overlaid	04/12/19	DR	MS	MS
C	New Site Layout Plan and Red Line Boundary Overlaid	07/10/19	JC	MS	MS
B	New Proposed Site Plan	26/09/19	JC	ED	MS
A	First Issue	19/09/19	JC	ED	MS

CLIENT
Associated British Ports

PROJECT
New Manufacturing Plant
Newport

DRAWING TITLE
Tree Protection Plan

DRG No.		REV
CA11637-005		G
DRG SIZE: A1	SCALE: 1:1000	DATE: 16/09/19
DRAWN BY: JC	CHECKED BY: ED	APPROVED BY: MS

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