# Camden Lock Market

Planning Application

## Arboricultural Report

Prepared by AECOM
On Behalf of Castlehaven Row Ltd

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AECOM

**Environment**

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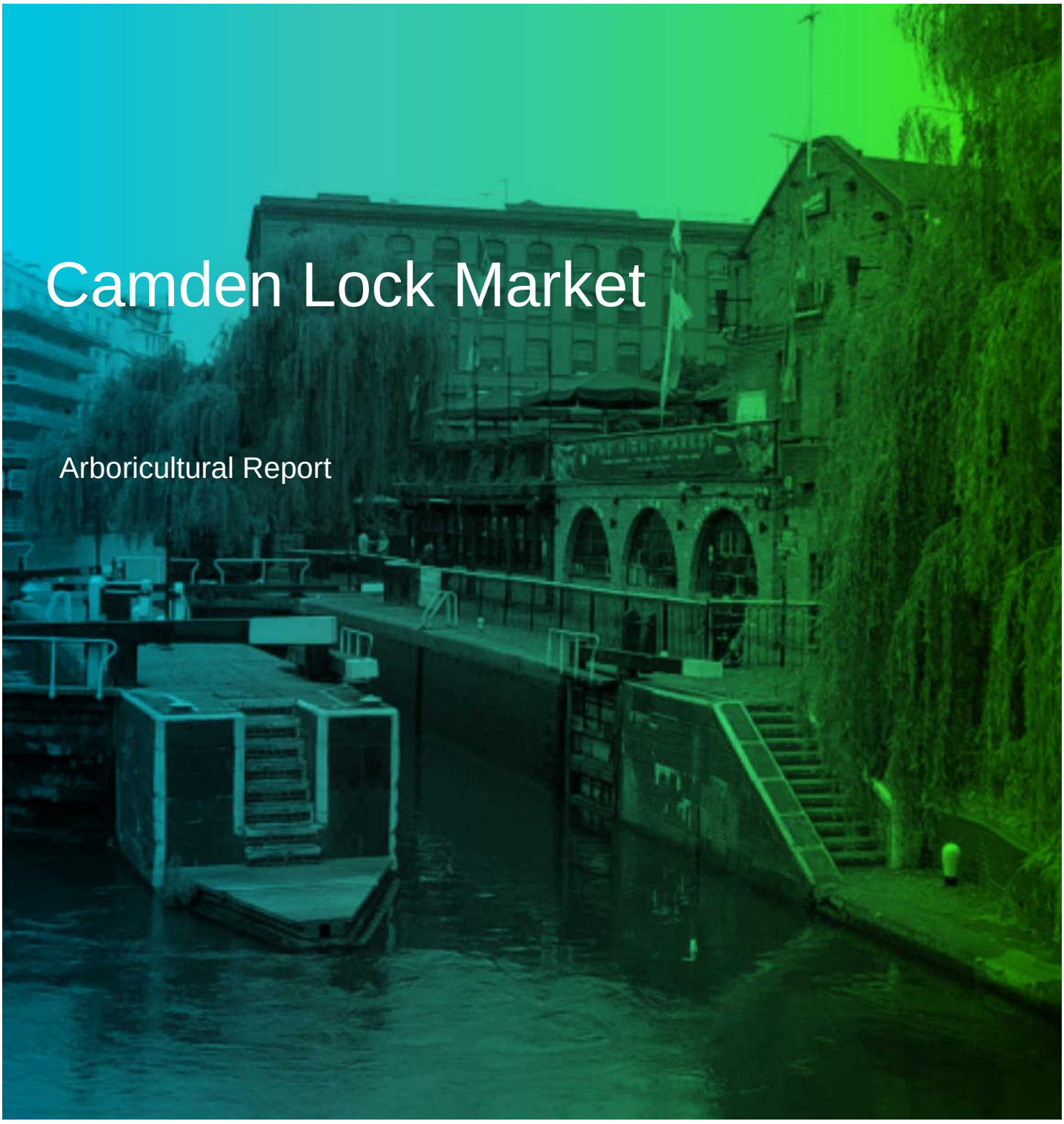

# Camden Lock Market

## Arboricultural Report

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The methodology adopted and the sources of information used by AECOM in providing its services are outlined in this Report. The fieldwork described in this Report was undertaken on 1st September 2014 and is based on the conditions encountered and the information available during the said period of time. The scope of this Report and the services are accordingly factually limited by these circumstances.

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# 1 Introduction

## 1.1 Background

AECOM has been commissioned to produce an Arboricultural Report produced in relation to the redevelopment of the Camden Lock Market Site.

It is understood that this report will be used to accompany a Planning Application and will inform the management / retention of existing trees in relation to the proposed redevelopment of the Market.

The proposed redevelopment includes the demolition of existing timber Pavilion building, Middle Yard building, Dingwalls building in East Yard and canopy structures and internal floors in East Yard. Construction of new Middle Yard building comprising basement and part three, part five storeys; single storey Pavilion building; bridge over the canal basin; deck area over Dead Dog Basin; and double pitched roof structure over East Yard. Change of use of existing East Vaults for market uses (Classes A and B1) and exhibition use; use of Middle Yard basement as exhibition/conference/theatre/music venue (Classes D1 and D2); and use of the rest of the site for market uses (Classes A and B1). Ancillary works and alterations to existing structures and surfaces and other public realm improvements.

The survey and the accompanying notes provide guidance as to the nature and quality of the existing tree stock, both on, and immediately adjacent to the site, and the implications of any known planned construction works in the vicinity of these trees, including best practice for retention of trees in this context. The Site was surveyed in September 2014 and was briefly revisited in July 2015 and this report is based on tree survey data collected at this time.

## 1.2 Methodology

The tree survey was based upon existing topographical information relating to the site provided by Gleeds Building Surveying Ltd dated 27th April 2012 (drawing number LNBS0001-T01), and was conducted in accordance with the requirements of BS5837:2012 Trees in relation to design, demolition and construction – Recommendation (BS5837).

The initial fieldwork was undertaken on 1st September 2014 during which dimensional data and observational information were collected. A diameter tape measure was used to measure stem diameters where feasible.

The fieldwork informing this report has comprised a preliminary, non-intrusive, visual survey undertaken from ground level with the specific intention of evaluating the quality and benefits of trees on site. Where further inspection is deemed appropriate to ascertain the condition of the tree or other arboreal features, this has been identified within the preliminary management recommendations. Average dimensions or dimensional ranges have occasionally been used where appropriate to best describe features. References to habitat value should be taken as comparative observations compared with a baseline situation with no tree present.

# 2 Schedule of existing trees

| Ref. No | Species | Est. Height (m) | DBH (mm) | Canopy Spread (m) | | | | First significant branch (m) | Canopy Clearance (m) | Physiological Condition | Age | Structural Condition | Preliminary Management Recommendations | Estimated Remaining Contribution (years) | Category |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | N | S | E | W | | | | | | | | |
| 1 | Weeping willow (*Salix babylonica*) | 12 | 800# | 8 | 7 | 6 | 6 | 4/W | 2 | Good | M | Fair. Dog legged main stem at 1.5m. Rubbing/co-joined stem at 3.5m. Crown reduced historically. | Consider crown reduction by 3-4m to reshape crown and improve/mitigate structural form. | 20+ | B1, 3 |

| Ref. No | Species | Est. Height (m) | DBH (mm) | Canopy Spread (m) | | | | First significant branch (m) | Canopy Clearance (m) | Physiological Condition | Age | Structural Condition | Preliminary Management Recommendations | Estimated Remaining Contribution (years) | Category |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | N | S | E | W | | | | | | | | |
| 2 | Weeping willow (*Salix babylonica*) | 13 | 850 | 7 | 7 | 8 | 8 | 2/S | 2 | Good | M | Fair. Exposed surface root with impact damage to North. Rubbing branches in crown to north and west. Dead wood over market area to west. Electrical point and lighting cables attached to main stem. | Remove dead wood over market area (3 months). Consider crown reduction by 3-4m to reshape crown and improve structural form. **Crown lift to north to 6m, removing crossing limbs. Crown reduce to north to provide a 1m lateral clearance of the proposed footbridge, and 1.5m clearance of the proposed structure (this equates to a maximum reduction of the north and north eastern crown of 3-4m). Reduce the remaining crown by 2-3m to achieve a balanced form.** | 20+ | B1, 3 |
| 3 | Norway maple (*Acer platanoides* 'Crimson King') | 8 | 220 | 2 | 4 | 3 | 3 | 2.5/W | 2.5 | Fair | SM | Fair. Electrical point attached to lower stem, lighting cables strung throughout stem and limbs. | **Fell due to a direct conflict with the footprint of the proposed structure** | 10+ | C1 |

| Ref. No | Species | Est. Height (m) | DBH (mm) | Canopy Spread (m) | | | | First significant branch (m) | Canopy Clearance (m) | Physiological Condition | Age | Structural Condition | Preliminary Management Recommendations | Estimated Remaining Contribution (years) | Category |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | N | S | E | W | | | | | | | | |
| 4 | False acacia (*Robinia pseudoacacia* 'Frisia') | 4 | 300# | 5 | 6 | 5 | 5 | 3/5 | 2 | Good | SM | Good. Climber (jasmine) on main stem. Located in raised bed. Lighting cables on stem/limbs. Crown becoming low over market stalls. | Crown lift to 3.5m to provide a suitable clearance for current and future site use. | 20+ | A1 |
| 5 | Flowering cherry (*Prunus sp.*) | 6 | 360 | 3.5 | 4 | 3.5 | 3.5 | 2/S | 2.5 | Fair | EM | Fair. Located in raised bed with mixed shrubs. Reduced historically at 4 and 4.5 m with 1-2m regrowth. Southern crown rubs on 1st floor walkway railings. | Reduce crown to west to provide a 1m clearance of the walkway/railings. | 10+ | C1 |

## 2.1 Considerations:

1) Tree owners/managers have a legal duty to prevent foreseeable harm. It is generally accepted that this duty can be fulfilled by undertaking proactive inspections of significant trees to identify obvious defects and by taking appropriate remedial action or gaining further advice as appropriate. This survey is primarily for planning purposes, focusing on the quality and benefits of the trees and is not specifically designed to assess the safety of trees on site. When obvious issues have been identified recommendations will be included on the schedule.

2) It is a criminal offence to carry out any works (cutting down, topping, lopping, uprooting, wilful damage or destruction) to a tree protected by a TPO without the local planning authority's written consent unless they fall within an exception, which include the removal of dead trees and branches. If the works are outside these exceptions then an application must be made to the LPA. In considering an application, the LPA should assess the impact of the proposal on the amenity of the area and whether the proposal is justified, having regard to the reasons and additional information put forward in support of it. Where an application relates to trees in a conservation area (such as in this case) the authority must pay special attention to the desirability of preserving or enhancing the character or appearance of that area.

3) Both T3 and T4 are understood to be protected by a Tree Preservation Order made by the London Borough of Camden (TPO C885 2009). Prior to any works taking place the consent of the LPA must be in place. The status of other trees included within the survey is unknown. Prior to any site works owners/managers must ensure that appropriate consents are in place where required. In addition, the proposed development is in a conservation area and, as such, notice must be given to the Local Planning Authority six weeks before carrying out works (unless an exemption applies).

4) Full consideration must be given to the presence of species protected under the Wildlife and Countryside Act (1981 - as amended), the Countryside Rights of Way Act (2000) and the Habitat Regulations (1994). In particular the presence of bats and nesting birds. It is recommended that prior to any works trees are checked for any indication of protected species and the advice of a qualified ecologist obtained where appropriate. Wherever possible, significant tree/hedge works should take place outside of the typical bird nesting season of March to September.

5) Any tree surgery recommendations contained within this report are to be undertaken in accordance with BS3998: 2010 Tree work – Recommendations (BS3998) by suitably qualified and insured contractors. Significant pruning works are best undertaken when trees are dormant or outside periods of high functional activity to reduce the overall impact on energy available to the tree for growth and processes. In general the optimum period for works is between November to February and July to August (subject to the presence of protected species) when the tree is less active and better placed to respond to wounding and a reduction in leaf area.

6) Fieldwork survey information is subject to seasonal/access constraints.

7) This schedule should be read in conjunction with AECOM Tree Survey drawing No: TS01 within Appendix A.

8) The Local Planning Authority may make conditions relating to tree protection which could include compliance with an Arboricultural Method Statement. Breach of conditions may result enforcement action.

## 2.2 Key to Abbreviations Used in the Survey

| | | |
|---|---|---|
| Ref No | Specific identification number given to each tree or group.<br>T=Tree/H=Hedge/G=Group. | |
| Species | Common name followed by botanical name shown in *italics* | |
| RPA | Root Protection Area (As defined by BS5837) | |
| Stem diameter | Diameter of main stem, measured in millimetres at 1.5 m above ground level.<br>(MS = Multi-stem tree measured in accordance with BS5837 Annexe C) | Av / Average:<br><br>indicates an average representative measured dimension for the group or feature |
| Spread | The width and breadth of the crown. Estimated on the four compass points in metres. | |
| Crown clearance | The estimated height (in metres) above ground level of the lowest significant branch attachments. | |
| # | Estimated dimensions | |
| < or > | Indicates less than (<) or more than (>). | |
| * | Indicates estimated position of tree (not indicated on topographical survey). | |
| Category | Categorisation of the quality and benefits of trees on Site as per Table 1 and 2 of BS5837:2012.<br>1=Arboricultural quality/value<br>2=Landscape quality/value<br>3=Cultural quality/value (including conservation) | |
| | A=High quality/value 40yrs+ (light green).<br>B=Moderate quality/value 20yrs+ (mid blue)<br>C=Low quality/value min 10yrs/stem diameter less than 150mm (grey).<br>U=Unsuitable for retention (dark red). | |
| Life stage | **Young (Y):** Newly planted tree 0-10 years.<br>**Semi-Mature (SM):** Tree in the first third of its normal life expectancy for the species (significant potential for future growth in size).<br>**Early Mature (EM):** Tree in the second third of its normal life expectancy for the species (some potential for future growth in size)<br>**Mature (M):** Tree in the final third of its normal life expectancy for the species (having typically reached its approximate ultimate size).<br>**Over Mature (OM):** Tree beyond the normal life expectancy for the species.<br>**Veteran (V):** Tree which is of interest biologically, aesthetically or culturally because of its condition, size or age. | |
| Structural condition | **Good:** No significant structural defects<br>**Fair:** Structural defects which can be resolved via remedial works.<br>**Poor:** Structural defects which cannot be resolved via remedial works.<br>**Dead:** Dead. | |
| Physiological condition | **Good:** Normal vitality including leaf size, bud growth, density of crown and wound wood development.<br>**Fair:** Lower than normal vitality, reduced bud development, reduced crown density, reduced response to wounds.<br>**Poor:** Low vitality, low development and distribution of buds, discoloured leaves, low crown density, little extension growth for the species.<br>**Dead:** Dead<br>**Fair/Good** = Indicates an intermediate condition<br>**Fair – Good** = Indicates a range of conditions (e.g. within a group) | |
| Preliminary management recommendations | Works identified during the tree survey as part of sound arboricultural management, based on the current context of the Site are shown in standard text. Priority timescales are shown in brackets. Following a desk top assessment of the proposed scheme, tree works necessary to facilitate the proposed development are included in **BOLD** text. | |

# 3 General Arboricultural Principles

## 3.1 General Principles:

Trees are dynamic living organisms which provide essential benefits to society and the wider environment. Any project with the potential to impact on trees must take into consideration the value of trees on site, the impact of any proposed activity along with any potential future conflicts. Suitable measures to safeguard retained trees or mitigate the loss of trees to be removed will need to be fully considered and may be a condition of planning consent.

Tree branches and roots frequently grow across site boundaries and off site trees can pose a significant constraint and should be carefully considered when assessing a site.

The British Standard BS5837:2012 Trees in relation to design, demolition and construction – Recommendations sets out how trees should be considered and managed in relation to development, (including permitted development). Local Planning Authorities typically expect that trees are considered in accordance with these principles.

The standard gives guidelines for the assessment of the tree quality and benefits which are then used to inform the trees likely future contribution. The above and below ground constraints are identified to inform developable space for a given site.

An arboricultural Impact Assessment is then required to consider the direct and indirect impacts of the proposed scheme in relation to trees on site, identifying which trees are likely to require removal and those that can be retained. Where trees are to be removed the impact of their loss (on visual amenity) must be considered, along with recommendations for mitigation where appropriate. Tree protection measures, alternative designs and careful working methodologies are also often required to allow the safe retention of significant trees in proximity to areas of development.

## 3.2 Below ground constraints

Below ground tree roots and the soil environment in which they grow needs to be protected if the tree is to be retained. Trees grow in association with fungi and other soil organisms which are of key importance to tree health. Roots are essential for anchorage, the uptake of water and nutrients and the storage of energy (carbohydrates) for the future growth and function of the tree.

Roots can be damaged by physical severance or wounding (e.g. following excavation of the soil) which can lead to the development of decay and a decline in vitality and/or instability. Raising soil level effectively buries tree roots at a depth where suitable conditions for growth are less available. Toxic materials discharged into the soil (such as cement based aggregates, fuel and chemicals) can lead to root death and dysfunction. Soils can be compacted to levels inhospitable to tree growth with even a single pass of machinery, regular pedestrian traffic or the storage of plant and materials. Relieving compaction can be problematic and may require costly remedial works. Changes in drainage/water levels can also have significant long term impacts for tree health.

The effects of these incursions may take many years to manifest, with a resulting decline in amenity value and potentially the death or failure of the tree. It should be noted that older trees are particularly sensitive to damage and changes in conditions.

The Root Protection Area (RPA) is a notional area considered to be the minimum zone that must be protected to avoid any adverse impacts on retained trees. This area is deemed to be particularly important for tree stability, growth, function and health. However roots may extend far greater distances, with the distribution of the root system relating directly to the availability of suitable conditions for growth (namely oxygen, water and nutrients). It is generally accepted that tree roots are predominantly located in the upper 1m of soil; however roots may develop at deeper levels where conditions allow.

Root Protection Areas are calculated as per BS5837: 2012 Annexe C, D and Section 4.6.

The RPA of the existing tree stock is an important material consideration when considering site constraints and planning development activities. The RPA of significant trees on site is shown on the Tree Constraints/Survey Plans (Appendix A).

The default position must be that all development, including any associated services will occur outside the Root Protection Areas of retained trees. Where development and associated servicing within the RPA cannot be avoided it may be appropriate to use special measures to install structures, services or surfacing within RPA's which allow the protection of roots and soil structure which are essential for tree growth and keep any incursion to a minimum

Further steps to improve or increase the useable rooting area available to the tree may also be required.

## 3.3 Soils

On shrinkable clay soil tree growth can lead to the differential movement of structures as moisture is removed from the soil during the growing season. Soils must be carefully assessed and any foundations must be installed following the recommendations of NHBC Standards Chapter 4.2: Building Near Trees (2008) to avoid potential future damage. Where trees which predate existing structures are to be removed this can result in heave as the soils re-wet. The advice of a suitably qualified engineer must be obtained to inform any potential issue of heave. Specific advice in relation to this issue is beyond the scope of this report.

## 3.4 Above ground constraints

Tree stems and branches can restrict available space on Site. Damage or wounding (including excessive pruning) can significantly reduce the amenity contribution of the tree and may lead to the development of dysfunction and decay with significant long term implications for tree health. The future impact of existing trees should be carefully considered, including individual species characteristics (such as potential future size, fruit fall, shade etc.) and how the tree will interact with any proposed development and future land use. Annual tree growth can lead to direct damage if stems/branches (or roots) come into physical contact with structures and this must also be taken into consideration.

# 4 Development proposals

The development proposals are shown on the plans included as Appendix B (13483-A-L00-00-098, 100 and 101) by Piercy & Company and relate to the re development of the market site and the construction of a new pedestrian bridge across the West Yard canal basin and associated external works.

# 5 Field Observations

## 5.1 The Site:

The tree survey area comprises of the busy Camden Lock Market site and associated access routes and includes the West Yard, an open, uncovered market area featuring multiple stalls. Other parts of the market are predominantly covered or indoors in a range of structures. The site is bordered to the south by the Regents Canal and to the east by the A502 (Chalk Farm Road). Camden Lock Place is located beyond the northern boundary of the Market.

## 5.2 The Trees:

There are five significant trees which could be affected by operations on site. Two mature weeping willows located on the northern bank of the canal are a highly visible feature of this area and serve to soften the surrounding urban landscape. Within the West Yard there are three trees. The most significant of which is a semi mature false acacia. These trees are located close to areas of high market activity and all have cables, service points and other utility features attached to stems or branches or in close proximity to the stem base. Two of the trees are located within raised planting beds and the third (T3) is in an engineered tree pit with a grille. The majority of the root systems of all trees on site are covered with hard surfacing. All trees are in fair to good condition.

**Figure 1: T1 illustrating poor structural form**

**Figure 2: T2 and T3 as viewed from the North.**

**Figure 3: T4 located within the market stall area**

**Figure 4: T5 located in a raised planter growing into the raised walkway.**