



EARTHSCAPE HORTICULTURAL SERVICES
Arboricultural, Horticultural and Landscape Consultants

ABN 36 082 126 027

DEVELOPMENT IMPACT ASSESSMENT REPORT

**142-154 MACQUARIE STREET,
PARRAMATTA**

June 2014

Prepared for: Landmark East Pty Ltd
c/- Nicholas Vargassoff
Senior Town Planner
Dyldam
Level 1, 74 Macquarie Street
PARRAMATTA NSW 2150

Ph:- 02 9893 7607

Prepared by: Andrew Morton
Dip. (Arboriculture) [AQF Level 5]
B. App. Sci. (Horticulture)
A. Dip. App. Sci. (Landscape)

EARTHSCAPE HORTICULTURAL SERVICES
Ph: - 0402 947 296

*Member of Arboriculture Australia
Member International Society of Arboriculture - Australian Chapter (ISAAC)
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1 INTRODUCTION

- 1.1.1 This report was commissioned by Dyldam on behalf of Landmark East Pty Ltd to review the potential impacts of overshadowing created by a proposed development at 142-154 Macquarie Street, Parramatta on vegetation within surrounding properties. It is understood that Parramatta City Council has raised concern about the potential adverse impact of shadowing cast by the proposed buildings on the vegetation within a number of properties in the vicinity. The properties affected by overshadowing include the curtilage of Experimental Farm and Hambleton Cottage which are listed as Heritage Items and several other properties including the Robin Thomas Reserve, James Ruse Reserve and Roland Hassall School.

2 METHODOLOGY

- 2.1.1 Each of the above mentioned properties was inspected by Earthscape Horticultural Services on the 29th May 2014 and the plant species in each area noted. Shadow Diagrams prepared by Tony Caro Architecture were also reviewed to determine the extent of overshadowing and duration the various areas are affected by overshadowing at the Spring and Autumn Equinox and the Summer and Winter Solstice.

3 SITE DESCRIPTION & POTENTIAL IMPACTS OF SHADOWING

3.1 Rowland Hassall School

- 3.1.1 Rowland Hassall School is located on the corner of Hassall Street and Macquarie Street, Parramatta, directly south of the proposed development site. Rowland Hassall School is a state school catering for students with an intellectual disability.
- 3.1.2 The School contains few lawn and garden areas, with the central open space areas being primarily hardstand. There are a number of mature trees around the periphery of the site and surrounding a central quadrangle area. The tree species observed include the following:-

Eastern side along Hassall Street:-

- Row of 7-8 x *Jacaranda mimosifolia* (Jacaranda) – semi-deciduous
- 1 x *Liquidambar styraciflua* (Liquidambar) - deciduous
- Several *Cupressus sempervirens* (Italian Cypress) – evergreen coniferous
- *Bauhinia variegata* (Orchid Tree) – semi-deciduous
- *Melia azedarach* (White Cedar) – deciduous
- *Eucalyptus pilularis* (Blackbutt) – evergreen

Northern side along Macquarie Street:-

- Row of *Jacaranda mimosifolia* (Jacaranda) – semi-deciduous
- *Brachychiton acerifolius* (Illawarra Flame Tree) – semi-deciduous
- *Quercus robur* (English Oak)

Central ‘Quadrangle’

- *Schinus areira* (Peppercorn tree) – evergreen
- *Sapium sebiferum* (Chinese Tallow) - deciduous
- *Ficus rubiginosa* (Port Jackson Fig) - evergreen

- 3.1.3 Shadow Diagrams indicate that this site will not be overshadowed during the Summer Solstice, but will be overshadowed at the Equinox (March 20/September 22) and Winter Solstice between the hours of 12:00pm and 2:00-3:00pm (2-3 hours).

- 3.1.4 The majority of the tree species within the School site are either deciduous or semi-deciduous, so for much of this part of the year (March to September), these species are in a state of dormancy or slowed growth. Given the short time frame of the overshadowing each day and the coinciding dormancy, these trees are unlikely to be adversely affected by the overshadowing.
- 3.1.5 The evergreen trees within the site, including Peppercorn Trees, Port Jackson Fig and Blackbutt, are also in a relatively dormant state between March and September. Port Jackson Figs are relatively tolerant of low light levels whereas Peppercorn and Blackbutt prefer full sun positions. It should be noted that the site will not be in complete darkness during this period, there will still be ambient light all around. Given the small time frame that the trees are overshadowed each day, the overshadowing is considered unlikely to result in any adverse impact on these trees.

3.2 Robin Thomas Reserve

- 3.2.1 Robin Thomas Reserve contains a series of level grassed (predominantly Kikuyu) playing fields with a row of mature *Ficus macrocarpa* var *hillii* (Hill's Weeping Fig) of about 15 metres in height planted around the perimeter of the fields on the northern, western and southern sides. Shadow Diagrams indicate that this site will not be overshadowed during the Summer Solstice, but will be partly overshadowed at the Equinox (March 20/September 22) and Winter Solstice between the hours of 2:00pm and 3:00pm (1-2 hours), with shadowing mostly limited to the southern corner of the reserve.
- 3.2.2 Hill's Figs are an evergreen species, but will tolerate low light levels. Many species of Figs can be used as indoor plants when young due to their capacity to tolerate low light levels. The time frame and extent of overshadowing created by the development on this area is relatively minor and will not result in any adverse impact on these trees. The turf surface is unlikely to receive any greater shading than that already delivered by the row of Hill's Figs on the western side of the playing fields. As such, the shade cast is unlikely to result in any adverse impact on the turf.

3.3 James Ruse Reserve & Experiment Farm

- 3.3.1 James Ruse Reserve occupies a triangular parcel of land on the corner of Harris Street and Parkes Street, with a concrete lined canal on the north-east side. Experiment Farm and Cottage continue to the south on the opposite side of Parkes Street.
- 3.3.2 This site originally part of a land grant of 30 acres to James Ruse (1760-1837), which he named 'Experiment Farm'. James Ruse arrived with the First Fleet and was one of the first convicts to be sent to Parramatta with expertise in agriculture. Experiment Farm is a culturally significant place, being part of the first European land grant in Australia. Experiment Farm is listed as a Heritage Item on the State Heritage Register (Section 170 of the *Heritage Act* 1977), the Register of the National Estate, The National Trust of Australia Register and is listed as an Archaeological Site of State Significance under Schedule 5, Part 3 of the Parramatta Local Environmental Plan (LEP) 2011 (Item No. A00768). The Farm was occupied by James Ruse from 1788 to 1793, then sold to John Harris, who continued to farm the land and incorporate it into a larger land holding named 'Harris Farm'. The first cottage was constructed c.1809, with Experiment Farm Cottage constructed c. 1834.¹
- 3.3.3 James Ruse Reserve and the northern section of Experiment Farm Cottage is now an area of public open space with a parkland appearance, containing rolling lawn areas and a number of specimen trees. The turf grass in both areas is predominantly Kikuyu. The trees within James Ruse Reserve include a row of young *Ficus rubiginosa* (Port Jackson Fig) [evergreen] which form part of an avenue of the same along either side of Parkes Street, a group of mature *Melia azedarach* (White Cedar) [deciduous] near the north-western corner, a semi-mature *Ficus macrocarpa* var *hillii* (Hill's Weeping Fig) [evergreen] and a mature *Fraxinus oxycarpa* (Desert Ash) [deciduous] located centrally within the reserve. The area to the north of Experiment Farm Cottage (generally

fronting Parkes Street and containing the 'Harris Park Heritage Walk') contains row of young *Ficus rubiginosa* (Port Jackson Fig), a row of three (3) recently planted *Backhousia citriodora* (Lemon-scented Myrtle), a single *Lophostemon confertus* (Brushbox) and a group of *Angophora costata* (Sydney Red Gum) alongside the canal. All of these trees are relatively recent plantings and they have no known or suspected association with the development of Experiment Farm.

- 3.3.4 Shadow Diagrams indicate that this site will not be overshadowed during the Summer Solstice or Equinox, but only for a short time period during the Winter Solstice between the hours of 1:00pm and 3:00pm (2 hours). All of the deciduous species present in this site will be dormant at this time and as such will not be adversely affected by the overshadowing. All of the other evergreen species (aside from Sydney Red Gum) are tolerant of relatively low light levels. Given the extent and duration of shadowing, these trees will not be adversely affected by the overshadowing. The group of Sydney Red Gums will only be in shade for less than one hour of the day during the Winter Solstice, which will not result in any adverse impact on these trees. Likewise the grassed areas will not be affected by this extent and duration of shading.
- 3.3.5 In the event that Experiment Farm was restored to agricultural land to replicate the original farming practices employed by James Ruse or John Harris, it is unlikely that the extent and duration of overshadowing in this area would preclude such use. Most vegetable and fruit crops are not actively growing at this time of year and the majority of fruit trees grown in agricultural production are deciduous stone and pome fruits which are dormant during this time. In any case the extent and duration of shading would not affect the agricultural use of this area.

3.4 Hambledon Cottage

- 3.4.1 Hambledon Cottage, located at 47 Hassall Street, Parramatta, was built by John Macarthur in 1824 as a second house on his Elizabeth Farm Estate. The cottage is constructed in Colonial Georgian style and set within park-like grounds containing a number of mature trees, with more intensive gardens located in close proximity to the building. The house and immediate garden (enclosed with a low picket fence) is now operated by the Parramatta and District Historical Society as a museum. The surrounding open space is managed by Parramatta City Council as a public reserve.
- 3.4.2 The trees within this site include the following:-
- 1 x *Ficus macrophylla* (Moreton Bay Fig)
 - 1 x *Stenocarpus sinuatus* (Queenland Firewheel Tree)
 - Several large *Quercus robur* (English Oak)
 - 1x *Araucaria cunninghamiana* (Hoop Pine)
 - 2 x *Araucaria bidwillii* (Bunya-bunya Pine) [one within the enclosed section of the garden]
 - 1 x *Quercus suber* (Cork Oak)
 - 1 x *Podocarpus elatus* (Plum Pine)
 - 1 x *Cinnamomum camphora* (Camphor Laurel)
 - 1 x *Maclura pomifera* (Osage Orange).
- 3.4.3 All of these trees are considered to have high to exceptional heritage significance.² The earliest plantings are thought to have been planted in association with the construction of Hambledon Cottage in the 1820's. These include the English Oaks and Camphor Laurel, with the others noted above probably planted c. 1850's, being more typical of Victorian style plantings. The site also contains a number of smaller trees of little or no heritage significance.
- 3.4.4 The enclosed gardens contain a variety of plant species, most of which appear to be fairly recent plantings. These include the following species:-
- North-west corner:-
- *Photinia glabra* 'Rubens' (Photinia)
 - *Agapanthus* sp. (Agapanthus)

- *Citrus sp.* (Orange)
- *Nerium sp.* (Oleander cultivar)
- *Plumbago auriculata* (Plumbago)
- *Nandina domestica* (Sacred Bamboo)
- *Gelsemium sempervirens* (Yellow Jessamine)
- *Camellia japonica* (Camellia).

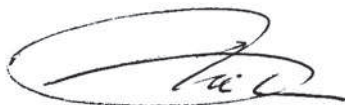
Central Area:-

- *Wisteria sinensis* (Wisteria) over a central arbor
- *Archontophoenix cunninghamii* (Balngalow Palm)
- *Lavendula sp* (Lavender)
- Various succulents including *Agave sp.* and *Aloe sp.*

- 3.4.5 Most of these are thought to be fairly recent plantings with little or no heritage significance in relation to Hambledon Cottage.
- 3.4.6 Shadow Diagrams indicate that this site will not be overshadowed during the Summer Solstice or Equinox, but only for a short time period during the Winter Solstice after 3:00pm and then only affecting a small portion of the site in the south-western corner. None of the trees of any heritage significance will be subject to shadowing from the development and the shrub plantings in the enclosed garden will only be overshadowed for an hour or so during the Winter Solstice, when most of the plant species present will either be dormant or not actively growing. As such, the shadowing effect of the proposed development will not result in any adverse impact on the landscape and vegetation of Hambledon Cottage.

4 CONCLUSIONS

- 4.1.1 The proposed development within 142-154 Macquarie Street, Parramatta will cast shade on a number of properties in the general vicinity including Roland Hassall School, Robin Thomas Reserve, James Ruse Reserve, Experimental Farm and Hambledon Cottage.
- 4.1.2 Rowland Hassall School and Robin Thomas Reserve will experience shadowing between the Autumn and Spring Equinox, but only for a period of between two to three hours a day. Given that the majority of tree species present within the School and Reserve are either dormant at this time or tolerant of low light levels, the extent and duration of overshadowing will not result in any adverse impact on the vegetation in these areas.
- 4.1.3 James Ruse Reserve, Experiment Farm and Hambledon Cottage, all listed as Heritage Items, will experience shadowing from the development for about two hours a day, but only around the time of the Winter Solstice. Given that the majority of species present within these areas are either dormant at this time or tolerant of low light levels, the extent and duration of overshadowing will not result in any adverse impact on the vegetation in these areas. None of the trees of heritage significance within Hambledon cottage will be adversely affected by overshadowing.



Andrew Morton

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5th June 2014

REFERENCES:-

¹ Department of Planning, Heritage Branch (2001)
Heritage Database – Experiment Farm Cottage
<http://www.heritage.nsw.gov.au>

² Betteridge, C. & Thorp, W. (October 2000)
The Landscape of Hambledon Cottage Parramatta
Prepared for Parramatta City Council by Musecape, Cultural Resources Management, Sydney NSW