Non-Indigenous Archaeological Investigation

Darling Walk
Darling Harbour
Sydney

Wood Species Identification

Ironbark: Image source http://peonyden.blogspot.com/2010/05

Sandra Kuiters
July 2010
1.0 Introduction

1.1 Overview
During the excavation of the Darling Walk site a number of timber-constructed features were uncovered and recorded. This report describes several of these features, as well as the results of microscopic analysis of 13 samples taken. The history of the early timber industry in and around the Sydney area is also outlined, as well as information on each of the species of wood identified from the samples.

1.2 Samples and Species Identification
Species analysis of the samples was undertaken by Dr. Jugo Ilic. All 13 of the samples examined were identified Australian natives endemic to the coast of New South Wales and southern Queensland. While the identification of specific species within the general group is not certain, the structure of the wood of these 13 samples was found to be consistent with six different individual species of hardwood: *Corymbia maculata* (spotted gum), *Eucalyptus microcorys* (tallowwood), *Eucalyptus saligna* (Sydney blue gum), *Eucalyptus siderophloia* (grey ironbark), *Eucalyptus pilularis* (blackbutt), and *Eucalyptus obliqua* (messmate). A more detailed description of each of these species and a discussion of their use with the site is provided below.

1.3 Authorship
This report has been written by Sandra Kuiters, archaeologist, Casey & Lowe Pty Ltd. It utilises information from the Field Report: Timber Structures and Samples for the Darling Walk excavation written by Rhian Slicer Jones and Abi Cryerhall. The wood species identification was undertaken by Dr Jugo Ilic, Knowyourwood. This report has been reviewed by Abi Cryerhall.
2.0 The Timber Industry

2.1 Brief historical background of the early timber industry

When Europeans first settled in Sydney Cove in 1788 they found relatively little useful timber in the immediate area. Once the settlers began to explore the Sydney area and beyond, however, they began to find trees which were more suitable for construction, and within months of settlement they were obtaining timber from the Blue Gum High Forest to the north of the harbour in the areas now known as North Sydney and Lane Cove. There is little record of the species of trees which originally grew in the Sydney region, however the soils and topography of the area suggest that much of the area which is now the CBD would have been open woodland, with mudflats around many of the bays, and the eastern limit of the Turpentine-Ironbark Forrest, as well as patches of swamp woodland and swamp forest (Figure 1). A memorandum compiled by Commander Daniel Woodriff, who was appointed Principal Agent for Transport in 1795, notes that a variety of timber, including the hardwoods ironbark, blue gum, stringybark and black spotted gum were to be found within 30 miles of the coast and recommended that they be transported along the Hawkesbury, Parramatta and George’s Rivers.

Figure 1: The possible arrangement of vegetation in the Sydney city area prior to European settlement.
Benson and Howell, *Taken for Granted*, p. 42.
During the earliest years of European settlement the area to the north of the Parramatta River was particularly heavily forested. In 1810 Governor Macquarie wrote that the resources supplying the Government saw-pits at Lane Cove were becoming depleted and that as a result the pits would soon have to move location. In 1815 Macquarie established a sawmill further to the northwest of Sydney at Epping. By 1823 trees were being felled as far away as Annangrove and Kenthurst, and during the 1830s timber-getters occupied small huts in the Mosman area. By 1860, however, the majority of commercially useful timber had been cleared and timber was being obtained from now suburban areas in the north, northwest and south of Sydney. The Blue Gum High Forest, which extended from Crows Nest to Hornsby along the North Shore, and out west to between Castle Hill and Eastwood, as well as the Turpentine-Ironbark High Forest which extended from what is now the inner western suburbs up to the north from Ryde to Glenorie both provided vast amounts of timber to the nineteenth century timber industry.

During the early years of European settlement in Sydney the majority of the timber felled was hardwood. Pit-sawing hardwood was difficult work, and once forests containing softwoods were found to the north and south, these were favoured by timber cutters. By the mid 1830s people were obtaining hardwood eucalypts and cedar from the North and South Coasts of New South Wales. During the 1830s steam-powered sawmills were also introduced to the timber industry, the first of which was built in Darling Harbour, and by 1850 steam-powered sawmills had almost completely replaced older forms.

Eventually overexploitation and large-scale land clearing leading to the depletion of timber resources became a concern. As a result the first tree nursery was established in 1877 in the Gosford area, and by 1888 approximately two million hectares of land had been set aside as forestry reserves. Also in the Gosford area, the first Radiata Pine plantation in New South Wales was established in around 1894. This California native is the most successful exotic plantation tree in Australia.

---

9 Benson and Howell, *Taken for Granted*, p. 17.
3.0 Darling Walk Timber Structures and Samples

3.1 Area 6 – Slipway, Barker’s Jetty and Miller & Harrison’s Timber Yard

The excavation in Area 6 was primarily concerned with the archaeological remains of Barker’s jetty, dating from the 1820s to 1830s. Pre-dating this stone jetty was a small timber slipway, constructed off the rocky foreshore. The stone jetty was constructed by the mid 1820s using large sandstone blocks and rubble. There was also substantial wooden formwork for this surviving. After reclamation in the mid nineteenth century the eastern part of Area 6 was occupied by Dent’s timber yard and by 1875, Miller and Harrison’s timber yard. Timber structural elements of the timber slipway and the stone jetty formwork were sampled. No direct evidence for the timber yards survived.

3.1.1 Timber Slipway 8377

The timber slipway (8377) has been dated between 1788 and the 1820s (Phase 3) and predates the major developments by Thomas Barker in the late 1820s.

This slipway was the earliest example of harbour access surviving on the site. What survived of the slipway was approximately 8m in length, sloping slightly from northeast to southwest and was approximately 3m wide (Fig 2). At the northeast edge the timbers were resting directly on the natural sandstone harbour foreshore, but there was no evidence that they were pinned or joined to the natural sandstone. At southwest edge the timbers were resting on or bedded into grey harbour sand.

The slipway was constructed with a mixture of whole, halved, quartered logs along with some timbers that had been milled or squared-off. The eastern part of the slipway consisted of a single row of timber planks aligned north-south and edge-to-edge. The middle part of the slipway had two rows of north-south aligned timber planks laid edge-to-edge, with the second row end-to-end with the first. The western part of the slipway had a single row of east-west aligned timbers laid edge-to-edge.

Figure 2: Remains of the wooden slipway (8377) in Area 6. The photo shows the middle section of the slipway. Note the whole log with bark attached in the foreground, the halved log with bark (first on the right), and the milled or squared-off timber (third from left), and the un-worked wood (second from left). The scale is 1m and the photo is taken looking north.
Two samples (#161 and 169) taken from the slipway were identified as *Eucalyptus siderophloia*, or grey ironbark. This hardwood timber occurs commonly along the coasts of New South Wales and Queensland, and also grew in the Turpentine-Ironbark Forrest, the boundary of which was less than one kilometre from Darling Harbour during the early years of European settlement. The structure predates the late 1820s, and is therefore likely to have been constructed of wood that had been sourced locally, before the area had been largely cleared of timber.

Ironbark was among the timbers mentioned in Commander Woodriff’s memorandum, and is reported to have been abundant, durable and suitable for naval uses. It is therefore likely to have been seen as an ideal material for the construction of the slipway. Today grey ironbark continues to be used for similar purposes, such as shipbuilding, flooring, decking, sleepers, poles and other heavy engineering construction works.

A third timber sample (#160) taken from the slipway was identified as *Eucalyptus pilularis*, or blackbutt. This species was widely available in the Sydney area, and is likely to have been one of the species which naturally occurred in the open woodland and forests which grew around what is now the Sydney CBD. Although most of the vegetation in this area had been cleared by the 1830s, the date of structure is consistent with the blackbutt having been sourced locally. This hardwood timber is relatively easy to work and, like grey ironbark, continues to be used for sleepers, flooring, building frameworks, and poles.

---

21 Benson and Howell, *Taken for Granted*, pp. 42-44.
22 Benson and Howell, *Taken for Granted*, p. 44.
Figure 3: Photo of the samples taken. From left to right: Sample #168 (23C), #161 (23B), #160 (23E), #169 (23A), unknown/discarded timber, unknown/discarded timber, Sample #161 (22). Foreground: unknown/discarded timber.
3.1.2 Barker’s Jetty
Thomas Barker began his milling operations on the eastern side of Darling Harbour in the 1820s (Phase 4). As part of the mill operations, a jetty was constructed out into the harbour. This jetty was located within Area 6, while the mill complex was within Area 9, described below. The jetty was a substantial stone built structure projecting west to southwest into the harbour (Fig 4). As part of its construction, timber formwork was built (Fig 5 and 6). As the north wall of the jetty was excavated it revealed the timber formwork (8460). The timber elements of the jetty were thought to have been primarily formwork and support during the construction of the sandstone wall, and possibly also acted as a buffer or padding for boats bumping against the wall during its period of use.

The timber formwork piles or planks were vertical and flush against the jetty wall, with several horizontal cross planks. Timbers were mostly split-logs, quartered or radially-cleft, with the point butting the sandstone wall and the face outwards forming a roughly flat surface. Timbers may have been stripped of bark or the bark rotted away in the waterlogged natural harbour sands. The ends had been hewn and shaped into a point, but were otherwise un-worked. Average dimensions were 1450x150x150mm. Running the entire length of the north jetty wall was 18m of exposed timer framework and it is assumed to have continued past the limit of excavation to the southwest. It was noted that the timbers were reasonably small at the northeast end of the jetty close to the shore, but became longer and thicker in the southwest as the jetty wall went further out into the harbour, and the timbers inserted deeper into the harbour sands. The timber formwork was not fully excavated, due to the level of the water table and the potential risk of acid sulphate soils.

Figure 4: The: Ambrose Hallen’s plan of Sydney Section 10, Lands Department map S.8.684 (Copy 1), 1830 with later annotations, AO Map 5400 (SRNSW).
Figure 5: This photo shows the top of the wooden formwork associated with the jetty. This section is close to the natural foreshore, and the timbers are not as substantial as those further out in the harbour. The grey sand in the foreground is the natural harbour sands. The scale is 1m and the photo is taken looking south.

Figure 6: The jetty remains were more substantial towards the western limit of excavation. This photo shows the northern side of the jetty wall with ashlar stone, rubble sandstone on the inside face, and the timber formwork just below the original high water mark (as indicated by the oysters attached to the ashlar stone). Further excavation from this point was abandoned due to environmental health risks. Scale is 1m and the photo is taken looking southwest.
Three samples of wood were analysed for identification from this context (Fig 7). Two of these (#162 and 166) were identified as *Eucalyptus pilularis*, and the third (#165) as *Eucalyptus obliqua*.

![Figure 7: Group photo of the samples of 8460 retrieved during bulk excavation of the area. From left to right: sample #163 (24B), #162 (24E), #165 (24A), #164 (24F), #159 (24C) and #166 (24D).](image)

The hardwood *Eucalyptus pilularis*, or blackbutt was abundantly available at the time of the jetty’s construction, and is likely to have grown within one kilometre of the site.\(^{24}\) The availability of this species at the time of construction suggests that locally sourced timbers were used in the building Barker’s slipway (8377) and the lining of his millpond (9251).

Also identified as part of the formwork was *Eucalyptus obliqua*, commonly known as messmate or messmate stringybark. Like blackbutt, messmate is a hardwood which is used today in construction and flooring.\(^{25}\) Messmate does not naturally grow in the Sydney area, but is endemic to the Tablelands districts of New South Wales.\(^{26}\) Given that the local supply of timber was relatively abundant during the 1820s, it is possible that this piece of timber had been reused in the construction of the jetty.

---

\(^{24}\) Benson and Howell, *Taken for Granted*, pp. 42-44.
\(^{26}\) Bootle, *Wood in Australia*, p. 310.
3.2 Area 7 Brooks’ Slaughter House followed by Murphy’s Wharfage
This area was at the southern limit of the excavation site. It was originally owned by Captain Brooks in the early 1800s and it included an inter-tidal area on the foreshore. Land was reclaimed from the 1840s and by the mid 1850s the area had been consolidated and sold to James Murphy, a lime, coal and timber merchant. The southern part of Area 7 is known as ‘Murphy’s Wharfage’. Also occupying this area was Robert Hughes, who owned a soap and candle manufactory in the northern half of the area. By the 1880s the soap and candle factory was gone and the area was being used for a metal works owned by Mr Biggs. Timber structures in this area included early fences and property boundaries running east-west in the middle of the area and on the northern boundary with Area 6.

3.2.1 Paling Fence 8247
An east-west aligned paling fence (8247) delineated the property boundary between Area 6 and 7 (Fig 8). This feature post-dates the reclamation and therefore likely dates to the 1850s. The minimum length of the fence was 13m. The fence was constructed of five circular timber uprights, 150mm in diameter, positioned approximately 2.6m apart, supported by 45° angled stays measuring 135x65mm, of unknown length. The prop or stay (8270) associated with the paling fence was not fully excavated. This post and prop framework supported many vertical timber planks or pales, with maximum dimensions of 260x70x830mm surviving height. Two of the samples taken from the paling fence (8247) were analysed. One was identified as *Eucalyptus pilularis* (#173), and the other (#178) as *Eucalyptus saligna*.

![Paling fence 8247 with stay and post. The photo is taken looking northwest.](image)
Eucalyptus saligna, or Sydney blue gum is a hardwood which commonly grows along the coast of New South Wales and Southern Queensland, as well as pockets further north in Queensland.\textsuperscript{27} It occurred naturally within the Sydney area during the early years of European settlement, and was particularly heavily forested in the north western suburbs of Pennant Hills, Epping and Ryde.\textsuperscript{28} By 1823 it was being obtained from as far out as Annangrove and Kenthurst.\textsuperscript{29} The hardwood Eucalyptus pilularis (blackbutt) is also common along the coast of New South Wales and southern Queensland, and once occurred naturally in the Sydney area.\textsuperscript{30} Historically, the uses of blue gum timber included flooring, construction, and ship building, and it continues to be used for similar purposes today.\textsuperscript{31} Today blackbutt is used for similar purposes, including flooring, poles, building framework and sleepers.\textsuperscript{32}

Both of these species were used in the construction of Barker’s earlier 1820s structures; however unlike Barker’s structures, it is probable that the timber used in this later construction was no sourced locally, as by the 1830s most of the natural vegetation had been cleared from the city area.\textsuperscript{33} Instead, by this time supplies of timber were being transported from the north and south coasts of New South Wales.\textsuperscript{34}

3.3 Area 8 Worker’s Housing

The land within Area 8 was initially below the high water mark. It was subject to extensive reclamation from the late 1830s and by the 1840s the newly consolidated land was subdivided and developed for residential use. Wood from this area consisted of the remains of the flooring structures within some of the houses. The houses in Area 8 were built from the 1840s and the flooring evidence dated between then and the 1860s (Phase 6). There was evidence for the flooring in most of the houses but this was mostly ephemeral, consisting of ‘ghost’ joists and bearers (impressions left after the wood had rotted). In some cases there was surviving wood.

3.3.1 Flooring in No. 13 Steam Mill Street

In House 13, Room 3 (8562), there were three north-south aligned impressions of floorboard joists measuring 81mm wide. There was also the remains of one 30mm thick timber bearer (#52). The timber rested on a sandstone block, indicating the floorboard support structure was constructed of both timber and stone. This bearer was sampled and identified as Corymbia maculata.

\textsuperscript{27} Boland et al, Forrest trees of Australia, p. 294.
\textsuperscript{28} Hudson and Henningham, Gift of God – Friend of man, p. 3.
\textsuperscript{29} Hudson and Henningham, Gift of God – Friend of man, p. 10.
\textsuperscript{30} Bootle, Wood in Australia, p. 252; Benson and Howell, Taken for Granted, pp. 42-44.
\textsuperscript{31} Hudson and Henningham, Gift of God – Friend of man, p. 5, 8.
\textsuperscript{32} Bootle, Wood in Australia, p. 252.
\textsuperscript{33} Benson and Howell, Taken for Granted, p. 44.
\textsuperscript{34} Hudson and Henningham, Gift of God – Friend of man, p. 11.
**Corymbia maculata**, or spotted gum was felled in Sydney’s north west within a few years of European settlement. It was recognized as a timber which could be used for a variety of purposes such as the making of carriage wheels and barrels, as well as boat building. Today spotted gum continues to be used for a variety of purposes, such as heavy construction and flooring.

### 3.3.2 Flooring in No 7 Steam Mill Street

In House 7, Room 1 (8710) the remains of two north-south aligned timber planks or bearers, measuring approximately 730x80x30mm were found. The surviving bearers were positioned along the western edge and through the centre of the room. A sample of this wood was identified as *Eucalyptus microcorys*, or tallowwood. This hardwood timber commonly grows in southern Queensland and New South Wales; however it was relatively uncommon in the Sydney region. It is therefore likely to have been felled and transported to Sydney from outside the surrounding area. Tallowwood was historically used as an all-purpose wood, and continues to be used for a variety of purposes today. Like spotted gum, tallowwood was not identified among the timbers used for maritime construction on the site.

### 3.4 Area 9 Barker’s Mill Yard and Pond

---

37 Boland *et al.* *Forrest trees of Australia*, p. 260.
The remains of Barker’s mill yard and mill pond, dating from the 1820s were located in Area 9. Although the main mill complex was outside of the excavation area, substantial remains of a section mill pond were found. The mill pond was constructed in the 1820s (Phase 4) as part of Barker’s initial development. However due to the presence of potential acid sulphate soils, excavation of the feature was not exhaustive. Samples of the pond’s wooden structural elements were collected during the monitoring of bulk removal for the basement.

### 3.4.1 The Mill Pond

The mill pond was constructed by creating a large orange and pink clay embankment (9464 and 9465), delineated or revetted by a double line of large timber piles (9251) and then waterproofed with a lining of compact grey clay (9249) within and around the double line of stakes.

The timber revetment consisted of a double line of pointed timbers piles/planks and un-worked logs/timbers driven into the ground. Some were worked, with flat faces and pointed ends, while some were only roughly squared-off. Most of the piles (average dimensions 2000x200x100mm) were placed in a double, parallel line, edge-to-edge, approximately 400-600mm apart, although in some places there was only a single line of timbers.

![Figure 10: Timber lining of mill pond, looking north west. Scale is 1m.](image-url)
The western half of the mill pond lining was exposed in plan, while the eastern half lay outside the limits of excavation. The presence of potential acid sulphate soils restricted the hand excavation that could be carried out in the mill pond; however a machine-dug trench showed that the timber piles were an average 2m in length.

Analysis of three samples taken from the timber lining identified the wood used as *Eucalyptus saligna* (#134), *Eucalyptus siderophloia* (#147) and *Eucalyptus pilularis* (#171). All tree species are hardwood eucalypts endemic to the Sydney region. *Eucalyptus saligna*, or Sydney blue gum is common along the coast of New South Wales, as well as parts of Queensland. It grew naturally in the Sydney area and was particularly heavily forested in the north western suburbs now known as Pennant Hills, Epping and Ryde from the first few years of European settlement, and by 1823 was being obtained from as far out as Annangrove and Kenthurst. *Eucalyptus siderophloia* (grey ironbark) and *Eucalyptus pilularis* (blackbutt) were also available in the Sydney area at the time of the millpond’s construction, and were particularly abundant in the Turpentine-Ironbark Forest, which is likely to have extended to within one kilometre of the site.

All three species were identified as suitable for construction soon after European settlement and continue to be used for similar purposes today. Blue gum timber was historically used in flooring, construction, and ship building, and grey ironbark was recognised as suitable for naval purposes.

The lining of the millpond was therefore made of timber which was likely to have either been obtained relatively locally, and which was typically used for such purposes. This is consistent with the use of blackbutt in the formwork (8460) of the jetty, a contemporary structure.

---

42 Benson and Howell, *Taken for Granted*, p. 42-44.
Appendix 1

Species of wood identified from samples
The microscopic analysis of the timber samples identified 12 of the samples as members of the Eucalyptus group of species, and one as belonging to the Corymbia group. The further identification of specific species of wood mentioned below is more tentative, and is based on analysis of the structure of the wood. It is also important to note historical documents may have misidentified species of wood, or may have used general, common names rather than the names of specific species.45

**Eucalyptus saligna (Sydney blue gum)**
A sample (#178) of the paling fence in Area 7, as well as a mill pond pile (#134) from Area 9 were identified as *Eucalyptus saligna*, commonly known as Sydney blue gum. This species is a hardwood typically found within 120km of the eastern coast of Australia from Southern Queensland down to the New South Wales South Coast.46 Tallowwood, spotted gum and blackbutt are often found in the same forests as the Sydney blue gum.47

Historically, blue gums were felled in the north west of Sydney, in the suburbs which are now Pennant Hills, Epping and Ryde.48 They were also logged in the Annangrove and Kenthurst areas from 1823 to 1860.49

The wood of the Sydney blue gum is moderately durable and relatively easy to work.50 In 1810 Governor Macquarie wrote that the blue gum was highly suited for use in building and flooring.51 Historically, blue gum timber was also used for the felloses and spokes of wheels, as well as masts for ships, and planking.52 Today this species is used for general construction, cladding, flooring, boat building and panelling.53

**Eucalyptus siderophloia (grey ironbark)**
A mill pond pile sample (#147) from Area 9 along with two samples (#161 and 169) from the slipway in Area 6 were identified as grey ironbark. This timber is relatively common along the New South Wales and Queensland coast.54 Forests containing grey ironbarks were once found in the Canterbury area, however much of this land has now been developed.55 Strathfield also contained large forests of ironbarks, including *Eucalyptus siderophloia*, the timber of which was used in railway construction.56 Ironbark was also logged in the areas now known as Annangrove and Kenthurst from 1823 to 1860.57

Grey ironbark is a dense hardwood and difficult to work.58 Commander Daniel Woodriff’s memorandum reported that it was a durable timber which grew in abundance and was suitable for

---

55 Benson and Howell, *Taken for Granted*, p. 53.
56 Benson and Howell, *Taken for Granted*, p. 67.
naval purposes.\textsuperscript{59} Today it continues to be used for shipbuilding, as well as heavy engineering construction, flooring, decking, sleepers and poles.\textsuperscript{60}

\textit{Eucalyptus pilularis} (blackbutt)
Microscopic analysis has identified samples of \textit{Eucalyptus pilularis}, or blackbutt in Areas 6, 7 and 9. Historically blackbutt was one of the most abundant sources of timber in the Sydney, with large quantities found in the Blue Gum High Forest.\textsuperscript{61} It is also likely to have grown around Sydney Cove; however most of the native vegetation from this area had been cleared by the 1830s.\textsuperscript{62} Today it commonly grows in coastal forests between Maryborough Queensland and Bega in New South Wales.\textsuperscript{63}

Blackbutt is a relatively easy to work hardwood.\textsuperscript{64} Today it is frequently used for poles and building framework in New South Wales and southern Queensland.\textsuperscript{65} It is also used for sleepers, flooring and structural plywood.\textsuperscript{66}

\textit{Eucalyptus obliqua} (messmate)
Sample #165 from the formwork of the jetty in Area 6 was identified as \textit{Eucalyptus obliqua}, otherwise known as messmate or messmate stringybark. This timber is common in the southern and northern tableland districts of New South Wales, as well as southern Queensland, Victoria and Tasmania.\textsuperscript{67} It is also found in parts of South Australia.\textsuperscript{68} In 1810 Governor Macquarie wrote that stringybark was highly suited for use in building and flooring.\textsuperscript{69} Commander Daniel Woodriff also recommended stringybark for use as ships masts and planking, and suggested that it be transported to Sydney along the Parramatta, Hawkesbury and Georges Rivers.\textsuperscript{70} It is a relatively easily worked hardwood which is today used for general construction, flooring, furniture, panelling, pulp production, joinery and interior finishes.\textsuperscript{71}

\textit{Eucalyptus microcorys} (tallowwood)
The joist (Sample #165) from Area 8 was identified as tallowwood. This timber is common along the coast of south east Queensland and New South Wales north of Newcastle.\textsuperscript{72} Historically tallowwood was also found in the northwest of Sydney, in the suburbs which are now Pennant Hills, Epping and Ryde, however it was less common in the Sydney area than many other local timbers.\textsuperscript{73}

Tallowwood is a large hardwood which is relatively easy to work.\textsuperscript{74} It is also strong and very durable, and considered to be one of the best timbers native to New South Wales.\textsuperscript{75} Historically it was used

\textsuperscript{59} Hudson and Henningham, \textit{Gift of God – Friend of man}, p. 5.
\textsuperscript{60} Bootle, \textit{Wood in Australia}, p. 287.
\textsuperscript{61} Hudson and Henningham, \textit{Gift of God – Friend of man}, p. 3; Benson and Howell, \textit{Taken for Granted}, p. 17.
\textsuperscript{62} Benson and Howell, \textit{Taken for Granted}, pp. 42-44.
\textsuperscript{63} Bootle, \textit{Wood in Australia}, p. 252.
\textsuperscript{64} Boland \textit{et al.} \textit{Forrest trees of Australia}, p. 528.
\textsuperscript{65} Bootle, \textit{Wood in Australia}, p. 252.
\textsuperscript{66} Bootle, \textit{Wood in Australia}, p. 252.
\textsuperscript{67} Bootle, \textit{Wood in Australia}, p. 310; Boland \textit{et al.} \textit{Forrest trees of Australia}, p. 560.
\textsuperscript{68} Boland \textit{et al.} \textit{Forrest trees of Australia}, p. 560.
\textsuperscript{69} Hudson and Henningham, \textit{Gift of God – Friend of man}, p. 8.
\textsuperscript{70} Hudson and Henningham, \textit{Gift of God – Friend of man}, p. 5.
\textsuperscript{71} Boland \textit{et al.} \textit{Forrest trees of Australia}, p. 560; Bootle, \textit{Wood in Australia}, p. 310.
\textsuperscript{72} Boland \textit{et al.} \textit{Forrest trees of Australia}, p. 506.
\textsuperscript{73} Hudson and Henningham, \textit{Gift of God – Friend of man}, p. 3.
\textsuperscript{74} Bootle, \textit{Wood in Australia}, p. 350.
\textsuperscript{75} Boland \textit{et al.} \textit{Forrest trees of Australia}, p. 506.
as an all-purpose wood and is today used for heavy engineering structures, sleepers, bridges, wharfage, flooring, cladding, sills, cross-arms, poles, piles, cooling towers and decking.\textsuperscript{76}

\textbf{Corymbia maculata (Spotted Gum)}

The bearer (Sample #52) from Area 8 was identified as spotted gum. This species is relatively commonly occurs along the east coast from Maryborough, Queensland to the border of New South Wales and Victoria.\textsuperscript{77} Within the first few years of European settlement spotted gum was being felled in the north west of Sydney, in the suburbs which are now Pennant Hills, Epping and Ryde.\textsuperscript{78}

The timber of the spotted gum is moderately durable.\textsuperscript{79} It was historically used for cart and carriage wheels, and was also used by boat builders.\textsuperscript{80} It was also used for barrel making, and on November 7, 1831 an advertisement appeared in the Sydney \textit{Morning Herald} for spotted gum timber in the Fairfield area which was popular with “Staves of Casks”.\textsuperscript{81} The logs are well suited to pole form and today it is one of the preferred timbers in eastern Australia for preservative treated poles.\textsuperscript{82} It is also used for a variety of other purposes, including tool handles, telephone insulator pins, meat skewers, weatherboards, flooring, boat building and railway sleepers, heavy engineering construction, mines, piles, poles, agricultural machinery and plywood.\textsuperscript{83}


\textsuperscript{77} Bootle, \textit{Wood in Australia}, p. 283.

\textsuperscript{78} Hudson and Henningham, \textit{Gift of God – Friend of man}, p. 3.

\textsuperscript{79} Boland \textit{et al.}, \textit{Forrest trees of Australia}, p. 260.

\textsuperscript{80} Hudson and Henningham, \textit{Gift of God – Friend of man}, p. 3.

\textsuperscript{81} Benson and Howell, \textit{Taken for Granted}, p. 76.

\textsuperscript{82} Boland \textit{et al.}, \textit{Forrest trees of Australia}, p. 260.

\textsuperscript{83} Boland \textit{et al.}, \textit{Forrest trees of Australia}, p. 226, 260; Bootle, \textit{Wood in Australia}, p. 284
Appendix 2

The following is a table containing the samples, context numbers, descriptions and species of the timber samples identified.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Context</th>
<th>Area</th>
<th>Context description</th>
<th>Wood ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>8377</td>
<td>6</td>
<td>Slipway. 2 courses of unworked, rough cut/shaped timbers in uneven alignment parallel to shoreline. W part of slipway constructed of side-by-side E-W aligned timbers, while E part of slipway has 2 rows of N-S side-by-side, head-to-head with cross beams underneath. Structure measures 7.7x2.8m. Average timber size is 1500x100x150mm.</td>
<td><em>Eucalyptus</em> ?<em>pilularis</em> - Blackbutt</td>
</tr>
<tr>
<td>161</td>
<td>8377</td>
<td>6</td>
<td>Slipway. 2 courses of unworked, rough cut/shaped timbers in uneven alignment parallel to shoreline. W part of slipway constructed of side-by-side E-W aligned timbers, while E part of slipway has 2 rows of N-S side-by-side, head-to-head with cross beams underneath. Structure measures 7.7x2.8m. Average timber size is 1500x100x150mm.</td>
<td><em>Eucalyptus</em> ?<em>siderophloia</em> - Grey ironbark</td>
</tr>
<tr>
<td>162</td>
<td>8460</td>
<td>6</td>
<td>Jetty formwork. Many thin upright planks flush against jetty wall, several horizontal cross planks. Timbers are quartered in section, with point butting the sandstone wall and the curved face outwards. Timbers are stripped of bark, with a tapered point but are otherwise un-worked. Average dimensions are 1450x150x150mm. Formwork for jetty construction, and/or padding for boats bumping jetty. Not fully excavated, due to acid sulphate contamination.</td>
<td><em>Eucalyptus</em> ?<em>pilularis</em> - Blackbutt</td>
</tr>
<tr>
<td>165</td>
<td>8460</td>
<td>6</td>
<td>Jetty formwork. Many thin upright planks flush against jetty wall, several horizontal cross planks. Timbers are quartered in section, with point butting the sandstone wall and the curved face outwards. Timbers are stripped of bark, with a tapered point but are otherwise un-worked. Average dimensions are 1450x150x150mm. Formwork for jetty construction, and/or padding for boats bumping jetty. Not fully excavated, due to acid sulphate contamination.</td>
<td><em>Eucalyptus</em> ?<em>obliqua</em> - Messmate</td>
</tr>
<tr>
<td>166</td>
<td>8460</td>
<td>6</td>
<td>Jetty formwork. Many thin upright planks flush against jetty wall, several horizontal cross planks. Timbers are quartered in section, with point butting the sandstone wall and the curved face outwards. Timbers are stripped of bark, with a tapered point but are otherwise un-worked. Average dimensions are 1450x150x150mm. Formwork for jetty construction, and/or padding for boats bumping jetty. Not fully excavated, due to acid sulphate contamination.</td>
<td><em>Eucalyptus</em> ?<em>pilularis</em> - Blackbutt</td>
</tr>
<tr>
<td>169</td>
<td>8377</td>
<td>6</td>
<td>Slipway. 2 courses of unworked, rough cut/shaped timbers in uneven alignment parallel to shoreline. W part of slipway constructed of side-by-side E-W aligned timbers, while E part of slipway has 2 rows of N-S side-by-side, head-to-head with cross beams underneath. Structure measures 7.7x2.8m. Average timber size is 1500x100x150mm.</td>
<td><em>Eucalyptus</em> ?<em>siderophloia</em> - Grey ironbark (half round sample)</td>
</tr>
<tr>
<td>173</td>
<td>8247</td>
<td>7</td>
<td>E-W aligned paling fence line marking property boundary between Areas 6 &amp; 7 or used as a revetment. 5 circular timber uprights (150mm diameter), approximately 2.6m apart, supported by roughly shaped props or stays (135x65mm, unknown length) set at a 45° angle. This post and prop framework supports many vertical timber planks or pales (max dimensions 260x70x830mm surviving height). Fence is 13m long minimum.</td>
<td><em>Eucalyptus</em> ?<em>pilularis</em> - Blackbutt</td>
</tr>
<tr>
<td>178 (158C)</td>
<td>8247</td>
<td>7</td>
<td>E-W aligned paling fence line marking property boundary between Areas 6 &amp; 7 or used as a revetment. 5 circular timber uprights (150mm diameter), approximately 2.6m apart, supported by roughly shaped props or stays (135x65mm, unknown length) set at a 45° angle. This post and prop framework supports many vertical timber planks or pales (max dimensions 260x70x830mm surviving height). Fence is 13m long minimum.</td>
<td>Eucalyptus ?saligna - Sydney blue gum (sample is infiltrated with black iron-tannin stain, little or no wood colour was evident)</td>
</tr>
</tbody>
</table>

| 52 | 8562 | 8 | House 13, Room 3: 3 N-S aligned joist impressions (81mm wide), 1 remnant timber bearer (30mm thick) resting on sandstone block. Floorboard support structure. | Corymbia ?maculata - Spotted gum |

| 79 | 8710 | 8 | House 7, Room 1: 2 N-S aligned remnant timber planks or joists positioned along the W edge and centre of room. | Eucalyptus ?Microcorys - Tallowwood |

| 134 | 9251 | 9 | Timber lining of mill pond. Double line of timber stakes driven into the ground used to define and contain the mill pond, along with grey waterproofing clay 9249. Some stakes are worked, with flat faces and pointed ends. Some appear to be unworked. Not fully recorded in section a\ due to presence of acid sulphate soils. | Eucalyptus ?saligna - Sydney blue gum |

| 147 | 9251 | 9 | Timber lining of mill pond. Double line of timber stakes driven into the ground used to define and contain the mill pond, along with grey waterproofing clay 9249. Some stakes are worked, with flat faces and pointed ends. Some appear to be unworked. Not fully recorded in section a\ due to presence of acid sulphate soils. | Eucalyptus ?siderophloia - Grey ironbark |

| 171 | 9251 | 9 | Timber lining of mill pond. Double line of timber stakes driven into the ground used to define and contain the mill pond, along with grey waterproofing clay 9249. Some stakes are worked, with flat faces and pointed ends. Some appear to be unworked. Not fully recorded in section a\ due to presence of acid sulphate soils. | Eucalyptus ?pilularis - Blackbutt |
References
Benson, Doug and Jocelyn Howell 1995  *Taken for granted: the bushland of Sydney and its suburbs*, The Royal Botanic Gardens Sydney, Kenthurst, NSW.