LANDSCAPE PERFORMANCE SERIES by the Landscape Architecture Foundation

Barangaroo Reserve

BEFORE AFTER

Landscape Performance Benefits

ENVIRONMENTAL

- Reconstructed the historic soil profile, resulting a 99% success rate among approximately 76,000 newly-installed plants.

SOCIAL

- Attracted over 250,000 visitors during the first 3 months of operation, and over 800,000 in the first 10 months of operation. Approximately 40% of total visitors in the first 10 months attended for programmed events.
- Provides a high level of visitor satisfaction with 95% of surveyed visitors reporting that they were satisfied and would recommend the Reserve to others or visit again.
- Stimulated interest in the Barangaroo district as evidenced by an increase in the number of followers on social media platforms from 6,318 in 2015 to 22,002 in 2016, a 250% increase.

View/Download a PDF showing how the landscape performance benefits were derived.

DOWNLOAD METHODS

At a Glance

DESIGNER
PWP Landscape Architecture

PROJECT TYPE
Park/Open space
Waterfront redevelopment

FORMER LAND USE
Brownfield

LOCATION
Hickson Rd
Barangaroo, New South Wales 2000
Map it

CLIMATE ZONE
Humid subtropical

SIZE
14 acres

BUDGET
$249 million AUD/appx. $194.8 million USD

COMPLETION DATE
2015

OVERVIEW

Located on Sydney's foreshore, Barangaroo Reserve is a 14-acre urban park that forms part of a larger development on the edge of the city's Central Business District. Named after a powerful indigenous woman who lived in Sydney Harbour, Barangaroo Reserve transformed a portion of a decommissioned container port to recreate the characteristic headland that previously graced the site, opening up an area that had not been accessible to the public for over 100 years. The park connects Sydney's other primary harbourfront public spaces–Darling Harbour to the west and Circular Quay to the east–through pathways that form part of a larger ribbon to link cultural sites around the water's edge. Sandstone bedrock, excavated during the construction of new buildings nearby, was repurposed to re-create the site's 1836 pre-colonisation shoreline. A groundbreaking restoration process created a modern interpretation of the original terraced layers of the site's native bush ecology, leading visitors down to the shore from extensive upper headland lawns. References to the site's heritage are dispersed throughout, drawing attention to changes in use over decades including indigenous use, occupation by settlers, and industrial use as a container port.

SUSTAINABLE FEATURES

- 48,000 cu yds of stepped sandstone blocks were quarried from the site and nearby building excavation and reused along a half-mile of the foreshore to create unique tessellated terraces stepping down to the water's edge. The terraces mark the location of the 1836 foreshore and headland, a bluff gradually rising from the north and then terminating in cliffs along the water's edge. This original topography was completely obliterated over the course of the site's history, and the area was off-limits to the general public for more than a century. The terraces, which serve as a modern interpretation of the original headland, provide seating and passive recreation areas, encouraging visitors to spend time next to the water.
- As part of a unique design and implementation process, the quarried sandstone blocks are aligned with the area's natural geological faultline. The installed sandstone blocks were oriented in a north-east to south-west direction, evoking weathering patterns found on Sydney's exposed sandstone escarpments and reflecting the area's natural faultline.

- Concrete footings ground the retaining walls that support the terraces, which are topped with a re-created soil substrate above a stratified layering of geotextiles, crushed sandstone fill, and geogrid. The terraces are connected by a series of relatively narrow staircases, allowing for an intimate relationship between visitor and landscape.
- Excavation of the existing sandstone on the site allowed for the creation of the Cutaway, an underground cultural center below the artificial headland landform created with the terraces. Above the center is a large lawn for public events.
- The sandstone excavation process also allowed for the creation of tidal pools among the terraces, breaking the experience of the entire site into smaller identifiable sections. These coves provide additional public access to the water and varied experiences along the foreshore walk.
- There are multiple headland lawns, with the largest, the Stargazer Lawn, occupying the highest position at the top of the headland. At 94,000 sf, it can accommodate up to 3,000 people for large-scale events.
- The site recreates the area's native bush ecology, which is made up of 3 layers: a ground-plane layer of plants 1.5 to 6.5-ft tall, an understory of 16-ft plants to give the headland the distinctive form and character of existing Sydney headlands, and a canopy layer of trees 30 to 65-ft tall that form a series of cathedral-like spaces above the bush layers. The terraces form a series of micro-ecosystems including ridgetop woodlands, heath and scrub, open dry forest, tall moist forest, damp gully forest, and headland waterfront.
- Plantings on site include 75,000 native plants representing 83 species that are mostly native to the Sydney Harbour foreshore. These include 68,000 grasses such as long-leaved wallaby grass (*Notodanthonia longifolia*), 6,000 lomandras such as spiny-head mat-rush (*Lomandra longifolia*), 111 palms, and 500 trees including large angophoras, banksias, and Moreton Bay figs (*Ficus macrophylla*).
- All stormwater on-site is captured through an intricate system of bioswales at the base of each terrace level and pathway. Water percolates down to the drainage layer below the headland and is filtered through a 6,500-cf seepage tank and stored in a 42,000-cf cistern below the second level of the underground garage. All stormwater captured is used for irrigation throughout the site.
- The site incorporates 1.8 miles of walking paths and 0.7 miles of dedicated cycling paths. These paths complete a formerly missing link in a 8.7-mile path along the Sydney Harbour foreshore from Woolloomooloo Bay in the east to Jones Bay in the west.

CHALLENGE / SOLUTION

Challenge

The primary challenge faced by the landscape architect was to restore ecological and social function on a former headland that had been significantly altered to become a vast, flat, concrete container terminal that required significant environmental remediation. The design also had to ensure good connectivity to the rest of the city and acknowledge the indigenous history of the location while addressing cultural sensitivities around indigenous dispossession. Designers had to balance the preservation of existing industrial heritage structures with the environmental and aesthetic objective of recreating a naturalistic headland. These challenges were faced in the context of significant and ongoing

controversies in the development process that were linked to the larger commercial precincts of Barangaroo Central and Barangaroo South, other segments of the Barangaroo redevelopment.

Solution

The designers referenced the 1836 shoreline and headland in the creation of a new water's edge and constructed a series of stacked terraces to address the significant grade change between the foreshore and the ridgeline that connects back to the central areas of the city. This extensive excavation and subsequent fill also created opportunities for new connections to the existing eastern city grid with staircases and pathways.
The design produced a contemporary interpretation of a naturalized headland that referenced the original form of the site while acknowledging its significant alteration over the course of its history from natural headland to container terminal. The new underground cultural center and large lawn area for large-scale public events host indigenous events and ceremonies. The designers worked around a maritime control tower (which was still in use and only demolished after construction of the park), and restored the heritage pumphouse at the northern end of the cove.

LESSONS LEARNED

- The project's design and construction process was not executed in a typical manner because the significant amount of site-quarried sandstone masonry for the shoreline and terraces could not be drawn or specified easily. As a result, on-site prototyping became the best option for testing stone selection based on color, natural texture, finish, and how individual blocks fit together. It was a process of trial-and-error that ultimately became the responsibility of the chief stonemason, working closely with the landscape architect. The majority of aesthetic decisions were made in the field and resolved with what had been written in the original contract months later. Although the project manager spent a lot of time attempting to refine written specifications to accommodate this on-site process, this proved to be very difficult, and a less legalistic approach was ultimately required.
- In addition to the challenges that arose with contractual specifications, working with site-quarried sandstone made the process slower than usual, taking around a month to complete while the stonemason worked to refine installation quality and techniques. However, in the long run this period of prototyping and refining led to more efficient installation for the half-mile of foreshore sandstone installation that followed.
- In an effort to create a naturalistic finish, the original intent was to water jet-spray the sandstone used on the shoreline. Because Sydney Harbour's geological faultline is oriented at 20 degrees, designers realized that the sandstone blocks could be split along the natural fault, giving them a natural-looking edge that eliminated the need for jet-spraying.
- The Cutaway, a cavernous underground space and cultural venue located beneath the terraces and lawns, was initially intended to have a more sculptural form, but ultimately a more conservative approach towards the design and budget resulted in an aesthetic that actually invokes the industrial heritage of the site.
- The historic soil profile was recreated through the incorporation of crushed recycled sandstone from on-site quarrying, resulting in an innovative and unique soil strata. This soil restoration contributed to remarkable survival rates of new plantings with only 1%

of the nearly 76,000 plants failing. These findings have been shared in two published research papers, and research on the soils is ongoing.

PRODUCTS

Magnumstone
Italian Porphyry Cobblestone
StraBe
Selux Lanova Light Poles modified with LED luminaires
Andreasens Green Nursery

PROJECT TEAM

Project Team

PWP Landscape Architecture
Johnson Pilton Walker
Lend Lease (formerly Baulderstone Pty Ltd)
Troy Stratti
Stuart Pittendrigh
Advisian Pty Ltd
WMK
Simon Leake, SESL Australia
Tract Landscape Architects
Robert Bird Group and Aurecon
Warren Smith and Partners
Evans and Peck
Hyder Consulting
Douglas Partners
Halcrow
Webb Australia Group
Emery Studio
Judith Rintoul
Peter Emmett
Regal Innovations
Andreasens Green

Role of the Landscape Architect

The landscape architect acted as the lead landscape architect for the Barangaroo Delivery Authority, designing and delivering Barangaroo Reserve, which links with Barangaroo Central. The landscape architect also served in a coordination and review capacity for the Barangaroo South public domain. The firm led the public domain strategy for Barangaroo and collaborated with a multidisciplinary team which aimed to extend the impact of the design beyond the normal development constraints and to stimulate a series of new landmarks along the Sydney CBD's western waterfront.

Case Study Prepared By

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2017

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Additional Images







References and Resources

PWP Landscape Architects: Barangaroo Reserve

Landzine: Barangaroo Reserve

Barangaroo: See and Do

Barangaroo: Plants at Barangaroo

YouTube: Barangaroo Native Plants

Australian Engineering Excellence Awards Sydney President's Award, 2016

Institute of Civil Engineers Awards, Sir Edmund Hambly Medal, 2016

Illuminating Engineering Society, Lighting Design Award of Commendation, 2016

LNA Master Landscapers Association, Landscape Excellence Awards (1) Open Space Parklands, Playground and Leisure Facilities (2) Maintenance Commercial Parklands and Open Spaces (3) Graham Ross Commercial Construction of the Year (4) Graham Ross Commercial Maintenance Award, 2016

New South Wales Premier's Awards, Building Infrastructure Finalist, 2016

9th International Biennial of Landscape Architecture Rosa Barba International Landscape Prize, Finalist, 2016

Architizer A+ Awards, Jury Award, 2015

Australian Institute of Landscape Architects, New South Wales President's Award, 2015

Banksia Foundation Sustainability in Design, Build Award, Buildings, Landscapes and Infrastructure, 2015

Institution of Civil Engineers, Edmund Hambly Medal, 2015

Infrastructure Partnerships Australia, Project of the Year, 2015

World Architecture News, Waterfront Award, 2015

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TOPICS

SOIL CREATION, PRESERVATION & RESTORATION, RECREATIONAL & SOCIAL VALUE, OTHER SOCIAL, LOCAL MATERIALS, NATIVE PLANTS, RAINWATER HARVESTING, TRAIL, CULTURAL LANDSCAPES

The LPS Case Study Briefs are produced by the Landscape Architecture Foundation (LAF), working in conjunction with designers and/or academic research teams to assess performance and document each project. LAF has no involvement in the design, construction, operation, or maintenance of the projects. See the Project Team tab for details. If you have questions or comments on the case study itself, contact us at **lps@lafoundation.org**.

Barangaroo Reserve
Methods

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This investigation was conducted as part of the Landscape Architecture Foundation's 2017 *Case Study Investigation* (CSI) program. CSI matches faculty-student research teams with design practitioners to document the benefits of exemplary high-performing landscape projects. Teams develop methods to quantify environmental, social, and economic benefits and produce Case Study Briefs for LAF's *Landscape Performance Series*.

The full case study can be found at:
https://landscapeperformance.org/case-study-briefs/barangaroo

To cite:
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ENVIRONMENTAL BENEFITS

- **Reconstructed the historic soil profile, resulting a 99% success rate among approximately 76,000 newly-installed plants.**

Method

The 99% success rate for plant establishment comes from a statement by Stuart Pittendrigh, Sydney landscape architect, registered horticulturalist and aborist, who was retained as a consultant on the project, in a February 2016 article in *Landscape Architecture Australia* (McKenzie 2016).

The figure of approximately 76,000 for the number of plants installed comes from information provided by the Barangaroo Delivery Authority, the commissioning body and management authority for the park.

The typical rate for plant loss for a project at a comparable scale is 10–15%, as compared to Barangaroo's 1% plant loss (Pittendrigh, cited in BDA n.d.).

The plantings comprise 84 species of plants: 14 native trees, palms and tree ferns; 25 species of native groundcover, vines, grasses and ferns; and 45 species of native shrubs, small trees and *Macrozamias*. The planting palette was developed by Pittendrigh based on his historical research on Sydney's 1788 foreshore ecology (the date of the arrival of British colonists). 5 species are not native to Sydney Harbour headlands and were included for symbolic reasons because of the cultural significance as 'iconic' plants of the Sydney basin (Spotted Gum/*Corymbia maculata*, Gymea Lily/*Doryanthes excelsa*, Sydney Blue Gum/*Eucalyptus saligna*, Water Gum/*Tristaniopsis laurina* and Crimson Bottlebrush/*Melaleuca citrina*).

The role of the reconstructed soil profile in preventing plant loss, including discussion of the conceptual approach and testing used to produce reconstructed Hawkesbury sandstone bushland soils used to support the restored Sydney basin flora on the Barangaroo site is discussed in detail in Leake (2015) and Leake and Bryce (2017).

The reconstructed soil profile was made up from around 80% recycled materials (Leake 2016), composed principally from crushed sandstone and sand from the excavations for the commercial developments on the Barangaroo South site, as well as recycled green garden waste compost and composted wood mulch from local government collections.

The principal challenge in the conceptual design of the reconstructed soil profile concerned the amount of compost and fertilizer to be included in the A horizon (topsoil) layer. Field research was conducted in areas of intact sandstone flora to gain a better understanding of the natural 'Kandosol' (yellow earth) soil characteristics of Sydney basin sandstone landscapes, taking samples of the profile and measuring nutrients and soil chemistry. The findings revealed strongly acidic soils (pH 4.5–5.5) and some of the lowest levels of phosphorus in the world (25 mg/kg in the sandstone layers, and 60–80 mg/kg in the topsoil layer) (Leake 2015; Leake 2016).

Pot trials were then conducted to test a range of sandstone flora to optimise the levels of green-waste compost to be used in various planting zones on the Barangaroo site: 5% by volume for sensitive sandstone heath areas; 10% for eucalyptus and woodland areas; and 20% for turf and fig tree open recreation areas (the latter not being part of the areas of reconstructed sandstone flora, but provided to meet the programmatic needs of the park) (Leake 2015; Leake 2016).

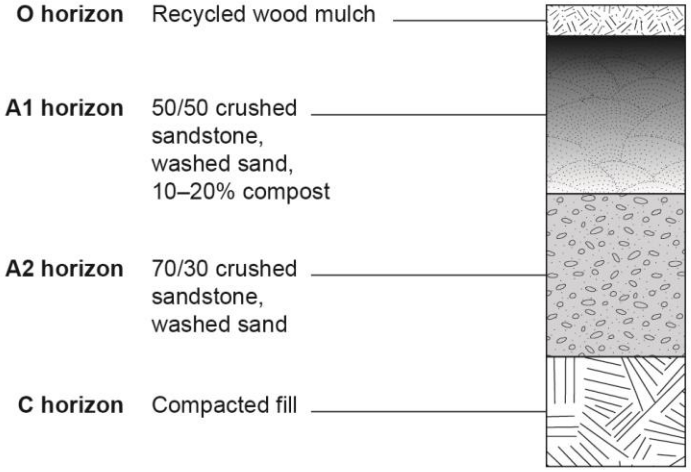

FIGURE 1: The Barangaroo 'Anthroposol': reconstructed Hawkesbury sandstone soil profile (based on Leake 2016).

Limitations

The results of the soil recreation process have led to better than normal plant survival rates. Although these figures are exemplary given the typical rate of attrition, it should be noted that reading the survival rates of plants is only partially reliant on the advances in the Anthroposol. A longitudinal study with replication in other environmental conditions would be required to evaluate the benefits against other variables such as rainfall, wildlife adaptation and introduction, and resilience to disease.

Sources

Barangaroo Delivery Authority. N.d. "Plants at Barangaroo Reserve." Accessed September 8, 2017, from http://www.barangaroo.com/see-and-do/the-stories/barangaroo-reserve-plants/

Leake, S.W. 2015. "Observations on Manganese Deficiency and Toxicity in some Australian native plants." *Communications in Soil Science and Plant Analysis*, 46(sup1), pp.176-187.

Leake, S.W. and Bryce, A. 2017. "Using Laboratory Analysis to Inform Adaptive Management," In *Adaptive Soil Management: From Theory to Practices*, Springer, Singapore, pp. 103-130.

Leake, S.W. 2016. "A Hyperlocal Soil Recipe," *Landscape Architecture Magazine*, 106.11 (November), pp. 78–135.

SOCIAL

- **Attracted over 250,000 visitors during the first 3 months of operation, and over 800,000 in the first 10 months. Approximately 40% of total visitors in the first 10 months of operation attended for programmed events.**

Method: General visitation

Figures obtained from the 2015-16 Barangaroo Delivery Authority Annual Report (BDA 2016, p. 7).

The research team has not been able to ascertain the method used by the Barangaroo Delivery Authority to calculate these visitor numbers. However, as a site managed by a government statutory authority, we assume that they use similar technologies and methodology to measure visitor numbers as the other statutory agency that was charged with the management of central areas of the Sydney Harbour waterfront, the Sydney Harbour Foreshore Authority (now incorporated into Property NSW). The SHFA/Property NSW uses infrared people counters installed at key locations in its central harbourfront properties. Calibration and expansion calculations are applied to raw counts in order to produce final figures that estimate total pedestrian flow (SHFA 2015, p. 5).

Total visitation for the first three months is an estimated 250,000. Total visitation for the first 10 months of operation is 800,000. The average monthly visitation figures for the first three months (called the "Welcome Celebration") of approximately 83,333 per month compares to a monthly average for the subsequent 7 months of around 78,571 per month, with 4,762 fewer visitors per month in the 7 months after the 3-month Welcome Celebration.

> 250,000 / 3 = 83,333
>
> (800,000 - 250,000) / (10 - 3) = 78,571
>
> 83,333 - 78,571 = 4,762

Method: Event visitation

Data was obtained from the 2015–16 Barangaroo Delivery Authority Annual Report (BDA 2016, p. 18) and from direct correspondence with the BDA (the figure for total event visitor numbers between the opening of the Reserve and the end of June 2016).

Barangaroo Reserve officially opened to the public on August 22, 2015. The opening was followed by a 3-month "Welcome Celebration" activation program, described in the BDA Annual Report (p. 18), as follows:

> The Welcome Celebration featured engaging, family-friendly, accessible and educational events including:
>
> - Specially-commissioned large-scale art installations by Aboriginal artist Brook Andrew, ESEM Projects, and James Dive and The Glue Society

- 132 performances from 225 emerging and established performers, 45 bands and curated pyrotechnics
- Aboriginal ceremonies including a Welcome to Country and Dusk Ceremony
- 30 talks by community representatives including Shane Phillips from the Banjalung, Wonnarua and Eora peoples, and facilitator Aden Ridgeway
- 8 workshops and Aboriginal cultural tours for 927 participants
- A bespoke food and beverage menu by 23 local chefs, including Christine Manfield, Adriano Zumbo and Aboriginal chef Clayton Donovan.

The number of visitors brought in by programmed events (316,224) between August 2015 and June 2016 compared to the total visitor numbers (approx. 800,000), reveals the importance of programmed events in attracting visitors to the site - in other words, around 40% of visitors to the site over that time period attended for specific programmed events.

316,224 / 800,000 = 39.528%

Limitations

The opening three months were inherently important for activation and were heavily programmed with inauguration events, so the figures may result in a slightly artificial total because of this. Nevertheless ongoing programming of large events at Barangaroo Reserve and its positioning as an iconic space may mean that it continues to attract large visitor numbers. On the other hand, as the park is still maturing especially in the plantings, a more mature park could also attract a greater baseline public in the attendance counts.

The research team was not able to ascertain details on the methodology used by the BDA to record visitor numbers, or details for their survey collection for the 2015 New Year's event. Because the New Year's event was ticketed, we assume that the number of attendees recorded for that event comes from the number of tickets sold. We have been unable to ascertain how visitor numbers for other events were recorded.

Sources

Barangaroo Delivery Authority (BDA), 2016. *2015-16 Barangaroo Delivery Authority Annual Report*. NSW Government, Sydney.

Sydney Harbour Foreshore Authority (SHFA), 2015. *Sydney Harbour Foreshore Authority Annual Report 2014–2015*. NSW Government, Sydney.

Personal communication with Barangaroo Delivery Authority, July 2017.

- **Provides a high level of visitor satisfaction with 95% of surveyed visitors reporting that they were satisfied and would recommend the Reserve to others or visit again.**

This figure was reported in the 2015-16 Barangaroo Delivery Authority Annual Report (BDA, 2016, p. 26).

The Annual Report states (BDA 2016, p. 26):

> ***Visitor sentiment***
>
> During the year, the Authority expanded its market research to include feedback from visitors to the Reserve. Two rounds of research have been conducted. Overall, visitors expressed a high level of satisfaction with their experience, with more than 95% saying they were satisfied and would recommend the Reserve to others or visit again.
>
> Most day-to-day visitors were from the local Sydney region, although during events the visitor profile extended to Greater Sydney, NSW and Australia-wide. Some 20% of event attendees were from overseas. The most common feature people came to see or experience was 'the ability to walk down to the water of Sydney Harbour' with the landscaping including sandstone features, native vegetation and the Cutaway also mentioned as highlights.

Limitations

The research team was not able to ascertain from the Barangaroo Delivery Authority data on the sample sizes or methodology that lies behind this survey, or copies of the survey reports themselves. It would have been valuable to have coded data to give a more finely grained analysis of these general perceptions.

Sources

Barangaroo Delivery Authority (BDA), 2016. *2015-16 Barangaroo Delivery Authority Annual Report*. NSW Government, Sydney.

- **Stimulated interest in the Barangaroo district as evidenced by an increase in the number of followers on social media platforms from 6,318 in 2015 to 22,002 in 2016, a 250% increase.**

Method

The number of followers of and subscribers to the 5 official social media accounts maintained by the Barangaroo Delivery Authority in the period around the opening of Barangaroo Reserve on 22 August 2015. Data compiled by the Barangaroo Authority is as follows:

Platform	June 30, 2015	June 30, 2016	Increase year-to-year
Facebook	3,095 followers	14,038 followers	+354%
Instagram	507 followers	3,942 followers	+678%
Twitter	2,657 (approx.) followers	3,768 followers	+42%
LinkedIn	2,621 followers	3,872 followers	+48%
YouTube	95 subscribers	150 subscribers	+58%
Total followers/subscribers	**6,318**	**22,002**	**+248%**

TABLE 1: Social media statistics for official Barangaroo social media accounts maintained by the Barangaroo Delivery Authority (based on BDA 2016, p. 28).

The increase in interest and profile of the project are also supported by data for the official Barangaroo websites. In the lead-up to and around the time of the opening of Barangaroo Reserve in 2016, the Barangaroo Delivery Authority maintained two websites for the project, Barangaroo.com and Barangaroo.sydney (the latter now redirects to barangaroo.com). The website traffic data recorded by the BDA for this period is as follows:

	Barangraoo.com			Barangaroo.sydney
	2014–15	**2015–16**	**Increase year-on-year**	**2015–16 (part)**
Sessions	198,265	401,890	203%	230,763
Page views	584,550	1,116,043	190%	545,372

TABLE 2: Website data for official Barangaroo websites maintained by the Barangaroo Delivery Authority (based on BDA 2016, p. 28).

The BDA attributes this to the increased production of images, storytelling content, and videos made available over this time period (BDA 2016, p. 28), but presumably it also relates to general publicity around the opening of the project across a range of media, including traditional media.

Limitations

The social media accounts and websites relate to the development of the entire Barangaroo redevelopment site, not just the Barangaroo Reserve headland park. Because of the high profile

nature of the overall development, it is impossible to determine how much of the social media activity and website traffic might have been related to interest or concern with the overall Barangaroo development and how much was generated by interest in Barangaroo Reserve and its opening to the public in August 2015.

Further disaggregation would provide better insight into the visitorship of individual users across platforms, and tracking of search terms could provide for a more nuanced understanding of the changes over time.

Sources

Barangaroo Delivery Authority (BDA), 2016. *2015-16 Barangaroo Delivery Authority Annual Report*. NSW Government, Sydney.

APPENDIX
Plantings

TREES

Species	Common name
Allocasuarina littoralis	Black She-oak
Angophora costata	Sydney Red Gum
Banksia integrifolia	Coast Banksia
Corymbia gummifera	Red Bloodwood
Corymbia maculata	Spotted Gum
Eucalyptus haemastoma	Scribbly Gum
Eucalyptus pilularis	Blackbutt
Eucalyptus piperita	Sydney Peppermint
Eucalyptus punctata	Grey Gum
Eucalyptus saligna	Sydney Blue Gum
Eucalyptus tereticornis	Forest Red Gum
Ficus macrophylla	Moreton Bay Fig
Ficus rubiginosa	Port Jackson Fig
Livistona australis	Cabbage Tree Palm
Platanus orientalis digitata	Cut Leaf Plane Tree

GROUNDCOVER

Species	Common name
Billardiera scandens	Hairy Apple Berry
Blechnum nudum	Fishbone Water Fern
Blechnum patersonii	Strap Water Fern
Carpobrotus claucescens	Pigface
Cheilanthes austrotenuifolia	Rock Fern
Cissus antarctica	Kangaroo Vine

Cissus hypoglauca	Native Grape
Clematis aristata	Old Man's Beard
Clematis glycinoides	Forest Clematis
Danthonia richardsonii	Wallaby Grass
Davallia solida var. pyxidata	Hare's-foot Fern
Dianella caerulea	Paroo Lily
Dianella revoluta	Blueberry Lily
Gleichenia microphylla	Scrambling Coral Pea
Hardenbergia violacea	Purple Coral Pea
Hibbertia scandens	Climbing Guinea Flower
Isolepis nodosa	Golden Guinea Vine
Kennedia rubicunda	Dusky Coral Pea
Lomandra longifolia	Mat Rush
Pandorea pandorana	Wonga Wonga Vine
Sarcocornia quinqueflora	Samphire
Tetragonia tetragoniodes	New Zealand Spinach

SHRUBS

Species	**Common name**
Acacia floribunda	White Sally Wattle
Acacia longifolia	Sallow Wattle
Acacia myrtifolia	Red-stemmed Wattle
Acacia terminalis	Sunshine Wattle
Acacia ulicifolia	Prickly Moses
Acmena smithii	Lilly Pilly
Allocasuarina littoralis	Black She-oak
Banksia marginata	Silver Banksia
Banksia robur	Swamp Banksia

Banksia serrata	Old-man Banksia
Banksia spinulosa	Hairpin Banksia
Bauera rubioides	River Rose
Boronia ledifolia	Showy Boronia
Callicoma serratifolia	Black Wattle
Callistemon citrinus	Crimson Bottlebrush
Callistemon linearis	Narrow-leaved Bottlebrush
Ceratopetalum gummiferum	NSW Christmas Bush
Correa alba	White Correa
Correa reflexa	Common Correa
Callitris rhomboidea	Port Jackson Pine
Cyathea australis	Black Tree-fern
Dillwynia retorta	Heathy Parrot Pea
Dodonaea triquetra	Large-leaf Hop Bush
Doryanthes excelsa	Giant Lily
Eriostemon australasius (Philtheca myoporoidea)	Pink Wax Flower
Glochidion ferdinandi	Cheese Tree
Grevillea buxifolia	Grey Spider Flower
Grevillea linearifolia	Linear-leaf Grevillea
Grevillea sericea	Pink Spider Flower
Hakea teretifolia	Needlebush
Hakea dactyloides	Finger Hakea
Hibiscus tiliaceus	Cottonwood Hibiscus
Isopogon anemonifolius	Broad-leaf Drumsticks
Lambertia formosa	Mountain Devil
Leptospermum juniperinum	Prickly Tea Tree
Macrozamia communis	Burrawang
Melaleuca hypericifolia	Hillock Bush

Melaleuca nodosa	Prickly-leaved Paperbark
Notelaea longifolia	Large Mock-olive
Olearia tomentosa	Toothed Daisy Bush
Omalanthus populifolius	Native Bleeding Heart
Persoonia levis	Broad-leaved Geebung
Pittosporum undulatum	Native Daphne
Telopea speciosissima	Waratah
Tristaniopsis laurina	Luscious Water Gum
Westringia fruticosa	Coastal Rosemary