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# Flooded Valleys and Exploded Escarpments

## Material Cycling and Sydney Harbor's new Landscapes

Four recent projects by local landscape architects seek to celebrate the topographic drama of Sydney Harbor with new design approaches.

Sydney Harbor is a flooded river valley. This is clearly shown in David Moore's iconic aerial photograph where Sydney appears as a mercurial mix of land and water. In the photograph there is a sense of the volatile weather patterns that shatter the magnetic calm of Sydney's intimate bays, sandy coves and headlands. Since the last glacial period the steep valleys and incised stream beds of Sydney Harbor have slowly been inundated. Six thousand years ago sea levels stabilized and the steep valleys of the harbor were softened through sediment deposition and weathering. After European settlement in 1788, a drastically different set of environmental processes were set in motion – processes that continue to remake the very foundations of the city and its harbor.

Soon after the European settlement, extensive deforestation accelerated erosion and polluted local streams. In 1842 dredging was intro-

duced along the foreshore of Sydney Harbor to deal with problems caused by sedimentation and to enhance foreshore amenity. It was also subsequently used to cut shipping channels for larger ships. The dredged sediment was used to reclaim mud flats and marshes to create firm land for industry and recreation. This process has been researched by environmental geographer Lynn McLoughlin and mapped by Andrew Wilson and his colleagues at Sydney University's Archaeological Computing Lab to show the successive phases of reclamation in Sydney Harbor.

**Excavated landscape.** Another significant process that has altered the topography of the harbor is the mining and blasting of the sandstone escarpment. The soft yellow-block sandstone of Sydney has been excavated to make room for architecture and industry, to facilitate infrastructure links and to provide building

materials for the city. The names of the quarries (like Hell Hole, Purgatory and Paradise) still evoke a sense of the rough-and-tumble, make-or-break desperation of Sydney's early development.

The three processes of quarrying, dredging and reclamation produced the post-industrial topography of blasted headlands, artificial platforms and reclaimed bays that now characterize Sydney. While the industrial architecture has largely disappeared, significant areas of this artificial topography remain and are even today being created.

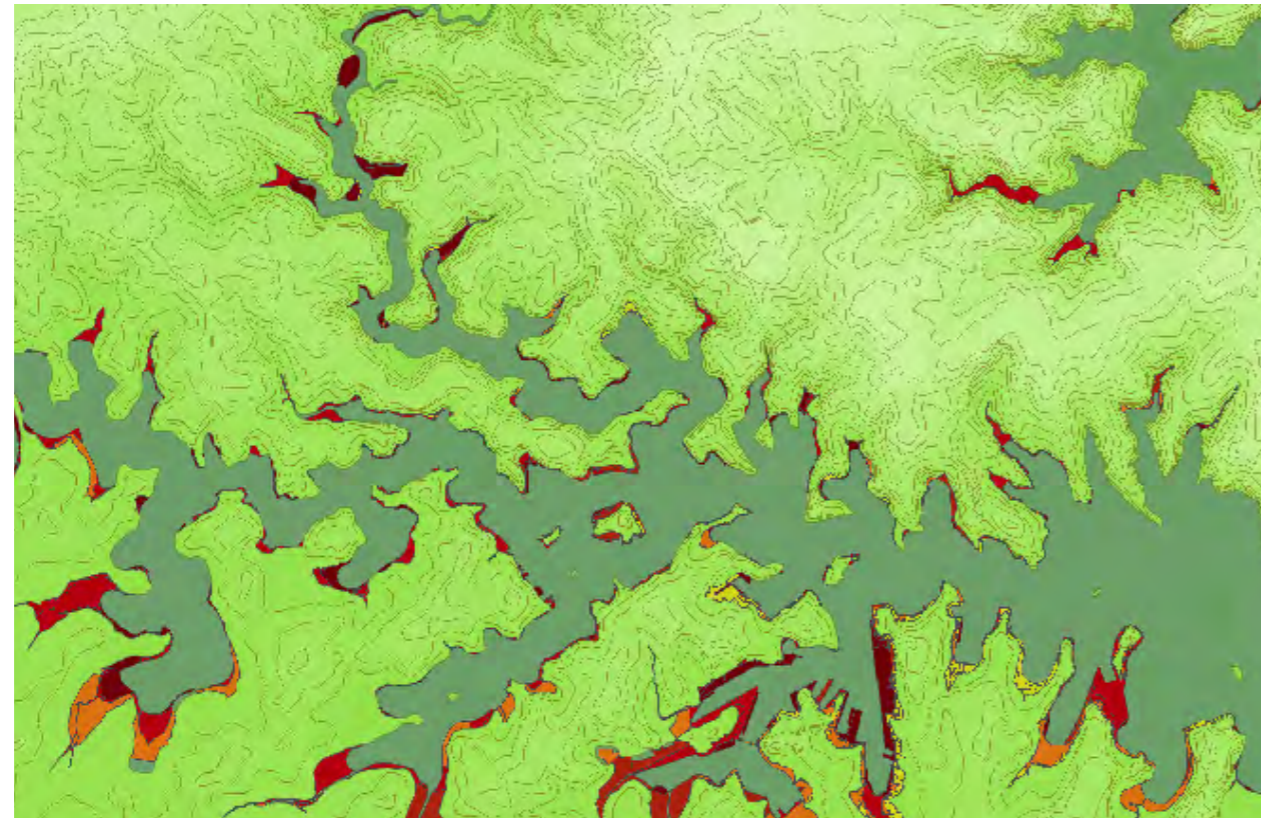
In the 1970s Bruce McKenzie championed a new kind of landscape architecture in response to this post-industrial landscape. McKenzie began the difficult but immensely rewarding process of re-sculpting post-industrial sites and replanting them with indigenous Australian vegetation. His designs, along with those of Harry

Sydney Harbor is a flooded river valley: In David Moore's aerial photograph from 1992 Sydney appears as a mercurial mix of land and water.



Orla Murray, Andrew Wilson, Bess Moylan and Sydney University's Archaeological Computing Lab have mapped the successive phases of land reclamation in Sydney Harbor.

- 1788 – 1854
- 1855 – 1893
- 1894 – 1914
- 1915 – 1940
- 1941 – 1982



Howard, Bruce Rickard, Craig Burton and other landscape architects of the Sydney “Bush” School, suggested a more profound future for landscape architecture in Sydney – one tied to indigenous vegetation patterns and the sandstone topography of the local landscape.

Now, more than thirty years after McKenzie, several projects have shifted the focus of landscape architecture in Sydney once again. While the works of the Sydney “Bush” School sought an

ideal re-creation of nature, recent works are more wary of the idealised depiction of Australian forests (known simply as “bush” in Australia). The landscapes in these recent works are left raw and unfinished. They involve not only the expert arrangement of industrial materials and vegetation, but an acknowledgement of the ongoing urban process. There is a recognition of the mass of the material, its cost to society and the artificial nature of the building process. The

new layers sometimes seem exposed and disembodied rather than being seamlessly integrated into the landscape in an attempt to generate an artificial memory. The completeness of the picturesque scene has disintegrated in these works.

**Ballast Point.** The firmest adherent to this new way of thinking is McGregor and Partners. In their new work at Ballast Point, urbane precast concrete capping and finely wrought handrails



wrap selected parts of brutal recycled materials bound in mesh and wire. Together these unlikely collections of material form ramparts of reinforced earth walls. This building strategy is part of a conscious decision by the designers to break the unsustainable cycle of material mining for landscape projects.

Sourced from the waste depots of Sydney, the walls consist of smashed bricks and rubble and generate a new topography that seeks to be

both raw and sophisticated, perhaps like the fortress of a shogun warlord. In a few cases McGregor and Partners have proposed structures made from curious materials such as seat belts and other waste materials. There is also energy generated on site from wind power; a direct reference to society’s transition away from fossil fuel technologies.

Ballast Point gained its name during the industrial development of the area, and was a



For Ballast Point, McGregor and Partners generated a new topographic and material language: unusual combinations of material form ramparts that retain a series of level changes. Master plan: Anton James, CAB consulting, Context



reference to the sandstone quarried from the site and used as ballast for ships returning to Europe. The ramparts retain a series of level changes that thrust out into the harbor from the ridge of the promontory. They are an attempt to re-create something of the grandeur of the site before it was ravaged by successive industrial uses, such as a ship building workshop and an oil depot. In its incarnation as a Caltex oil depot, the site bristled with enormous tanks, and the site was blasted apart to make way for various pieces of the machinery. Before the new design by McGregor and Partners commenced the majority of the industrial architecture had already been removed due to safety concerns. All that remained were a few walls, some concrete ring foundations and the negative space of the former infrastructure.

The detailed master plan for Ballast Point, by Anton James Design, CAB consulting and Context, set up a strong sequence of spaces by translating the drama and scale of the industrial site into a contemporary experience. The team fought against risk-averse bureaucrats (including a former prime minister) to maintain access routes where industry had put them, to preserve the imprints of oil tanks and to retain industrial elements on site. The master plan reinterprets, rather than negates, the crude and direct functionalist approach of the oil company's industrial engineers. The final design at Ballast point will be a synthesis of the spatial approach of the master plan and McGregor and Partners' material expression.

Philip Coxall, one of the directors of McGregor and Partners, maintains that Balmain, the neighborhood in which Ballast Point sits, used to be an incredibly tough working class suburb. It was commonly said that "Balmain boys don't cry". Now the area has a whole different set of tertiary industries and a new residential demographic. Coxall states that it is important that the changes to the landscape also reflect this transformation.

**Glebe Foreshore Walk.** While Ballast Point promises to be a work of topographic drama, the newly completed foreshore walk at Glebe is a spatial exploration of the land-water interface. This interface has become both a path and a series of spaces that offer an intimate fusion of estuarine ecologies and recreation. Anton James was the lead designer on a team that included Mather and Associates and the Sydney City Council.

Anton James and Mather and Associates are now incorporated into one company, JMD.

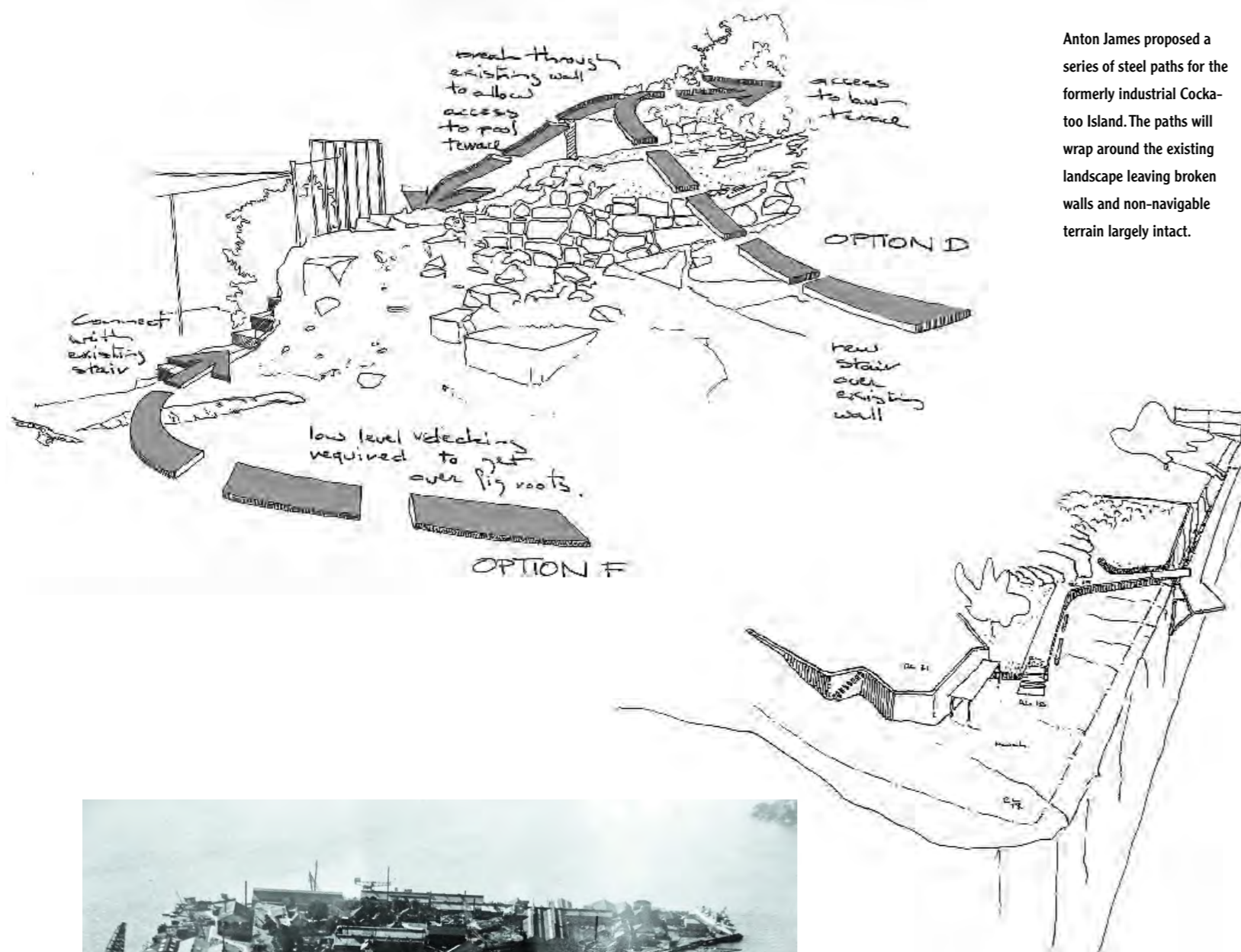
Two filled estuaries form the majority of the project's space. In the late nineteenth and early twentieth centuries the bays were subject to deposition of sediment, sewage, dead animals, and abattoir offal, which resulted in the rapid expansion of mudflats. The most effective solution at the time was reclamation using dredged material. One of the most interesting aspects of the new project is its inclusion of a previously built artificial salt marsh, along with existing and newly planted mangrove trees. The new design seeks to communicate the artificiality of the mangrove plantings by encasing the tidal mudflats in walls made of ballast and concrete.

Many more mangroves were intended for the park before being deleted in favor of recreational lawn after pressure from the public. In light of this it is interesting to note that some of the beliefs regarding the former extent of mangroves in Sydney Harbor are based on inappropriate assumptions. Since 1788 increased sedimentation has accelerated the expansion of inter-tidal mudflats, encouraging mangroves to colonize them (along with associated salt marshes). Lynn McLoughlin has completed recent studies of historical texts, paintings and aerial photographs to demonstrate that much of the current ecology of the harbor is based on artificial or accelerated processes of sedimentation. Any work by landscape architects, if it is to engage convincingly with local ecologies, must acknowledge these processes, rather than preserving or recreating snapshots of history.



Every element of the Glebe Foreshore Walk, designed by a team led by Anton James, seems generous enough to furnish a space to sit, or a sheltered nook to rest.

The new design for the Glebe Foreshore Walk integrates diverse landscapes along its length.



Anton James proposed a series of steel paths for the formerly industrial Cockatoo Island. The paths will wrap around the existing landscape leaving broken walls and non-navigable terrain largely intact.



Cockatoo Island: The former prison island was transformed into Australia's biggest shipyard. It was closed in 1992 and much of the industrial architecture was dismantled.

The network of parks on the Glebe waterfront has been developing for more than one hundred years. The new design takes existing elements and twists them into new multifunctional nodes of activity. In the design, a beach is both a filter and a playground; a rock wall supports a seat and a habitat of crevices; a terraced hillside is also a wetland. The dual role of these elements, as ecological and cultural artifacts, attempts to define what a park should be.

The strength of the latest contribution to the parklands is based on the recognition of the dynamic nature of the waterfront park. Anton James's modest yet assertive interventions are open to the massive changes that will visit the area in the near future. Unlike previous design traditions that have visited the park, the new design responds to both the existing context and future transformations. Because of this, James has succeeded in establishing a set of processes that contrast with past design traditions yet seem to work naturally within their contexts.

The way James has linked the disparate spaces is counterintuitive. Rather than unifying them through a consistent element and material treatment, the design gains strength through the simple linearity of the water-land interface rather than any path or other element asserted onto the 2.2-kilometer length of the walk. This is a pragmatic approach that will allow future additions to be incorporated seamlessly into the walk. The desire to create a series of destinations is apparent in the abstract forms of spaces for gathering, contemplation, fishing, exercising or whatever other uses people see fit to pursue.

The park incorporates many "sea steps" that allow passers-by to step the two meters down from the main promenade and dip their toes in the water. Such details, suggesting interaction with the water, are characteristic of the new interventions in the park. Many of the elements that James uses are constructed from plain materials. Those elements, thanks to their arrangement and to their interaction with more evanescent materials such as sand, salt, water and mud, take on a surprising quality that elevates them above the mass produced.

**Cockatoo Island.** Cockatoo Island is an evolving event space that exists as a response to the glib designs of instant spaces such as the mega event landscapes of Olympic Park and Darling Harbor. The landscape of Cockatoo Island works counter to the transitory nature of the event – instead emphasizing continuity, inheritance and the autonomy of urban and landscape form beyond the economic cycle of the event itself.

The erasure of the industrial experience by the Sydney Olympic site, Darling Harbor and many other sites has provoked a nostalgic appreciation for the dirty machinery and massive architecture of Sydney's post-industrial landscapes and the remnants of the working harbor. Previously used for military and industrial purposes, sites such as Cockatoo Island are an epitaph to the utilitarian functionalism at the core of the development of Sydney Harbor's landscape. Changes brought by the containerization of freight have irrevocably altered the landscape of international ports.

In the 1970s and 1980s immense tracts of obsolete harbor sites lay locked out of the public imagination. Recently the Sydney Harbor Federation Trust became responsible for providing public access to some of the most significant parcels of this federally owned land. The philosophy of the Trust is to provide access with minimal intervention to the existing industrial fabric, where immense silos have been carved into the sandstone bedrock, dry docks have been excavated and whole escarpments have been blasted away.

Effectively the sites are seen as *objets trouvés*. In the past they were ordinary industrial sites. Now the presence of this anachronistic architecture within the modern city of Sydney is seen as magical. The challenge remains to convert the obsolete landscapes into facilities that are useful to Sydney's service-based economy, thereby making the sites economically self sufficient. Cockatoo Island is offering leasing opportunities for accommodation, business parks, boat building areas, camping facilities, marinas, entertainment venues, sports facilities, multimedia offices and education facilities. It is currently the filming site for the Hollywood blockbuster "X-men" starring Hugh Jackman. The island promises a fusion of work and play that already characterizes the lives of Sydneysiders and makes Sydney popular around the world.

Anton James, also one of the designers of Glebe Foreshore, addresses these issues through a design language that owes more to the quiet Sydney Harbor landscape designs of the 1970s than the monumental event-based spaces of the

1980s and 1990s. Rather than extensively remodeling the landscape like the designers of Ballast Point, James has proposed a landscape that might be described as “clip on”. A series of steel paths have been proposed that wrap around the existing landscape, leaving broken walls and non-navigable terrain largely intact. The path element is purposely non-interventionist, and is immediately recognizable as a new layer. In some areas it is bolted to the landscape, in others it is anchored with concrete, while in others it hangs from cliff tops.

This strange steel element remakes the landscape by introducing opportunities to experience it in new and diverse ways. The design strategy is flexible enough to deal with the potential surprises of industrial archaeology and the ad-hoc developmental history of the site. In the past, the island was a world apart, with the military and industry granted considerable autonomy. This resulted in a landscape of accretion and addition. While a landscape master plan has been proposed that accepts the ad hoc

nature of the site, it goes against Sydney’s culture of image and surface. It remains to be seen if such a strategy will be successful in this slick metropolitan capital.

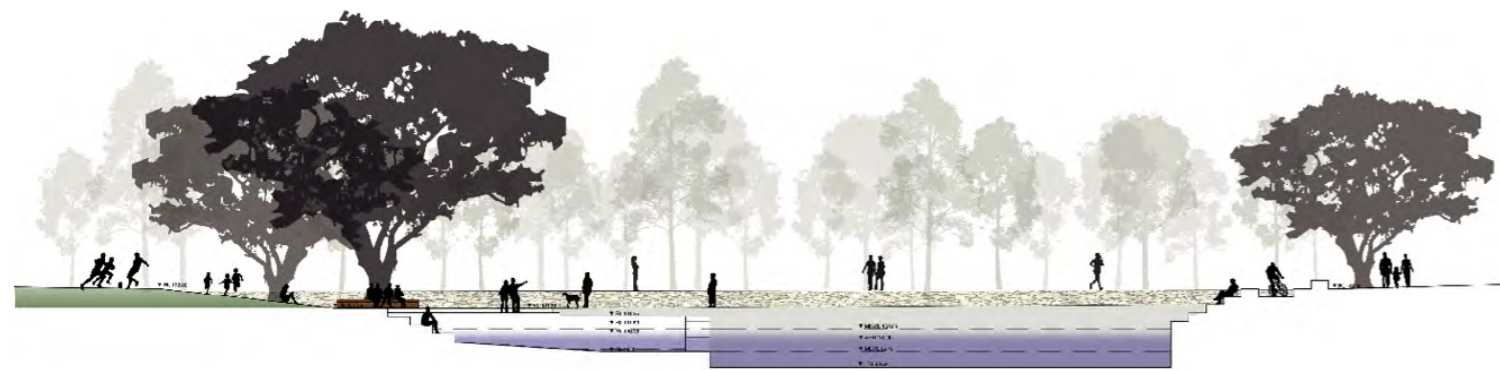
As Anton James has been working with the carved and blasted escarpment, the Trust’s in-house landscape architect, Matt O’Connor, has been experimenting with designs for the concrete platform down below. His sensitivity to industrial remnants such as broken foundations, sawn off columns and steel beams has resulted in the extrusion of the two dimensional industrial remains to form a series of multifunctional platforms and event spaces. The new infrastructure melds with the old in hybrid structures that promise a taught resolution currently lacking in other event spaces of the city.

The new economy of Sydney Harbor has the potential to largely eliminate a range of environmental dangers currently involved with ports, including pollution of the sea by oil and noxious substances, the biological hazards of ballast water, the harmful anti-fouling systems on ships,

and introduced marine pests. The Sydney Harbor Federation Trust must go beyond these givens and develop a serious framework for the expansion of local biodiversity that links with the greater urban ecology of Sydney Harbor.

**Pymont Water Police Park.** Environmental geographer Lynn McLoughlin has noted that the causes of sedimentation in Sydney Harbor were known as early as 1866. It took until the introduction of the Clean Waters Act in 1970, however, for the release of sediment into the water to be declared illegal. Despite this legislation and powers given to councils to administer on-the-spot fines for insufficient sediment control, excessive sediment continues to be released into the harbor.

The Pymont Water Police Park, a recent design by Aspect Sydney, Hill Thalys and CAB consulting, seeks to ameliorate this process with water filtration and recycling technologies. The scheme collects all stormwater from the immediate catchment area, as well as from some nearby buildings, filters it, and stores it for use within the park.



The existing foreshore of Pymont Water Police Park is currently being stripped back by Aspect Sydney, Hill Thalys and CAB consulting in a move that views the reclamation of the harbor with ambivalence.



Angophora costata forests on Balls Head have regenerated since the site was denuded in the first half of the 20th century. Such sites are important templates for today’s designs. They demonstrate the spatial qualities and resilience of the local vegetation.

Like so many sites around Sydney Harbor, the landscape of Pymont has been extensively remodeled throughout its history. Previously the headland was mined for yellow-block sandstone and the area at the base of the headland was leveled and extended into the harbor to form a platform of reclaimed land. In the process the natural springs that Pymont was named for, were destroyed. Part of this reclaimed land is currently being stripped back by the designers. Their design exposes the original shoreline through the creation of a sheltered bay. In this way the design fuses the desire to improve water quality with the appealing aim of reintroducing pedestrian access to the water’s edge. While Sydney has an extraordinarily long and convoluted

foreshore, in many parts it is inaccessible due to seawalls and private land holdings.

Excavated sandstone from the site will also be exposed along the line of the original foreshore in a deliberate move to reframe the original shoreline as a zone of tension and ecological exploration. An abstracted streambed runs along the historical shoreline in a series of sinuous walls and stairs, allowing for a diversity of access points. The technology of the streambed works to filter the stormwater with aquatic and riparian plantings. The plantings strip sediments (and the pollutants that cling to them) from the water. Water is then stored in subsurface tanks and kept to provide all the water the park needs for irrigation and non-potable needs.

**New harbor ecology.** Many cities across the world are undergoing a transition from industrial hubs to information and technology centers. As they do so, they are reinterpreting old industrial architectures and landscapes in new ways. The challenge for Sydney is to maintain some form of cultural continuity through contemporary landscapes now being built upon the broken topographies of post-industrial sites. The four landscapes presented here offer an urban vision of post-industrial ecologies and metropolitan sophistication. Other designers must improve and assert their roles in framing Sydney’s real post industrial legacy: not a collection of eclectic architectural ruins but a unique landscape of dramatic topography and latent ecologies.