

# Design and Specification of Facsimile Kandosols for the Barangaroo Development

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## Abstract

The concept for redevelopment at the former international shipping terminal, now known as Barangaroo Point, was to re-establish a naturalistic Hawkesbury Sandstone headland with its associated endemic floral assemblage. The design team commissioned a soil scientist and horticulturist to design and specify the technological aspects including the soil and vegetation edaphology.

The design constructed the core of the headland from fill from site then placed manufactured soil profiles appropriate to the vegetation over the resulting hillside terracing, waterfront promenade and plateau areas. Largely indigenous nursery-grown flora was then established.

Soil design started with a conceptual soil profile composed of crushed sandstone, washed quartz sand and composted green waste, mimicking the natural Yellow Kandosol that supports sandstone flora. Benchmark analysis against the very low fertility levels found in intact Yellow Kandosols (around 30 mg/kg total P) allowed pot trials to be performed testing the suitability of the soils for endemic species. Five edaphic vegetation zones were decided upon requiring four soil materials, a subsoil, a topsoil for turf and park trees, a topsoil for dry woodland soils and a topsoil for heath components. The designs used the “ashbed” concept to elevate nutrient levels as they are after a bushfire (around 70-90 mg/kg total P) to allow the vegetation to develop properly but draw down nutrient levels to those found in the benchmark analysis of natural soils over time.

The trialled designs were then written into tender specifications. Strict quality control of manufactured soil was implemented to ensure soils met the requirements of this sensitive vegetation assemblage.

While soil design for the project was occurring trials in the production nurseries were conducted to develop an improved nutritional program and new growing media for large plant specimens to avoid transplant interface effects.