Department of **Water and Environmental Regulation**
Department of **Biodiversity, Conservation and Attractions**
GOVERNMENT OF WESTERN AUSTRALIA

Bennett Brook

Bennett Brook was once a natural creek system but its tributaries to the west have been modified to become deeply incised drains. It discharges into the Swan Estuary upstream of Success Hill in Bassendean.

The Gnangara pine plantation and Whiteman Park cover just over half the catchment. Some native vegetation remains in Whiteman Park but it is very degraded. The remainder of the catchment has been cleared for residential, rural and industrial uses.

Soils in the Bennett Brook catchment consist of leached Bassendean sands in the northern section, Southern River sands in the central portion and a small band of Karrakatta sands on the western edge. Increased groundwater pumping in the catchment's north for metropolitan water supply has lowered groundwater levels and reduced flow into the brook. Conversely, the catchment's south has higher-than-natural flow due to the construction of drainage networks and the increase in run-off from hard surfaces such as roads and roofs.

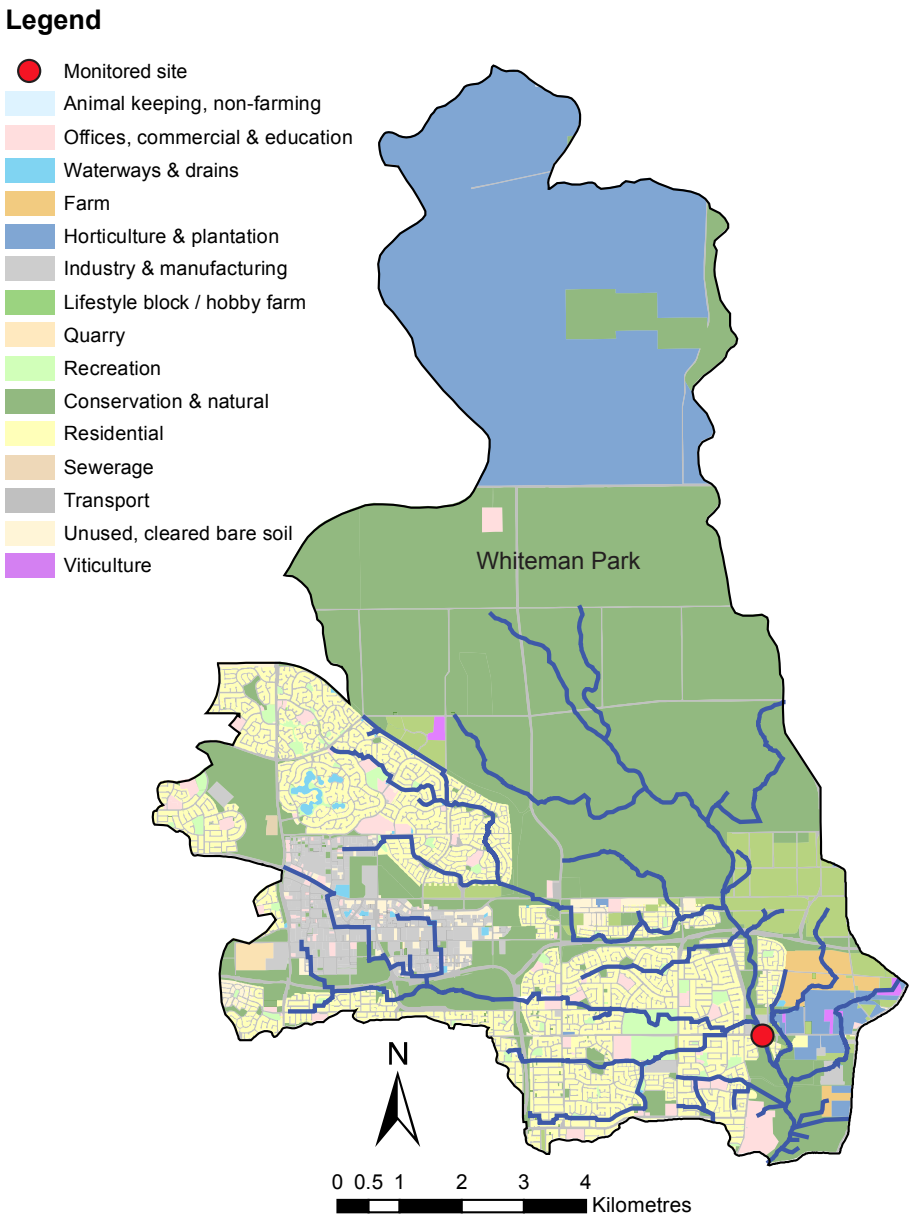
Water quality is monitored fortnightly at a site close to where the brook flows into the Swan Estuary. This site is positioned to indicate what nutrients are leaving the catchment, so the data may not represent nutrient concentrations in upstream or downstream tributaries. Flow was measured from 1988 to 1992 and then again from 2001 to present at the Department of Water and Environmental Regulation gauging station near Benara Road.

Bennett Brook – facts and figures

Average rainfall (2014–18)	~ 720 mm per year (Perth metro)
Catchment area	112 km^2
Per cent cleared area (2005)	66%
River flow	Permanent No major water supply dams in catchment
Average annual flow	~ 4.8 GL per year (2014–18 average)
Main land uses (2005)	Conservation and natural, pine plantations, residential.

Fountain Park, located on a tributary of Bennett Brook, November 2005.

Bennett Brook, riparian zone is reduced and dominated by exotics, November 2005.



Nutrient summary: concentrations, estimated loads and targets

Year	Site	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Annual flow (GL)	616084	7.8*	4.4*	2.2	6.5*	3.2	1.6	1.4*	1.0*	4.4*	7.4*	9.8*
TN median (mg/L)	SWN12	1.15	1.10	1.05	0.99#	0.93#	1.00#	1.05	0.96#	1.10	1.00#	1.10
TP median (mg/L)	SWN12	0.064	0.057	0.060	0.046	0.054	0.065	0.056	0.059	0.053	0.060	0.057
TN load (t/yr)	SWN12	10.10*	5.41*	2.49	8.16*	3.52	1.66	1.45*	0.96*	5.31*	9.74*	13.95*
TP load (t/yr)	SWN12	0.46*	0.24*	0.13	0.34*	0.18	0.09	0.08*	0.06*	0.24*	0.42*	0.56*

TN short term target = 2.0 mg/L TN long term target = 1.0 mg/L TP short term target = 0.2 mg/L TP long term target = 0.1 mg/L

insufficient data to test target failing both short and long-term target passing short but failing long-term target passing both short and long-term target

* Best estimate using available data. # Statistical tests that account for the number of samples and large data variability are used for testing against targets on three years of winter data. Thus the annual median value can be above the target even when the site passes the target (or below the target when the site fails).

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