

North Pine Dam

North Pine Dam (Lake Samsonvale) is located on the North Pine River in Pine Rivers shire. Storage capacity for water supply is 215,000 megalitres. North Pine Dam has no provision above its Full Supply Level (FSL) for the storage of flood waters. The dam is a concrete gravity type, with a steel gated spillway, and earth and rock fill abutments.

Water is released from North Pine Dam to the adjacent Water Treatment Plant operated by Seqwater. This treated water is supplied to the northern areas of Brisbane and adjacent regions.



Water Supply

North Pine Dam's preliminary function is to provide a safe water supply for the Moreton Regional Council areas of Pine Rivers, Redcliffe, parts of Caboolture and Brisbane Council area. The dam has a 348 square kilometre catchment area with an average annual rainfall of 1175mm. The dam stores 215,000 megalitres of water, which can provide a continuous supply of 150 megalitres of water per day. The normal water supply holding level is 39.63 metres above sea level. At this height a 2181-hectare lake is formed. Water is drawn from the dam through an outlet tower built on the face of the dam. Outlets, guarded by screens and valves, are provided at several depths so that the best quality water can be taken from the reservoir and supplied to the treatment plant.



Technical Data

North Pine Dam is built across the North Pine River, 5 kilometres upstream from Petrie. The dam is built on a solid rock foundation made watertight by injecting cement grout at a high pressure into boreholes in the rock. The central section of the dam is a mass concrete structure. This type of construction resists the thrust of the water by its weight alone. It has a central concrete spillway section on which five steel gates are installed.

The dam wall is 580 metres long and 40 metres high. To reduce costs, instead of using concrete, the shallow flanks of the dam wall were completed with rock and earth embankments. In addition to the main dam, there are three earth-filled embankments built across low ridges to the south-west of the dam. The largest of these is 8 metres high and they total 1000 metres in length.

The dam was completed in 1976 at a cost of \$20 million. Twenty-seven kilometres of road had to be relocated for the dam.

In 1996, an aeration system was installed in the Dam in an attempt to improve water quality through destratification of the lake. Destratification mixes the temperature-based layers of water in the lakes so that uniform temperatures are achieved over the depth of the lake. The installation comprises two 75-kilowatt compressors, each delivering 200 litres of air per second through over two kilometres of submersed pipework.



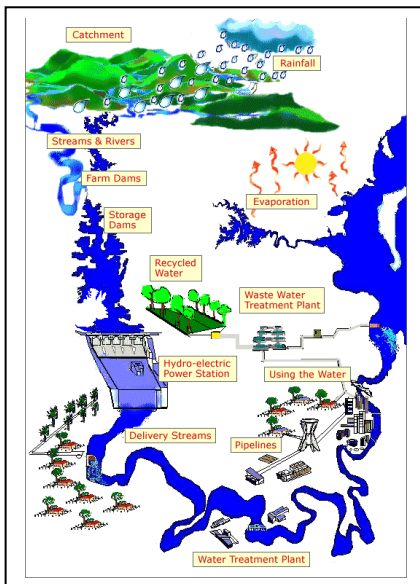
Flood Mitigation

The dam has a total storage capacity of 215,000 megalitres. As North Pine Dam is a water supply dam only, its flood compartment is negligible. The flood waters are discharged from the dam over the spillway which is located in the central concrete section of the dam. The spillway is normally closed by five steel gates but these are opened progressively during a flood in such a way to minimise the effects of flooding downstream.

The Water Cycle

Water is essential for the maintenance and nourishment of life on the planet. In today's modern world we take for granted the simple process of turning a tap and enjoying the bounty, but the process of delivering quality water to your home or business is an interesting journey. Let us share the process with you.

The chart below illustrates the water cycle, where water falls from the sky, runs off the land, is collected in water storages (dams), then released, treated and distributed to the public and industry.



Seqwater is responsible for the critical components of the source of the water supply, catchment, collection and storage, treatment of the water at 47 water treatment plants and water supply to our customers. We maintain the storages so there is sufficient water during dry years, to minimise impact on the environment, and maintain and improve the quality of the water. We also manage flood events to minimize flood damage downstream from the dams.

Key Features of 3 of the SEQ Water Grid Dams.

	Wivenhoe Dam	Somerset Dam	North Pine Dam
Catchment Area (sq km)	5,554	1,503	348
Capacity – Water Supply (ML)	1,165,000	380,000	215,000
Capacity – Flood Storage (ML)	1,450,000	524,000	N/A
Submerged Area (ha) at Full Supply Level	10,940	3,967	2,121
Stream Bed Level at Structure (AHD)	23.0	60.4	4.3
Full Supply Level (AHD)	67.0	99.0	39.63
Spillway Level (AHD)	57.0	100.45	32.01
Embankment or Crest Level (AHD)	79.0	107.45	43.2
Type of Structure	Embankment 4 million m ³ Concrete 140,000 m ³	Concrete 203,000 m ³	Embankment 275,000 m ³ Concrete 175,000 m ³
Year of Completion	1985	1959	1976
Design	Water Resources Commission	Bureau of Industry Stanley River Works Board	Department of Local Government
Length of Wall (m)	2,300	305	1,375
Shoreline (km)	462	237	166
Spillway Gates	5 of 12.0m x 16.6m	8 of 7.97m x 7.01m	5 of 12.2m x 8.3m
Sluice Gates	N/A	8 of 7.97m x 7.01m	N/A
Regulator Valves	2 of 1.5m diameter	4 of 2.3m diameter	2 of 1.4m diameter
Average Evaporation (mm/year)	1,872	1,775	1,375
Average Rainfall (mm/year)	940	1,230	1,175
Hydro Electric Station/dam structure	4.5 megawatts	4 megawatts	N/A
Major Water Supply Customers	Brisbane, Ipswich, Logan, Gold Coast, Beaudesert, Esk, Gatton, Laidley, Kilcoy and Nanango,		BRISBANE, REDCLIFFE, PINE RIVERS, CABOOLTURE AND OTHER PARTS OF THE MORETON REGIONAL COUNCIL

SOURCE STORE TREAT SUPPLY



