

EILDON HILL RESERVOIR

PROJECT SUMMARY

Client: Queensland Urban Utilities

Location: Windsor, North Brisbane

Duration: 3 Months

Project Value: \$ 1.1M

Major Challenges Overcome:

- Tight Construction Programme
- Increase Scope
- Access

The Project

Eildon Hill Reservoir is a 23 ML potable water storage reservoir which supplies the Windsor area in Brisbane’s Northern suburbs. The general reservoir area, including the reservoir roof, is accessible to the public and used as a lookout to the Brisbane City. The reservoir was built in 1929 and is constructed from reinforced concrete. The concrete roof is level with the perimeter access road. The roof is supported on reinforced concrete columns.

A significant internal and external rehabilitation project was undertaken in 2010 to extend the life of Eildon Hill Reservoir. The internal works consisted of repairs to the soffit of the reinforced concrete reservoir roof, reinforced concrete columns, column capitals, wall monoliths and floor joints. A post project inspection inside the reservoir was carried out in July 2012 and the inspection revealed failure of a number of the roof slab joint repairs (on the underside of the

EILDON HILL RESERVOIR



joint) leading to exposure of reinforcement at some locations. This project was to repair previous failed repairs and any structural defects.

Programme

The repair work commenced on the 26th June 2017 and was completed early October 2017 to allow for cleaning, disinfection and re-filling by 13 October 2017. This date was critical to QUU and the neighbouring community as demand increased and additional water storage was required. Although the scope of work almost doubled, Epoxy Solutions was able to plan around these challenges and still deliver the reservoir on time.

Project Scope

The project comprised of the following work:

- Provide safe access
- Cut and install new soffit expansion joints
- Repair expansion joints and failed repairs

Increased scope of works

- External Joint Repairs
- Soffit concrete repairs
- Column concrete repairs
- Application of a polyurea membrane over the external roof joints.

Completed Works

The following works were successfully carried out:

Access

Scaffold platforms were erected to install 650m of new expansion joints.



Repair of construction joints (New expansion joints):

Expansion joints were cut out along the existing constructions joints and joint edges and corroded rebar replaced to create a new strong edge for the new expansion joints



Photos above show construction joints cut out and repaired with epoxy paste and filled with joint sealant.

Joint Concrete Repairs



Photos above show repairs along the new expansion joints, corroded reinforcement bars replaced, voids in new expansion joints injected with a polyurethane and joints filled with joint sealant.

Column and Soffit Repairs



Photos above show some of the column and soffit repairs.

Application of the polyurea membrane

The 650m roof joints were prepared by diamond grinding, primed and sprayed with a 4.6mm thick pure polyurea membrane.



Testing

Test panels/sections were prepared for the concrete repairs, joint sealant repairs and polyurea membrane.

The following tests were completed:

- Visual Inspections (All repairs)
- Soundness of Repairs (Cementitious high build mortars)
- Compressive Strength Testing (Cementitious repair mortars)
- Adhesion Testing (High build mortars and, joint sealant and polyurea membrane).