

Case Study

Protection for well into the future



Located near the centre of Dubbo, NSW lie two large new hot dip galvanized (HDG) roof canopies perched over two new HDG fenced enclosures within a newly developed park. Passers-by are immediately intrigued and regularly stop to learn more about the role this site played in the history of the town of Dubbo.

History of the site

The two hand-dug driftwells hidden beneath the park were responsible for Dubbo's first reticulated water supply until with mechanical steam-driven pumps raising water from the bottom of the western well and delivering it to the Fitzroy Street reservoir¹.

Accessing groundwater was very important in western NSW where surface water sources often dried up for weeks and months at a time².

Driftwell 1 was completed in 1893 and is roughly 4.5 metres in diameter, flaring out into a bell shape at its base. It was initially 24.4 metres deep. It was dug by hand and lined with locally sourced handmade bricks. The bricks at the base of the well are perforated to allow water from the drift to enter the well.

Over 100 years later the elegantly shaped well is still in almost perfect condition; a testament to the considerable skill of its builders.

Using the power provided by the steam engines the water was pumped to the east to a hill top reservoir where it was then gravity fed to a reticulated system. The design proved very successful providing the town of Dubbo with cool, clean sand filtered water.

By the early 1900s, Driftwell 1 alone could no longer adequately supply the growing township's demand and so in 1909 a second well (6 metres in diameter and 21.33 metres deep) was sunk using the "cassion" method next to Driftwell 1.



The two driftwells were then connected so that their combined volume of water could

Case Study

Protection for well into the future

be pumped out using just a single set of pumps.

In 1929 a third driftwell was installed across the street (not shown in this case study). The 3 driftwells supplemented the other local water supplies until they were decommissioned in the 1960's³.

Refurbishment of the site

In early 2014 the decision was made to dramatically upgrade the existing driftwell site to help highlight the integral role the driftwells played in the history of water supply within Dubbo.



At a cost of \$510,000 the project was completed in February of 2016.

The upgrade included restoration of the original piston pump while the original steam boiler was also located and renovated to give a fuller historical picture of the site.

Both Driftwell 1 and 2 were covered with structural Perspex covers and illuminated to enable people to look down inside and admire the hand-laid brick structure. The wells have been popular viewing at night time because of the interior lighting.

HDG was used extensively in the upgrade of the park.



Being located in a C2 environment the HDG structures will require little maintenance and should protect the steel articles for close to 100 years.

The majority of the connections are bolted allowing for easy galvanizing as well as simple transport and onsite installation. This also eliminated the high cost of any onsite welding and allows for easy disassembly and replacement should it be required.

Dubbo City Council are now in the process of applying to have the site recognised as a National Engineering Heritage Landmark through Engineers Australia.



Comparison of the old site and the new upgrade showing the piston pumps⁴

Case Study

Protection for well into the future



Acknowledgements

Engineering Consultant: Barnson Pty Ltd
Contractor: Jeff Hort Engineering Pty
Smyths Steel Fabrication
Hot Dip Galvanizer: Galvatech Pty Ltd
Historical Information: Dubbo City Council

References

- <http://www.westernplainsculturalcentre.org/#!/driftwells/hmj03>
- <http://www.dubbo.nsw.gov.au/media-releases/historic-drift-wells-to-receive-new-lease-on-life>
- <http://www.dubbo.nsw.gov.au/CouncilServices/WaterSupply.html>
- <http://www.panoramio.com/photo/52338700>

This Case Study is intended to keep readers abreast of current issues and developments in the field of galvanizing. The Galvanizers Association of Australia has made every effort to ensure that the information provided is accurate, however its accuracy, reliability or completeness is not guaranteed. Any advice given, information provided, or procedures recommended by GAA represent its best solutions based on its information and research, however may be based on assumptions which while reasonable, may not be applicable to all environments and potential fields of application. Due and proper consideration has been given to all information provided but no warranty is made regarding the accuracy or reliability of either the information contained in this publication or any specific recommendation made to the recipient. Comments made are of a general nature only and are not intended to be relied upon or to be used as a substitute for professional advice. GAA and its employees disclaim all liability and responsibility for any direct or indirect loss or damage that may be suffered by the recipient through relying on anything contained or omitted in this publication.