

Liawenee Flume Project

Warren Environmental, Inc.



Liawenee flume is situated high in the mountains north of Hobart, capital city of Tasmania, an island 180 miles south of Australia. Hobart is Australia's second oldest and southernmost city, next stop Antarctica.

Fernco Environmental Ltd. is an U.K. company that markets a unique range of products targeted at the preservation, conservation, harvesting and recycling of water assets.

We presented Fernco Ultracoat, an epoxy coating system developed by Warren Environmental, to Tasmania Hydro, highlighting its special qualities as a no VOCs, high build in one coat, structurally reinforcing and rapidly applied epoxy coating system with over 15 years of successful in ground history.

We were asked by Hydro Tasmania, a short time after we had presented the Ultracoat system, if we were interested in a trial job coating a flume that carried water from the Ouse River onward via a canal to The Great Lake (we were very interested!). The Great Lake services three hydro electric power stations, part of the 10,000 gigawatt hour generating capacity of Hydro Tasmania.

The flume needed repairs to the damaged and eroded concrete surface. The new coating would also improve the hydraulic capacity (flow rate).

The flume was a cast-in-place concrete 'U' section with 10-ft walls and a 12-ft base. The surface was significantly eroded by the water flow and freeze thaw damage. In some places the rebar was showing. The surface was extremely coarse being an exposed Dolerite aggregate, very sharp and very hard. There was significant moss growth that would have to be removed.

The challenges were a remote site, no facilities whatsoever, in a national park, an area of conservation, conditions varied from freezing to +20 degrees Celsius. We had six days to complete the job. Interestingly, it was in the height of the Tiger snake mating season and the site was surrounded by kangaroos, wallabies, wombats and platypus (we saw them all!).

We shipped all the Ultracoat by Warren 100 percent solids epoxy resin and delivery equipment plus spares, compressors, generators, high-pressure jetters, heaters, floodlights and a host

of consumables by boat over 12,000 miles from Barnsley in the United Kingdom to Hobart.

On arrival in Hobart, we were met by Hydro Tasmania representative Norm Cribbin, whose help, local knowledge and support were to prove invaluable, plus he carried the snakebite kits! Also there were representatives of JDP Coatings, a potential new installer for Australia. We hired a small truck and a large station wagon, loaded up and set off up the mountain.

At site we unloaded the preparation equipment and set about removing the moss, growths and unsound areas from the surface with a high-pressure jet washer and in more difficult areas with a pneumatic scabber. For the next stage we sprayed the whole area to be coated with a dilute bleach as a mild biocide

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and thoroughly washed down with copious amounts of water. We followed this with a dilute acid wash to remove carbonates and calcium deposits in the concrete surface. This was again followed by a thorough wash down with water.

Ultracoat can be applied onto damp substrates, which helps in reducing waiting time for the surface to dry. Ultracoat can be successfully over coated without any further preparation up to 24 hours after the first coat, if the period between coats is longer than a light abrading with coarse abrasive and a wipe down is needed.

Ultracoat is applied at 65 degrees Celsius and due to its thixotropic characteristics, Ultracoat can be applied in a single coat up to 8 mm thick with no runs or slumping. The standard coating thickness is 6 mm.

At Liawenee, the actual coating was in two stages. We prepared and coated the walls first and then de watered the base and coated it last. The first coat of Ultracoat was sprayed on and then floated off with large trowels and scrapers to force the resin into the very coarse surface to fill out any voids and give a smooth ceramic like surface ready for the next coat.

The second coat was applied and also struck off using floats to produce a very glossy smooth finish to optimize water flow and hence the efficiency of the flume.

The end result was a glossy and very durable surface completed in double quick time; we now await the results of the flow testing.



Flume before work commenced.



Completed job, a very durable glossy finish.

Please visit www.warrenenviro.com and click on "Projects" to view actual footage of this project and others. For more information about Fernco, visit www.ferncoenvironmental.com