

AAPA 2017 NSW OUTSTANDING PROJECT AWARD WINNER

Downer
Relationships creating success



TAXIWAY TANGO – SYDNEY AIRPORT

The North/South Runway at Sydney Airport is one of the busiest taxiways in the southern hemisphere. In 2016, it alone hosted 348,354 aircraft movements.

To mill and overlay a length of 2,300 metres at 29 metres wide is a lot more complex than it may first appear. Works were to be completed while the taxiway continued to operate at full capacity and the taxiway was to be left fully operational at the end of each overnight shift.

The job required meticulous planning and military precision. It raised massive logistic, quality, safety and technical issues that would need to be resolved in an open and collaborative communication framework.

Logistics

The onsite working window would take advantage of the airport's curfew between 11pm and 6am. The onsite window would be 11pm to 5am. Before works could commence, logistics needed to be addressed concerning weather, access and sequencing.

Safety

The project excelled in what was a monumental safety challenge with up to 40 people at a time working together under extreme time pressure with plant and machinery in an area 200 X 29

metres. The results speak for themselves: Lost Time Injuries = Zero. Medically treated Injuries = Zero. Total Recordable Injury Frequency Rating = Zero.

Each shift started with all 40 site personnel taking part in a toolbox talk followed by a discussion on the previous shift's performance.

Three critical risks were discussed at every shift pre-start:

- Plant pedestrian interface – workers on foot
- Plant on plant
- Foreign object debris (FOD) management.

A number of safety initiatives were implemented, including The Red Zone – to maintain 10-metre clearance between plant and workers on foot, and a near-miss hotline to encourage staff and contractors to report near misses.

Quality/technical

The project's quality would be determined by the success of the collaboration between Downer Airports & Specialised Pavements (Project Delivery Team) and Downer Rosehill (Project Resourcing and Material Supply Team).

Delivering a clean, conforming bitumen and aggregate was essential. A great deal of effort was spent to allay fears of cross contamination, including doubling the normal rate of cleaning of drums for the duration of the contract.

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Timing of production was critical. Once the call to "GO" was confirmed at 8pm, all mix for SACL was produced and dropped into hot storage. This gave the client the comfort of knowing that a plant breakdown would not impact the mix production and the shift could be completed as planned.

Another critical success factor was a dedicated quality assurance team committed to the project. This is one of the factors that led to zero non-conforming production reports.

Two dedicated laboratory technicians managed bitumen, aggregate and asphalt sampling and testing. On site, two dedicated laboratory technicians performed core sampling, PQI testing and shape testing including mobile straight edge.

A day shift team collated and entered all QA documentation. The back room team managed aggregate source conformance testing in conjunction with aggregate suppliers and bitumen conformance testing.

Downer maintained daily process control charts that were issued to the client weekly.

Project delivery was under the guidance of Downer Airports & Specialised Pavements. This is a specialist project management delivery team with specific experience in the airports space.

Innovation

Innovation highlights included:

Additional screed heating – the heat at the centre of the screed was found to be up to 20 degrees greater than that of the outer extremities. Screed heaters were fitted to the working paver and side plate heaters stopped dragging or pick up by the side plate skids.

To ensure longitudinal open joints had sufficient heat for matching, a paver mounted joint heater was used. On transverse joints, a joint heater was hand operated on the take-off joints.

Temperature gauges were mounted on the lead roller to provide real-time mat temperature information for the operator.

The project required a new asphalt mix design. Due to the tighter than usual specified limits, the technical team needed to build several mix designs and trial these. The team also needed to ensure that the asphalt performed on site.

New processes and programs were implemented to meet specifications:

- A template was developed which tracked maximum storage times
- Bitumen temperature logs and measuring devices were used to track temperatures
- Process control charts and programs were used to monitor conformance
- A dedicated person took temperatures of each truckload that left the plant to ensure it would arrive on site within specified temperature limits.

Throughout the project Downer maintained an extremely close relationship with the bitumen provider, including multiple sampling and testing events along the way, the results of which were shared.

The project was technically complex due to the more stringent than usual specified limits. Production limits for the aggregate grading were more onerous, demanding careful monitoring by technical staff. As such, the technical team was doubled in size.

Communication

SACL and the Downer onsite team developed a collaborative partnership. Weekly update meetings were held and a SACL representative was on site every night in the event of unexpected situations.