

Flexible Strong Fast Smart

CASE STUDY

Long Bay Prison

Project Snapshot

Date

Stage 1 completed May 2007

Project Name

Long Bay Correctional Facility –
Forensic and Prison Hospital

Contractor

Mainland Civil

Products Used

HardiePipe™ concrete pipes

HardiePipe™ concrete pipes pass the acid test.

When Mainland Civil contractors faced a number of onsite and below ground challenges at Long Bay Prison, it was HardiePipe™ concrete pipes that provided the ‘great escape.’

Corrosive situation.

The Long Bay Correctional Centre, in Sydney’s southeast, is a prison complex comprised of a number of maximum-security institutions. Therefore, when the contract was awarded to lay new stormwater lines for the conversion and construction of a new prison hospital on site, it was clear the location would pose certain challenges.

The biggest threat, however, came not from the situation above ground, but rather what was beneath it. For project contractors Mainland Civil, the task took on an extra dimension with a geoscience report that placed high levels of potentially corrosive acid sulphates in the site soil. Added to this was an unusually high water table and the presence of salt water levels at pipe depth.

The resulting pH scenario was ‘aggressively acidic’. With the increase risk of corrosion of steel reinforced concrete in such conditions, an alternative product was needed for this unique prison tunneling mission.

Locking away the competition.

Salim Chah, Project Manager at Mainland Civil, explains their dilemma. "The project was a site where the ground had high acid sulphate soils. Traditional steel reinforced concrete pipes would have required additional lining internally and galvanized reinforcement to protect it from high acidity." Consulting engineers weighed up a number of rigid and flexi pipe options, but with all others requiring some type of extra reinforcement, it was the existing properties of fibre reinforced concrete provided by James Hardie's HardiePipe™ concrete pipes that ticked the boxes.

As a semi-rigid pipe, HardiePipe™ concrete pipes meet identical installation standards (AS3725) as traditional steel reinforced concrete pipe. Yet, "no additional work is required with HardiePipe™ concrete pipes due to its high acidity resistance," says Chah. "Plus the 4m length makes laying quick and it is easier to cut – surprisingly efficient considering the site conditions."

"Our preference was to use HardiePipe™ concrete pipes because of the speed benefits."

The autoclaved manufacture process enabled HardiePipe™ concrete pipes to offer increased resistance to the acidic conditions. And with each length machined for precision, there were no issues with pipes fitting together, ensuring a cohesive final product and faster installation, ultimately saving money. "Our preference was to use HardiePipe™ concrete pipes because of the speed benefits," concludes Chah.

Good Behaviour.

Maintaining security levels was critical in a prison environment, and Mainland Civil coordinated deliveries with the James Hardie team to ensure drivers were in the right place at the right time. More than ever, delivery timeframes were under close scrutiny, and James Hardie's proficiency in this area enabled a smooth project with little disruption to the day-to-day workings of the facility.

A potentially difficult scenario both above and below ground was overcome thanks to the technical and strength performance of HardiePipe™ concrete pipes. While it's unlikely fibre reinforced concrete will replace steel cell bars anytime soon, the Long Bay stormwater system is safe and secure.

Strong. Fast. Adaptable. Smart.

Our progressive, innovative approach creates high performance, engineered solutions for above and below ground stormwater drainage applications.

Call James Hardie on the number below to find out all the benefits possible for your next project.

"The 4m length makes laying quick and it is easier to cut"

Salim Chah
Project Manager - Mainland Civil



Ask James Hardie™
Call 1800 659 850
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James Hardie
Concrete Pipes

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