

M80 RING ROAD ROAD UPGRADE

FURLONG ROAD TO SUNSHINE AVENUE

MAIN CONSTRUCTION COMPANY : BMD CONSTRUCTIONS

CLIENT : VicRoads

PROJECT END VALUE : \$32 Million

COMPLETION : March 2012

CIVIL DESIGN : GHD

SURVEYOR : Heading & Associates Pty Ltd

BMD Constructions has completed major civil construction works on the M80 Ring Road Upgrade between Furlong Road, St Albans and Sunshine Avenue in Sunshine North. This is the first portion of works between Western Highway and Sunshine Avenue. Work started in May 2010 on the two kilometre stretch with BMD Constructions expected to finish later this month.

The M80 Ring Road Upgrade is a \$2.25 billion project, jointly funded by the Australian and Victorian Governments. The M80 Upgrade will deliver a number of benefits including a safer road, more lanes, less congestion and more consistent travel times.

Two extra lanes were built in each direction including widening of the bridge over Furlong Road. The improvements are expected to support industry in Melbourne's north and west, allowing more efficient freight movement to and from ports and airports. Drivers will also benefit from an easier journey, spending less time in traffic.

Paul Dall'Oglio, Construction Manager for BMD noted that the most difficult aspect of their \$32 million contract was access. With 1300 people inducted onto the site, getting workers and equipment in and out of the area safely has been a challenge that BMD successfully rose to. Mr Dall'Oglio calculated that with 142,000 vehicles travelling along the road daily, with around 20,000 of those commercial vehicles, around 48 million vehicles passed by during the life of the project.

The standard speed limit on the M80 Ring Road is 100km. However a reduced speed limit is in place in all road works zones. The M80 Upgrade was planned and managed to minimise the impact on drivers – speed limits were reduced to 80km during the day and 60km or 40km during night

works. Access to Furlong Road was managed by using existing pavements or creating temporary pavements, and having long lead in and acceleration entry and exit points.

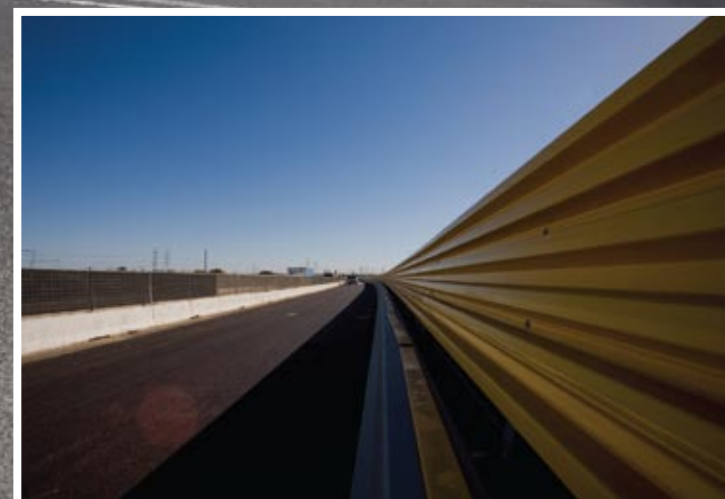
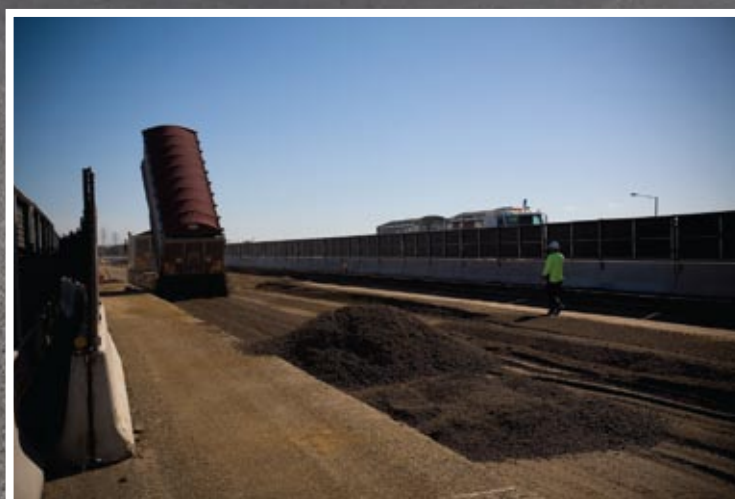
A community arts project (mosaics) is incorporated into the upgrade. The mosaics have been created by people with unremitting symptoms of mental illness. The project has given people who are marginalised from the local community the opportunity to have a hand in creating something for their area. 100 light-weight high tensile concrete circles were provided and Creative Arts Therapist Carolyn-Noël Vincent worked with her clients to create eye-catching bright yellow, orange, terracotta, bronze and black mosaic mandalas now installed on the Furlong Road bridge abutment. Eighty-five individuals dealing with long-term profound mental illness worked on the project over the course of a year. The urban art project gave the artists who are so often immersed in their illness, something exciting and positive to focus on and talk about. Carolyn-Noël says 'It proves to the general community that these people can contribute. They're still there and they want to be useful members of society.'

The most complex part of the upgrade for BMD Constructions was widening the bridge over Furlong Road. Concrete barriers were installed

on Furlong Road to allow workers to safely construct the new lanes on the bridge. Bridge beams were placed on new bridge piers and concrete poured for the deck of the new bridge. Permanent 'ramp metering' traffic lights were installed on the ramps to control the flow of traffic onto the freeway. The installation of urban-art styled noisewalls made of corrugated iron and painted two different shades of yellow, will also create a new look and feel to the road.

BMD Constructions is a nationwide family owned company established in 1979 providing civil, industrial and building construction services to public and private sector clients. Consistent relationships and an individual approach to each project keeps them at the forefront of the industry.

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toxfree

SAFE. RELIABLE. SUSTAINABLE SOLUTIONS

Toxfree, formally Barry Bros. Specialised Services are providing an extensive range of industrial services and waste management solutions to the M80 upgrade project in Victoria. In operation since 1958, Barry Bros. were acquired by Toxfree in late 2008. The Toxfree group employs over 600 people nationally and offers a range of waste management and industrial services across Australia. Toxfree offered a 24/7 service on the M80 Upgrade and regularly had multiple units working on site at one time. Services included:

- Electronic service locating - tracing and identifying underground assets;
- Non destructive digging - to expose underground services, also used to dig trenches in potentially hazardous areas where mechanical methods could damage assets or cause a safety issue;
- High pressure water blasting - used to remove existing concrete structures without damaging the existing reinforcement and for surface preparation on new concrete structures;
- Drain cleaning and CCTV - cleaning out existing drainage, tracing drain infrastructure direction and identifying potential issues within the network;
- Vacuum loading - removing excess liquids and heavy industrial solid waste material.

2011 was an exciting year for Toxfree who were awarded the GIO Workers' Compensation Award for Excellence in OHS&E - the pinnacle award of the annual NSCA National Safety Awards of Excellence for the development of two nationally accredited training programs for operators of High Pressure Water Jetting equipment. John Wakely, Group HSEQ manager at Toxfree comments, "While for example a forklift driver can prove competence by presenting a licence, High Pressure Water Operators did not have an equivalent." Toxfree researched and developed the program which now provides a formal qualification for High Pressure Water Jetting operators.

Toxfree also provide a diverse range of specialised industrial services, achieving their position in the market through the development of the most versatile and innovative range of drain cleaning and industrial services equipment and processes. The business provides a comprehensive range of waste management services including hazardous and non hazardous waste disposal, solid waste management, recycling and liquid waste treatment. They also have water recycling treatment units which can process waste water at a rate of up to 7000 litres every hour – the water is cleaned of suspended solids and neutralised, reducing waste and recycling resources.

The business is focused on delivering a professional and competitive range of services, highlighted by a culture of safety. Their safety mantra 'Harm Free' is focused on the following principles; we will exceed customer expectations with No harm to people, No harm to the environment, and No harm to resources. This commitment to a Harm Free culture ensures all project staff are provided with comprehensive safety training, backed by global-standard safety policies.

As well as the M80 upgrade, Toxfree are working on the Victorian desalination plant and the South Morang Rail Extension amongst others. Where possible, Toxfree provides regional employment opportunities and they are constantly assessing their impact on the environment.

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Heard the jargon, but what does it really mean.

NDD - Non-destructive digging uses high pressure air or water to clear areas, minimising noise pollution, protecting the immediate environment and is often a great alternative to drilling or jack-hammering. Perfect for power pole straightening and excavating/potholing around telecommunications lines, sewers, gas and water.

Vacuum Loading - technologies employed by Toxfree allow the speedy removal of both solid and liquid waste, sucking up contaminated waste, cement or concrete slurries, oils, adhesives, soils and muds and woodchips. Vacuum loading is used extensively in the construction industry, as well as government environments and utilities.

High Pressure Water Blasting - mobile hydro-jetting units for high-pressure water jetting clean, strip coatings, remove debris and descale. Particularly effective for hydro demolition, tank cleaning and surface preparation.

REMOVING THE OLD MARKINGS

Passengers touching down at Tullamarine Airport are probably not thinking about the skid resistance of the tarmac. As part of the airport's safety routine, every four months between 1 and 6 in the morning, Roadline Removal Australia (Known in Victoria as 'The Road Hog'), remove the rubber deposits from plane tyres on the runway, bringing the resistance back up to scratch to make it safer to land. Now there's something you don't read about in the inflight magazine...

Roadline Removal Australia is a rapidly expanding nation-wide company with branches in Victoria, Queensland, New South Wales, Western Australia and Tasmania. They specialise in removing markings from roads and can zap any kind of paint or plastic markings.

Working through the night on the Furlong Road to Sunshine Avenue section of the M80 upgrade, Roadline Removal Australia has used two high-pressure blasting machines to achieve a large amount of removal in a small amount of time. The flow of traffic was so enormous that simply tapering off the lanes with witches hats and barriers was out of the question. The old markings are the slowest part as Nick Fairbrother, Managing Director says 'some markings have been there for so long - once you take the initial markings off, the temporary paintworks can go faster. It's much easier to get one coat off rather than six or seven which have been there for 20 years.' Pointing two Stripe Hog high-pressure water blasting systems at the markings, they achieved more per shift (night work again), which saved time and money on traffic control.

Roads that are being constructed or upgraded require lane changes with temporary line markings, then they might have to do a traffic switchover to the other side as they construct the other side of the road. It's in everyone's interest that this happens quickly, efficiently and safely.

Roadline Removal Australia have a fleet of equipment they call on, depending on the job. The environmentally friendly Stripe Hog mobile high-pressure blasting systems not only deliver up to 40,000psi, but they have a full vacuum recovery system which sucks up any ensuing debris. It's a non-destructive method in most cases, with no chemicals and no mess.

Other specialist equipment includes the Road Pro 6200, a variglid system which grinds any surface. It's particularly good at getting

into grooves and recesses with diamond saws and flail or slot cutting grinders - again, it vacuums up as it goes.

Ridged thermoplastic audio tactile lines, used to combat issues such as driver fatigue, are easily removed by Roadline Removal Australia's Polyplaner machines. Able to remove widths from 20 to 60cm, they're also perfect for lifting omnigrip material, cold applied plastics and overly thick coatings. Road sweepers and some ancillary gear are also on hand when required.

Surface preparation, which every painter knows is critical, is another key area for Roadline Removal Australia. The Stripe Hog water-blasts old markings removing flaking paint or thermoplastic and new roads making them clean and perfect for new markings to go on.

Roadline Removal Australia have highly trained, professional staff who will tackle any type of marking removal and work in any weather

conditions at any time of day or night. They work on freeways, car parks, roads and airport surfaces and get calls from construction sites, highway departments and contractors.

Projects all over Australia include the M2 Hills and M5 upgrades in Sydney, the Peninsula Link, M1 and M80 upgrades in Victoria, the Ipswich Motorway upgrade and BrisConnections Airport Link Project in Queensland and the Bass Highway line marking upgrade in Tasmania.

So next time you skid into Tullamarine airport, spare a thought for the effort and technology that goes into a safe landing - from the ground up.

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EXPERTISE & QUALITY IN FORMWORK

Canterbury Formwork started in March 2011 and they already have an impressive list of completed projects – no surprise really given that Directors Adrian Hehir and Robert Batten between them bring over 30 years of civil and commercial formwork to the table.

On the M80 upgrade, Canterbury Formwork were responsible for extending the pier protection barriers under the Sunshine Avenue bridge to accommodate the extra lanes. New precast barriers were placed and an insitu beam poured behind them. Some of the barriers supplied by BMD Constructions weighed around 12 tonnes so lifting and placing them was complicated – the solution was a dual lift with 2 x 25 tonne franna cranes. All of the work was done onsite and it took around three weeks to complete each side under the bridge.

Other work undertaken by Canterbury Formwork includes both formwork and steel for a pedestrian bridge in Werribee, which involved a large radius wall and big radius shutters made up for round columns, as well as a form liner to pattern the concrete.

A kilometre of waterproof retaining walls for a man-made lake at the Botanical Gardens in Cranbourne also posed no problem for Canterbury Formwork, who pride themselves on high-quality workmanship.

They also worked on The Austin Hospital, supplying formwork, steel and concrete. They were responsible for creating standard retaining walls and stairs as well as radius walls - a water feature in the hospital courtyard runs over some of their waterproof retaining walls.

The current Canterbury Formwork team of ten includes steel fixers, concreters and formwork carpenters - some of them are also dogmen. Mr Hehir says Canterbury Formwork is aiming to double their employee base over the next couple of years - they're looking forward to increasingly challenging work in the future.

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THE CONCRETE PUMPING EXPERTS

Pumping in the concrete decks and bunting for the bridges as well as doing the sound barrier footings on the Furlong Road to Sunshine Avenue section of the M80 upgrade, Australian Concreting Pumping Logistics Victoria (ACPLV) considered safety first.

Gordon Hall, Director of ACPLV, said that it was a high risk job in terms of public safety as the public were sharing the space while the bridges were being built. Without proper management, a concrete stone could splatter and hit a car so safety was a key factor;

‘We had to take extreme care so we basically eliminated all risk – we’d consider any sort of risk possibility and eliminate it before we started.’

When pouring concrete close to the road, the team barricaded the working area with screens to contain any concrete splatter and only new equipment was used to pump concrete through the systems. The new pipeline was examined for anything that could potentially break, manufacturing errors were checked for, welds were x-rayed and all joinings and pipes were double checked. All rubber seals were replaced with brand new ones.

It was a large job and ACPLV used elephantine, truck-mounted 55 metre concrete boom pumps (some of Australia's heftiest) to complete it. Standard concrete placing booms ranging from 42 – 32 metre booms were also used. The job took around two months with three or four people on hand each time there was a pour.

Australian Concrete Pumping Logistics currently employ around 35 people, they are also working on the Victorian desalination plant, the Peninsula Link, the South Eastern Water Treatment Plant, railway upgrades and several high rise projects in the Melbourne CBD.

At the forefront of innovation, ACPLV are always upgrading their equipment and looking for newer, better ways to pump concrete with safety, efficiency and speed.

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