



M80 UPGRADE (EDGARS ROAD - PLENTY ROAD)

The \$100M M80 Edgars Road to Plenty Road Upgrade will improve safety by adding lanes between some interchanges and reducing merging movements by traffic entering and exiting the freeway, and includes bridge widening, electronic on-road message boards, planting and feature walls, creating a new look and feel to the road.

MAIN CONSTRUCTION COMPANY : Fulton Hogan
CLIENT : VicRoads
CONSTRUCTION VALUE : \$100 million

As one of Victoria's busiest major arterial roads, the **M80 Ring Road** began its upgrade back in 2009. The 38-kilometre stretch of road carries up to 142,000 vehicles per day, including more than 22,000 trucks. The \$2.25 billion project has been jointly funded by the Victorian and Australian governments, and it includes building an additional lane in each direction, improved interchange layouts, bridge widening and strengthening, resurfacing works, installation of overhead electronic signs, electronic on-road message boards, and planting and feature walls.

Major construction for the third section of the M80 Ring Road commenced in 2012, from Edgars Road to Plenty Road in Bundoora. VicRoads awarded the contract for these works to Fulton Hogan.

Fulton Hogan employed approximately 190 contractors, covering a broad range of activities for the project. Project manager, Mike Kenealy, outlined some of the innovations and achievements utilised throughout the project:

- Alternative piling and abutment treatment for the east abutment at High Street, which involved the use of Micropiles and a steel framed shotcrete wall fixed to the face of the existing RE wall abutment panels
- Implementation of yellow line marking for delineation of traffic lanes through construction sites, whilst leaving existing white lines in place
- Use of slip-form concrete linear drain adjacent to centre median barriers
- Utilised Pavaset technology to optimise the regulation/profiling of the existing lanes and maximise the ride characteristics
- Quicker and safer concrete parapet removal with the use of a concrete road saw to cut the parapets horizontally. This virtually eliminates the use of jackhammers to break the parapets from concrete stitch joints on the bridge decks

- Profiling a longitudinal narrow channel in the existing asphalt pavement to direct stormwater runoff along the pavement to drainage outlets, and not into the median excavation
- Every beam installation shift was achieved with zero time overruns for traffic management, including beams over heavy and light rail. This included the installation of 8 T roff beams in one of the Tasman Drive spans in one night shift. Average T roff beam installation time for the project was between 20–25 minutes
- Design and installation of a steel/concrete composite bridge structure to achieve clearance requirements on the Altona Bound widening over Tasman Drive
- Use of E crete on selected areas of paving and other non-structural components

Due to the heavy traffic flow encountered on the M80 Ring Road, and the tight deadline of the 28-month programme, the management of traffic and the staging of construction was challenging, as two lanes of traffic in each direction was to be maintained.

Another challenge faced were the interfaces with Metro Trains and Yarra Trams where construction took place over the heavy and light rail at High Street and Plenty Road, resulting in coordination with the Rail Occupations.

Heavy coordination was also required for the bridgeworks and civil works to provide an area for the construction of bridge widenings, while minimising the traffic switches along the length of the project.

VicRoads' contract stipulated that all bridges were to achieve 75% SM1600 loading, therefore Fulton Hogan had to strengthen the existing bridges in order to meet these requirements. Mike noted that on such a traditional D&C project, a collaborative relationship was nurtured between VicRoads and Fulton Hogan.

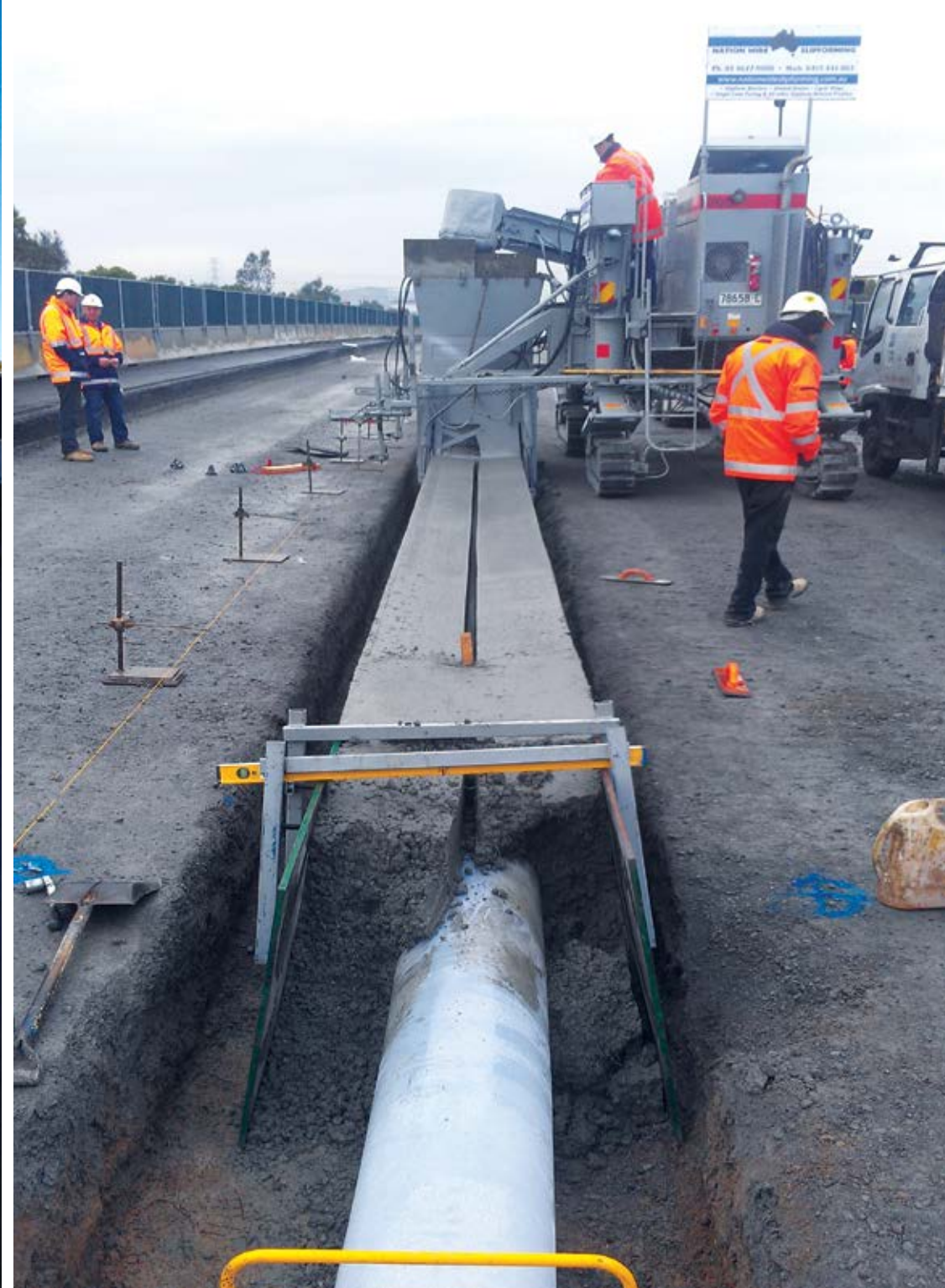
A leading civil construction company Fulton Hogan has more than 80 years experience in the transport infrastructure, water, energy, mining and land development sector in New Zealand, Australia and the South Pacific, offering their clients end-to-end contracting solutions, focusing on safety and quality.

Within an ever-changing industry, they strive to have a full understanding of their client's, and the community's, needs, whilst delivering the best and most cost effective solutions, utilising the latest innovations.

For more information contact Fulton Hogan, P.O. Box 56, Hawthorn, VIC, 3122, Australia, phone 03 9340 6200, website www.fultonhogan.com, email info@fultonhogan.com.au



NATIONWIDE SLIP FORMING



Nation Wide Slipforming specialises in the construction of slip formed kerbs, barriers, slotted drains and footpaths. With over 40 years in the industry, owner and director, Brian Scattergood established the business back in 2001.

The successful company has grown to host a team of managers with a collective wealth of experience spanning over 100 years. The family owned and run business believe their success is partly due to their long term employees, some of which have provided over 20 years service to the company.

A team of five Nation Wide Slipforming employees worked on the M80 Edgars Road to Plenty Road Upgrade. Their involvement on the project entailed pouring two kilometres of slotted drain in the pavement. This innovative product overcomes drainage issues faced on a dual carriage way construction with a one way cross fall and concrete barrier wall in the middle of the adjoining carriage way.

Before the slotted drain had been completed, the bridges were constructed on the M80 upgrade, and consequently access over them was available. In order to ensure the project was not delayed in any way, Nation Wide Slipforming offered the option of pouring both left and right hand configurations—an opportunity not often found with other contractors.

The slipform slotted drain process utilised on the project is not a new innovation overseas, however it is relatively new within Australia. Nation Wide Slipforming poured their first run in Brisbane on the Inner City Bypass in 2000. It was again applied in 2005 on the Sydney M7 project and also at Tarcutta in south NSW.

Currently the only contractor to successfully produce the inventive slotted drain product, Nation Wide Slipforming are currently undertaking both the slotted drain and barrier wall along approximately 6 kilometres of the M5 Upgrade in Sydney.

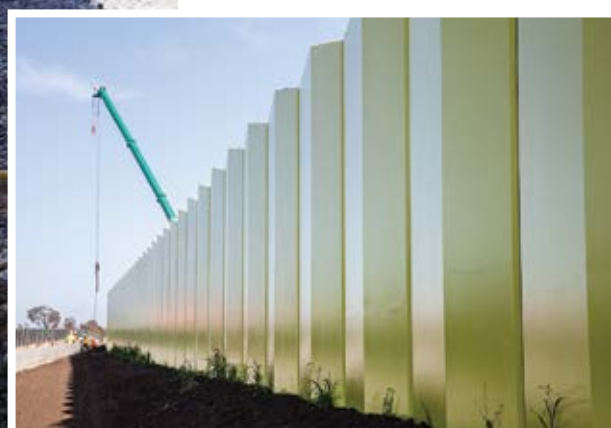
With their ability and expertise in slotted drains, as well as other techniques, Nation Wide Slipforming have been able to deliver on specialised projects both in Sydney and Australia-wide. This, together with their in depth knowledge of the industry sets them apart from their competitors.

Nation Wide Slipforming understands what their client's needs are and pride themselves with on-time deliveries, excellent quality in workmanship and their management of the projects they are involved in. They are also equipped to manufacture their own profiles and moulds, and on numerous occasions they have been able to custom make these for use on unique projects.

As a family owned business, with a total of 17 employees, Nation Wide Slipforming's clients are guaranteed of being able to keep in touch with them on a personal level. With no middle men to contend with, they are able to offer clients a highly competitive rate, as well as being able to offer a specialised service on a sensible and stable playing field.

A number of family members work within the business, including Brian's son, Warren—a highly respected and regarded individual in the industry. A self taught professional, with over 20 years of on the job training, Warren has adapted to the operations of the slipforming side of the business. He is a highly knowledgeable and reliable individual, who is able to deliver on all projects. His common sense approach and ability to utilise this when faced with problem solving, has assisted their clients on numerous occasions when they are challenged throughout their operations.

For more information contact Nation Wide Slipforming, 49 Wedderburn Road, St Helens Park NSW 2560, website www.nationwideslipforming.com.au. For pricing and availability please contact Managing Director Brian Scattergood on 0415 441 002 or brian@nationwideslipforming.com.au. For technical information please contact Warren Scattergood on 0416197197.



A FLOURISHING BUSINESS

Established back in 1987, Westkon Precast is a privately owned precast concrete company. Originally focussing on producing concrete panels and detailed architectural products for the construction industry, Westkon have flourished and expanded to also service the civil engineering sector, producing super tee beams, culverts and feature noise walls.

Based in Melbourne, Westkon Precast have serviced many projects both within Victoria and nationwide. Their diverse range of products include hollowcore floor planks; prestressed bridge beams/planks; architectural and structural precast panels and columns; sound and traffic barriers; bridge off-structure and on-structure barriers and parapets; prestressed stadium seating plats; precast stairs and landings; and prestressed precast products.

Westkon Precast were selected to supply numerous products from their range for the M80 Upgrade, including:

- 265 prestressed bridge beams for the freeway widening, measuring from 750 mm to 2 m deep. The largest beams weighed 100 tonne each.
- 1240 Noise Wall and fascia panels, many of which were used as architectural features, cast with colour controlled concrete combined with strips of recessed exposed aggregate concrete
- 2170 barriers for bridges (on structure), and off structure, centre medians and curbs
- 57 battleship units for gantry protection along the median.

A total tonnage of 34,000 tonnes of reinforced concrete was utilised.

A team of 100, out of a total workforce of approximately 150 employees, worked on the M80 Upgrade.

Traditionally the battleship units, that protect any overhead gantries, which are supported from the media, are cast on site due to their large size. Due to the significant number of battleship units required for the project, the

heaviest segment weighing in at 27 tonne, the 19 units, in segments of three, were precast. Off site production was found to be a significantly more economical option, in terms of time-savings to the site, and also with the associated monetary costs.

Further projects that Westkon Precast are proud to be involved with include, supplying off-white colour control concrete panels to Emporia Apartments in Parhan and Geelong Hospital; shell beams, columns and mini slabs to the Victorian Comprehensive Cancer Centre; bridge and barrier components to grade separation projects in Springvale and Mitcham; and bridge beams to the Western Highway.

Westkon Precast have gained a solid reputation within the precast concrete industry, with their vast amount of industry expertise and experience. With their diverse product range, including hollowcore and seating plats, and the offering of a full design and construct package for complete precast structure, Westkon are set apart from the rest. Their skilled management team thrive to stay abreast of new and innovative developments in the industry, in order to provide their clients the best possible solutions to their projects.

They are also in the position to provide project management advice on the buildability of existing or prospective designs. Their skilled drafting services and maximum production rates, coupled with their superior quality assurance procedures have seen Westkon Precast grow to one of Australia's largest precast concrete suppliers.

The high quality precast operation is spread across two sites—the Melton plant (84,000m²) predominantly manufactures concrete elements for infrastructure projects, and the Sunshine plant (55,000m²) services commercial and residential projects. This large production capacity ensures no project is too big.

For more information contact Westkon Precast, 133 – 199 Ferris Road, Melton VIC 3337, phone 03 8746 1300, fax 03 9747 3088, email info@westkon.com.au, website www.westkon.com.au



THE NUMBER ONE CHOICE

As the leading suppliers of superior and extensively tested traffic management and safety products, Saferoads were the number one choice for the M80 upgrade. They were selected as the provider of civil services and products on the project. With representatives Australia-wide, and a head office based in Gippsland, Victoria, the Saferoads' team consists of 60 employees, 12 of which worked on the M80 project.

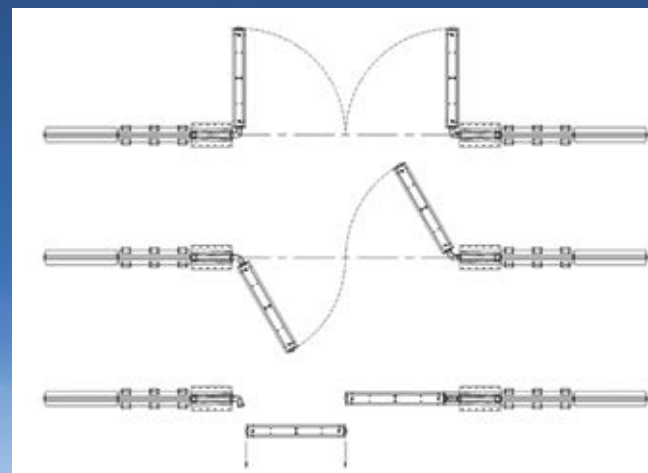
The Saferoads Civil team provided their installation, relocation and labor expertise for crash cushions, both temporary and permanent. With the temporary barriers moving along the project, protection for the blunt ends also had to be relocated. Correct installation is crucial as they have been crash tested and approved for use following strict manufacturer's guidelines. Night works were generally carried out to avoid disrupting peak traffic flows. Saferoads Civil also installed Wire Rope ad Guardrail safety barriers along the M80.

One of Saferoads own innovative inventions, Saferoads Ironman Median Gates, which are sold through distributors worldwide, were also installed along the M80. These allow for emergency access to the alternative carriageway in the event of an accident. The unique design allows operators to pull out the removable pins, remove the hinge cover

plates and deploy the jockey wheels to roll the barrier clear or swing open an access point. It ensures emergency vehicles are able to gain access to incidents without navigating the banked back traffic often associated with accidents. Training for emergency services is provided as part of the product offering. The Ironman Median Gate has been tested and approved to TL-3 (NCHRP350, test level 3), deflecting only 400mm when impacted at 100km/h by a 2000kg vehicle at a 25-degree angle of impact.

In some areas, shallow rock was encountered, which required custom Guardrail designs for each situation, which in turn, needed approval from project managers. It required the installation of sub-surface beams to provide a solid foundation, to ensure they could withstand an impact of 100km/h. Saferoads Civil are also working on the Regional Rail Link in Melbourne as well as undertaking various installations in regional Victoria and Queensland. Saferoads slogan of innovative road safety solutions, is what sets them apart, striving to provide a range of products and services backed by an ISO accreditations for Quality OHS Management Systems and Environmental Management Systems.

For more information, please contact Saferoads, phone 1800 060 672, website www.saferoads.com.au, email sales@saferoads.com.au.



The various ways that a median gate can be opened.



SEALING THE CRACKS ON THE M80 UPGRADE



Operating since 1978, Road Maintenance is Australian owned and services clients nationally. With a team of 22 employees, the company specialises in the maintenance and repairs of roads and pavements, including crack sealing, minor repairs and manufacturing of the associated materials.

Commissioned by Fulton Hogan for the M80 Upgrade project, the product utilised for the upgrade was specially formulated in house by Road Maintenance and consisted of polymer and rubber mixed with 320 bitumen.

Road Maintenance develops and manufactures their own crack sealing product, Maxi-Seal, as well as crumb rubber bitumen for spray sealing use, plant and equipment. Utilising current mobile plant technology within their manufacturing plant in Victoria, they have the ability to produce high quality bituminous products.

So, why choose Road Maintenance? They have become a preferred supplier throughout Australia for crack sealing works. This is due to

their expertise in the field and highly advanced equipment. Without the use of naked flames in their equipment, they are able to operate on Total Fire Ban days, and due to their silent operation, they can also work during the night. Hot oil heated tanks ensure the quality of the product is maintained as heat is evenly distributed, and the heating and circulating of the product in transit ensures it is ready to pour upon arrival to the site, minimising the down time. They can also offer clients their traffic control and management services.

Other projects that Road Maintenance is proud to be working on include the City of Knox, the Greater Dandenong City of Shepparton, as well as several other smaller ongoing contract projects.

For more information please contact Road Maintenance Pty Ltd, 14 – 16 Elliott Road, Dandenong VIC 3175, phone 03 9794 6454, mobile 0406 588 459 email ken@roadmaintenance.com.au, website www.roadmaintenance.com.au



PIPING SOLUTIONS

As Australia's leading manufacturer and supplier of PVC pipe, PE pipe and PP pipe systems for the transportation of fluid, data and energy, Vinidex were selected to supply all of the electrical and communications conduits for the M80 Edgars Road to Plenty Road upgrade.

Established in 1960, and wholly owned by the Metal Manufactures Group, Vinidex has the pipe systems and solutions for any application, including plumbing, water supply, waste management, stormwater and drainage, mining, industrial, rural, irrigation, electrical, telecommunications, and gas.

For the M80 Edgars Road to Plenty Road upgrade, Vinidex utilised Corflo®—a double-walled, material-efficient PVC pipe, with a smooth internal bore and a corrugated exterior. Being material-efficient it reduces cost and its lightweight nature makes it easier to handle and transport. Due to the manufacturing process, Corflo® meets the physical and mechanical requirements of Heavy Duty (HD) conduit. The longer pipe length creates fewer joints without compromising

strength and durability, and the high performance installation rates provide further cost savings.

With approximately 550 employees based across seven manufacturing sites throughout Australia and a nationwide network of warehousing and distribution facilities, Vinidex can efficiently distribute both their own products and those of their national and international partners.

Vinidex's high quality of products, technical support before, during and after projects, their outstanding customer service, extensive manufacturing and distribution network, as well as project partnering, all reinforce their status as market leaders. As an innovative and customer focussed company, they are at the forefront of new product development, ensuring the client receives only the best solution for their project.

For more information contact Vinidex, 1/10 Duerdin Street Notting Hill VIC 3168, phone 03 9543 2311, fax 03 9543 7420, email sales@vinidex.com.au, website www.vinidex.com.au

A PERFECT SOLUTION

Ibis Business Solutions (Ibis) was selected to provide the independent safety auditing services on the M80 Upgrade. Originally founded in 2000, Ibis provided a team of three consultants to work on this project.

The safety audits assessed the level of implementation of the safety management system and identified risk control measures. The audits also assisted the project team to drive positive improvement in safety management throughout the project.

Tony Trajanovski, who led the Ibis team, said "We are all very proud to have worked with Fulton Hogan on such an important infrastructure project that benefits the entire community".

Specialising in delivering effective, high quality, value adding and practical safety and risk management solutions to their clients, Ibis has worked across numerous industries. These include manufacturing, oil and gas, chemicals, mining and mineral processing, engineering and construction, power generation, telecommunications, transport/logistics, electrical, water and gas utilities, healthcare, agriculture, maritime and government.

Ibis's multi-disciplined team follows a simple process of listening to their clients' needs to develop a full understanding of their particular needs and organisational context, in order to develop sustainable and resilient solutions for the real world of business.

The team's specific areas of expertise include safety and risk management systems evaluation, development and implementation; leadership and behavioural safety; nationally recognised training - Certificate IV in Work Health & Safety; process safety and risk; hazard study and risk assessment facilitation and training; safety in design; project risk management; contractor management systems; training and development; and auditing.

Further projects that Ibis has been proud to be a part of include the Regional Rail Link, Western Highway Project – Burrumbeet to Beaufort, Mitcham Road and Rooks Road Rail Separation Project. Ibis also provides auditing services for a number of organisations including OFSC, Melbourne Water and VicRoads.

For more information contact Ibis Business Solutions Pty Ltd, Suite 3, 27–33 Raglan Street, South Melbourne VIC 3205, phone 03 9005 4615, website www.ibis-solutions.com.au, email info@ibis-solutions.com.au



PROVIDING A COMPLETE PACKAGE

BIDD Construction Group came to fruition two years ago, and is the brainchild of its two directors. Having run their own businesses, for over 12 years respectively, they decided to merge in order to create a company that is capable of providing a complete package for their clients. The company now consists of four employees and two subcontractors.

The reasoning behind the amalgamation was based on the fact that most builders engage in plumbing contractors as well as plant hire. Therefore, structuring a business that could provide both essential requirements, allows for a much more streamlined and efficient service to BIDD's clients.

BIDD Construction Group specialise in detailed, complicated, deep excavations and complex plumbing installations, which require out of the box thinking and innovative approaches to ensure the job is completed safely, efficiently and in a timely manner.

BIDD's involvement in the M80 Upgrade included providing the detailed excavations for the bridge structures, tight access excavations, drainage and also the plumbing works. Due to the location, with busy

train lines in the vicinity, excavation for the bridge piers in a two metre wide corridor proved to be challenging. It was also essential that works were completed on time to ensure the tram services along Plenty Road were not compromised in any way.

BIDD Construction Group carries out all aspects of their jobs accurately from the beginning, placing the utmost importance in working to high standards. Their broad skill set, range of trades and exceptional staff gives BIDD the edge and enables them to do everything from complete commercial construction projects through to plumbing, drainage and excavation works.

Further projects that BIDD Construction Group are proud to be working on include the drainage installation for a new school in Tyabb, and also they have recently commenced work on Melbourne Airport's Southern Apron Expansion.

For more information contact BIDD Construction Group, Directors Brett Iredale 0419 133 394 brett@biddgroup.com.au or David De Luca 0412 398 937 david@biddgroup.com.au



PERFECT DETAILED SOLUTIONS, GUARANTEED!

Established in 1997 and realising a niche in the market, AMG Systems provide a complete Intelligent Transportation System (ITS) for projects. With the ability to design, install and maintain all variants of traffic management and the associated data transmitting systems, they service major infrastructure projects.

Having already provided various electrical services on the M80 Upgrade, specifically for the Tilburn to Furlong Road section, AMG Systems expertise were called upon again for the Edgars Road to Plenty Road section. Twelve of their fifteen employees provided the electrical and communications solutions for the project, specifically the electrical, CCTV, temporary solutions and solar installations. AMG Systems again utilised the innovative microwave wireless links for the CCTV network, and solar solutions for all the CCTV and vehicle detection systems, instead of the traditional copper and fibre optic cabling.

Further projects that AMG Systems are proud to be part of, include work with Regional Rail, lighting maintenance of VicRoads, and pedestrian radar detection on the Bolte Bridge.

Past projects have seen AMG Systems supply government, industrial, and commercial markets, and consequently building a solid reputation within the industry. They offer a total, one-stop service from design and installation to commissioning, and the subsequent ongoing maintenance.

A company that truly values both their staff and their clients, AMG Systems can guarantee the perfect detailed solution, with quality product installed and follow-on maintenance, for your project. They pride themselves on designing, supplying and installing reliable products, at a reasonable cost and in a timely manner. Their skills include lighting design and installation, fibre optic installations, CCTV design and implementation, solar energy installations, and all other peripheral services required.

For more information contact AMG Systems, PO Box 498, Rosanna VIC 3084, phone 03 9459 9923, fax 03 9459 9924



SECOND-TO-NONE EXPERTISE

Prestige Foundation Systems Pty. Ltd is a proudly Australian owned and operated company. It has grown to become one of the most successful piling companies operating around Victoria, NSW, ACT & SA, specialising in screw piling and bored pier drilling.

With over 30 years of piling experience on commercial and residential projects. Prestige Foundation Systems was appointed to install foundation piers for the entire M80 Ring Road Upgrade project.

More specifically, the job entailed drilling, hanging cages and setting the rag bolts, before pouring the concrete to the piers for the noise walls, retaining walls, gantries and light poles.

The project was strategically challenging due to the road still being open to traffic while work took place, or on other occasions working around the clock under temporary road closure conditions. PFS also performed drilling and coring out of rock from 300 mm diameter to 1200 mm diameter, at depths of up to 9 metres.

Prestige Foundation Systems are able to provide clients with a vast range of solutions to suit the most difficult site conditions and requirements. PFS is the nominated distributor and installer of steel screw piles for Instant Foundations Pty Ltd in South Eastern Australia.

PFS can provide an engineering design and construction piling service, which is completely OH & S compliant. Prestige Foundation Systems' extensive fleet of equipment suits a variety of applications, ranging from a single pile through to large commercial projects throughout Victoria.

Offering excellent service from a team of outstanding operators and ground staff, this company can meet your needs at a realistic price.

With projects as diverse as the Peninsula Link in Melbourne's southeast, the Westgate Freeway, the M80 Melbourne Ring Road, various High-rise developments, Hospitals and communication towers - our expertise is second-to-none.

We are currently engaged on the Regional Rail Link and the extension to the Stanlake Private Hospital, amongst other projects.

For more information contact Prestige Foundation Systems Pty Ltd, PO Box 579, Kilsyth VIC 3137, phone 03 9728 6909, email info@prestigefoundations.com.au, website www.prestigefoundations.com.au

TERRA FIRMA INDUSTRIES

As the leading manufacturer and supplier of fibreglass composite lids and access covers in Australia, Terra Firma Industries were selected to provide their innovative pit lids for the M80 project.

Identifying the need for a lighter and safer alternative to the traditional concrete and metal lids, Terra Firma Industries came to fruition in 1994. An Australian owned company, based in Melbourne, they utilise cutting edge technologies to produce quality, innovative products.

During the development phase of the M80 Ring Road, there were three major failings identified with the standard concrete pit lids over the side entry pits. Mainly due to heavy vehicles, there were high rates of failure, high risk of injury, as well as the associated increased cost of maintenance and replacements.

At the time, Terra Firma could only offer the B-Class composite cover, suitable for use in local government roads, not the heavy traffic flows of freeways. So Terra Firma worked with VicRoads and designed and produced the C-150 pit lid, which highly exceeded the product requirements for strength and durability and increased the load bearing to AS:3996 Class. It successfully addressed the issues faced with the traditional lids, as the C-Class cover is lightweight, has a considerably longer life span, as well as reducing the whole-of-life costs.

Since 2010, 110 C-150 Terra Firma composite fibreglass pit lids were installed on the M80, and a further 70 were installed on the Edgars-Plenty Road sections. With a high strength-to-weight ratio, and weighing a quarter of the weight of concrete, OHS risks are drastically reduced. They are quick and easy to install, maintain and inspect, reducing the long-term costs and they have a life expectancy of 20 years.

Terra Firma's portfolio includes working with local councils, roads authorities, water boards and petroleum providers. Their applications range from new installations, pit replacement programs, in-road applications and specialist developments, such as multipart applications, Water Sensitive Urban Design (WSUD) tree grates and utility covers.

Terra Firma Industries are leading the way in Australia with their innovative research and development, and application use. Their continuously evolving range and expertise ensure a client's particular needs are met and exceeded.

For more information contact Terra Firma Industries Pty Ltd, phone 03 9464 6169, fax 03 9464 0522, 257 Holt Parade, Thomastown VIC 3074, email info@terrafirmapitlids.com, website www.terrafirmapitlids.com