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The GSH 7 VC Professional from Bosch is exceptionally powerful with low weight and good vibration damping. This SDS-max demolition hammer is driven by a 1 500 watt motor, works with an impact energy of 13 joules and weighs only 8,4 kilogrammes.

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EDITOR'S COMMENT



At the time of writing this (December 2014), South Africa is firmly in the grip of load shedding, the likes of which the country experienced in 2008 – when it was classified as a major crisis. To make matters worse, Eskom is subjecting the public and industry to a ‘will-they-or-will-they-not’ type of schedule: completely unpredictable outages which in the long run will make it difficult to build a country.

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To add insult to injury, the powers-that-be within Eskom have refused to admit that this is an energy crisis. Yet, in the same breath, they maintain that regular outages will be a part of the South African reality for at least the next two years.

Whether they want to admit it or not, the country is in an energy crisis. Reports of massive losses abound. Steel and Engineering Industries Federation of Southern Africa (Seifsa) has urged government and Eskom to bring an end to the current bout of load shedding, which, in the first three weeks, has cost the metals and engineering sector an estimated R6-billion in lost revenue.

The reality

This is what the current status quo is achieving: the frequent energy supply shortages and supply security uncertainty are damaging South Africa's international reputation as an investment destination. The power outages causes further harm to the country's already

ailing economy. It will render South Africa globally uncompetitive.

Light and the end of a long tunnel

Despite the doom and gloom (literally), PwC recently announced that infrastructure spend in sub-Saharan Africa will grow from USD70-billion in 2013 to USD180-billion by 2025. This is according to the PwC's report on capital projects and infrastructure for East, Southern and West Africa. This figure is double the USD93-billion a year the World Bank says Africa currently needs for infrastructure build.

South Africa and Nigeria spent 68% of all infrastructure spend last year – followed by Kenya (10%), Ghana (8%), Ethiopia (6%), Tanzania (5%) and Mozambique (3%).

An interesting aspect of the report, relevant in the current energy situation, is that 48 countries in the region produce 84 GW of power (which is about the same Spain produces) while only 10% of the sub-

Saharan region's hydropower is being realised.

The report found that there is a growing sense of longer term planning in the sub-Saharan countries (something that was sorely lacking in South Africa): some 75% of respondents to the report (95) indicated that the capital projects that were surveyed, formed part of an overall infrastructure master plan for specific countries.

This notwithstanding: the South African energy crisis is real though – the Kusile and Medupi power stations will only bring relief in years to come. All South Africans can do is hope that the effects of load shedding only have minor impact.

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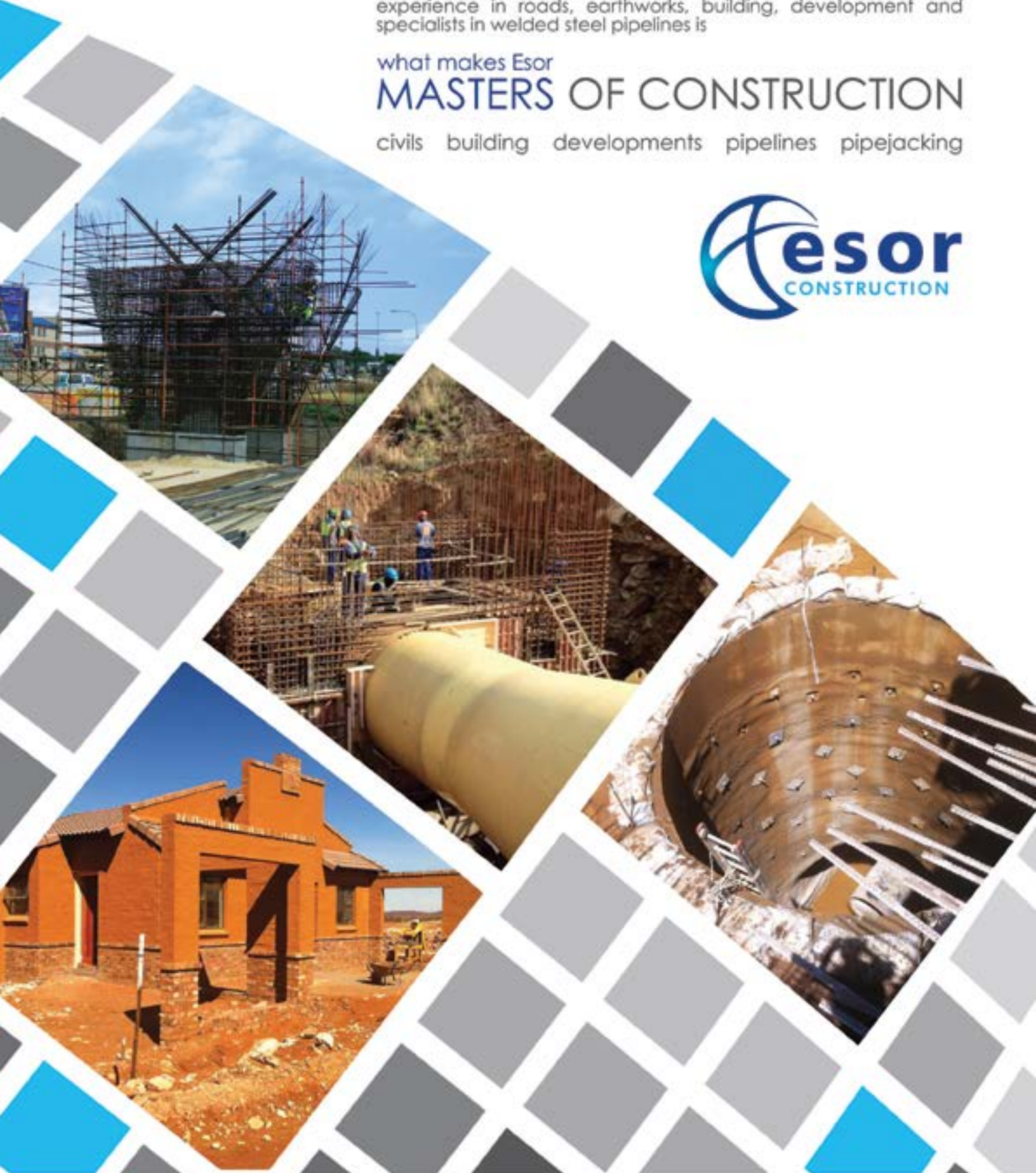
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Several high profile users, including McDonald's South Africa, are changing their building philosophy and rolling out sustainable light steel frame buildings across the country.

Light Steel Frame Building RIDING HIGH

The steel consumption of the Light Steel Frame Building Industry (LSFB) has grown to 25 000 t per annum of high strength galvanized steel sheet, achieving double digit annual growth rates over the past five years. This is according to John Barnard, director of the Southern African Light Steel Frame Building Association (SASFA). “The biggest growth of LSFB is in multi-storey office and commercial buildings, where it is replacing heavy masonry curtain walls,” Barnard says.

> He adds that at the recent Steel Awards, 19 LSFB entries were received – a third of the total number of entries.

“There is no doubt that LSFB has come of age in South Africa. In the last eight years it has become a viable alternative building method for a range of low to medium rise buildings fully accepted by engineers, architects, quantity surveyors, builders and the financial institutions.”

Training

Barnard says that one of the central reasons for the success of the LSFB method has been the ongoing training initiatives, undertaken by SASFA with the help of the industry at

large, to protect and enhance the quality of LSF buildings. This year, the training, which focused on designers, building contractors and building inspectors, included:

- A six-day LSFB training course for builders in Alberton, Windhoek, Durban and Midrand.
- A lecture to University of Pretoria final year building science students, which was delivered to a full lecture room – 110 students.
- Lectures to assessors for the banks in Sandton. Some 80 assessors attended.

Codes and standards

From inception one of the most important tasks of SASFA was to develop codes

and standards for the then fledgling LSFB industry, which it did successfully. Barnard reports that this year work has started on a comprehensive revision of SANS codes and standards with the following being achieved in the process:

- Representation by SASFA on the SANS 10400L (roofs) committee of the SABS, to ensure that LSF is correctly covered in the code revisions.
- Representation by SASFA on the SABS committee SC98C, which is responsible for all standards dealing with steel or aluminium in building and construction.
- Representation by SASFA on the working group tasked with the revision of the NHBC handbooks.
- Thorough revision of SANS 517 which should be completed by year end.

Accreditation and quality control

Another important milestone for the LSFB industry in 2014 was the assessment by the University of Stellenbosch of the three LSF building systems in use in South Africa, which were accredited as suitable for use in this country. ➔

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MANUAL FOR SMALL ENTERPRISES

In the wake of the increasing number of construction disasters, Master Builders South Africa (MBSA) has produced a new Small Builders Manual to help the thousands of small, medium and micro-sized building enterprises (SMMEs) operating in South Africa to comply with the latest legislation and registration requirements and generally operate more efficiently.

➤ Tumi Dlamini, executive director of MBSA, says the updated version of the MBSA Small Builders Manual, which was launched at the recent MBSA National Congress in Port Elizabeth, is another MBSA move to upgrade the dwindling skills in the building sector. "It is also aimed at promoting compliance with the relatively complex legislation and registration requirements for small players and home builders. In the light of the current disasters that have tainted the reputation of the building industry, MBSA felt that serious steps had to be taken to encourage legal and safe building practices in South Africa. The new manual will help smaller contractors to stay on the right side of the law, and preserve the safety of their staff.

"MBSA believes that a major factor for the successful implementation of the Government's Presidential Strategic Infrastructure Projects (SIPs) programme is the development

and strengthening of the capacity of SMMEs. Skills transfer to SMMEs in the building industry is vital to ensure that houses built under such Government initiatives are safe and durable," Dlamini stated.

About 80% of MBSA members employ fewer than 20 people but, cumulatively, this represents a substantial workforce. "So, to meet the need for an understanding of the principles and legalities of running a small building company, MBSA decided to revise and update our Small Builders Manual, first produced in 1996. The revised version will be used in conjunction with training courses for small business enterprises, such as the course for small builders now being offered after-hours by MBA North."

The MBSA manual consists of 31 modules divided into four sections: planning a small business, finding and obtaining work, running an efficient building project, and general infor-



Tumi Dlamini, executive director of MBSA: "The new MBSA Manual for Small Builders will help smaller contractors comply with legislation and site safety requirements," she says.

mation on managing staff, safety and industrial relations. Aspects such as estimating and tendering for new business – which can make or break small businesses – and drawing up site progress schedules, are only two of the vital aspects covered in the publication. ■

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☛ "This is a significant step forward for the industry and to keep the momentum going, final preparations are underway to roll out the certification of LSF builders throughout the country," Barnard says.

In terms of quality control, Barnard says that SASFA is playing an increasingly important role in ensuring the highest possible standards in the industry. "For example, SASFA was recently approached

by three clients who were not satisfied with their LSF buildings.

The technical aspects of the projects were investigated by SASFA and remedial measures agreed with the builders. We believe that it is now clear to the industry that one of SASFA's key roles is the 'policing' of standards and that we will act swiftly and efficiently to bring into line any sub-standard service providers," Barnard says.

Market expansion

Barnard says that a growing number of enquiries from neighbouring countries are being received. "SASFA has signed up members in Namibia and Zambia, and is in contact with several other countries in the SADC region. From a local perspective Barnard reports that there was a net gain of 10 members, proving that the strategy formulated to expand membership is having the desired effect.

"Overall the LSF market is growing significantly and indications are that this trend will continue well into the future," Barnard says.

The proof of the pudding is in who is using the method. "There are several high profile users including McDonald's South Africa, which is changing its building philosophy embarking on rolling out sustainable light steel frame building (LSFB) restaurants across the country. Its efforts won them the LSF category at Steel Awards 2014.

By using LSF on their restaurants, material wastage is reduced by an average of 30%, transport costs by 80% and the carbon footprint is significantly reduced.

On top of this, McDonald's is able to cut back the construction period required, opening the outlet four months earlier than if more traditional building methods had been used. ◀



One of the central reasons for the success of the LSF method has been the ongoing training initiatives.

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UPBEAT about building industry

Brick manufacturer Corobrik is upbeat on prospects for 2015 following an increase in government infrastructural spending since the May general election.

➤ Corobrik managing director Dirk Meyer says that added to infrastructural spending there has been a 15% increase in sales due to a modest recovery in the residential market. In the first three months of the current financial year, the group has sold more bricks into dwellings than in the past few years.

"While growth is slow, it is steady and we are confident there is sufficient building activity in the market for Corobrik to successfully gain an improved shareholding in the walling and paving arenas.

"A key to 2015 will be growing organically as the group implements internal capital projects aimed at competing for more market share," he says.

Meyer's comments come as the industry recovers from some of the worst years experienced; particularly after the 2010 World Cup Soccer tournament once the infrastructure demanded for that event had been completed.

While experiencing a slow resurgence in residential and building activity, the Western Cape has picked up significantly. Meyer says several projects that had been suspended, were back on track and developer activity in this area, which had halted following the economic slump and a resultant glut of residential stock, was also showing recovery.

"Many of those properties were built as second homes or as speculative ventures and, when this money dried up, the stock had to be slowly absorbed into the market. The uptick in residential demand has seen this supply accommodated and now developers that survived the slump are robustly building units," he says.

Despite the economic downturn, Meyer says the group has secured market

share in the past few years on the strength of the Corobrik brand, experience and expertise on products, quality and services. A national distribution network has also worked in their favour as it meant architects, specifiers and developers could work with a single client.

Corobrik is currently working on a project where the architect is in Pretoria, the developer in Stellenbosch and the building in the Eastern Cape – a dynamic Meyer says is best-suited to a national supplier.

The group currently has a small share of the walling market and is actively seeking to grow its presence in that arena. Meyer comments Corobrik did not view itself as "being in the brick market", but in the walling and paving market, meaning if there was a wall with various other building materials, there were opportunities for the group to supply bricks.

In July last year Corobrik appointed Musa Shangase as national commercial manager and he became commercial director in January 2014. Shangase is specifically tasked with extending Corobrik's reputation and influence in the public sector to achieve preferred status as a reliable supplier of superior quality clay and concrete masonry materials.

Corobrik has identified four entities, namely government, the building material suppliers, contractors and end-users or

beneficiaries, as being the significant players in them being able to achieve their goal for greater influence in the public sector.

Government facilitates building and construction of schools, hospitals, clinics, houses and roads; building material suppliers supplies the materials to contractors building facilities on the government's behalf and communities receiving quality houses and schools.

"Each entity has a role to support one another so the chain will not break," Shangase says.

Meyer says in the past year Shangase has played a significant role in taking Corobrik's sustainable argument to decision-makers, particularly in securing government contracting work.

In 2013 a further two Corobrik factories received ISO 9001 accreditation with another three receiving the accreditation this year, bringing to 11 the number of factories with certification. Meyer says the remaining three factories were expected to secure accreditation in 2015.

The ISO 14001 accreditation is an environmental management system to assist companies maximise their environmental impact. Last year one factory received the accreditation, with the total number of factories with this accreditation five. A further five factories will receive accreditation in 2015 and the balance in 2016.

Meyer concludes his optimism for the future success of the company, now in its 112th year of operating. "We manufacture quality clay bricks and pavers, offering a sustainable value product which will help to drive growth of market share in the walling market. ◀



Dirk Meyer, Corobrik managing director.

"A key to 2015 will be growing organically as the group implements internal capital projects aimed at competing for more market share."

ENGINEERING FIRM OF THE YEAR

GIBB Engineering outdid the competition at the recent South African Professional Services Awards (SAPSA) when the firm was named engineering firm of the year. GIBB was judged on business pedigree, transformation, empowerment among other rigorous criteria. Other finalists in the category of engineering firm of the year included WSP, Worley Parsons, Fluor Africa and Arup.



Also to its credit, Adele Lombard, a structural engineer at GIBB, clinched the coveted title of Young Professional of the Year competing against candidates from prominent legal, financial and engineering institutions.

Other winners for the evening included Grant Thornton (accounting); GAPP (architectures); Norton Rose Fulbright (legal) and Accenture (management consulting).

Lombard was grateful for the opportunities presented to her by GIBB, and looks forward to making her mark in Africa.

"It is an incredible achievement to receive this award against strong competition. My mentor, Pat Masterson stood by me over the past five years and I have him and others at GIBB to thank for their guidance in helping me achieve my goal. As a young engineer in this dynamic industry, I truly value the opportunities that I have been afforded by GIBB. Through my experience at the firm, I have had the opportunity to work on huge projects in Africa and the skills gained catapulted me to become a recognised structural engineer," said Lombard.

The premier event is likely to remain a feature on the conference calendar given the exceptional turnout and the number of entries from A-List firms.

GIBB Group CEO, Richard Vries marked the achievement as a celebration of 'just how far we have come as a firm'.

"GIBB prides itself on investing in future leaders and of course engineering excellence – and this was indicative of the awards received on the evening. "The firm has grown from humble beginnings, and has not lost its roots in ensuring that excellence is never compromised," he said.

KC Rottok, project manager of SAPSA said, "The SAPSA awards recognise companies and individuals who have excelled within the professional services industry. GIBB has made a significant contribution to the consulting engineering profession and its professionalism is commendable. The awards received by the firm are testament to the firm's outstanding demonstration of technical excellence."



GIBB Group CEO, Richard Vries and Adele Lombard, structural engineer: GIBB at the SAPSA awards.

GIBB is regarded the largest South African black employee-owned consulting engineering firm and boasts more than 900 employees in South Africa and several offices on the continent.

The multi-disciplinary firm recently acquired a 70% stake in leading architectural firm, SVA International to further diversify its offering to market.

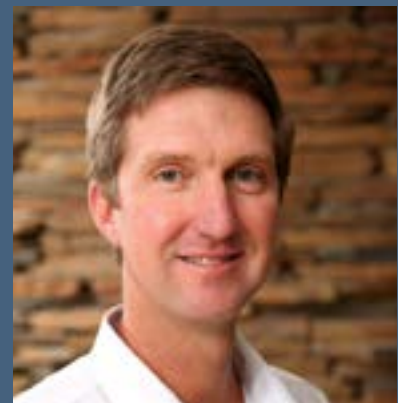
With major projects such as the Ingula Pumped Storage Scheme in Little Drakensburg and Port Harcourt in Nigeria to its stable, the firm is growing at an impressive rate, competing in a space largely dominated by multinational firms. ■

DIRECTORS HONOURED BY INDUSTRY ASSOCIATIONS

Two of Liviero's executives have been honoured with top appointments in leading industry associations.

Liviero Group CEO Neil Cloete has been appointed President of Master Builders South Africa, the foremost national representative body in the building industry in South Africa.

Stuart Knight, managing director of Liviero Civils, has been appointed head of the North Branch of SAFCEC, the South African Forum of Civil Engineering Contractors. Founded in 1939, SAFCEC is an important voice and advocate for its members in the civil engineering contracting sector.



LEFT: Liviero Group CEO, Neil Cloete and Stuart Knight, managing director of Liviero Civils.

CLEAN SWEEP AT 2014 TSHWANE PMR AWARDS

Leading property group Atterbury Property Developments made a clean sweep at the 2014 Tshwane PMR Awards business breakfast recently. It scooped three coveted awards.

> Atterbury, which counts Lynnwood Bridge in Pretoria and the multi-billion rand Waterfall development in Midrand amongst its world-class developments – took top honours with the PMR Diamond Arrow Award and was voted in first place overall in the category “companies doing most for infrastructure development of the City of Tshwane”.

To boot, Atterbury Property Developments’ boss, James Ehlers, was recognised with the PMR Diamond Arrow Award.

He secured first place overall in the category “business leader delivering an outstanding contribution to the economic growth and development of the City of Tshwane”.

Atterbury Property Developments also won the PMR Golden Arrow Award and was



Atterbury Property Developments’
James Ehlers.

voted in the 1st place overall in the category “companies doing most in their sectors over the past 12 months to stimulate economic growth

and development in the City of Tshwane”.

The trio of awards meant Atterbury took the most prestigious accolades at the 2014 Tshwane PMR Awards.

“As a group proud of its origins in the capital city and a major investor not just in Pretoria, but Gauteng and now even across the rest of Africa and in Europe, Atterbury is honoured to have been recognised with not one but three awards at the 2014 Tshwane PMR Awards. Atterbury is committed to growth and investment in the city,” comments Ehlers.

“I would like to congratulate everyone at Atterbury, because as a team we all play a role in the growth of the company. We are clearly on the up and up, not just with our investments in Pretoria and Waterfall, but increasingly in the rest of Africa and more recently, in Europe. Nothing illustrates our commitment to growth and investment more than the fact that we have opened eight shopping centres in South Africa and the continent this year,” he adds.

Ehlers thanked the PMR for the multiple honours, saying it was great to be recognised in the local community. “We have reason to celebrate our successes and another great year of making a difference in our city and country.”

EQUITY IN CONCRETE SOLUTIONS COMPANY

Leading construction materials group AfriSam has acquired an equity stake in specialist concrete solutions company Concrete Laser Flooring (CLF), with an option to increase its shareholding over the next two years.

> The acquisition will extend AfriSam’s product and service offering beyond the supply of construction materials, as well as affording it a unique advantage to build closer relationships with its customers.

“This acquisition fully aligns and supports AfriSam’s growth strategy to partner with well managed entrepreneurial companies to achieve

vertical integration advantages,” Stephan Olivier, chief executive officer of AfriSam, comments. “Our partnership enables both companies to leverage synergies and enhance value-delivery to our customers.”

“CLF has gained a strategic alliance with a leading supplier of the materials that form the foundation of our business. This is an exciting prospect for CLF and I look forward to the potential benefits our company will derive from a partnership with AfriSam,” Peter Norton, chief executive officer and founder of CLF, says.

CLF offers specialist flooring and concrete solutions to customers through the use of sophisticated equipment, bespoke designs and innovative applications. The company employs over 80 employees and has offices in Johannesburg, Cape Town and Durban.



Stephan Olivier, AfriSam CEO (left) and Peter Norton, Concrete Laser Flooring CEO, sign the acquisition agreement.

ABOUT AFRISAM

AfriSam is a leading construction materials group in Africa, with operations in South Africa, Lesotho, Swaziland and Tanzania. The company supplies superior cement, readymix and aggregate products and technical solutions to its customers from its seven cement production facilities, 17 quarries and 42 readymix operations. Founded in 1934, the company employs over 2 000 staff and is a proud Level 2 Broad Based Black Economic Empowerment (BBBEE) contributor.

ABOUT CONCRETE LASER FLOORING (CLF)

CLF offers concrete flooring technology, specialist products and qualified supervision that together combine to produce high quality concrete floors throughout the world. With offices in Johannesburg, Cape Town and Durban and its ability to provide turnkey solutions through the use of sophisticated equipment and products, CLF is well positioned to service its list of national clients.

Manhattan meets JOHANNESBURG

Central Square offers a new phase in elegant living. Situated in the exclusive suburb of Benmore, Sandton, a unique offering of refined apartments and retail space is soon to be the forerunner in the luxury residential category in South Africa's business nucleus.

> This multipurpose hub blends convenience and the classics into a magnificent transcendent property. With extraordinary views, this is city living at its best. Commissioned by Lushaka Investments, Central Square embodies a contemporary narrative.

Property passion runs in the family

Lushaka Investments is a family run business that places an emphasis on quality accommodation and value for money above all else. Lushaka, as a group, has successfully and vertically integrated its business across its full property portfolio, providing exceptional value to all its clients, and positively impacting the surrounding neighbourhoods.

Lushaka Investments is focused on developing high rise luxury apartments. Its most successful and recognisable developments are the Amazonas and Sunset Towers in Sandton.

According to Sergio Aquino, managing director of Lushaka Investments, since over a million square metres of commercial space is coming online into Sandton in the next three to five years including corporates; Sasol, Sanlam and Standard Bank, the ratio of residential versus commercial property is woefully under-catered. There is huge demand for quality residential living, in addition, commuting in and out of Sandton CBD is no longer an option as the hub becomes almost gridlocked during peak hours.

An exclusive brand, The World Trade Center Johannesburg adjacent to Central Square, has been a catalyst for investment and adds value to the rate per square metre attracting commercial clientele.

A pioneering property

If every building tells a story,

then every architect is the author who sets the plot in motion. Nsika Architecture & Design has written a captivating tale using a vocabulary of light, space and harmony. The structure's shape unfolds elegantly with worldly sophistication and the sleek lines of the curvilinear architecture are responsive to the energetic lifestyle of Sandton.

"This expressive architecture enables form to follow function. An example being the meandering division line between the solid and glazed portions of the balustrading that is raised to provide privacy to bedrooms and rakes downward to afford unhindered views from living areas and terraces, while creating a strong sculpted form," explains Brent Buchanan, partner at Nsika Architecture & Design.

Offering 12 floors with 14 apartments per level, each unit will be distinct. There are one, two and three bedroom apartments

and elevated, bespoke penthouses. Encouraging outdoor living and dining, wraparound balconies are one of the remarkable features of this building.

Kent Gush, director of sales and marketing specialists, Kent Gush Properties, appointed for Central Square, says that this is fresh architecture for the precinct. "It reaches new heights with spacious modern apartments offering a choice of top quality finishes. This is location, luxury and convenience at the highest level."

Other unique features include fully integrated kitchens with premium kitchen appliances, a rooftop restaurant, sky bar and 25 metre long rim flow pool, gym and a massive central park at 4 910 m² complete with water features and gravel paths. Blending relaxation with sophistication, the building is centered on a piazza with restaurants spilling out.

Greenery flourishes throughout the entire complex, and as the development is extremely visible, the architects have created grand and green urban gestures.

The meandering floor plates complement the structure of the layered landscaping designed in collaboration with Landmark Studios. "This modern, simple, elegant, fluid building will be our signature piece to date," says Buchanan.

Interior designer, David Muirhead adds that the overall aesthetic balances uncluttered, seamless living and über sophisticated, modern convenience. David Muirhead & Associates is a design team specialising in hospitality and high-end residential interior design. Designing with their clients' needs in mind, the DM&A signature combines sleek glamour with warmth and functionality.

All apartments feature comfortable spaces within large footprints capitalising on the trend of large spacious open plan living. Layouts prioritise kitchen and living areas while maintaining practical comfortable bedroom sizes with generous built-in cupboard space.

Interior finishes balance modern design with a tangible touch of class and finesse.

Flat panel high gloss cabinetry, stone counters, brushed metal ironmongery and simple white natural wood floors provide a sense of texture and warmth. **<**



MALL OF NAMIBIA OPENS

The Grove Mall of Namibia – the largest shopping centre ever to be developed in the country and spanning some 55 000 m² – opened its doors to thousands of shoppers and visitors keen to be the first to get a taste of the world-class shopping experience.



> Located within the Hilltop mixed-use estate in Kleine Kuppe, Windhoek – the R1-billion mall is development by Atterbury Property Holdings, jointly with JSE-listed Attacq Limited, and local Namibian partners, The Frontier Property Trust and Demushuwa Property Developer.

“The Mall of Namibia is the country’s first regional shopping centre. With more than 120 retail stores, restaurants and service outlets – 28 of which are new to Namibia – the mall brings a never before seen shopping destination to the people of Namibia,” says Cobus van Heerden of Atterbury Property.

“It is an incredibly exciting development for Atterbury and forms part of our African

expansion and diversification. The mall’s Hilltop Estate location is strategic as this is one of the fastest-growing nodes in Windhoek and enjoys convenient access to most suburbs in the Namibian capital,” he adds.

“As can be seen from the unprecedented array of stores to open at the mall, shoppers are spoilt for choice with the latest fashion, electronics, accessories, furniture, food and entertainment outlets and more right on their doorstep. The Mall of Namibia offers locals a huge variety, plus the convenience of now not having to go beyond the country’s borders to enjoy world class shopping,” comments Van Heerden.

“The mall’s entertainment and leisure offering, anchored by a 6 screen Ster Kinekor cinema complex and an outdoor area, is going to be a major attraction and due to open in December, just in time for the holiday season. A number of restaurants offer alfresco dining under the African sky and with great view of Windhoek,” he adds.

The Grove Mall of Namibia was designed by leading architects Boogertman + Partners, together with Howard and Chamberlain. Its eye-catching design is influenced by Namibia’s climate and environment, with dune-like lines and earthy colours and textures.

“It is sure to become a well-known landmark and destination in Namibia for local people and tourists alike. And, it is part of the bigger Hilltop Estate mixed-use nodal development, which will include A-grade offices, a hotel, health and fitness centre, a hospital, residential apartments and more,” comments Van Heerden.

“The citizens of Windhoek and Namibia were hugely excited and have been looking forward to the opening of the mall, especially ahead of the December holidays.”

EASTGATE EXPANSION

Eastgate, the landmark shopping centre in the east of Johannesburg will be expanding its already impressive offering to ensure it stays on top of the latest retail trends. Included in the re-development is an awesome new entertainment offering – a brand new IMAX Theatre, two new Cine Prestige theatres and new Ster Kinekor movies on the roof level of the centre.

> This will complement the restaurant and food area with additional entertainment on the Piazza and roof level. Edgars will be expanding into the existing Ster Kinekor space, to occupy a mega store of 13 000 m².

It is not only about the entertainment – the other exciting news is that Eastgate is bringing internationally renowned brands, including ZARA and Top Shop to its retail offering. These brands will be opening their doors in 2015/2016, with the latest in international trends and offering the Eastgate shopper additional ‘on-style’ fashion.

Woolworths will also be expanding their already impressive footprint at Eastgate with an expansion to include Witchery and Trenery concept stores to their lifestyle brand offering. Shoppers will see this extension going out into the parking area at Entrance 2 which will allow for a brand new entrance to the shopping centre.

With this expansion, Eastgate Shopping Centre will expand the current north-facing parkade, with two additional levels of parking to accommodate shoppers. The reticulation will also be improved to make the parking more convenient. This will bring an additional 1 300 parking bays to the centre.

As part of the store expansions, national retailers, Markham, Jet and Foschini will also be going through refurbishments and expanding their footprint within Eastgate. The project will also address improving



sight lines, vertical circulation and repositioning the lifts and toilet facilities for added convenience. The final phase of the project will include the modernisation of some parts of the façade of the building, and some of the entrances will be updated to reflect the new modern aesthetic throughout the centre.

Eastgate has been an integral part of the Bedfordview community for over 30 years, and visited by more than two million loyal shoppers a month. Liberty’s vision for Eastgate will ensure it remains a premier lifestyle destination in Joburg’s eastern suburbs. The re-development is scheduled to take place over approximately 24 months.

Sandton's most **STRIKING ADDRESS**

Positioned on Pretoria Street in the Sandton CBD, Metropolis on Park has a prime location that few residential developments can match.



> A recent spate of luxury apartments are appearing in Sandton as South Africa's financial capital continues to grow and the demand for luxury residential accommodation increases. Barrow Properties are the developers of this new address and have a keen eye for prime locations. Offering their buyers excellent property investment opportunities, Barrow Properties' current focus is on meeting the growing demands for quality property in prime urban areas of Johannesburg.

Metropolis on Park, overlooking Mushroom Park, will offer investors the balance between city living and park life where residents will get the best of both worlds, living in an elegant expanse and having abundant space for recreation, play and fitness.

Comments Paul Barrow, director of Barrow Properties: "It is a known fact that real estate located in capital cities overlooking central parks, attracts influential business people and fetches great investment returns. Metropolis on Park is no exception."

Metropolis on Park residences offer the very finest in urban living and represent a desirable opportunity for anyone looking for convenient first-class residential living in the heart of the Sandton CBD.

Kent Gush, sales agent from Kent Gush Properties says that of the 126 units there are 120 apartments consisting of studio, one, two and three bedroom simplexes crowned by 6 luxury penthouses with roof terraces. "These will be highly sought after with their unique integrated park environment with all units enjoying magnificent views. Construction is well under way and with occupation set from May 2016, barely 18 months away, we anticipate the building to be fully occupied."

There is a noted sense of space and elegance in the apartments due to floor-to-ceiling windows offering panoramic views across the park. All apartments are north facing and to take advantage of their outlook, each unit has glass balustrades further enhancing the uninterrupted views. GLH and Associates Architects has ensured that urban advantages meet easy living. This contemporary building provides a fibre optic backbone throughout ensuring world-class connectivity.

Fully integrated kitchens with Miele appliances, Hansgrohe kitchen and bathroom fittings, and Geberit sanitary ware in bathrooms, ensure the finest choices throughout. A 17,5 m lap pool and fully equipped gym are the ideal way to maintain fitness without leaving home.

Meeting rooms and private dining rooms offer full catering services making Metropolis on Park the ideal work from home location. Building amenities include a first-class reception desk, ground floor café, meeting rooms, private dining suites and full standby power and reserve water tanks. There will be a professional estate management service and a laundry pick up / drop off desk for further added convenience.

The property is safe and secure with access control in and out of the building and a private residents' entrance into the park. Mushroom Park includes a running track, outdoor gym,

About Barrow Group

The Barrow Group comprises Barrow Construction and Barrow Properties. Barrow Properties is involved in the assembly, acquisition and development of land for commercial purposes. The main focus is on office development in and around Johannesburg. Completed buildings are generally made available for sale or lease.

Barrow Construction is responsible for all the construction work on the projects but is also involved in contract work for third party clients and is active in the tender market.

The group is family-owned and managed with the fifth generation currently at the helm.

restaurant, children's play area, security and bird watching offering homeowners numerous leisure amenities on hand.

In close proximity, Sandton City offers world-class retail and entertainment. Known as 'Africa's richest square mile', this exclusive address amid Africa's business CBD is the ideal city address. <

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LOCALISATION is essential

International manufacturing and engineering company DCD Group is a driving force behind the promotion of raising local content thresholds in the local energy sector. DCD MD Rob King believes that the concept of appointing foreign companies to build local nuclear power stations exclusively is illogical and a lost opportunity to boost the local manufacturing sector.

➤ "There is certainly capacity in the South African industry, and moving this capability abroad does not make sense. By taking a little bit of risk, we can nurture and develop this industry locally, which will result in considerable and measurable positive spin-offs into other sectors too," he explains.

According to King, a study conducted by the Nuclear Industry Association of South Africa (NIASA) found that as much as 59,4% of future nuclear builds could comprise local content. "DCD has been working on this matter in close collaboration with NIASA, which presented these findings to the South African parliament to help convince them to raise the local threshold on nuclear plants."

Due to the fact that South Africa is still a developing economy, King claims that government is not allowing local industry sufficient time to adequately develop its nuclear capabilities. "It takes time to get to the point of delivering projects of this magnitude successfully. The process starts with developing the necessary skills and commercial abilities to begin costing these projects accurately."

DCD is already equipped to manufacture components outside of the nuclear island, which is the heart of the plant that houses the nuclear system that produces steam. Depending on the tech-

nology used, this can represent up to 70% of the spend. "It is for this reason that we are urging government to take account of these figures when selecting the vendor," says King.

DCD is investing significantly in training resources to cope with the 'First World' standards that nuclear builds demand. It will cost in excess of R200-million to develop a new facility that can cater to the exacting quality requirements for manufacturing components for the nuclear island.

DCD has already been formally recognised for its continued efforts and contributions towards promoting localisation in the energy sector, after being presented with the 'Distinguished Contribution to the Advancement of Local Content in Wind Energy Award' by the South African Wind Energy Association (SAWEA) in September 2013.

Manufacturing facility

The R300-million, 23 000 m² DCD Wind Towers wind tower manufacturing facility, located in the Coega Industrial Development Zone (IDZ) in the Eastern Cape, was specifically established to support the localisation of wind tower manufacturing in South Africa.

In addition to stimulating the local economy, King highlights the fact that localisation in the wind energy sector will create new skills and sustainable employment. "Localisation, particularly in the construction of wind farms, also creates jobs in

secondary industries, thereby contributing to measurable socio-economic development," he continues.

Despite early success in the wind energy sector, King admits that it will be more of a challenge to achieve similar local content thresholds in the nuclear sector. "The vast investment needed for these builds means that South Africa will seek international participation to finance them. I suspect that this will also result in foreign contracting capability being placed ahead of local content."

Complementary technologies

Bearing this in mind, King indicates that, from a localisation point of view, South Africa should pursue electricity generation technologies that complement the government's National Development Plan (NDP) of promoting sustainable local job creation.

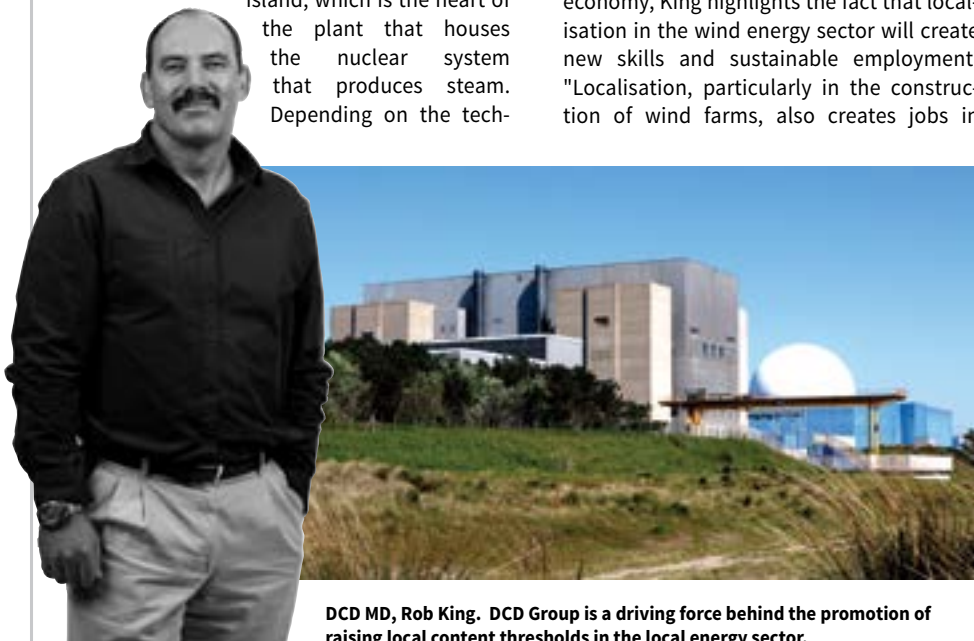
Given the need to reduce the carbon footprint of electricity generation, the construction of more coal-fired power plants would not be feasible as the next base-load capacity. "Although it will not create much work for DCD, we will have to move to natural gas as a fuel source to provide our base-load electricity needs. The funding of these power stations are more feasible than nuclear and can therefore be built in line with the NDP," notes King.

Citing the United States as a prime example of a country that has made considerable strides in reducing its reliance on 'dirty' energy through increased use of its shale gas resources, while significantly decreasing its reliance on oil imports, King indicates that the South African government has much to learn from the way in which the United States has benefited from its own resources.

In the past, the United States played a major role in blocking firm commitments to carbon reduction strategies and tax implications to curb carbon emissions. However, King suspects that its new position will now change as a result of its cleaner energy mix.

"This will place pressure on South Africa to accelerate green energy options such as gas, as its exporters will lose their competitive edge in international markets when they are subjected to penalties for relying almost primarily on electricity generated from fossil fuels," he warns.

Another challenge for the local industry is the consideration of a carbon tax implementation, which King believes will be a 'double-whammy' for a country already experiencing high electricity costs. "We need to find ways of introducing cleaner and



DCD MD, Rob King. DCD Group is a driving force behind the promotion of raising local content thresholds in the local energy sector.

About DCD Group

DCD Group is an international manufacturing and engineering company providing products and solutions to the rail, mining and energy, defence and marine sectors. As a group DCD is able to offer comprehensive, integrated heavy engineering solutions in addition to bespoke individual solutions. DCD has been an integral participant in South Africa's infrastructure development for decades and is now playing an active role as a partner of choice to government in the current infrastructure expansion drive.

cheaper electricity into the system, and renewable energy is not always suited to base-load generation.”

Again, King points to gas as the most viable solution, as it also provides the opportunity to introduce smaller plants and independent power producers (IPPs) to the national grid. “State-owned Eskom is monopolising the generation of electricity at present, despite Medupi and Kusile construction projects being unsuccessful in terms of their execution,” he continues.

In contrast, King observes that IPPs are rolling out their projects according to expectation. “This is an important shift that is required in the South African energy-generation landscape if we are to attend to our burgeoning energy backlog. Due to South Africa's vast coal reserves, we will never turn our backs on it, as it will continue to power our energy future.”

With numerous options for future renewable power generation, DCD has developed a diversification strategy to ensure that it can successfully enter new markets. King reveals that the company has taken a three-pronged approach to business. “Firstly, the business must be structured according to the market environment. The next step involves focusing on the market and obtaining a share of it.”

The final step involves finding pockets in markets where DCD can compete with better products, as opposed to price. King elaborates: “This places significant credence on the technical resources within the DCD Group, which boasts 80 highly qualified and experienced engineers – many of whom will be redeployed to our research and development department to drive this strategy.”

Local content thresholds revisited

DCD recently challenged government's initial targets of achieving a 20 percent local content threshold in the local renewable energy sector. “We questioned government's initial targets of achieving a 20 percent threshold, and argued that we would not be able to create one new job by pursuing such a low threshold for local content. We brought this to the attention of government, suggesting that it be raised to 40 percent. “The Department of Trade and Industry accepted this proposal, which has been implemented in the third round of the roll out,” concludes King. <



Localisation in the wind energy sector will create new skills and sustainable employment.



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BUILDING TRUST



RECONSTRUCTING HISTORY

The word 'heritage' may raise a warning flag for many developers and builders, but for others keen to preserve South Africa's architectural legacy in urban areas, it is increasingly becoming an attraction.

➤ Warning flags seem to arise when there is a misperception around the concept of preserving heritage, with many involved in development believing that they will encounter obstacles from conservationists along every step of the procedure.

Not true, says the director of the Cape Town Heritage Trust, Laura Robinson: "A vibrant working city cannot be frozen in time like a museum. By its very nature a city is dynamic and in a continuous state of transition and growth, particularly in the context of the developing world of which we are part. The important historic areas of a city must be identified and guidelines put into place as to what appropriate type of change may take place without losing the quality and scale of the heritage environment that makes it special. This provides predictability for the developers and protects the heritage qualities of the city as well."

Rob Kane, chairperson of the Cape Town Central City Improvement District and a developer in his own right (Kane is CEO of Texton Property Fund) agrees the challenge can be well worth the outcomes: "It can be a challenge to take on a heritage site, and there is an obvious link between historic buildings being undeveloped or becoming dilapidated and developers possibly being frightened off by the lengthy approval process required. But those who do it, do reap the rewards, as does the city.

"Add to this the added bonus of SARS's Urban Development Zone tax incentive which could see a developer recouping all his costs in terms of refurbishment or development, bar the original purchase price, taking on an heritage site can now make a great deal of financial sense."

Heritage-respecting developments

In the Cape Town CBD, more than R400-million is currently being invested in three new

developments in that will not only respect the heritage of the sites but also ensure their commercial viability and value to this area's downtown – the oldest in the country and understandably with its fair share of listed buildings and historical monuments.

The first of these, Touchstone House, is a R200-million sectional title office development at the harbour end of Bree Street of over 10 000 m² being developed by Civiblox and project managed by FWJK. With completion scheduled for the second half of 2015, the development will see a new asset rise from the ashes of a fire-damaged building in which, somewhat miraculously, the solid façade managed to remain intact. Franki Africa were brought on site to assist the structural engineers, in particular with the underpinning of the remaining heritage façade and entrance portal that once housed an old coal bunker in the days of steam power.

A second development, the Twinell building lies across five erven and incorporates a 1920s Edwardian façade on Long Street and a 1940s art deco façade on Loop Street. It is being redeveloped to the tune of R120-million to accommodate the existing Labour Court as well as commercial and retail space.

Developer Dave Linder of Kings Cross Properties notes: "We have worked very closely with Heritage Western Cape in the design of the building. Our architect, John Doyle, has looked particularly at how to replace those features that time has destroyed such as a gable on the Long Street side. Old photographs have provided us with evidence of its existence."

Repairing or replacing all the original steel-framed windows will also be undertaken. "There is only one manufacturer left in the country who can restore these to their original state," explains Linder.

In turn, the building will be brought into the 21st century through the incorporation of sustainability initiatives, with grey water solutions, solar power, and LED lighting and airconditioning activated via motion detectors. A new glass addition on Loop Street was designed to frame the neighbouring art deco façade. In accordance with Heritage, the glass is curved back so that none of the art deco detail is obscured.

Brothers Mike and Casey Augoustides, members of the Gera Trust, are determined to save what remains of a historic property that forms part of the land parcel the family has accumulated and reconsolidated piece by piece since 2001. Bordered by Strand, Bree and Waterkant streets, the proposed project will recreate an environment that will bring the historic part back to a dignified and appropriate life.

Original plans submitted in 2010,

which obtained positive responses from both Heritage Western Cape (HWC) and the national South African Heritage Resources Agency (SAHRA), were rejected by the City's Spatial Planning, Environmental & Land Use Management Committee both on application and appeal. Lengthy revisions taking the committee's objections and concerns into account have now resulted in amendments that lessen the impact of the building on its surrounds (including the adjacent Lutheran Church) while further enhancing the building's heritage significance.

With the mixed-use project valued at close to R100-million, the Gera Trust is resubmitting their application to the City, having once again been given the green light by SAHRA and HWC. They believe misunderstanding of the project and the state of the existing building led to the original application being rejected, says Augoustides, but they are determined to save and resurrect what is left of the heritage site, originally owned by Martin Melck prior to his death in 1781.

The first structure to occupy the portion of the property today owned by the Gera Trust was a warehouse used to store grain and wine, but over time the property on which it stood was subdivided into smaller land parcels. The fabric of the original warehouse was destroyed and replaced with a combination of concrete and brick structures erected by a long line of owners with different industrial and commercial business needs."

Says Augoustides: "Too little is left for a proper restoration – this was verified by SAHRA in their report. Instead, as the next best alternative, we are using archival photographs to reconstruct the exterior facades to their most historically correct form and to halt further degradation. This will recreate the essence of the original warehouse and contribute to the other historic elements on the block. On the interior we will restore, protect and showcase all remaining authentic fabric and remove many of the intrusive modern interventions which currently detract."

The contemporary component of the project is a three-storey (the original application had four), glass-encased structure that will appear to float over the recreated warehouse area on a number of columns.

Determined to save what is left of the original history of the building, Augoustides says: "We have made numerous and substantial changes to the project that both enhance the heritage features of the original building and blend the extension into the surrounding cityscape with an almost translucent and transparent design."

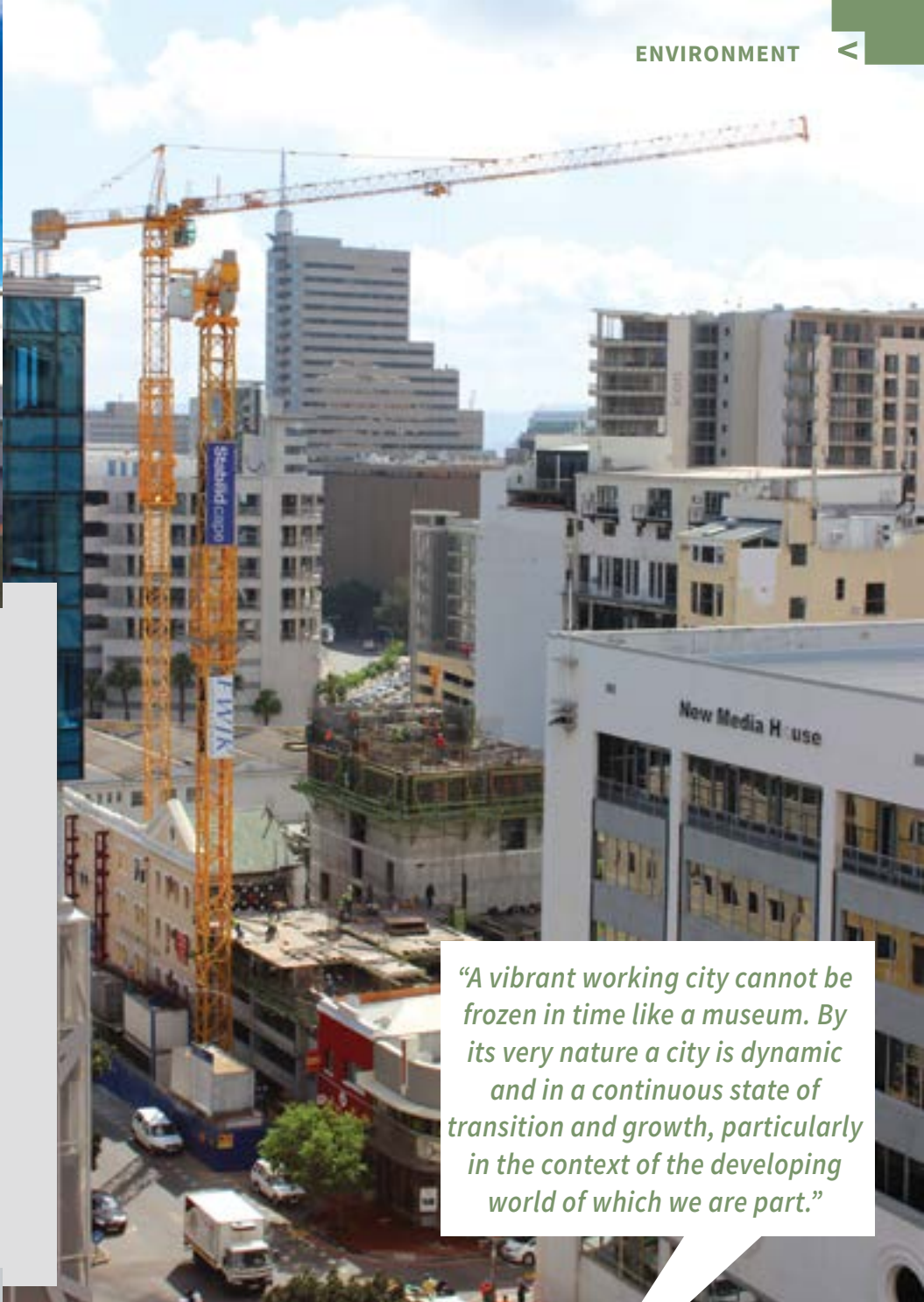
Applauding the efforts of developers prepared to take on the challenge of heritage



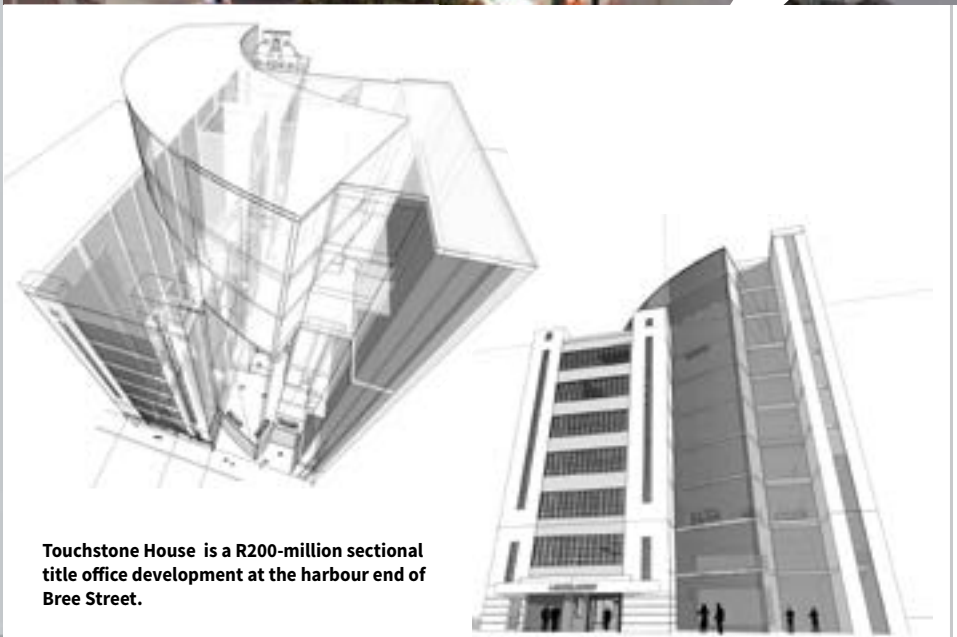
The Twinell building lies across five erven and incorporates a 1920s Edwardian façade and a 1940s art deco façade.

buildings, Robinson advises that there are a few key factors to consider before starting the process of applying for permission overall to redevelop a heritage property: “Firstly, check out the status of the building before you make a final commitment to purchase. This will save you many problems if you understand the development restrictions on the site.

“Secondly, understand that heritage buildings can be altered and changed to accommodate new uses and needs, but you need to retain respect for the original building and its material. This is what adds value to the end product and makes it stand out from projects that are developed from new. Thirdly, make use of appropriately skilled professionals to assist your team when developing the plans for any heritage project.” <



“A vibrant working city cannot be frozen in time like a museum. By its very nature a city is dynamic and in a continuous state of transition and growth, particularly in the context of the developing world of which we are part.”



Touchstone House is a R200-million sectional title office development at the harbour end of Bree Street.

POWERFUL HORIZONTAL chiselling

18

The GSH 7 VC Professional from Bosch is a demolition hammer with optimised power-to-weight ratio.

GSH 7 VC Professional specifications

Rated power input	1 500 W
Single impact energy	13 J
Vibration level	9,5 m/s ²
Weight	8,4 kg



The GSH 7 VC Professional from Bosch is exceptionally powerful with low weight and good vibration damping. This SDS-max demolition hammer is driven by a 1 500 watt motor, works with an impact energy of 13 joules and weighs only 8,4 kilogrammes.

Due to its optimised ratio of power to weight, the GSH 7 VC Professional relieves the strain on professional tradespeople, especially when performing tiring work such as horizontal or overhead chiselling.

These demanding tasks, such as removing tiles, can therefore be done both quickly and efficiently. The vibration damping system also contributes to comfortable use of the tool: the demolition hammer achieves low vibration of only 9,5 m/s² thanks to its optimised hammer mechanism and decoupled main and side handles.

As a result, the permitted operating time is more than two hours per day and user. In combination with the high material removal rate of 240 kilogrammes of concrete per hour, which has been confirmed in independent tests by the renowned testing institute SLG Prüf- und ZertifizierungsGmbH, and the Constant Electronic which enables the GSH 7 VC Professional to deliver consistent performance even under load, this ensures fast work progress.

Long lifetime due to robust design

The GSH 7 VC Professional demolition hammer has a long lifetime thanks to its robust metal components and the hammer mechanism which has been specially designed and tested for chiselling. An integrated service display also shows in advance when the carbon brushes have to be changed.

The tool's features are completed by a speed controller to enable the impact force to be adjusted to suit the application, the Vario-Lock system which enables the chisel to be fixed in 16 different positions so that it can be adapted to any work situation, and a switch lock for comfortable, continuous use.

Bosch also offers matching accessories: 'RTec Sharp' SDS-max flat chisels and 'RTec Speed' pointed chisels are especially suitable for chiselling with the GSH 7 VC Professional. They have a self-sharpening cutting edge, which enables them to achieve a constantly high material removal rate over their entire lifetime. <

The GSH 7 VC Professional offers:

- Powerful SDS-max hammer with 1 500 watts and 13 joules of impact energy
- Very good ratio of power to weight for low user fatigue
- Low vibration due to optimised hammer mechanism and decoupled handles

The Power Tools Division of the Bosch Group is the world market leader for power tools and power tool accessories. In 2012, its workforce generated sales of €4-billion, 90% of which outside of Germany.

With brands such as Bosch, Skil and Dremel, the division stands for customer focus and great engineering progress. The core success factors are innovative strength and pace of innovation. Each year, Bosch Power Tools launches more than 100 new products onto the market. The division generated about 40% of its sales in 2012 with products that have been on the market for less than two years.

The business segments electric power tools, accessories, measuring tools and garden tools of Bosch Power Tools outperformed the market.

The Bosch Group is a leading global supplier of technology and services. In fiscal 2012, its roughly 306 000 associates generated sales of €52,5-billion. Since the beginning of 2013, its operations have been divided into four business sectors: Automotive Technology, Industrial Technology, Consumer Goods, and Energy and Building Technology.

The Bosch Group comprises Robert Bosch GmbH and its roughly 360 subsidiaries and regional companies in some 50 countries. If its sales and service partners are included, then Bosch is represented in roughly 150 countries. This worldwide development, manufacturing, and sales network is the foundation for further growth. Bosch spent some €4,8-billion for research and development in 2012, and applied for nearly 4 800 patents worldwide.

The Bosch Group's products and services are designed to fascinate, and to improve the quality of life by providing solutions which are both innovative and beneficial. In this way, the company offers technology worldwide that is 'Invented for life'.

“The Mall of Africa is much more than an economic anchor of Waterfall City; it is also a visual and social anchor with striking features and bespoke amenities. Aurecon applauds the developers for this bold, ambitious project and is proud to be involved.”



MEGA-MALL WELL UNDERWAY

The 1,6 million square metre mixed-use Waterfall City is being called the most ambitious commercial development undertaken in Southern Africa to date. Close to the Allandale off-ramp onto the N1 highway in Midrand, Gauteng, Waterfall City will be the epitome of the eat-shop-work-play integrated living environment that are already seen at internationally acclaimed commercial hubs across the globe.

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➤ At its centre is the Mall of Africa. Set to become the largest mall ever built in a single phase in South Africa, Mall of Africa is raising the bar for retail centres on the African continent. Earthworks for the Mall of Africa began in October 2012, with the mall's opening scheduled for April 2016.

It is envisaged that the 130 000 m² retail mall's distinctive design, which was meticulously planned by MDS Architects, prime location and enviable retail mix will offer a unique retail experience, making it a destination for both local and tourist visitors.

Aurecon was contracted by leading South African property developer and investor, Atterbury Property Developers, to undertake both civil and structural engineering on this iconic development, with a focus on optimised design solutions through continuous value engineering, working closely with the quantity surveying team, to ensure budgets are adhered to in support of the feasibility of the project.

Proven investment potential

“Several urban studies have proven that there is an excellent business case for situating the Mall of Africa within the Waterfall City development. The mall will help the City realise its financial potential,” believes Aurecon project director, Nicol Labuschagne.

He adds that while involvement in such a large-scale project has been exciting, projects of this magnitude present a unique set of challenges to the project team.

Pre-empting material shortage

The recent strike in the metals and engineering sector, led by the National Union of Metalworkers of South Africa (Numsa), saw over 200 000 Numsa members embark on what was dubbed an ‘indefinite strike’ by the local media. This could potentially have derailed a number of major deliverables on this project. “In this instance, detailed design documentation had to be fast-tracked even further to enable the contractor, WBHO/Group Five JV, to pre-order rebar and steel formwork ahead of the strike. This mitigated many of the potential delays as a result of the strike,” says Labuschagne.

Geotechnical challenges

The geological profile of the 16,5 hectare footprint of the mall site comprises soft to very hard rock granites with intrusions of diabase in places. Residual soils have developed from the weathering of the granites and diabase bedrock with overlying transported hillwash of varying depths and an abundance of subsoil groundwater in places.

“Geotechnical challenges to be dealt with as a result included the upfront

profiling of the granite bedrock to minimise the amount of hard rock excavations, the subsoil drainage design over such a large footprint, and the varying founding conditions encountered due to the variable nature of the site geology,” says Labuschagne. He adds, “This meant that no single founding solution could be used. Our project teams had to tailor the founding solution for each column or wall in accordance with its specific site condition, making use of either piling or conventional spread footings or a combination of both.”

Time constraints

The planned opening at the end of April 2016 has placed the professional team and the contractor under tremendous pressure with a number of milestone deadlines to meet. This called for close co operation and collaboration with the full professional team.

“For Aurecon, this meant ramping up our delivery capability by allocating additional resources to the project to ensure our construction documentation is timely produced, peer-reviewed, approved and issued to site. The fast-track nature of the construction programme saw us using reinforced concrete flat and coffer slabs for the retail areas and post tensioned flat slabs for most of the parking decks to speed up construction,” explains Labuschagne.

The epitome of integrated living

In terms of aesthetics, the parking areas at Waterfall City include valet parking as well as additional parkades which, together with the entrances, will accentuate the urban planning framework and the unique identity of the mall. The development is being designed to create a pedestrian-friendly environment around the perimeter, with focus being placed on immaculately landscaped areas and aesthetically pleasing walkways. ◀

MULTICELL ROADS

Edendale township, situated in the southwest outskirts of Pietermaritzburg, KZN, is a large area dominated by steep hills and valleys. It was here that Kaytech's Multi-Cell was chosen to solve a resurfacing problem for two of the township's dilapidated roads. Kaytech's Paul Lombard was on site to offer specialist supervision.

> Most of the roads used by the local people to access their homes are constructed of gravel, often so poorly maintained that no gravel is evident. Following heavy rainfall, the in-situ clay material is exposed, especially on the steeper gradients, which are rendered inaccessible to most vehicles.

Innovation

Paving these roads was not economically viable due to the steep gradients and the prohibitive costs of asphalt paving. Engineers from the KZN Department of Transport (DOT) made the decision to resurface two steep road sections using Kaytech's Multi-Cell 100 mm filled with ready-mix concrete. This solution was possible because the roads here are trafficked mostly by light motor vehicles and pedestrians.

Since the Multi-Cell system had been successfully installed on a section of a District Road at Vulindlela (adjacent to Edendale) in 2006 and at Unit H in Edendale in 2007, the DOT engineers were confident in specifying the system in this case. Although Multi-Cell has been around for some time, it has not been used extensively for road resurfacing. Other more popular uses include effective erosion protection treatment for hydraulic structures, as well as slope protection and load support. However, it is proving to be an innovative alternative to reinforced concrete roads, negating the excessive cost of steel reinforcing.

Working within tight budget constraints and the limitations of an existing 20 m fixed road reserve, the regrading of the 28% incline and widening of the sharp horizontal curves was particularly challenging. After conducting a feasibility study and having considered other options, a 600 m section at 19% design grade was constructed using Multi-Cell geocells infilled with 25 MPa concrete.

Multi-Cell is a honeycombed, cellular structure manufactured from strips of a coated slit film. This woven polypropylene tape is stitched together to form three-dimensional diamond shaped cells. It is used as an in-situ shuttering to cast continuous, interlocking concrete

paving for road or canal construction.

Multi-Cell provides a high cell wall/infill interlock as well as high tensile strength and seam strength. It is usually supplied in standard 5 m x 10 m panels but, to accommodate the narrower, single-track roads on this project, Kaytech specially manufactured 4 m x 10 m panels. Livestock and stray animals walking through the wet mix before it was properly cured posed a problem for the contractor, but this was rectified by manually filling the footprints with concrete once the concrete had set.

Environmental impact

This project and others like it in Unit H of Edendale demonstrate the potential of using concrete-filled geocells for upgrading and improving road networks into previously inaccessible steep environments. Multi-Cell is rot-proof and resistant to most low-concentration chemicals and ultra violet light, thus it is sustainable, requiring minimal maintenance. It is lightweight and has low packaged volume in relation to the installation area, posing a low transportation carbon footprint in comparison to alternative solutions. Being flexible, Multi-Cell conforms to existing environmental surfaces, thereby reducing many of the costs inherent in using steel as concrete reinforcement.

Local impact

The Multi-Cell system proved to be the most economical technical solution for this Edendale roads project, providing an ideal opportunity for labour intensive construction (LIC) techniques. It was the first Multi-Cell project undertaken by the contractor, Okuhlekwethu Developments, who installed the product according to Kaytech's installation guidelines. The patented Tension Frame makes the Multi-cell quick and easy to install, thus unskilled labour was employed by simply following Kaytech's installation guidelines and receiving on-site training by a foreman. 24 members of the local community were employed and trained to install the Multi-Cell system in accordance with the Government's policy on the LIC and Extended Public Works Program (EPWP) programme.

The local labourers employed were



Application is simple: a section of geocell road being filled with concrete.



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Local labour was used to fill the Multi-Cell road



The completed road ready for foot traffic and small vehicles.

given DOT standards and kitted out in PPE gumboots, gloves, and reflective vests in compliance with Health & Safety standards. No health and safety issues were reported on this project. <

PRODUCTS FOR REMOTE

Products from Chryso Southern Africa have travelled 2 300 km over the South Atlantic Ocean to St Helena, one of the most remote islands in the world, to be used at the Basil Read St Helena Airport Project (BRSHAP).

> All of the materials used in the production of the concrete apart from the crushed aggregate, were sourced off the island. Dune sand was obtained from Walvis Bay, while the cement came from Ohorongo Cement in Namibia, the fly ash from Ash Resource's Lethabo plant in Vereeniging and admixtures from Chryso's plant in Cape Town.

"It was extremely important to keep quantities of materials to a minimum as there was limited space on the Basil Read cargo ship NP Glory 4," Brenton Brouard, Chryso Southern Africa, technical manager, explains. "When designing different concrete mix designs, for example, we could not use vast quantities of dune sand because that still had to be transported to the island."

Concrete was specified for the airport

runway, terminal building, air traffic control building, fire department building and permanent wharf. Chryso® Plast Omega 101 was used in all of the general concrete as well as the concrete for the runway and the precast concrete used to construct the 700 precast Core-loc armour units and hollow blocks for the wharf. The 100 m long, 10 m high and 13 m wide wharf has a rock breakwater that had to be protected from any possible damage caused by ships.

"When formulating the concrete mix design for the precast units, it was important to achieve a mix with optimised properties. The concrete had to fill complex mould shapes with limited bleed and settlement. Excessive bleed water would lead to unsightly voids in certain element sections, as well as increasing the risk of both



All of the materials used in the production of the concrete required, apart from the crushed aggregate, were sourced off the island.

plastic settlement and shrinkage cracking," Brouard says.

Therefore 12 mm Chryso® Fibre Plus polypropylene micro fibres were used to increase the cohesiveness of the mix, while Chryso® Plast Omega 101 assisted in creating an optimised slump. Chryso® Dem Oleo SM was used on all of the moulds to ensure an easy release once the concrete had set, without causing damage to the moulds or concrete.

Concrete also had to be transported over long distances on the island, affecting the slump retention and workability. Chryso® Tard CE retarder was used to retard the concrete setting time. When necessary, Chryso® Rescue Pack slump revival admixture was added to the concrete in a readymix truck immediately before discharge.

"This increases workability and makes it easier to pump or discharge concrete from trucks that may have travelled long distances or been stationary on site for extended periods," Brouard says. Barracuda, Fusion and Truck Wash; Chryso's biodegradable, environment-friendly cleaning agents were used to clean and line the readymix trucks and keep them in good condition.

In order to reduce the need for future maintenance, it was decided to build the runway with concrete instead of asphalt. Manufactured from 27 000 m³ of concrete, the runway is 1 950 m in length, 45 m wide and has a maximum thickness of 350 mm in parts, with reduced thickness to the 'off-keel' sections. The runway is mostly unreinforced.

Commenting on the complexity and size of the project, Jimmy Johnston, project director, BRSHAP, says: "The long logistical chain made planning vital, and BRSHAP needed reliable suppliers such as Chryso that can provide the correct product at the required amount on an agreed date and time." <

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LEFT: About 700 litres of Chryso's products have been shipped 2 300 km across the South Atlantic Ocean to St Helena. RIGHT: Over 700 units of precast Core-loc armour units (7 tonnes per unit) and hollow blocks (27 tonnes per unit before filled with stone) were placed by crawler cranes via GPS around the wharf from the surface bed to just above sea level.



Concrete was specified for the airport runway, terminal building, air traffic control building, fire department building and permanent wharf.

AIRPORT



WE'LL TAKE CARE OF IT



ZAMBEZI SUN UPGRADE

The multi-million rand refurbishment of the iconic Zambezi Sun Hotel on the banks of the Zambezi in Zambia is gaining traction, with the upgrade of the first block, comprising 54 rooms, the pool, and bar area now complete.

➤ The in-room enhancements include wifi, flat screen TVs, and new air conditioning units. The rooms have also received a soft refurbishment to align them with the hotel's definitive Moroccan theme. The custom-designed headboards, cornices, vanity facias, and desks are made from a dark timber, and feature Moroccan mashrabiya patterns, exuding the warmth and elegance of the newly-refurbished public areas, including the new lounge.

The Moroccan-styled lounge, the first public lounge at the hotel, flanks the hotel restaurant and offers guests an inviting, comfortable space to relax, unwind and people-watch.

The enhanced Moroccan feel throughout the hotel has provided license for the use of a bold mix of colours, rich textures, and fascinating patterns to give life to all of the public areas.

Even the guestroom hallways have been decked with Moroccan styled lighting and artifacts, and the ceilings have been lowered to create a warmer, more welcoming space for guests as they meander to their rooms.

The revamped pool and bar area, the hotel's hub of activity, now boasts a pizza oven.

"We wanted to create a vibrant communal space where friends and families can relax at the pool-side and enjoy delicious cocktails and light meals. The area is now a lively and interactive space where children are invited to help make their own pizzas," says Caron van Rooyen, the hotel manager at the Zambezi Sun Hotel.

Zambezi Sun's conference facilities have also had an upgrade, including new carpeting, drapery, lampshades and wall finishes. Considerable investment has also been made in new technologies enabling guests to work more efficiently.

The extensive refurbishment of the property kicked off in June 2014, with the entire project scheduled for completion by August 2015.

Once complete, the Zambezi Sun Hotel will exude an enhanced warmth and air of luxury, while remaining true to its roots as one of the most dynamic and friendly leisure destination in Zambia.

"We are thrilled with the progress, in particular, the completion of the new pool area in time for the festive season. We look forward to a bumper holiday period, with this area buzzing with the sound of children playing, swimming and designing their own pizzas," concludes Van Rooyen. ❏



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SOCIALLY-INNOVATIVE SHOPPING

The eagerly-awaited 27 000 m², R400-million regional Eyethu Orange Farm Mall opened recently, bringing to fruition an unprecedented socially innovative retail development and investment.

> Eyethu Orange Farm Mall, located between Johannesburg and Vereeniging, is 10% owned by its community, through the Orange Farm Community Trust, and is set to transform Orange Farm into a booming central business district. It is boosting the local economy in a variety of ways, from creating jobs and easy access to quality shopping, to housing the local community radio station and a day care centre.

Together with the community's 10% stake, facilitated by the National Empowerment Fund, Eyethu Orange Farm Mall co-owners are developers Flanagan & Gerard Investments and Stretford Land Developments and JSE-listed REIT Dipula Income Fund, each of which hold 30% of the mall's ownership.

Eyethu Orange Farm Mall marks the creation of a regional retail mall which is connected with different modes of public transport. This first-rate mall, with all the advantages of a leading regional shopping centre, offers a broad mix of retailers to satisfy local customers and the millions of rail commuters using its adjacent Stretford Station each year, as well as those using its integrated regional taxi rank. This positions it at the best and most convenient point for this community to do its shopping.

Paul Gerard, managing director of Flanagan & Gerard Investments, says: "Eyethu Orange Farm Mall is no ordinary mall. It is a shopping centre more deeply rooted in its community than any other in South Africa, and each tenant here is not only committed to the mall, but is also demonstrating its confidence in this community. We are thrilled by the positive response to the project by both national and local retailers. Eyethu Orange Farm Mall creates a wide variety of shopping choice that is well-match to its shopper market."

Izak Petersen, CEO of Dipula Income Fund, reports: "We are thrilled to be invested in this quality asset, which epitomises both innovation and inspiration. Dipula's investment is playing a key role in bringing much-needed access to top-quality retail for

this community. It is meaningful responsible investment that will boost the local economy and benefit our shareholders. It also meets Dipula's strategy to invest in retail assets in underserved areas."

David Lieberman of Stretford Land Developments, comments: "The idea for Eyethu Orange Farm Mall was first born with my partner Vusi Tshabalala, two decades ago. He believes that where a community has no mineral wealth, its only wealth is its buying power. He saw a future where the community of Orange Farm could benefit from its own spending power by developing a shopping mall in which the community owned a stake. The mall has been 20-years in the making and today is like a dream come true and an incredible achievement for this community. Eyethu Orange Farm Mall is proof that big business can also be good business."

Mziwabantu Dayimani, general counsel of the National Empowerment Fund adds: "The Eyethu Orange Farm Mall is partly owned by the Orange Farm Community Trust, which holds a 10% stake thanks to R50-million in funding facilitated by the National Empowerment Fund's Rural & Community Development Fund unit.

"The social impact of the project has been meaningful. The project promises approximately 1 500 permanent jobs, while 2 000 jobs were supported during the construction phase."

The benefit from the trust's stake is intended for constructing special needs projects such as centres for development, learning, safety or care. The projects will be decided by the Orange Farm Commu-

nity Trust, whose Trustees are volunteers elected by the community.

More benefit

And, there is even more benefit embedded for this community. To be involved in any Trust project – be it building, supplying or operating it – the compliant business or individual must reside in Orange Farm. This applies to everyone, regardless of their responsibility. This way, the community will directly benefit from the proceeds of the project and the money earned in Orange Farm will stay in Orange Farm.

Besides the Community Trust ownership, Eyethu Orange Farm Mall brings many other benefits, including great shopping to its community. These include job creation, retaining hard-earned spend in the community and sponsoring space for both an Afrika Tikun preschool and community radio station, Thetha FM. The radio station will, for the first time since its launch, trade out of top graded space and benefit from offering advertising and other serves to the owners and tenants of the mall.

But, perhaps most impactful is the introduction of top-notch retail right on the doorstep of this community. Shoppers will have ample choice from South Africa's most popular retailers including large grocery anchor retailers Shoprite and Pick n Pay, as well as a large Roots Butchery.

A necessity for all, banking services will be brought to the community from ABSA, First National Bank, African Bank, Capitec, Nedbank, Standard Bank and Old Mutual.

Offering the latest in quality apparel to Eyethu Orange Farm Mall customers is an impressive variety of South Africa's most popular retail brands. These include Foschini, Edgars, Truworths, Identity, Cross Trainer, Markham, Total Sports, Exact!, Legit, Fashion Express, Signature Cosmetics, Pep, Rage, Daniel J, Sterns, Studio 88, Sportscene, Ackermans and Jet.

Keeping shoppers looking and feeling good, the mall's health and beauty selection includes Link Pharmacy, Clicks, Benyana's Cosmetics and Mokobake CJ Optometrists Inc. House-proud shoppers will also be spoiled for choice with Sheet Street, Fair Price Furnishers, OK Furniture, Lewis and Pep Home.

The mall will also provide space for informal traders by means of a Traders Square, and the exciting list of formal retailers at Eyethu Orange Farm Mall will be joined by lock-up informal trader stalls placed around the neighbouring taxi rank. **<**



Major Johannesburg REGENERATION SCHEME

Propertuity, Africa's leading urban development firm, has appointed international consultancy and construction company, Mace, as project manager and cost consultant partner for a number of upcoming urban development projects in Johannesburg, South Africa.



Mace will be setting up an office in Propertuity's latest commercial development, Market Up.



Propertuity and Mace are starting their partnership with the redevelopment of Hallmark House, located in the Maboneng Precinct at the heart of Johannesburg.

About Propertuity

Propertuity is an innovative property development company that uses art, design, architecture and cultural activities to set in motion the transformation of degenerated areas into thriving neighborhood destinations. In addition to the redevelopment of the built environment, Propertuity creates projects and strategies and partners with dynamic brands to contribute to the creation of unique communities.

Africa's commercial and cultural vibrancy in a context of exponential urban population growth (the highest in the world) are key drivers for the creation of unique and dynamic neighbourhoods. Following the success of The Maboneng Precinct, Propertuity has begun to research and identify opportunities and strategic partnerships in African and global markets in order to develop rich and substantial neighbourhoods around the world.



This partnership will see the joining together of two of the globe's most innovative companies, with the aim of shaping the future of the built environment in this region.

Propertuity and Mace are starting their partnership with the redevelopment of Hallmark House, located in the Maboneng Precinct at the heart of Johannesburg. Due for completion in 2016, this award-winning, mixed-use development will now include both residential and high-end hotel space.

"Property is a high-impact industry, it changes people's lifestyles. At Propertuity we approach this industry with ideas that people say are impossible, that are crazy and won't work", says Jonathan Liebmann, CEO and founder of Propertuity. "Partnering with Mace will allow us to continue disrupting normality in a significant way," says Liebmann.

Mace programme director, Jimmy Hanley, said: "Propertuity's approach to redeveloping areas of Johannesburg Central Business District brings a much needed, exciting and unique approach to regeneration. We are delighted to be working together with the team and hope that Mace can help to bring Propertuity continued success."

Propertuity and Mace will be working collaboratively to deliver a series of innovations that aim to steer urban regeneration and the global real estate market towards design-orientated living and working. In order to ensure the teams are properly integrated, Mace will be setting up an office in Propertuity's latest commercial development, Market Up. <

CAPPED PILING

for Newtown hotel

Gauteng Piling recently provided the foundation piles for a new City Lodge Hotel being built in Newtown.

> The 148-room hotel forms part of the Newtown Junction mixed-use development, the biggest multi-use development in the Johannesburg CBD since the construction of the

Carlton Centre in the 1970s. The 8 000 m² hotel is being built by Archstone Construction of Pretoria for the developers, Atterbury Property Developments.

Ignatius Maas, Gauteng Piling site manager for the project on the corner of Miriam Makeba and Carr streets (adjacent to the Market Theatre), says the contract called for the provision of 64 piles with an average depth of 10 metres for the seven-storey hotel scheduled to open next year.

“The piling contract provided some unusual challenges and requirements. In the

first place, we had to contend with exceptionally limited access, particularly at the start of the contract, caused by building operations on other encroaching facilities that form part of Newtown Junction.

“Then we had to address redundant sewer and stormwater services, for which the concrete pipes were sandwiched between concrete slabs about 250 mm thick. These services required rectangular concrete capping beams, joining sets of two piles which were installed to straddle the existing services where we could not drill through them,” Maas explains.

Capping beams for piles aim at transferring loads from closely spaced columns or walls into a row of piles. To install pile capping, pile heads are stripped to expose the steel reinforcement to be projected into the pile cap. Steel reinforcement is then placed at the desired location and a large concrete block is formed to distribute loads over the capped piles.

Gauteng Piling employed two rigs for the City Lodge piling: a Williams LDH digger and Soilmec RTAS which can drill into rock of 4 to 5 MPa. A third Williams rig was on standby.

Since the arrival of its first piling machine in Johannesburg in July 1996, Gauteng Piling has developed into one of the foremost piling contractors in South Africa. The company has to date completed over 1 500 projects and its current fleet consists of 20 auger machines, two cranes, two bore rigs, six Grundo hammers, and two lateral support machines.

The Newton Junction was familiar territory for Gauteng Piling as the company had a few months prior to the City Lodge contract, provided the piling for extensions to the Market Theatre complex.

Under the leadership of Hennie Bester, past president of Master Builders Association North, Gauteng Piling also provided more than 500 piles for the construction of southern African’s largest single-phase retail centre, Mall of Africa.

Other recent contracts handled by Gauteng Piling include the piling for the large-scaled Value Logistics warehouse in Kempton Park, the Fire & Ice Hotel in Pretoria, The Grove Shopping Centre in Pretoria, and the Bon Accord Police Station, also in Pretoria.

The company also handled the piling requirements for a new FAW auto dealership in Croydon in Ekurhuleni, as well as the l’langa Mall in Mbombela (Nelspruit). <



Gauteng Piling providing the foundations for the new City Lodge Hotel in Newtown Junction.

Watershed for SA 'SMART CITIES'

Developers of the R1,7-billion Baywest Mall in Port Elizabeth's western suburbs have signed a landmark deal with South Africa's largest mobile communication provider, Vodacom, signalling a watershed moment in the development of 'smart cities' throughout the country.

The deal will see Vodacom light the entire high speed fibre optic backbone of the 320 hectare Baywest City development, providing high speed internet to Baywest Mall tenants and shoppers alike. By lighting the network, Vodacom will be providing the data to end users using Baywest's fibre optic infrastructure.

Baywest is the first large scale green fields development in the country to incorporate a wholly functional fibre optic backbone from inception. A development spanning the next decade, Baywest City includes commercial and retail offerings, as well as residential nodes with a private school and hospital in a model similar to Cape Town's Century City development. Baywest Mall, which opens in April next year, is the catalyst for the entire project.

Baywest MD Gavin Blows says the deal paved the way for Baywest City to become an interconnected 'smart city'.

It meant homes and businesses within the Baywest precinct could be connected to fast, reliable internet, better managing security systems while allowing for the technological development of homes and businesses to

progress in leaps and bounds, he said.

"It will be a smart city with fibre optics throughout, allowing for high speed internet access. The security and internet access will run off this fibre optic backbone," says Blows. "The new model of city development needs to have the latest technology."

For tenants of the mall it meant having ground breaking technology at their fingertips. "The fibre optic network also allows for free calls within the precinct, reduced call rates, easy cloud computing, and live gaming without any lag, among a host of other advantages," says Blows.

"We no longer have to talk about what it means to live in a smart city - we are building one," says Blows. "Having a high speed fibre optic backbone lit by South Africa's biggest cellular provider fits well with our slogan: 'Expect Big Things'."

With just over 1 600 workers currently working on the mall, Blows says tenant installations were on track to start from December. "There are about 3,5 km of shop fronts throughout the mall and about 35 km worth of electrical cabling," Blows says.

Also on track was the R300-million Baywest road network, connecting the mall

to the nearby N2 freeway via a series of on-ramps and off-ramps. The first phase of the network, connecting Walker Drive with the mall and the freeway, is scheduled for completion in March next year, with the link to Cape Road in Bridgemeade/Rowallan Park set for opening next September, he says. <

Fast facts about Baywest

- The mall size, 87 500 m², is the gross leasable area and excludes the parking area for about 3 200 vehicles.
- The development of the mall is a joint venture between Abacus Asset Management and Billion Group.
- The construction value of the mall is approximately R1,7-billion, with a further R300-million being spent on developing the road network in the area. The road network includes an interchange onto/off the N2 freeway, as well as the Redhouse-Chelsea arterial road, linking the suburbs of Sherwood and Rowallan Park/Bridgemeade via a road over the N2.
- The mall is central to the development of the greater Baywest City project, which will be similar in concept to Cape Town's Century City development.
- About 25% of the 320 ha Baywest City site has been allocated for environmental preservation and will not be developed at all.



The developers of Baywest City in Port Elizabeth have announced a landmark deal with Vodacom which will see the communications giant install Baywest's fibre optic network, giving high speed internet access throughout the development

International launch of SIBAYA MEGA PROPERTY

Tongaat Hulett has embarked on a new chapter in its land conversion activities with the appointment of Savills (UK) in association with 5th Avenue and the Pam Golding Property Group to launch Sibaya Nodes 1 and 5 real estate opportunities to an international market.

While a total of five nodes make up the first phases of the mixed-use Sibaya development, nodes 1 and 5 are being prepared for marketing within the next few months. Node One consists of 50 developable hectares and is located east of the M4 and Sibaya Casino. Node Five comprises 76 developable hectares and is situated immediately north of Node One and bordered by the M4, the

M27 to the north and the coastal town of Umdloti to the east.

The appointment of international real estate services provider, Savills, to market the two properties highlights the potential that this unique landholding offers. With global headquarters in London, LSE-listed Savills, together with 5th Avenue and Pam Golding, offers a leading, global platform for the launch of this unique property.

In the fast-growing and well-established northern development corridor of Durban, boasting 180° sea views, a backdrop to extensive natural coastal forests and within easy reach of the King Shaka International Airport, the development possibilities for these two Sibaya nodes include major new resorts in conjunction with lifestyle residential accommodation, upmarket offices and developments suited to the leisure and hospitality industry. Hotels, conference and entertainment facilities, retail and recreation facilities would complete the picture.

“Tongaat Hulett envisages Sibaya as a unique play-live-work lifestyle that is based on bringing together the best of both urban and natural environments. These opportunities lend themselves to organisations possessing global expertise and bold vision to maximise their enormous potential,” notes Mike Deighton, Tongaat Hulett’s executive responsible for property development.

“Durban has seen tremendous expansion in recent years, with the construction of the new international airport and Dube Trade Port being real statements of intent from the Government and Local Authority to attract international investment to the region,” commented Daniel von Barloewen, head of Savills International Development Consultancy

“The Sibaya site provides an opportunity to deliver a new destination for Durban to attract international investors, hotel operators and businesses. Savills is delighted and privileged to be partnering with Tongaat Hulett in helping shape the future of the region and attract global investors,” he said.

“Found in the rapidly-expanding North Coast, a mere 8 km north of Umhlanga and 25 km from the Durban city centre, these properties are expected to attract significant investment into the region,” states Zamo Gwala of Trade & Investment KwaZulu-Natal, “and TIKZN would be available to provide assistance and resources to any new entrants to the market.”

Mike Deighton concludes, “The Sibaya precinct presents a powerful proposition for a catalytic impact on the region.

“Situated within an emerging Aero-tropolis, there is an appreciation of the vast socio-economic needs within this broader region and Tongaat Hulett believes that new international investment into Sibaya will provide a substantial boost to the development necessary to address these challenges, enhancing the region’s global presence and branding.”



READYMIX FOR NELSON MANDELA CHILDREN'S HOSPITAL

AfriSam has been awarded a contract by Group Five to supply 17 650 m³ of readymix concrete for the construction of the Nelson Mandela Children's Hospital in Parktown, Johannesburg. "It is a wonderful opportunity for AfriSam to contribute to the lasting legacy of the late Nelson Mandela," Graham Hannah, multi-products solutions account manager at AfriSam, says.



The Nelson Mandela Children's Hospital will be a 200 bed specialist paediatric hospital, one of only four on the African continent.

> "The establishment of this non-profit hospital was a personal dream of Mandela and once completed will be one of only four hospitals on the African continent," Hannah comments. Construction commenced on 23 June 2014 following

the successful completion of bulk earthworks and piling on site.

Due to open its doors in 2016, the 200 bed specialist paediatric hospital will provide services in the fields of haematology/oncology, pulmonology, cardi-

ology, neurosciences, craniofacial, nephrology and general paediatric surgery.

The hospital will be located adjacent to Wits University's Medical School and is in close proximity to other medical facilities to allow for paediatric academic teaching access from Wits Medical School in addition to maximise operational efficiencies and staffing models. The hospital will employ about 150 doctors and 451 paediatric nursing professionals in addition to allied services.

Group Five's appointment as main contractor by the Nelson Mandela Children's Hospital Trust (NMCHT) followed a selection process adjudicated by SIP Project Managers in conjunction with Mbatha, Walters & Simpson consultancy. "This represents a key milestone in our efforts to make Nelson Mandela's last wish of building a children's hospital in South Africa a reality," Nana Magomola, deputy chairperson, NMCHT, says. ■

AfriSam has been awarded a contract by main contractor Group Five to supply 17 650 m³ of readymix concrete for construction of the Nelson Mandela Children's Hospital in Parktown, Johannesburg.





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Aerial view of N1/N9 interchange during construction.

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Rehabilitation measures included widening and resurfacing the road, adding surfaced shoulders, widening and repairing 164 drainage culverts and reconstructing two existing river bridges as well as five major culverts, replacement of road traffic signs, new road markings and upgrading of rest areas. Three agricultural underpasses were also built to enable farmers to move their livestock across the N9 safely. The other aspect of the design involved the new interchange at the junction of the N1 and the N9. This included the construction of two new bridges, various ramps and fill embankments.

Construction innovation technology

The most unique feature of the project is the staggered arrangement of the interchange. It is staggered insofar that the connection of the N9 to the N1 is some 950 m to the south of the connection between the N1 and Sluiters Street at the entrance to Colesberg. The constraint due to the physical proximities of the nodes precluded the use of one overpass to achieve the grade-separation required. It would thus only be possible to have grade separation on one of the nodes, whilst the other remained at-grade.

In evaluating alternative configurations this was a physical constraint which required addressing; hence the final design

included two overpass bridges. The south overpass was askew to the N1 and was 115 m in length, whilst the north overpass was closer to 90 degrees to the N1 and was 85 m in length. As a result nine ramps were required to connect the N1 to the relevant roads.

Adding to the uniqueness of the project were the challenges encountered during construction. The major challenge which presented itself at the start of construction was the discovery that the roadbed adjacent to the route was extremely saturated due to exceptional rainfall during the previous summer. As the road was to be widened on one side along its entire length, a tremendous challenge presented itself when the saturated in-situ materials were unable to drain due to impervious underlying layers.

A solution needed to be found and it was agreed that the saturated in-situ material should be removed and replaced with suitable rockfill material from various sources such as widened cuttings and blasting from borrow pits. It later transpired that the entire N1/N9 area suffered from the same problem and ultimately 40 000 m³ of rockfill was placed to enable the project to proceed. This resulted in the programme being extended by six months.

Corporate social investment

Community empowerment and job creation are key features of all SANRAL projects.

The jobs created on this project varied from month to month but almost 80% of these jobs were allocated to local people.

About 408 employment opportunities were created at a cost of almost R60-million while 14 SMMEs were employed during the construction period, with contract values totaling to more than R62-million.

This was the first major interchange project ever built in the Northern Cape Province, with positive employment spin-off for the Northern Cape economy during construction, and will also provide economic benefits in linking the Eastern Cape economy with the Gauteng markets.

Design

In the scoping and preliminary design stages the entire project was subjected to a rigorous process of compilation of alternative designs and options. After many iterations, drawing on the comments received during an extensive public participation process, an optimal solution to a complex set of problems was accepted by all parties.

The project had, amongst others, the following aim: to promote safety for both vehicular and pedestrian traffic at two important nodes on the N1 near Colesberg. The first node is the intersection of the N1 (the main route connecting Cape Town with Johannesburg via Bloemfontein) and the N9 (connecting Port Elizabeth with Johannesburg also via Bloemfontein).

The REHABILITATION of National Route 9

UWP/Bergstan SA Joint Venture, a joint venture between UWP Consulting and Bergstan South Africa, was appointed by SANRAL on 5 July 2007 to carry out the rehabilitation investigations and design work required for the section of National Route 9 (N9) between Wolwefontein and Colesberg, 31,2 km in length. The project starts at km 63,90 on the N9 and ends at km 94,84 in Colesberg with a major new interchange with the N1.



The N9 is a significant route connecting the Port of Ngqura (Coega) and vehicle manufacturers GM, Audi and VW in PE and Uitenhage with Johannesburg. The second node is the intersection of the N1 with the town of Colesberg and a major fuelling station at the entrance to Colesberg.

Both intersections were previously at-grade and had many incidences of motor and pedestrian accidents, including fatalities. The design that was finally accepted following the consultation process with all stakeholders resulted in a new interchange being built with two overpass bridges and nine connecting ramps enabling grade separation with the N1 through road, extension or replacement of 47 culverts, flood and noise attenuation berms and realignment of utility services.

The N1/N9 intersection's final configuration enables traffic to move freely, without stopping, to connect with all the destinations such as the N9 in the south (both directions) and the entrance to Colesberg and adjacent businesses in the north (both directions). The traffic emanating from these destinations was enabled to merge safely with the busy N1 through route.

While the two overpasses are similar in terms of appearance (this mainly due to consultation with an architect on the appearance of the piers and cantilevers), they were different in terms of the structural design and construction approach. ➔



Aerial view of north overpass bridge.



Preparing the deck formwork north overpass.



Low perspective of south overpass.

Both structures included abutments at either end with three sets of intermediate piers between. The south overpass was cast as a continuous deck in three stages along its length, whilst the north overpass was cast in four stages split transversely into individual spans.

Environmental impact consideration

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Where possible existing road materials were recycled for re-use in the project. On the N9 and the N1, the base course layer was milled, supplemented with crushed material and stabilized with cement to form a new sub-base layer. New pavement layer materials were sourced from six local borrow pits and one commercial source in Colesberg. The borrow pits have been satisfactorily rehabilitated in terms of environmental management plans which were in place prior to the commencement of the project.

The interchange precinct now contains many features which enhance aesthetics and address environmental issues. The fill and cut slopes of the roadworks and the areas affected by construction were rehabilitated with the use of imported topsoil and hydros seeding. The seed composition was identified by a specialist from the University of Free State who determined the vegetation types classification as Upper Eastern Karoo.

The site was also assessed by environmental, heritage, paleontological and botanical specialists prior and during construction.

Health and safety

Following the recommendations of an expert appointed to minimise noise levels, the interchange precinct was further enhanced by the construction of earth berms to reduce aural impacts, particularly of heavy vehicles, on residents adjacent to the roads. In addition flood protection berms were designed and

constructed in the interchange area to control storm water runoff, which in the recent past had flooded the Engen access road and property and the entrance road to Colesberg.

The project was built under trafficked conditions and this was achieved by accommodating two-way traffic initially using one way stop-go passing lanes, and later using a two way bypass through some sacrificial widening. This latter innovation enabled road users to experience less inconvenience by not having to stop and wait for oncoming traffic to pass through the deviation.

In the case of the N1 upgrade and the construction of the N1/N9 interchange, the N1 north and south carriageways were deviated so that the interchange could be built without disruption to traffic flow on the route.

The N9 and the N1/N9 interchange precincts were maintained during the construction period by the contractor to ensure that the road surface was in a satisfactory condition from a safety aspect while new construction continued simultaneously.

Cost and quality

The project was completed within the approved amended budget and the amended time. Basil Read, in joint venture with Newport Construction, commenced construction in March 2011 and the contract was completed in April 2014 at a combined value of just over R400-million for the interchange and the N9 rehabilitation.

The N1/N9 interchange portion of the works was delayed by three months due to administrative issues relating to access to the Colesberg Engen 1-Stop, which is situated right in the heart of the planned interchange.

As a result the project was phased so that the N9 portion of the works commenced as originally planned, with the N1/N9 interchange portion of the works commencing three months later targeting and

achieving a simultaneous completion date.

This project was governed by rigid quality control standards, which resulted in quality acceptance testing for all road and concrete materials. During this process more than 8 000 quality tests were carried out on the road layers and pavement structure and more than 7 000 quality tests were carried out on all the concrete structures.

Risk management

Risks that were successfully managed and overcome included the following:

The comprehensive stakeholder consultation process resulted in a three month delay in the interchange construction but was resolved to the satisfaction of all concerned.

While the N9 rehabilitation started on time, it was soon discovered that the roadbed adjacent to the route was saturated due to exceptionally high rainfall experienced in the area. The saturated in-situ materials were unable to drain due to impervious underlying layers and had to be removed and replaced with suitable rock fill from various sources such as widened cuttings and blasting from borrow pits. Ultimately 40 000 m³ of rock fill, which required urgent sourcing and procurement, was placed to enable the project to proceed. This resulted in the programme being extended by almost six months.

Hard rock materials such as crushed stone base course, surfacing aggregate, crusher dust and concrete stone were to be supplied from a separately operated source about 45 km south of Colesberg. However the dolerite stone from this source failed the durability requirements and the contractor proposed an alternative in Colesberg. This alternative source was tested and approved, with significant cost savings due to its proximity to the site. Had this alternative not been successful, the probable resultant delays may have had a significant negative cost impact on the outcome of the project. ◀



Busy day casting the south overpass deck.

Project information

- **Project start date:** 16 March 2011
- **Project end date:** 1 April 2014
- **Client:** SANRAL
- **Project team:** UWP/Bergstan SA Joint Venture
- **Main contractor:** BRNC N9 Joint Venture
- **Principal agent:** UWP Consulting
- **Project manager:** SANRAL Western Region
- **Consulting engineer:** UWP Consulting
- **Project value:** R407-million



Early morning casting of south overpass deck slab.

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TAILOR-MADE crushing and screening SOLUTIONS

B&E International is a partner of choice for the mining and construction industries with its integrated crushing, mining and mineral processing solutions, Dewald Janse van Rensburg, managing director, says.

The company is now offering its operational expertise to its broad customer range to design and engineer custom built solutions for specific projects and applications.

➤ “We have been designing and manufacturing plants at our Port Elizabeth facilities since the 1980s, but always on an in-house basis. It has only been over the last two years we decided that due to the skills and expertise we have garnered in this regard, we will now be offering this to the market as we believe there is a definite gap that we can fill in terms of purpose built plants and maintenance and operational plants for mine owners.”

The company was established in 1972 as a drilling and blasting specialist in the Eastern Cape and soon diversified into the mobile crushing sector with its own mobile and static crushing division. In 1993 it entered the mining services sector and diversified further into bulk mining, processing and mineral beneficiation. B&E International was acquired by the Raubex Group in 2008, completing its transformation into a strongly focused crushing, mining and mineral processing company.

On the mobile crushing and screening side of the business the company operates various crushing plants ranging in size from about 50 tph to 500 tph, and from single stage plants all the way up to massive five stage crushing plants. “Our equipment fleet consists of the most modern crushers on the market, giving B&E International the capability to produce a range of products from road stone to high quality manufactured concrete sand, base course, concrete aggregates, water bound Macadam, ballast and filter media,” Janse van Rensburg says. The high quality aggregates produced are deployed from Greenfield sites through to projects on existing commercial quarries in sub-Saharan Africa.

“B&E International’s particular skill set on the mobile crushing and screening side includes the ability to design our own mobile plants, complete with the requisite trailers, conveyors and bins. This encompasses rapid and efficient mobilisation and installation, in addition to prospecting for suitable rock and the operation and subsequent rehabilitation of project dedicated quarries,” Janse van Rensburg says. He adds that the company’s continued success in this sector is predicated on its proven ability to achieve product consistency at high volumes and in remote locations.

Surface mining and mineral processing

On the surface mining and mineral processing side of the business the company has accumulated significant Build, Operate and Transfer



The crushing plant supplied to a Queenstown operation comprises a Metso C100 jaw crusher with a vibrating grizzly feeder, a three deck CVB 1845-3 screen, a four deck CVB 1845-4 screen and two HP 200 cone crushers.

(BOT) expertise ranging from in-field mineral pre-concentration through to processing run of mine material for further treatment such as heap leach or heavy media separation.

“Our competitive advantage is that we have been operating plants for many years and are therefore able to design plants that are more maintenance and user friendly as well as being more durable and having a much longer service life. In addition we are able to run this with a very low overhead as engineering is not our core business at the end of the day. Thus we have all the necessary skills combined with highly competitive pricing,” Janse van Rensburg says.

Flexibility

In addition, B&E International has the flexibility to cater for a range of plant sizes, from a 200 tph plant in Queenstown to a 500 tph plant for the Tschudi copper mine project in Namibia for Weatherly International. “We are capable of design and manufacturing plants with even greater throughputs. It all depends on what the client wants.” The company is also looking to expand its geographical footprint, with Africa a definite focus at present.

“If we get requests from the aggregates industry in Africa and there is definitely something we can do for them, we can size any plants according to the market demand. Obviously commercial crushing is a totally different ball game as it does not help if you are able to crush 100 000 t a month but can only sell 30 000 t. We can match the plant to whatever the specific market need is,” Janse van Rensburg says.

B&E International’s service offering is a particular boon to mining companies facing a depressed industry in general and declining commodity prices across the board, which has placed the emphasis on cost cutting and value addition.

“At Tschudi we financed that project as well and had the client pay us back on a per ton toll basis. This allows the client to actually take over the operation of the plant when its cash flow and margins have achieved a satisfactory level. This exposes us to a certain amount of risk but it is something we are willing to do for reputable mining companies,” Janse van Rensburg says.

Such an arrangement works equally well for both parties, as B&E International has a guaranteed income stream while the client has peace of mind in terms of plant performance. “We are prepared to run it for you on a per ton basis which is agreed upon from the outset. If the plant does not perform according to specification then we will tweak it.” Janse Van Rensburg concludes that B&E International’s vast experience in the industry has allowed it to offer such value added services to its most important clients.

“Not only do we now have an established track record in this regard but it is also starting to gain momentum. If our order book increases significantly in this regard then we will seriously look to ultimately expand our design, engineering and manufacturing capability.” ◀

REHABILITATION

project completed

Murray & Roberts Infrastructure has successfully completed a challenging runway rehabilitation project at George Airport in the Western Cape for the Airports Company South Africa (ACSA) that involved placing 2 080 t of Novachip Ultra Thin Friction Course (UTFC) on top of the new asphalt on the runway. In addition the runway extensions and intersections comprised 1 920 t of medium graded asphalt while 12 710 t of medium graded asphalt was used for the runway reprofiling.

Activities at the bustling local airport could not be hampered by the construction work, which meant that Murray & Roberts Infrastructure had to work during the night and hand over a pristine site every morning. “The actual re-profiling of the runway with asphalt was a challenge,” Wouter Schreuder, site agent, says. “We had to temporarily shorten the runway during construction, which meant that aircraft had to land without using their instrument landing systems.” Work on the project commenced on 13 November 2013 and was wrapped up on 23 July this year.

ACSA initiated the project in order to improve safety at George Airport in terms of run-off and stormwater drainage. In addition the project was aimed at improving the structural capacity of the pavement surface. The scope of work comprised the extension of Runway 11/29, the extension of the aeronautical ground lighting network and re-profiling of identified runway sections.

Murray & Roberts Infrastructure worked in close conjunction with ADB Electrical on the major works.

“We had to build from an uneven existing runway surface to the final design level. Numerous layers of asphalt were placed on top of each other to achieve the required level,” Schreuder says. Challenges included the fact that Murray & Roberts Infrastructure was not permitted to have any steps on the runway. “We had to create ramps after each shift’s paving operation before the runway could be opened in the morning. These had to be removed once the layer was constructed in this particular area.”

Cleaning of the runway after each shift was equally challenging in that the area had to be clean and free of any debris pending an inspection by George Airport’s fire and rescue services before opening the runway in the morning. “Time had to be allowed at

the end of each shift in order to carry out all the required cleaning and this took careful planning,” Schreuder says. In addition each shift required thorough planning due to the constraints of working on an operational runway. Emergency removal equipment had to be available on site in case of any plant breakdown during a shift.

“The interface between the civil and electrical works was difficult and had to be planned before the start of each shift. The logistics to get material to site posed a challenge due to the strict security measures. The bulk of the material had to be transported to site at night as a result,” Schreuder explains. The wet and cold weather at night also played a role during the construction phase due to certain limitations as per the project specifications. “Care had to be taken not to damage any of the existing services such as runway lights while working.”

Major statistics recorded by the project included: 12 465 m³ of topsoil removal, 18 500 m³ of imported G7 gravel material, 14 000 m³ of roadbed preparation, 1 980 m³ of stabilised gravel sub base by means of 130 t of cement, 1 144 m³ of G1 base course, 2 000 m³ of asphalt milling, 7 318 l of primer using inverted bituminous emulsion, 71 678 l of tack coat with a 30% stable grade bitumen emulsion and 4,4 ha of landscaping and hydro seeding.

Murray & Roberts recently announced the integration of its Concor Civils and Concor Roads & Earthworks into a new single business called Murray & Roberts Infrastructure. This will entrench the cumulative and collective legacy of these businesses by enabling a more focused approach of combined services, as well as enhancing project execution and the ability to adapt to changing conditions in the marketplace. Eric Wisse, former managing director of Concor Roads & Earthworks, heads up the new business division. ◀



Asphalt surfacing during Phase I of the project, which involved reprofiling of the runway.



A closer view of the UTFC (Ultra Thin Friction Course) milled and replaced at Runway 29.

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RESA 11 (Runway End Safety Area) upon practical completion of the project.



The four Precision Approach Path Indicators (PAPI) at Runway 29, installed by ADB Electrical.

King Mswati III International Airport



The project is called 'D42 – access road to King Mswati III International Airport'.

It is a two-lane dual carriageway which consists of a total 18 km of asphalt surfaced road. There are four concrete motorway bridges and three structural steel pedestrian bridges across the full span of the road.

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➤ To accommodate the public utilising this road and provide strategic crossings for local community, there are 10 underpasses for livestock and pedestrians.

The immediate purpose of this road is to serve as an access route to the KM III International Airport from the National Road MR3, which runs from Manzini to Simunye. In future this will be the main corridor link between two borders Oshoek and Lomahasha, and will link the Swazi capital city of Mbabane and the Mozambican city of Maputo.

Background

The Mbadlane Access Road to KMIII International Airport commenced operations in February 2011. At this time the site only had 25 employees, however by the end of the year the numbers had elevated to 223 employees who worked 257 730 hours with a minimum of eight subcontractors.

The contract includes road works and civil works, the complexity and value has

made it Inyatsi Construction's (IC) leading site. One of the unique aspects of the project is the construction of a free-flowing interchange which is the first of its kind in Swaziland.

The project, being a multi-disciplinary and complex one, has been in the forefront of career development in the company. The extensive operations and valued experience gained on this project has resulted in the training and development of three new junior site agents who have since been promoted to run their own sites. A total of 38 unskilled labourers were grade tested and hired on permanent basis and are now fully fledged plant operators and artisans.

Design innovation

Included in the contract is the structural design of all bridges and drainage structures and value engineering of the project a whole.

The proposed cross sections comply with the standards that are currently adopted by the Ministry of Public Works and Transport for roads of this type. This includes the proposed new dual carriageway from Manzini to Mbadlane, to which this road will link.

The relatively flat grades in the original design have resulted in fills as high as 19 m and cuts as deep as 24 m in some sections. The proposed 1:1.75 slopes on these cut and fill banks may result in sustainability problems as some of the locally available cut/borrow material has very low cohesion. The proposed road embankment shall have slopes of 1:2 for cut and fill.

The proposed design also takes cognisance of the fact that the road traffic volume being served is primarily made up of passenger vehicles such as busses.

The minimum grade has generally been increased from 0,5% to 1%. The existing link

to the airport has been constructed at 0,3%, so the last 5 km of the access road from the traffic circle has been designed to tie in with this. The increased grade will improve drainage characteristics and reduce the likelihood of elevation offset of stormwater drains, since these have to be on a grade of 1% to prevent silting.

Technology

Although in Swaziland the construction industry has been built around brick, mortar, steel and hard labour, IC recognises the importance of technology in this field. As a result the company has introduced new technologies in the country.

Some of the most recent technologies in Swaziland that are used for the Mbadlane Access Roadsite are the Trimble and the recycler. The Trimble integrates a wide range of positioning technologies including GPS, laser, optical and inertial technologies with application software, wireless communications and services to provide complete commercial solutions. Its integrated solution allows employees to collect, manage and analyse information faster and easier making site operations more productive, efficient and profitable. Getting the job done right the first time (which is Inyatsi's motto) eliminates rework, saving the company many costs. Through the use of these technological improvements: labour, plant, fuel and supervisory costs are significantly reduced. However, the greatest saving is on material, where greater control on the levels and quantity of materials required results in reduced wastages. With the Trimble more time is spent being productive and less time waiting for surveying and levels checking.

Quality/ISO

The decision to adopt and implement the



ACCESS ROAD

Project information

- Project start date: February 2011
- Project end date: October 2014
- Client: Government of Swaziland
- Main contractor: Sadeem al Kuwait/Inyatsi Joint Venture
- Principal agent: Government of Swaziland
- Project manager: Sadeem al Kuwait/Inyatsi JV
- Project value: R498-million



ISO 9001:2008 Quality Management System has been a strategic move with an aim to standardise the manner in which the company operates and controls activities affecting quality, thereby saving time and money while also meeting customer requirements. The project was running for a year before Inyatsi began the ISO Certification process. The site was chosen as the 'guinea pig' for the system implementation because of its size and complexity. The team's dedication, commitment and contribution resulted in the system that is now used throughout the group.

Environmental and health impact consideration

The Mbadlana access road to KMIII project is committed to reducing the impact of the construction works on the environment. A full-time safety and environmental officer is assigned on site. He assesses all risks on environmental and safety. As a result IC has endeavored to ensure preservation of any indigenous trees and streams on site during construction operations in order to minimise any destruction to the natural environment.

During daily operations on site certain measures are continuously undertaken to minimise effects on both the environment and health of employees and local residents.

All these systems put in place are progressive and their effectiveness validated on a monthly basis by site management. Spot audits and internal audits by senior HSE Officer are done randomly to ensure that we still conform to NOSA status.

Being a road construction site, extensive use of local natural resources like the rivers, dams, borrow pits, and quarries is made. As such resource maintenance and conser-

vation is a major objective in order to ensure that the local rural community continues using these resources even after operations have ceased and the project has been handed over.

Safety

In 2014 to date (August), the site has worked an average of 1 538 065 hours with a total of 3604238 working staff achieving an LTIFR Ratio of 0.78. For a site of this magnitude with an LTIFR Ratio of 0.78 all, staff and working personnel should be congratulated. The site provided first aid training as well as SHE representative training to Inyatsi employees and made sure that all subcontractors comply and maintain Health & Safety construction regulations and SHE training. A health and safety audit was conducted for main the contractor, as well as all subcontractors on a monthly basis.

On 20 June 2014 the Inyatsi Group successfully completed the NOSA 5 star integrated audit and achieved 4 platinum stars.

Corporate social investment

In line with Inyatsi's policy to empower and grow small contractors in Swaziland, an advertisement was placed in the *Swazi Times* calling for small Swazi-based companies to work as subcontractors. There were numerous applications. Inyatsi and their partners proudly report that more than 30 Swazi companies have been used as subcontractors. Four of these companies, based in the area of the contract, were created, with the help of IC, specifically for the contract.

The subcontractors were also supplied with materials of the highest quality to ensure that their work met the high standards of the project.

The Ministry of Public Works and Transport also had the foresight to design this project in such a way that structures used in the construction phase would continue to benefit the community in the future. An excellent example of this can be seen in the provision of water for the contract. Instead of transporting water, three boreholes were drilled along the contract corridor. The local communities will continue to have an accessible source of water in the future. In addition, earth dams were built to store water for the project, which now provide drinking water for livestock in the area.

A positive working environment is essential to the success of a project such as this. Inyatsi Construction established a good relationship with the local community by assisting in community activities wherever possible. The joint project donated soccer balls, graded several soccer fields and assisted at several rural funerals by providing water and the use of a TLB. As part of Inyatsi's nationwide campaign, blankets were given to the aged.

Inyatsi Construction is committed to uplifting and improving the communities and surrounding environments on all contracts. Local residents were employed wherever possible and Inyatsi required all subcontractors to do the same. As a result, 60% of the people employed on this contract were from the vicinity of the contract. These people not only received wages, but were also trained and they have acquired skills that stand them in good stead to be re-employed when developments commence in the surrounding areas. More than 20 local residents were trained and certified as scaffold erectors and carpenters. ◀

TALL ORDER

for Jeffrey's Bay Wind Farm

Jeffrey's Bay Wind Farm in the Eastern Cape recently had a tall order for Johnson Crane Hire in Port Elizabeth when a rotor from a wind turbine had to be removed in order to repair a damaged blade. Each turbine comprises an 80 m high tower, three 49 m blades, a nacelle with the generator and gearbox and a transformer box on the ground.

> The Jeffrey's Bay Wind Farm has 60 wind turbines spread over 3 700 ha. It can generate up to 138 MW of electricity when all its turbines are operating at full speed. The power is fed into a 132 kV transmission line from a substation built to Eskom specifications.

Johnson Crane Hire deployed its Liebherr LTM 1750-9.1 (750 t) all terrain crane, for client FairWind Installation on this challenging project, which it added to its fleet towards the end of 2013 due to an



Johnson Crane Hire deployed its Liebherr LTM 1750-9.1 (750 ton) all terrain crane for client FairWind Installation.

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The crane was configured with a main boom of 49,1 m, an insert of 19 m and a 28 m luffing section, totalling 96,1 m, allowing for a hook height of 90,19 m.

increased demand for specialist lifting in the local wind energy sector.

"We have had a number of enquiries for repairs to wind turbines in the Eastern Cape after completing the FairWind contract," Janet Barnes, key account manager, says. Johnson Crane Hire has already erected four wind generators at Darling Wind Farm in the Western Cape.

The rotor was replaced in July, with Grant Parker from Johnson Crane Hire's Heavy Lift Division overseeing the set up and stripping of the crane. The scope of work was the removal of a rotor from a wind turbine for the purpose of repairing a damaged blade. The estimated time for repairs to the damaged blade was about seven days. However, strong winds delayed the repairs to the damaged blade as well as the replacement of the rotor.

The weight of the hub and blades totalled 62,5 t. The height from ground level to the centre of the hub was 80 m. "The crane was configured with a main boom of 49,1 m, an insert of 19 m and a 28 m luffing section, totalling 96,1 m, allowing for a hook height of 90,19 m," Parker explains. He adds that the LTM 1750-9.1 is perfect for this application as it is able to move quickly between the various hard stand areas due to its ability to be set up and stripped fairly quickly.

The nine axle crane has the advantage of its complete telescopic boom remaining attached during transportation on public roads. Its maximum lifting capacity is 750 t at a 3 m radius while its operational weight is 108 t and its total counterweight is 204 t.

Johnson Crane Hire operates across South Africa with a fleet of hydraulic and crawler cranes ranging from 8 t to 750 t on both short and long term projects. It works in conjunction with its customers to design optimum lifting solutions, ranging from supplying professional operators and full supervision to all necessary rigging equipment in a single source supplier approach.

The company's head office and Heavy Lift Division are situated in Germiston, Johannesburg. These are complemented by branches in Burgersfort, Cape Town, Durban, Lephalale, Johannesburg, Middelburg, Port Elizabeth, Richards Bay, Rustenburg, Saldanha, Trichardt, Vanderbijlpark and Welkom, with a subsidiary operation in Botswana. Recently established depots include Kusile, Kathu and Mokopane. <



The hub and blades weighed 62,5 t while the height from ground level to the centre of the hub was 80 m.

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COMPACT, SIMPLER, BETTER

Replacing the previous five models from the T35100 to the T35120SL telescopic handlers, Bobcat has launched the company's new T35105, T35105L and T36120SL 10-12 m middle lift telescopic handlers.



Sharing the same, easily recognisable counterweight design and chassis in black, the T35105, T35105L and T36120SL models are part of the new generation of telescopic handlers from Bobcat and incorporate many of the improvements already seen in the TL360/TL470 6-7 m and T40140/T40180 14-18 m models launched over the last 18 months.

The advanced features include the new Panoramic Cab which has a large parabolic windscreen providing panoramic visibility especially when handling loads at height. In the cab, there is a new dashboard with digital display and ergonomic controls including a joystick with integrated forward/reverse (FNR) control for improved productivity and safety.

The state-of-the-art electronics in the new telescopic handlers are based on can bus technology allowing smart machine management and monitoring of the main components for easier maintenance. Based around a 100 l/min gear pump, the advanced hydraulics feature an active diagnostic system which ensures that in case of hydraulic failure, the machine always remains within safe limits.

Built for construction and rental

For construction and rental applications, the new telescopic handlers feature an auxiliary hydraulic line and are supplied with a 1,12 m wide foldable pallet forks carriage with backrest and 1 200 mm pallet forks as standard. An important safety feature is the Aggravating Movement Arrester (AMA) system which cuts off all aggravating movements to ensure safe use within the working envelope, whatever the attach-

ment used and the type of load (palletised or suspended) being lifted.

The T35105 and T35105L telescopic handlers both have a maximum lift capacity of 3,5 tonne. The working envelope has a maximum lift height of 10,29 m and a maximum forward reach of 6,88 m.

Increased safety and enhanced control

As well as the high visibility curved front window, the new ROPS/FOPS protected cab on the T35105, T35105L and T36120SL telescopic handlers has a larger back window increasing sight to the rear and a cab door with windows above and below the handlebar for optimum visibility when manoeuvring close to walls or other obstacles. Overall the new cab is designed to provide an exceptional work environment and a new higher level of comfort for the operator, reducing fatigue and improving safety and performance on site.

On the new dashboard, the digital display provides the operator with an easy to understand and quick overview of machine performance, with important information displayed such as total and job operating hours, rpm, boom angle and a continuous readout of the frame levelling angle.

The boom angle value showing the inclination angle of the telescopic boom is also available on the LCD screen to promote precise movements and faster work cycles for repetitive tasks. Contributing to the fast work cycles is the top speed of 30 km/h, which allows the new models to move quickly between locations, cutting down on travel time.

The operator is provided with an ergonomic array of machine controls, all within easy reach from their comfortable

mechanical or optional air suspension seat, including the new all-in-one joystick with integrated FNR control and an adjustable steering wheel column.

Semi-automatic wheel alignment provides automated assistance to the operator ensuring the wheels are always aligned when changing between the three steering modes of 2-wheel, 4-wheel or crabbing. Maximum Drive speed (creep mode) and auxiliary flow control are easily and precisely controlled via the joystick.

The easy-to-use compact stabilisers ensure that the full capabilities of the telescopic handler can be utilised in the most confined working areas and close to walls (minimal loss of reach). In addition, optimal steering capabilities with minimum external turning radius (3,76 m at tyres) make the machines extremely manoeuvrable and easy to position at any job site.

Optimum reliability and serviceability

For maximum uptime and serviceability, active diagnostics of the hydraulic main valve monitors three critical parameters – spool position, voltage control and sensor monitoring. The system ensures that operation of the machine remains within safe limits even in the case of hydraulic failure.

New generation hydraulic and electrical systems ensure optimum performance and extended machine life. A new cooling package ensures a smooth and stable control of the hydraulic oil temperature and optimises hydraulic hose life.

Complete protection of the tilt cylinder within the boom head removes the risk of damage and increases operator safety. New generation wear pads have been installed, as well as larger bolts and larger steel inserts for better wear resistance. Safe and smooth management of over speed also ensures maximum durability and uptime.

The new T35105, T35105L and T36120SL telescopic handlers can be supplied with a wide range of attachments including different types of digging buckets, pallet forks and jibs. <

T35105.



T35105L.



T36120SL.



MANUFACTURER'S BIG 5 NOW IN AFRICA

In response to an increasing number of customer requests, Babcock will introduce a 6-ton wheel loader with a 3,5 m³ bucket to its SDLG range early in 2015. The LG968 slots perfectly into the existing range of LG918, LG938, LG958 and LG978 wheel loaders already operating throughout Southern Africa.

➤ "A batch of the new LG968 wheel loaders is already on order for specific customers," says general manager SDLG, Grant Sheppard. "Our customer base has been very impressed with the performance of the LG958, but several customers have asked for a wheel loader slightly larger than this, but smaller than the LG978. The new LG968 has a similar drive train to these models and provides excellent accessibility for rehandling applications.

"Considering we only launched the SDLG range in this region 18 months ago, the market's response has been very exciting. Many first-time SDLG customers have already purchased additional units and we have been asked to keep extending the range. Over and above the addition of the LG968, we will be adding more models to our line-up during the course of 2015.

"One of the primary reasons for our success with the SDLG range is that we offer the most comprehensive aftersales service support structure in the local market for a value add brand product. We have sales, service and support representation in all the major centres of South Africa and aftersales teams operating throughout Babcock's African footprint.

"The SDLG offer includes driver training and extended warranties of up to 6 000 hours/36 months. We have a broad mandate that no machine will have unnecessary downtime and we're able to offer 100% parts supply to ensure the customer gets mobile again in the shortest possible time. The strength of any brand is built on customer satisfaction and to us, this translates as uptime."

The 18,4 tonne LG968 is an excellent choice for re-handling or light quarry applications. Its robust front and rear frame are optimised to handle the highly intense work performed by a machine of this size. The combination of Weichai engine and SDLG transmission results in a reliable and efficient machine. The new box structure at the front and rear of the frame is optimised to handle the highest intensity work load. This wheel loader features a fully enclosed cab with excellent visibility and comfort, delivering the highest levels of safety and efficiency for the operator. ■

SDLG is a value-added range of mechanically driven wheel loaders, graders and vibratory rollers, ideal for applications in the re-handling, construction, quarrying, agricultural and aggregate industries. These machines offer extended trouble-free operation and are extremely maintenance friendly, fitted with basic electronics and standard components.



The Magni that can multitask

Crane, access platform and telehandler, all-in-one



The new RTH range from Magni, built for enhanced operator performance and safety, delivers state of the art technology, featuring a touchpad dashboard showcasing full machine diagnostics, automatic attachment recognition and load motion sensing. Ideal for heavy industrial applications, the RTH features enhanced stability and automated levelling.

- 4 - 6 t load capacities
- 18 - 30 m lifting heights
- Extensive range of attachments available
- 360° rotational capability



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50 YEARS IN BOTSWANA

On 30 October 2014, Barloworld Equipment Botswana officially celebrated its 50th anniversary as the country's Cat earthmoving dealer: a major milestone and one that reflects a rich history of private and public sector partnerships that have helped to shape the country's mining and infrastructure landscape since 1964.

> "It has been an amazing journey so far and one that reflects our commitment to Botswana's socio-economic growth through the supply of world class equipment and services, supported by our investment in the human resources needed to support these machines in the field across the multi-faceted industries that we serve," says Sean Walsh, managing director for Barloworld Equipment Botswana.

"In all these areas, health and safety is our company's number one value, both on ours and our customers' sites. This dedication is further reinforced by advanced safety features built into each machine across the broad Cat machine spectrum."

History

The first registered Barloworld Equipment entity in Botswana was known as Construction Equipment Supplier Company, established on 12 September 1964. Then in 1971, the name changed to Botswana Earthmoving Machinery Co (Bemco). The existing head office in Francistown was expanded to support major mining activity at Selibi-Phikwe and Orapa, which today remain key copper and nickel, and diamond centres, respectively.

Then in 1981, the head office relocated to Gaborone to provide support for Debswana's newly established Jwaneng mine, which became fully operational in August 1982. Bemco subsequently became Barlows Equipment, finally transitioning to become Barloworld Equipment. The current staff complement is around 450.

The current situation

Mining remains the major contributor to Botswana's Gross Domestic Product (GDP), and from inception Cat machines have played their part in unlocking the value on existing and green field projects. The same is true for infrastructure programmes, with a large portion of Botswana's original national road network post independence in 1966 built by a succession of contractors using Cat equipment.

A current infrastructure example is the Tonata to Francistown road upgrade where a Cat RM500 rotary mixer is responsible for all stabilisation phases. The project was awarded to China Railway Seventh Group Botswana, with the 30 month contract commencing in May 2013.

In terms of mining machine milestones, Botswana was the first country in Africa to receive delivery of the Cat 7495 electric rope shovel, which has an operating weight of approximately 1 388 000 kg and a payload capacity of 109 tonnes, making it a three pass loading match for ultra sized off-highway mining trucks.

Three Cat 7495 units were commissioned at Jwaneng during 2012 for Debswana's Cut 8 expansion project. (Jwaneng is the richest diamond mine in the world by value.)

Debswana was also one of the first in the Southern African region to take delivery of a range of latest generation Cat hydraulic mining shovels for deployment at its Orapa and Jwaneng operations.

Training to support these and other Cat units is a core focus at Barloworld Equipment to keep pace with the growing



Barloworld Equipment CEO Southern Africa, Dominic Sewela (left) and Sean Walsh, managing director, Barloworld Equipment Botswana, cut the Cat cake to commemorate 50 years in Botswana.

machine population and the company places between 15 and 30 learners on its earthmoving mechanic apprenticeship programme annually. Training takes place at the Gaborone branch. This is combined with practical and theoretical components at Barloworld Equipment's Technical Training Centre in Isando, Johannesburg.

Barloworld Equipment, as an affiliated member of the Botswana Chamber of Mines (BCM), also works closely with the BCM on developing training programmes for industry through the BCM Technical Working Group (TWG).

Skills development prepares the way for expansion plans within Botswana's mining industry, as well as the creation of the Small and Medium Enterprises needed to stimulate micro-economic growth.

Allied to this is Barloworld Equipment's active involvement in Corporate Social Investment and community initiatives in Botswana. These include the annual Barloworld Equipment Softball Tournament at Jwaneng in support of one of Botswana's most popular sports. Barloworld Equipment is also a regular contributor to Debswana's annual 'General Managers' Sponsored Walk' at Orapa, which raises funds for underprivileged members of the community in the Boteti region.

For Botswana, the future holds so much promise. Aside from diamonds, Botswana's mostly untapped and vast coal reserves present huge potential for green field projects, as well as associated infrastructure; whilst a USD337-million investment by Botswana's state owned mining concern, BCL Limited, opens up new local and regional opportunities.

This follows the sale by Russia's Norilsk Nickel of its 50 percent interest in the Nkomati nickel and chrome mine in South Africa, and its 85% stake in Tati Nickel Mining Company in Botswana to BCL.

BCL is based in Selebi-Phikwe where underground mining operations are spread over a strike of 14km trending north to south. Here a fleet of Cat R1600G underground mining loaders form the backbone of the production programme at a mine that has strategic importance for Botswana's projected GDP target growth. <



A high production machine, the Cat 7495 electric rope shovel is an optimal three to four pass loading match for ultra size mining trucks.



ROPE ACCESS AT LOFTUS

The maintenance was carried out from 8 to 11 September 2014, using a five man team with solid rope access skills as well as general maintenance and roofing skills. According to Skyriders marketing manager Mike Zinn, the project team encountered several challenges related to time constraints.

“When Skyriders was awarded the contract for the roof maintenance at Loftus, we were asked to align our schedule to the main contractors who had been working on site. They were already in the process of de-establishing, which left us with very little time to complete the repairs,” he explains.

In addition, previous maintenance on the roof structure had been carried out using scaffolding. Rope access had not been planned for, and to design a new system for the stadium was going to be costly. To overcome this challenge, Zinn points out that a temporary rope access system was installed, which also reduced the contract duration time.

“We also supported and suspended the falling heavy cladding canopy using rope access techniques throughout the repair period to prevent it from collapsing. Other challenges included weather conditions such as strong winds and the heat from the sun, as well as access restrictions. However, these challenges were successfully overcome, thanks to the team’s expertise and experience,” states Zinn.

Skyriders made use of a variety of tools and materials during the course of this project. These included a Bosch baby grinder with cup brushes to clean and remove corrosion on the cladding, as well as a Bosch drill for drilling through the steel structure for bolting and riveting. The team also made use of cavity wall fixing screws, a cavity wall fixing screw gun, and cobalt drill bits.

“The versatility and dynamics of rope access helped in solving inaccessible height related challenges. This ultimately assisted the client in reducing contractual costs by cutting down on the access costs,” concludes Zinn. ☒

NEW HIGH-PERFORMANCE FAÇADE CLADDING SYSTEM

a.b.e. Construction Chemicals has launched a new Dow Corning high-performance adhesive for façade cladding on the South African market.

a.b.e. – part of the Chryso Southern Africa Group – is the South African distributor of the globally-acclaimed Dow Corning range of structural glazing sealants produced in Belgium.

Samantha Ferreira, a.b.e. Sales & Segment Manager: Silicones, Sealants and Specialist Adhesives, says the cost-effective Dow Corning Panel Fix System offers a new solution for panel bonding. “It is ideal for façade cladding applications and substantially expands cladding design possibilities, while maintaining safety and control,” she states.

The system features Dow Corning 896 Panel Fix silicone adhesive, an elastic adhesive specifically designed for non-glass panel applications that require high durability and fast handling. Some of the new system’s benefits are:

- Exceptionally good adhesion properties, with primer-less adhesion to a variety of substrates such as mill finished aluminum and mineral substrates;
- Immediate high tack upon application;
- High strength when fully cured;
- Ease of application;
- One-part, moisture cure, neutral, low-odour formulation;
- Suitable for indoor and outdoor applications; and
- Low squeeze-out that prevents excess wastage. ☒



Dow Corning’s new 896 Panel Fix system was used for the façade cladding of the new 30 Jellicoe Avenue office block in Rosebank. a.b.e.-approved applicators, Rudolph & Van Vuuren, factory-produced the composite ceramic panels, bonding them into aluminium frames before transport to site for final installation.

DRILLING IN CONCRETE



The Makita HR2300 is a variable speed, two mode model (rotation and rotation with hammering) and is ideal for drilling in concrete, making it easier, quicker and more efficient to complete the task at hand. The torque limiter fitted to this model stops the drill bit if it hits against reinforcement. The drilling capacity in concrete is 23 mm, 13 mm in steel and 32 mm in wood. The one-touch sliding chuck makes it easy to

change the bits and there are 40 different bit-angle settings that can be adjusted without a chisel adapter. This model is supplied without any drill bits, but includes a carry case.



AGEING PLANT CONFERENCE

In today's current economic climate there are vast numbers of new downstream projects either delayed or being put on hold due to unplanned shutdown. Therefore, it is important to ensure existing facilities and assets are operating reliably and safely. The need to minimise unforeseen maintenance issues is important in mitigating productivity loss.

> With revenues pouring in from sectors like mining, power plant, coal and oil and gas; South Africa's economy is touted to be the largest in Africa, ahead of Nigeria and expected to grow by 8% before the end of 2014 by the African Economic Outlook 2014.

Plant assets in South Africa are reaching the end of their lifespan in spite of explorations not slowing down. To meet expected productions targets, wear and tear on plants and refineries assets are inevitable. Ageing Plant Strategies Conference is aimed to focus your entire plant asset lifecycle needs. It features a series of operationally focused case studies, lessons learned, how operators execute cost effective and efficient long term operations and maintenance strategies in order to optimise plant flexibility and reliability from world class plant operators.

'Ageing Plant Strategies' will bring expert engineers from various industries in evaluating and assessing your existing plant. Achieve this goal to seal the undeniable bond between achieving world-class maintenance excellence with high production rate and overall plant effectiveness. Book a place now to grab this opportunity to revive your plant. ❏

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(From left) Kabelo Sepotokole, technical sales representative: inland; Ashley Ogle, general manager: operations and Gustav Fourie, technical sales representative: cement additives.

APPOINTMENTS

Bearing Man Group (BMG)



Byron Nichles, CEO.

SMEC South Africa



Kostas Rontiris, CEO.

Basil Read



Paul Baloyi, chairman.

a.b.e. Construction Chemicals



Peter Jones, national sales manager: flooring.

Chryso Southern Africa



Keith Hargreaves, field service technician: KwaZulu-Natal.



Kayaletu Mpunga, technical sales representative: KwaZulu-Natal.



Eugene Massyn, national sales manager: mining.



Matthew Barker, export and technical general manager: mining.



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**SOFT
NO LOAD**



HR4013C - Rotary Hammer

- Continuous rating Input: 1,100W
- Capacity:
- Concrete (with T.C.T. bit): 40mm
- Concrete (with Core bit): 105mm
- Impacts per minute (i/min): 1,450 - 2,900
- No load speed (r/min): 250-500
- Net Weight: 6.8kg



Vibration absorbing housing

Active dynamic vibration absorber

Damper spring



HR4003C - Rotary Hammer

This model has the same specifications as the HR4013C but does not feature the Soft No Load and Anti Vibration Technology, making it a more cost effective option for users who do not utilize the tool for long periods of time.



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