

# BY THE WAY



A SANRAL Publication

Jun/Jul 2017

Issue 14

## Jump the Q

What you said

## Explore

The Land of the Rising Sun

## Dudu Busani-Dube

On taking the long way round

# Where were we?



# Letters

## Read-letter day

Hi there

Got Issue 10 of **By The Way** at the Claremont library, Cape Town. Too often we don't realise what goes into the roads of our country. So I just wanted to take the time out to say a big thank you. And congratulations on producing such an excellent newsletter.

– Chris, via email

## Shot, Intertoll

Dear Intertoll Africa

As a regular user of the N4 Toll Road Quagga Toll Gate, it has been a concern that many road users, when driving towards Pretoria, would "make" a third lane by driving into the face of oncoming traffic.

This generally happened between 6am and 7am. This was not only a major hazard, but also a lack of consideration to other motorists who waited patiently, as the former would then just push in.

It is therefore noted, with thanks, your efforts to address the above by monitoring drivers and creating a third lane with barriers. It is a pity that we have to force drivers to obey the rules of the road in this manner.

Many thanks.

– Steve Brent, via email

## Need a fix

Good day

Thanks for your efforts to maintain the R555. We regularly see contractors closing potholes on this small and ugly road. It makes driving to/from Middelburg a bit easier.

I would like to extend a humble request to the MEC for public works, roads and infrastructure (Jeremiah Ndou) to consider extending and refurbishing the entire R555 from Steelpoort to Middelburg, due to the high number of trucks delivering to the mines around Sekhukhuneland. Public transportation and general traffic have also increased in the last three years or so.

Thank you in advance.

– Xolani Bonani, Steelpoort

### Talk to us

We love hearing road stories and comments. Send yours to [pressoffice@nra.co.za](mailto:pressoffice@nra.co.za) and you might end up on our Letters page

## In this issue

Travelling without moving **3**

The future is here! Literally. Virtual Reality is set to take over tourism



Land of the Rising Sun **7**

That's right, we're talking about Mpumalanga! Mountains, hikes, fishing and forts to keep you busy for days

Historically civil **12**

What is civil engineering anyway? Where does it come from and who's been perpetrating it since 4000BC? Saddle up for a history lesson (but not the boring kind)

Spotting potholes **15**

We don't like to gloat, but good luck finding any big holes on our 22203km of road network

Make your neighbours jealous **21**

Your soil is showing! Greenfingers tells us what to do in winter when our flowerbeds are naked

The road to fame **23**

Seasoned journalist and hot new author Dudu Busani-Dube is becoming a pop culture phenomenon with her Hlomu trilogy, but the road hasn't always been a straight one. Driving all over the country to deliver her books to shops and festivals, Dudu's got a few road stories to tell. Here's another one...

### PLUS:

Last edition's crossword driving you crazy? Not to worry, you can find the solutions on Pg 20

This month, we love...



## USB mini massagers

Sometimes the pains of being a participant in the work-a-day rat race go further than early alarms, bad coffee and gridlock. Sometimes the pains are physical. And a crick in your neck or an ache in your lower back can make your workload seem insurmountable. Aches and pains in the office can be averted with decent, ergonomic desk furniture. Some offices even bring masseuses in occasionally to help out their employees with back pain, but if neither of these options are available, you can always try out a mini-massager. There's a plethora of these handy devices available from retailers. Most are small enough to fit in a pocket or handbag and a number of them offer USB charging, as well as decent battery life. The Super Life Mini Electric Massager, for example, is a handheld device that's activated simply by pressing it against your body. Once applied, internal motors react, pushing and kneading muscles and alleviating pain and stress. You can even place it against the back of an office chair, lean back and have it go to work instantly. Massagers come in a variety of shapes and sizes – some, like the Super Lite, resemble squishy tripods, while Wahl's cord massagers look a little like plastic wands – and most come at a price to fit every budget. Those wishing to splash out can spend up to R350 on a cushion that automatically massages their lower back when leaned against. But for those on the move, something small will suffice. Go on, spoil yourself.





## Virtual reality may just help you plan your next holiday

Nick Cowen

Anyone with even a toe in the tech news cycle pool will know that Virtual reality (VR) is fast becoming the Next Big Thing. Where it was once the stuff of science fiction novels and cyberpunk Anime, VR is closer to becoming a part of the modern household than ever before.

The technology's big draw revolves around the videogame industry – not just because gaming is cool, but also because games have been the primary driving force behind the technology's development. The first VR headset out of the gate was the Rift VR Gaming headset, developed for games by Oculus, a company that was later snapped up for a cool \$2bn (R27bn) by Facebook.

As serious money started being pumped into VR, Oculus found competitors popping up like mushrooms. HTC brought out the Vive, Google Cardboard became the budget VR experience and Sony ploughed millions into the PS VR for the PlayStation 4 gaming console, which saw release in South Africa in January.

But virtual reality's potential isn't limited simply to gaming. Like many technologies that sprang from the gaming industry – motion control and augmented reality (AR) among them – VR is being adapted by savvy entrepreneurs throughout a whole host of fields in media, advertising and even education.

### Travelling without moving

Picture the scene: you're standing at the base of Christ The Redeemer, the towering statue of Jesus Christ that looms nearly 40m tall over its visitors and 700m over the city of Rio De Janeiro, Brazil. As you gaze around you, the clear blue sky is visible above, while fellow tourists mill in different directions.

The very next moment, you're standing on makeshift steps in the favelas in the same city. Graffiti climbs the walls, children skip past and your perch gives you a panoramic view stretching down into the bay.

You can drink it all in and never even leave Johannesburg.

This experience is available thanks to Google Cardboard – the least expensive

version of VR currently available – and it gives holidaymakers the best taste of a foreign experience possible. Why browse through a brochure when you can see your holiday destination up close and personal in VR?

"It's the most immersive technology anyone's ever encountered," says Tyrone Rubin, founder and CEO of SenseVirtual, which plans and implements VR campaigns for a variety of partners.

"We went around to agencies and brands with headsets, setting up demos and they could see that something was there. The headsets and controllers just got better and suddenly there was more interest."

### Virtually classy

But VR is capable of so much more than this. Rubin is convinced the technology can be used for more altruistic ends, even when rubbed up against corporate interests.

"We spent a day shooting Orlando Pirates for a campaign for Adidas," he says, "but then we immersed kids to make them feel as if they were training along with the team – from when they got off the bus until the end of the session."

Beyond fulfilling childhood fantasies, VR makes education easier. When a school pupil puts on a VR headset, they're not only able to put themselves in the boots of their sports heroes, they are

able to perceive their curriculum in a far more immediate and engaging way. Rubin says the reaction is always priceless. "There's a 100% success rate from anyone – kids or otherwise – from high-end VR. There's no one who has ever taken off a VR headset and gone: 'Yeah, that was OK.' It's a magical experience," he says.

### You live in a virtual world

While VR isn't a household luxury just yet, it is slowly making its way into South Africa's marketing media. A few years ago, SenseVirtual was the only VR business solution on the block. Today, it has myriad competitors. VR is extending its tendrils through the global marketing industry – and South Africa is no exception.

"I could always see mainstream awareness in 2014, but at the time, not much mainstream adoption," says Rubin. "That's changing rapidly as more big brands get turned onto this technology."

"If you look at 2015, just Google 'VR' plus the name of a big brand and you'll see that every single big brand – Coca-Cola, LG, Pepsi and the like – is exploring VR in some way."

So virtual reality is now a part of global and local marketing. And the South African brands that survive will be those quickest on the uptake.



# Trump's toll plan a fit for South Africa



Graeme Blewitt

nation's infrastructure had "fallen into disrepair and decay".

America is not alone in facing an infrastructure backlog. Rapid wealth

accumulate other concerns. We already have templates for successful public-private-partnerships in several sectors of the economy.

Rapid wealth accumulation and assets such as cars, as well as a far more mobile population, has added to the need for newer and expanded infrastructure in many countries, including ours.

accumulation and assets such as cars, as well as a far more mobile population, has added to the need for newer and expanded infrastructure in many countries, including ours.

Corporate South Africa is flush with cash at the moment, at last count sitting on more than R725bn on its balance sheet that is available to invest. It's obvious that South Africa Inc is on a long-term investment strike – at least at home.

The American president's stance could be the key to unlocking these corporate balance sheets.

It is clear that businesses would be prepared to invest in the local economy where incentives are in place to

In the renewable energy and toll road sectors, regulations exist. Car manufacturing companies also invest due to well-thought-out policy and predictable incentive packages. These examples create many jobs and stimulate the economy at negligible cost to the government. It needs to be rolled out to many more sectors. Starting with accelerated toll road building.

The South African government could take a leaf from the US president's book – he has agreed to a policy that provides tax credits or tolls on new roads. The US plan in its current form would seek to incentivise the private sector to increase investment in infrastructure projects on the basis of tax credits and future usage

fees, such as road tolls. As a result, US governors have already flagged 300 high-priority projects that are ready to proceed.

In America, there is a full consensus that there are infrastructure problems. We would do well to follow policy leads. There is already a full consensus in South Africa. There is also the capital on South Africa Inc's balance sheet.

To kickstart South Africa's own infrastructure roll-out would simply require a change of heart by the government as to the level of private participation.

For instance, President Trump's policy aims to sidestep political squabbles by focusing mostly on private investment. It's a policy choice that South Africa could immediately follow for quick results.

But Donald Trump is not the only leader looking to stimulate infrastructure development through the private sector; Germany, India and Chile are also looking at private sector participation in their road systems. Tolls generate sufficient cash flow to develop the infrastructure more efficiently.

*Graeme Blewitt is the CEO of Bakwena Platinum Corridor Concessionaire*

## COSBI (Control Of Speed By Illusion)



Bakwena's Control Of Speed By Illusion (COSBI) campaign became the hot topic on social media with its use of life-sized metal cut-outs of Metro Police vehicles along the N1N4 routes to help slow drivers down during peak season. The campaign, which was developed and executed by PR Worx for Bakwena, was created specifically to stimulate a conversation around road safety and to change motorists' driving behaviour.

The campaign proved to be hugely successful as in only five days it attracted over 5,2 million active social media impressions and stimulated various organic media

conversations in the press and on radio talk shows across the country.

Bakwena's commercial manager Liam Clarke said that its COSBI campaign complements the road safety initiatives of the Tswane Metro Police Department (TMPD), SANRAL and the Department of Transport, as it aligns with government's objectives to convey various safety messages, to raise awareness of zero tolerance for road offenders and to reduce road fatalities by changing drivers' behaviour to keep them alert and law abiding.





# Ismail Essa: SANRAL transformer

**S**ANRAL is serious about national economic transformation, creating the position of Transformation Manager and filling it with an engineer and manager who understands every angle of the contracting business. The Transformation Manager will report directly to the CEO. Ismail Essa, previously SANRAL's Northern Region Manager, stepped into this new position on 3 April.

Announcing the appointment, CEO Skhumbuzo Macozoma made his expectations clear: "The time to bolster government's economic transformation priorities is now."

Essa has indicated that one of his immediate priorities is to create an enabling environment for small contractors, particularly black-owned businesses, to access opportunities through procurement.

"The first step will be to engage industry role-players across the board – small, large, black- and white-owned, women- and youth-owned – to ensure our transformation policy is responsive to the dynamics at play in the business environment. Through these engagements, we also hope to establish shared buy-in to achieve our transformation goals and targets.

"We will link up small suppliers with industry bodies, such as the Construction Industry Development Board, as well as with the SA Revenue Service to help them understand the industry and compliance requirements essential to access procurement opportunities.

"For too long the majority of the people in this country have been deprived of economic opportunities and I see this as a chance to level the playing field," he said.

Essa is an industry heavyweight with 36 years of experience in the roads and civil engineering sector. He worked for 21 years as a contractor with a major listed company before joining SANRAL in 2001 as a Senior Project Manager. Within two years, he was promoted to Regional Manager for the Northern Region (Gauteng, Mpumalanga, Limpopo and North West) – a position he held for 14 years.

Essa believes every bit of his experience will be valuable in his new role. He understands how the private sector operates, its concerns and its priorities. He is also a passionate advocate of the need for inclusive business approaches and economic transformation.

The concept of supporting small businesses is not new to him. A notable highlight in his career has been the 16 small contractors and 28 suppliers he helped to establish for a project in Orange Farm, Johannesburg, between 1994 and 1996.

"The country was in transition, prejudices of the past were still fresh, yet together with my team, we prevailed and achieved our plan.

"However, 23 years into democracy, the industry has been transforming slowly and our intention now is to give the process a renewed energy," he said.

"SANRAL service providers need to reflect the demographics of the country. It is my job to reduce the dominance of big contractors, as this is a major barrier to small and new contractors and consultants accessing opportunities offered by SANRAL."

While engineering and construction contractors and consultants will benefit most from this intensified commitment to transformation, the approach will



also include service providers in fields such as information technology, communication, financial and legal services.

Essa holds a BTech in civil engineering and an MBA. He is a long-standing member of the South African Institute of Civil Engineering (Saice)

and is registered with the South African Council for Project and Construction Management Professions.

SANRAL's Design and Construction Manager in the Northern Region, Willem van der Merwe, will be the Acting Regional Manager for the Northern Region until the position is filled.



Nick Cowen

**W**hile no one wants to be a slave to their phone – or any smart device – it's hard to deny that these pocket PCs can be useful in streamlining your workflow. By downloading and installing the right apps, engineers – indeed, any professionals – have access to platforms and utilities that will remove much of the drudgework from their

day-to-day lives. Here are just some of the free applications that can make your professional (and personal) life a little easier to manage...

### Google+

If you don't have a Google+ account, sign up for one immediately. Beyond its ubiquitous mail service, Google gives users access to a whole host of admin apps that are as neat as they are useful. Google Calendar and

Google Docs can be shared with a multitude of users, meaning if your project requires collaboration, dates and changes are updated in everyone's account instantaneously. Loaded onto a smartphone, Google Maps also provides a GPS, providing a history of one's movements, travel notifications and warnings about traffic incidents on scheduled journeys. On top of that, users gain access to Google Photos – which boasts both photo scanning and facial recognition – and Google's cloud storage. This is one app you can't afford to be without.

### KeePass

It probably goes without saying that having the same password for multiple accounts – be they email, social media or shopping services – is a very, very bad idea. The problem most people face is the fact that remembering myriad passwords is something of a chore. KeePass has your back in this regard. This free-to-use open-source app helps users manage their passwords, masterlocking them on one database under one key. There's only one password you need to remember to gain access to all of your accounts this way.

### Slack & Trello

If your project involves more than one person, Slack and Trello are something of a godsend. The former

is a work channel in which users can communicate instantaneously with each other and admins can divide up the "chats" among different categories. This way, collaborators on a project aren't bothered with details they don't require and admins can keep the ship running steadily.

Trello is essentially a virtual job board, complete with post-it notes. Admins create a card for a task, fill in what's required and then assign it. Users can upload documents, photos and any other sort of file to the card. And once it's completed, they can move it between queues to show the status of the task.

Both Slack and Trello are free to use and have smart-device apps to boot.

### Electronic Signature

Gone are the days when users would need to scan and email a document with their signature on it. Thanks to the introduction of the Electronic Communications and Transactions Act (2002), South Africa signed up to the global practice of recognising the legality of electronic signatures. In other words, a picture of your signature is legitimate and apps such as Adobe's Acrobat or GnuPG can provide a level of security in this regard – both allow users to see if a document has been tampered with or altered in any way and both can be used to create cryptographically protected signatures.





# AARTO Mobile Offices

## Managing traffic fines made easy inside



The Road Traffic Infringement Agency (RTIA) brings you the Administrative Adjudication of Road Traffic Offences (AARTO) Mobile Offices for “Know your traffic fine Status” #Cava-i-status campaign.

The “Know your traffic fine status” campaign is a service offering mobile desk designed to reach out to road users and remind them of the options available to them as per the AARTO Act:

- Make a representation to dispute a traffic infringement
- Nominate a new driver
- Apply for revocation of an enforcement order
- Arrange to pay for infringements in instalments or
- Elect to be tried in court

The AARTO Mobile Offices are designed to bring AARTO services closer to the road user communities.

The services that will be rendered on the mobile offices are:

- Attending to public queries on infringement notices
- Administering the representation process
- Facilitating payments
- Education and Public awareness on the AARTO Act

The AARTO Mobile Offices will be visiting different municipalities across the country including Driving License Testing Centres (DLTCs), taxi ranks, shopping malls and petrol stations.



The Road Traffic Infringement Agency (RTIA) is an agency of the Department of Transport that encourages compliance with road traffic laws in South Africa.



# From forts to tiger fishing



Highlands Meander



Elands River Falls



Loskop Dam



Komatipoort



Barberton

## Five unusual places in Mpumalanga that'll make you want another visit

If you go east from the Reef early one morning and travel toward the rising sun, you will soon get to Mpumalanga – “place where the sun rises”, where there is just too much to do and so much to choose from.

Easy to get to, though. Tourism, mining and agriculture form the economic heart of this province. There are a number of excellent roads connecting communities and markets and getting tourists to their destinations.

The N2, which comes up from KwaZulu-Natal, joins the N11 at Ermelo, then runs up into Limpopo. Then the N17 from Johannesburg to Swaziland. The main route is the N4, which goes right through the province, from Pretoria down to Maputo.

Mpumalanga is in the eastern half of South Africa and borders Swaziland and Mozambique.

Where do you go on your road trip? The immediate inclination is to go to the known spots – Kruger National Park, Blyde River Canyon, Hazyview, Sabie. All great choices, but why not try something different?

Take the N4 to Middelburg. Then the upgraded N11. Just outside the town, turn left on a gravel road for about 3km to get to Botshabelo, Place of Refuge. Built by Lutheran missionaries, it is an historic site with much to see. The church is important – it was the biggest in the old Transvaal at the end of the 19th century and above it lies a proper fort, looking slightly out of place. Fort Merensky was erected to protect the local Christians against possible attacks.

Back to the N11, then down the spectacular Kranskop – also much improved – to get to the Loskop Dam Nature Reserve. This is worth a longer stay. The dam is 27km long, the largest in the southern hemisphere. There is excellent accommodation, plentiful birdlife (including the fish eagle), game viewing by boat, horse riding, paintball, fishing, a heated pool, abseiling, game drives, tennis, volleyball, a restaurant and braai facilities.

It's a truly unusual game reserve.

Back along the N11 to the N4 and soon you'll be in Waterval Boven and its little sister, Waterval Onder; one lies above the spectacular 228m waterfall, the other below. They're so close together you can reach the area's attractions from both places, which also have a wide variety of accommodation possibilities.

This is just the place for the active tourist – 700 rock-climbing routes, hiking and biking, fishing for trout and yellow fish. And in winter, a warm fire to drowse by in the sometimes very cold nights.

Then on to Barberton, even if it is only to experience the Makhonjwa Mountains, which lure international biologists and geologists, because some of Earth's earliest life forms began here. The excellent local museum will fill you in on this and the history of the town's gold rush. And nearby, you can watch young artists creating jewellery from some of the oldest gold in the world.

Further east you'll get to Komatipoort, with its perfect winter climate, lying at the confluence of the Komati and Crocodile rivers. It is on the Mozambican border, thus our neighbour is easy to get to, as is Swaziland (65km) and the Kruger (8km). Day trips can be the order of the day, if you get tired of the local wildlife, tiger fishing and golf.

## Mpumalanga Top 5

1. Botshabelo
2. Loskop Dam Nature Reserve
3. Waterval Boven
4. Barberton
5. Komatipoort





# People safety a priority

In an effort to improve the safety of pedestrians along a section of the busy N2 south, SANRAL has constructed proper walkways and bus bays.

An added feature of this project has been the use of local labour, in keeping with SANRAL's commitment to support the efforts by government to push back the frontiers of poverty and improve the lives of South African citizens in general, by promoting community development.

Gavin Harrison, SANRAL Eastern Region Project Manager, said the construction of pedestrian facilities was designed to cater for the substantial pedestrian traffic using a section of the N2 south to commute between residential areas and places of employment and schools in the area.

"Part of our community development initiatives are the provision of pedestrian facilities and safe access points for communities living next to the national road network. Such projects include the upgrading of access roads that link to a national

road, the upgrading of existing gravel service roads to surfaced roads and the construction of pedestrian walkways.

"Apart from the social development that these projects facilitate, SMMEs undertake the construction of the community access roads."

Harrison said the construction of the sidewalks for pedestrians between Oribi Toll Plaza and Albersville Bridge on the N2 south completes the section between the Oribi Toll Plaza and the existing pedestrian sidewalk (constructed two years ago).

This project also included the construction of two taxi/bus bays and strategically placed reinforced-concrete stairways. These stairways provide a safe link between the sidewalk facilities and the existing access points.

Three SMMEs were appointed to carry out works involving road marking, signage, hand railings, concrete works and erosion protection works, at a cost of R3.4m. A total of 21 women and 42 men from the local community were employed on this project.

## Construction on Loskop Dam to finish this year

Residents of Groblersdal in Mpumalanga will finally have some peace, following months of frustration as a section of the N11, between Middelburg and Loskop Dam, was rehabilitated. Construction on section 10 started in February 2015.

The SANRAL-led project is expected to be completed in August, at an investment of R404m. Overall there have been no delays on the project and we are moving according to schedule.

SANRAL Project Manager Riaan Oerlemans said that about 90 blasts had been conducted successfully. Thirty-six were for subsoil – found below the top soil, it consists of minerals such as sand, clay, gravel and rock, depending on the location.

The project has employed more than 165 locals and a total of 22 subcontractors were used in the project as part of SANRAL's community development initiative.

This road is an important link to Loskop Dam Nature Reserve, which is a major attraction in the region, which is home to more than 70 species of wildlife – including buffalo, leopard and white rhino.





# Congestion relief in one year

In March, SANRAL officially opened the new Bottelary/R300 interchange, just one year after breaking ground, in partnership with the Western Cape government and the City of Cape Town.

The R100m project was prioritised to alleviate congestion and the frustration endured by thousands of motorists in Kuils River, Brackenfell and surrounds. The City, Province and SANRAL, who purchased the land for the construction, each contributed one third of the project value. SANRAL will maintain the road going forward.

Cape Town executive mayor Patricia De Lille said: "I would like to say thank you to our partners, the Western Cape department of transport and public works and SANRAL Western Cape, for working with us to deliver this massive project in such a short space of time."

"This project has confirmed how partnerships are vital to achieving progress and responding to the needs of our citizens in ways that benefit and connect them to economic opportunities."

Western Cape minister of transport and public works Donald Grant also praised the team for completing the project on schedule and within budget.

Cape Town is the most congested city in South Africa, which is why the government has developed an extensive congestion strategy that promotes the adoption of flexible working hours for people making their daily commute from the suburbs to Cape Town CBD, the use of reliable public transport alternatives like the BRT system, carpooling and working from home, where possible.

"Thank you to our partners, the Western Cape department of transport and public works and SANRAL, for working with us to deliver this massive project in such a short space of time."

The city and the province are leading by example – piloting the flexible working hours with their staff, in a bid to reduce congestion.

SANRAL Western Region Manager Kobus Van der Walt commended this progressive approach.

"Building roads is core to what we do at SANRAL. However, there's so much more to it. If our road infrastructure is to fit into the concept of smart cities, citizens must take some of the responsibility," he said. "Travel demand management needs to enter the discussion."

"To really get maximum value from our road network, we as citizens need to manage the demand on our resources. The solution to congestion needs a

change in mindset and a willingness to compromise and contribute, share resources and be open to alternatives."

SANRAL remains committed to ongoing



Kobus Van der Walt  
SANRAL Western Region Manager

engagement and collaboration with the provincial and local governments to ensure that the infrastructure it rolls out enables citizens to access economic opportunities in our cities.

# Saice experiment teaches young scientists how to distribute water

Framesby High School in Port Elizabeth was crowned the winner of the South African Institution of Civil Engineering (Saice) Algoa Branch Aqualibrium Water competition, earlier this year. SANRAL and Labco supported the event.

Learners Donovan Jerling, Juandre Gilbert and Philip du Plessis will compete in the Saice 14th annual Schools Water Competition in July in Johannesburg.

Saice hosted the one-day competition at SANRAL's offices on 25 March to afford learners the opportunity of planning, designing, constructing and operating a water-distribution network, during which they encountered similar challenges as those in managing the actual water-distribution network of a town.

Saice Algoa branch chairman Pieter Joubert said: "This competition demonstrates the importance of managing water distribution systems, which are important to supply safe and clean drinking water to people. It also exposes the learners to the field of civil engineering and provides a glimpse into why civil engineers play a critical role in our infrastructure management."

The participating schools included Framesby High School, Alexander Road High, Loyiso Senior Secondary, Mfesane Senior Secondary School, Newton Technical High School, Pearson High School (all from Port Elizabeth) and Brandwag High School from Uitenhage.

SANRAL Southern Region's Marketing and Communications Manager, Michelle Ah Shene, said participating in Saice events is an extension of SANRAL's commitment to the development of civil engineering as a field of study.

Ah Shene said the national roads agency promotes the importance of the profession by supporting projects like the Nelson Mandela Metropolitan University



Learners Donovan Jerling, Juandre Gilbert and Philip du Plessis will compete in the Saice 14th annual Schools Water Competition.

(NMMU) School of Engineering STEM Pipeline Project, bursaries and scholarships and training civil engineering graduates in its Southern Region Training Academy.

The competing teams were tasked with designing a model water distribution network to distribute 3l of water equally between three points on the grid using two different diameter pipes and various connection pieces. They were then judged on how well they executed the task – working on a penalty points system.

The teams had approximately one hour in which to plan, design, build and operate their network.

What started as a local engineering competition for learners has, over three years, become an international event,

with Swaziland and Zimbabwe also participating.

"This is an adventure that all learners remember once they've experienced the challenge first-hand," Joubert said.

"This competition exposes them to the processes that influence their daily lives and are often taken for granted, such as providing water supply to homes. They are made aware of the intricacies of water distribution design and the actual water delivery to households."

The grid used for the water distribution network is on a background that depicts the water cycle, with all the impacts that affect this scarce resource. The grid intrigues learners and teachers, who find it a useful educational tool.

The competition creates awareness regarding the issues surrounding water

in South Africa. It spreads the message that water is a precious commodity, which should be recycled, re-used and respected. Through its annual competition, Saice takes responsibility for spreading the message that water should be used wisely, infrastructure should be maintained and new infrastructure should be developed to provide potable water to all South Africans.

Juandre Gilbert of Framesby High School said he enjoyed participating. "It was extremely fun to do the experiment. When we arrived here, we had no idea what to expect or what to do. We can go back to school and share what we've learned."

Steyn Williams of Brandwag High School said: "This was quite a learning experience."

Morgan Moss of Alexander Road High School, who was the only learner representing his school, won second place. "I was nervous because I wasn't sure if they would let me participate – I was alone from my school and the competition entries call for a three-member team. Maths and science are my favourite subjects. I also enjoy doing experiments and building things."

Brandwag High Grade 9-12 science teacher Peter Baxter said the children enjoyed the competition. "It was exciting and challenging for them. They looked forward to this experiment."

Some learners from Brandwag High also participate in SANRAL and STEM PP projects.

Loyiso Senior Secondary's Tarisai Seven, a Grade 8-9 science and technology teacher, said the school had two teams participate.

"Competitions like this one are very important to the minds of the learners. At school there are not many experiments, as resources at the school are few."



# Annual adjustments

*The annual toll tariff adjustment is not an increase in real terms, but an accommodation in line with the CPI*

South Africa needs a viable toll operation in view of the massively important role that roads play in the health and wealth of our national economy.

Annual toll tariff adjustments are vital in this regard. SANRAL manages less than 3% of the total road network, but carries more than a third of all daily traffic and 70% of road freight movement in South Africa. The toll portfolio is made up of 3 120km of roads, or 14.1% of the total road network managed by SANRAL. This includes the 201km of e-toll roads in Gauteng.

Because nothing is forever, the state of any road declines with time, due to a host of factors such as traffic flow, weather, overloaded trucks and regular wear-and-tear. This can only be mitigated through regular road maintenance. Maintaining infrastructure is like maintaining your home or your car: if you want to keep it in good working order, it's going to need some regular upkeep. It's just a fact of life.

Well-maintained roads are absolutely essential for economic growth and social cohesion. Toll tariffs are adjusted annually not just because we at SANRAL understand the importance of these for the future of South Africa, but because of the normal inflationary pressures indicated by the Consumer Price Index (CPI). The tariff adjustments ensure the availability of funds to finance current, ongoing and future toll operations. The operating expenses for these include the repair and maintenance of our roads, says SANRAL Company Secretary Alice Mathew.

Adjusting the levies for inflation enables the toll operation to cover the cost of maintaining the tolled roads this year in the same way it has in the past.

It is important for more road users to register for e-tolls and that those

who are in arrears settle their debts. Bigger and better infrastructure requires more revenue. It is for this reason that SANRAL continues with civil and criminal prosecutions for the outstanding Gauteng Freeway Improvement Project (GFIP) debt. We want to build and maintain roads that make your daily commute smoother, happier and stress-free. If we all arrive happier at work every morning, imagine how much more productive we can be. And that's not just good for each of us, it's how we grow South Africa's economy.

The tariff adjustment ensures that funds will be available to finance future toll operations. This is particularly important as far as the GFIP is concerned.

GFIP forms only 1% of SANRAL's roads portfolio, but is a vital asset to the country. As the country's economic hub, Gauteng is experiencing accelerated urbanisation and population growth, which will require scaled-up investments in public transport and logistics. More people means more pressure on existing roads infrastructure, which will have to be expanded to accommodate the needs of Gauteng residents and commuting workers.

The adjustment for inflation shouldn't be viewed in isolation. It is one of many measures the national roads agency has adopted and implemented to ensure its toll operation's continued viability. SANRAL must remain able to discharge its vitally important duty to the national economy. Other measures include the efficient and effective collection of revenue, robust capital risk management and prudent debt management.

And really, in the face of all the crises we as South Africans – and citizens of the world – experience every day, isn't it great to know you can get to your destination safely, on time and in comfort? We think so.

## Agency status

SANRAL's status is that of a going concern, which presumes funds will be available to finance future operations and that the realisation of assets and liabilities, contingent obligations and commitments will occur in the ordinary course of business. A key factor is an annual toll tariff adjustment, in line with the Consumer Price Index.



# Books

## for the long road

Psychological thrillers are the flavour of the moment for many novelists. But hot on the heels of good thrillers is a growing niche market for modern horror stories, separate from their pure science fiction and fantasy cousins. Aficionados of sci-fi, fantasy and horror have been spoilt lately by a spate of established authors such as Stephen King and Neil Gaiman. Lately South African authors have also weighed in. Foremost among these is Lauren Beukes, Capetonian novelist, writer of comic books and screenplays and winner of the coveted Arthur C Clarke Award for Science Fiction Literature in 2011.

world with his “artistic” messages. One of which is a child’s torso fused with the hindquarters of a deer – the broken monsters of the title. This and other hybrid bodies turn up in Detroit.

A broken city, Detroit society’s moral compass has disintegrated. The city has gone from riches to rags and its dilapidated buildings reflect this gritty despair. Very much alive in this city of the broken and maimed is the vibrant cyber world. Beukes addresses the issue of how the complexities of social media have influenced mankind.

Stephen “The King” himself called the novel “scary as hell and hypnotic”. Speaking of which...

The book is pure King – dark waves of evil interweave with good and thus ensues that ageless battle between primary forces.

Five year-old Danny Torrance is now a middle-aged man. The horrible experiences he and his mother had at the Overlook Hotel has left marks on his psyche. But now he is faced with a different evil: paranormal order The True Knot, who feed on children with the shining. Like young Abra, now a True Knot target.

Dan, beset by his father’s penchant for alcohol and drugs, is Abra’s defender.

Despite its name, Doctor Sleep is less creepy than its predecessor, but it’s still a heart-stopper. The 500-plus pages have the typical depth and breadth of a King story, populated by richly woven King characters.

And it seems a talent for weaving complex tapestries of horror and fantasy runs in the family. Next we’re taking a look at Stephen King’s son...

Hill is in fact a phenomenal horror/fantasy author in his own right and has built a massive and loyal following without using the King name. He has thrilled us with 20th Century Ghosts, Horns, Heart-Shaped Box, NOS4R2 and last year, The Fireman.

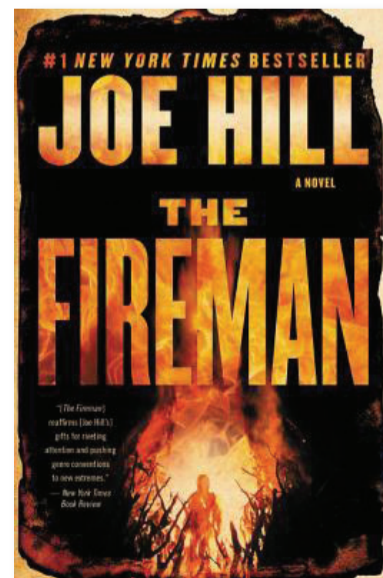
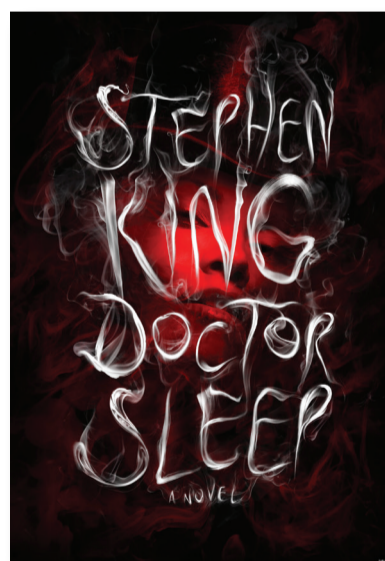
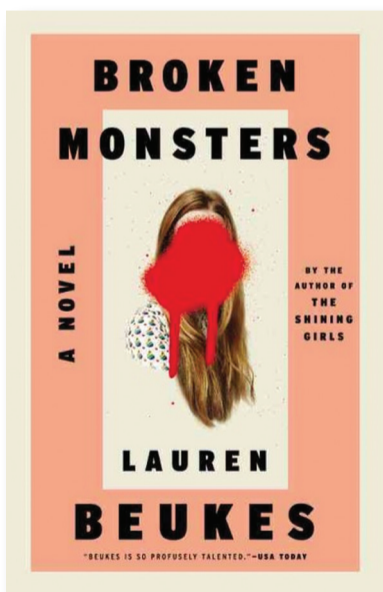
Hill offers us a whole new kind of post-apocalyptic dystopia. In what appears at least partially to be a nod to Robert Frost, mankind is being consumed by a plague of fire. A new type of disease is causing people to spontaneously combust. Black streaks cover the skin of the infected and eventually burst into flame, reducing the victim – and their surroundings – to ash in an instant.

Everybody is blamed for the epidemic. Fox News says ISIS released the destructive spores invented by Russian scientists. MSNBC blames religion – engineers developed it, some crazed religious maniacs stole it and released it into the population to bring on The Rapture. Everybody has an opinion. And they are fast becoming extreme.

Our heroine is school-nurse Harper Grayson – brave and steadfast even after she has seen a man burn to ashes in front of her. Harper discovers she is pregnant at the start of the “Dragonscale” outbreak and in her struggle to survive the barbaric decline of society around her, she encounters John Rookwood, The Fireman – who seems to know far more about Draco Incendia Trychophyton than he lets on.

An added allure of this book is the climax upon climax, horror after horror, but also some enlightening commentary on human behaviour when societal controls break down. Few men fight for solutions in this dystopia, most form gangs and victimise the infected. Nobody is left unscathed by the Dragonscale; it’s brother against brother and lover against lover. The burning issue is the preservation of the self.

But there are the few good people who struggle to preserve their humanity and Hill pushes his point on society: the good get better and the bad get worse. A highly provocative introspection. What would you do in a world burning itself to death?



### BROKEN MONSTERS

Lauren Beukes

Beukes does not flinch from the macabre and gruesome, nor does she shy from explicit language. But far from gratuitous, it’s all delivered in stunning dialogue and a compelling style that will keep you riveted. With Broken Monsters she achieved what most published authors yearn for: she followed an international best-seller (The Shining Girls) with another completely engrossing read.

Detective Gabi Versado faces a harrowing case: a killer who confronts the

### DOCTOR SLEEP

Stephen King

Among many masterworks of horror craftsmanship, Stephen King authored one of the most frightening novels of the genre – 1977’s The Shining. It has given many generations heart palpitations since its appearance. The film adaptation was just as heart-stopping. Ever wondered what happened to the little Danny of the story, called a “shiner” because of his psychic voltage? You must try to get hold of the sequel, which appeared a few years ago.

### THE FIREMAN

Joe Hill

Joe swims in the same waters as his very well-loved father. But he’s not trading on the old man’s success.



# HISTORICALLY CIVIL

## *Engineering has been part of human life since 4000BC*

Georgina Guedes

**W**hen you think SANRAL, you think roads. But you should also be thinking engineering, specifically civil engineering. The national roads agency manages only 22 203km of the country's road network (of about 750 000km), yet its roads carry a disproportionate percentage of traffic, along with some spectacular bridges and interchanges.

SANRAL's network is a showcase of excellence in civil engineering and the agency is proud to be part of the best in the profession. Although it was only recognised as a formal profession in 1828, the essence of what civil engineering is about is as old as the mountains – it's all about construction. Though it's a pretty big field.

Civil engineering includes the design and maintenance of the built environment, including roads, bridges, dams, canals and buildings. It's actually called "civil" engineering to distinguish it from "military" engineering. It happens in the public sector, from municipal through to national governments, and in the private sector, from individual homeowners to international companies.

Today, most people understand that wherever a road, bridge or building is constructed, an engineer has been involved. This is partly because engineering has been a visible aspect of life since the beginning of human existence. It probably goes back to between 4000 and 2000BC in ancient Egypt, the Indus Valley Civilisation and Mesopotamia (ancient Iraq), when humans started to abandon their nomadic existence, which led to the need for shelters to be built.

At the same time, transportation was becoming increasingly important, leading to the development of the wheel and sailing.

The construction of the pyramids in Egypt (from around 2700 to 2500BC) were some of the first examples of large-structure constructions. Other early examples include the Qanat water management system (the oldest is older than 3000 years and longer than 71km). Then there's the Parthenon by ancient Greek architect Iktinus (447-438BC), the famous (and one of the earliest roads) the Appian Way by Roman engineers (312 BC), the Great Wall of China by Gen Meng T'ien under orders from Emperor Qin Shih Huang-ti (220BC) and the stupas (dome-shaped Buddhist shrines) constructed in ancient Sri Lanka. The Romans developed civil structures throughout their empire, including aqueducts, insulae (ancient apartment buildings), harbours, bridges, dams and roads.

These ancient examples of civil engineering are still admired today and many are tourist attractions.

Some of SANRAL's projects are also Herculean feats of engineering and design. Wait till you see the two mega-bridges that are to be erected as part of the N2 Wild Coast Road project. These spectacular bridges will connect communities and attract tourists.

The Great Wall of China



The Msikaba River Bridge will cross a deep, forested gorge with high sandstone cliffs flanking its sides. It will be 580m of single-span cable-stayed bridge. And because the national roads agency takes care to protect the environment wherever it builds, no work will be done in the gorge itself. Construction will start off from the two sides of the gorge and the bridge will be joined in the middle – nearly 200m above the river. Now that’s going to be a sight to behold!

Just to the north is the Msikaba River, where the other of the two planned bridges will sit more than 200m above the river and the structure will be 1 132m long. It’s going to be one of a very few large concrete balanced cantilever bridges with spans of more than 260m in the world. These bridges will join a long and distinguished line of world-class engineering structures throughout history.

Most of the work in ancient and medieval times was carried out by artisans such as stonemasons and carpenters, who could rise to the role of Master Builders. The knowledge was retained in guilds and there were seldom advances in these fields. Structures and infrastructure tended to be built repetitively and scale was increased incrementally.

But there are early examples of a scientific approach to physical and mathematical problems in the field of civil engineering. These include the work of Archimedes in 3BC. He created what is known as the Archimedes Screw, which rotates to deliver water from a lower level to a higher one. And in 7AD, an Indian mathematician named Brahmagupta used arithmetic for excavation calculations.

However, Prof Felix Okonta, who heads up Civil Engineering at the University of Johannesburg, points out that while these early engineering projects were certainly novel, they were not very cost-effective and “much more than disproportionate energy and an enormous amount of human and other resources were expended to achieve the result”. But there was a massive leap forward in the application of civil engineering principles in the 1700s, he says.

“Early efforts toward a cost-effective application of resources – today called civil engineering design – could be traced to UK-born John Smeaton and his colleagues, including the Scottish architect and stonemason Thomas

Telford, a little more than 200 years ago.”

In 1818, the Institution of Civil Engineers was founded in London and in 1820, Telford became its first president. The institution received a Royal Charter in 1828, formally recognising civil engineering as a profession. The charter defined civil engineering thus:

“The art of directing the great sources of power in nature for the use and convenience of man, as the means of production and of traffic in states, both for external and internal trade; as applied in the construction of roads, bridges, aqueducts, canals, river navigation and docks for internal intercourse and exchange and in the construction of ports, harbours, moles, breakwaters and lighthouses and in the art of navigation by artificial power for the purposes of commerce, and in the construction and application of machinery, and in the drainage of cities and towns.”

So basically, everything we consider necessary for modern life.

Roman roads were a marvel of ancient engineering and spanned more than 400 000km through the Roman Empire. They were mainly constructed using layers of crushed stone, mortar, sand and paver stones. The paver stones were laid at a certain angle in order to drain off water, so that the roads wouldn’t be damaged by floods and other environmental hazards. Many Roman roads and routes have survived to the present day.

The influence of commerce on engineering decisions still holds today. It’s one of the most important aspects of planning a new SANRAL interchange, bridge or road, or indeed the upgrading of any of these. One example is the massive Mount Edgecombe Interchange on the N2. Because of the expansion of the nearby uMhlanga and La Lucia Ridge areas, the existing interchange had been operating at full capacity, which caused huge traffic delays, disrupting business and private lives. Who wants to sit in choking traffic every day?

The upgraded interchange will be both visually impressive and relieve congestion. It is a four-level interchange with two lanes on each of the major movements. It includes directional ramps that will negate the need for controlled signals, while ensuring the free flow of traffic in all directions. And a new pedestrian bridge over the N2 will connect to the new footways, enhancing pedestrian safety as well.

Not all roads have consistent traffic



Venetian bridge in the Qanat Quartier at the Pearl in Doha, Qatar

flows throughout the year and, beyond economic concerns, have to be upgraded to ensure the safety and comfort of motorists. This was the driving force behind the (now completed) upgrade of the interchange near the Zion Christian Church in Moria, Limpopo. Easter pilgrimages to Moria are going to be so much easier. Not just for the hundreds of thousands of congregants who flock there every year, but also regular road users who can now avoid the traffic build-up and partial blockages on the R71 caused by the annual pilgrimage.

The new interchange has solved this periodic problem, just as good civil engineering has improved the lives of humans throughout history.

### Bursaries

Today, in most countries, a bachelor’s degree in engineering is the first step towards professional certification and a professional body certifies the degree programme. After completing a certified degree programme, the engineer must satisfy a range of requirements, including work experience and exams before being certified. Once certified, in South Africa, the engineer is designated a Professional Engineer. SANRAL does its bit to contribute to the pool of professional civil engineers by offering bursaries for aspiring engineers, as well as internships.

### Trailblazing women

Before engineering was even a profession, women were working with engineering skills. Hypatia of Alexandria (350 or 370-415AD) is credited with the invention of the hydrometer (an instrument that measures the relative density of liquids). In the 19th century, Ada Lovelace (1815-1852) was privately schooled in mathematics, before collaborating with Charles Babbage on his Analytical Engine – she earned the title of “first computer programmer”. Hertha Marks Ayrton (1854-1923), studied mathematics at Cambridge in the 1880s and went on to become an engineer and inventor. And Elisa Leonida Zamfirescu (1887-1973) was one of the first woman engineers in Europe.

In the early years of the 20th century, a few women were admitted to official engineering programmes. Nora Stanton Blatch Barney (1883-1971) was the first woman to receive a degree in civil engineering from Cornell University in 1905. Olive Dennis (1885-1957) was the second woman to graduate from Cornell with a civil engineering degree in 1920. Alice Perry was the first woman in Europe to graduate with a degree in engineering in 1908 from Queen’s College, Galway, and Elisa Leonida Zamfirescu, a Romanian engineer, graduated from the Technical University of Berlin in 1912.



Arch of Drusus (Arco di Druso), an ancient arch in Rome, Italy, close to the First Mile of the Appian Way and next to the Porta San Sebastiano



Ancient Parthenon in Acropolis, Athens, Greece





# TAKE CHARGE

Claim directly with us

Come talk to us at one of our **110 offices** across the country

# CALL

**0860 23 55 23**





# A safer walk to school



## Spotting potholes



Every day of the week expert teams from SANRAL travel along every kilometre of the country's primary road network, looking for any signs of pavement deterioration, especially potholes.

It is, therefore, highly unlikely that a South African road user would encounter a gaping pothole on any of the 22 203km of roads network managed by SANRAL. In the rare instances where they do start to develop, potholes are fixed within 48 hours.

"We are keenly aware of the dangers that potholes pose to motorists travelling at cruising speeds on a freeway," said Randall Cable, the Engineering Manager in SANRAL's Western Region. Drivers who hit a pothole at speeds in excess of 100km/h can easily lose control of their vehicles and cause serious crashes.

"This is why we place such a strong emphasis on preventative maintenance, to ensure our roads remain in great shape throughout the year."

The SANRAL network has been divided into 300km sections and teams move along it in one direction on alternate days, coming back on the same route the next. During these journeys, they conduct detailed inspections of the road surface, looking for the telltale signs of a developing pothole.

This task becomes especially important after heavy downpours, where the water might have damaged the asphalt.

The team also looks out for any other issue that might pose a hazard for road users, such as missing road signs or guardrails, debris left after a crash or a tyre burst and the occasional dead animal.

"The quicker you can identify a safety risk, the quicker you can make the correct intervention," said Cable.

When SANRAL takes over the responsibility for a road previously managed by a province, the first step is always to start preventative management – clearing blocked storm-water pipes and culverts, cutting back vegetation, clearing litter and debris from the road reserves and fixing road signs and markings.

Potholes found on secondary roads are the responsibility of provincial, district and local authorities. However, SANRAL is always willing to share its research, knowledge and expertise with such agencies as part of its broader efforts to promote all aspects of road safety in South Africa.



**P**edestrians are the most vulnerable road users in South Africa and special efforts are being made to reduce the number of incidents involving people who walk next to the national roads.

Some 12.4 million pedestrians under the age of 24 walk to school every day and are especially at risk, unless steps are taken to curb the high rate of vehicle crashes involving pedestrians.

Randall Cable, SANRAL's Engineering Manager in the agency's Western Cape Region, says the high number of pedestrian fatalities (40% of all road deaths in South Africa) are being addressed through a combination of activities by the agency:

- Safer roads and the provision of infrastructure such as pedestrian bridges and sidewalks
- Greater awareness among other road

users about the possible presence of pedestrians on or close to roads

- Education programmes in schools to make children mindful about road safety at an early age

About a third of all schools in the country are located within 5km on either side of the more than 22 000km of national road network managed by SANRAL. The agency's aim is to empower the 6.3 million affected learners with appropriate and relevant road safety information. This scientifically developed material will create the awareness required to influence attitudes that will result in safer road user behaviour.

The roads agency is working closely with education authorities and the primary objective is to "train the trainers" – getting the information to teachers and mobilising their support to impart the

correct messages to their learners.

Children require different skills and information depending on their age and experience. SANRAL has developed comprehensive educational materials appropriate for the different teaching stages.

The material is incorporated into regular subjects at school – whether it is life skills or maths – and the educators have access to flip cards, posters and other teaching aids.

SANRAL's initiative has already reached 1 940 schools and more than 14 000 teachers have received training and learning materials, Cable said. The programme will continue to expand to benefit an increasing number of learners living in close proximity to the major highways.

The agency is also working with academics at the universities of the North West and Pretoria to update and modify the learning material based on the latest available research.

"Feedback from participants in the programme show that we are making an impact on attitudes toward road safety among learners," said Cable. "Our primary goal is that this awareness must lead to changed behaviour and our future efforts will increasingly be geared toward achieving this goal."

SANRAL's programme fits into the Safe Systems approach advocated by the United Nations and South Africa is making a great contribution to the UN's global Decade of Action on Road Safety, by sharing its research and experience in the field of education.



# Education a priority

*N3TC's response to the critical skills gap is to help fund quality institutions*

The N3 Toll Route, managed by N3 Toll Concession (N3TC), stretches from Cedara in KwaZulu-Natal to Heidelberg in Gauteng. It traverses numerous deep rural and agricultural communities, small towns and villages as it meanders through Gauteng, Mpumalanga, Free State and KwaZulu-Natal.

Transport corridors can provide the impetus to sustainable economic growth and the alleviation of poverty through infrastructure development, creating employment opportunities, skills development and the development and growth of business nodes along the route.

In response to the challenges of rural living, N3TC has identified the need to address some of the critical skills shortages in the country.

Commercial Manager Con Roux said: "We are mindful of the fact that access to education is critical to ensure the sustainability of the region. In this regard, the company prioritises funding for educational institutions that demonstrate excellence in the provision of quality education, early childhood development programmes and building capacity in maths and science, technology and engineering."

This is achieved through a variety of interventions, which range from providing learner-focused interventions, basic-, higher- and tertiary-education bursaries and scholarships, supplementary academic enrichment programmes, the provision of learning resources, staff training and community skills development programmes.

"There is no doubt that education is key to South Africa's economic and political transformation. Accelerated learning will not only benefit the individual recipients of funding, but also our communities, society and nation as a whole," Roux said.

# TRAC's big babies are growing up

Trans African Concessions' adopted "babies" – rhino Wyntir, Tana and Mabush – continue to flourish at Care For Wild Rehabilitation Centre near Mbombela (Nelspruit) in Mpumalanga.

These magnificent creatures have been part of the TRAC family for almost three years, during which time we have been amazed by their relentless courage, willpower and determination not only to survive, but to thrive.

Looking at these incredible animals, it is hard to imagine their painful past. They all stared death in the face when their mothers were cruelly poached. All three arrived at Care For Wild in a dismal state, barely alive. But today, thanks to the dedicated and informed care of the centre's employees, they are the picture of rhino health and happiness.

Being babies on their arrival at the centre, Wyntir, Tana and Mabush were

initially fed a special, liquid diet. However, as they grew, their dietary requirements changed to include solids. These days, they merrily eat field grass and supplemented dry feed all day long, which has ensured steady, healthy weight gain over the past six months.

At a recent weigh-in, male rhino Mabush tipped the scales at 815kg. Tana weighed in at 776kg and Wyntir is a hefty 770kg.

According to their caregivers at Care For Wild, the rhino are "fat and happy", which is evidence that they have fully recovered. This in itself is a miracle. Orphaned baby rhino don't easily survive in captivity and those that do are often not as healthy as the TRAC trio.

As their sponsor, it delights us to see them doing so well – something for which we salute their passionate, devoted and knowledgeable caregivers.





# Winter warmers

*Keep it cosy*



The best thing about cold weather is the food. And blankets. Don't forget the blankets...

## Orange and Pepper White Hot Chocolate

(Serves 2)

A delicately rich twist on an old favourite. The combination of orange, cardamom and white pepper complements the sweetness of the white chocolate without being over-bearing. Beware, it might just become your favourite hot beverage this year.

### Ingredients:

400 ml full-fat milk  
Zest of 2 fresh oranges

2 cinnamon sticks  
1/8 tsp nutmeg  
1/4 tsp ground cardamom  
1/4 tsp ground white pepper (add more to taste)  
Pinch of salt  
100g white chocolate (grated)

### Method:

Place the milk in a saucepan, add all the ingredients except the chocolate and bring it gently to a simmer. Let it simmer for a few minutes.

Take it off the heat and let the flavours infuse for 10 minutes.

Then strain it into another saucepan. Add the grated chocolate and bring it slowly back to simmering or until heated through and the chocolate has melted.

Stir and take it off the heat, pour into mugs, find a cosy spot and simply indulge in the richness of the flavours.



## Immune boosting chicken broth

This broth will not only nourish your soul, but also your body. It's good for your gut, because it contains beneficial collagen, glycine and minerals. And the synergistic effect of the garlic, ginger and onion can boost your immune system and help fight off colds and flu.

Turn your kitchen into a medicine cabinet this winter with this delicious and versatile chicken broth. You can use it to make chicken soup or as a base for other soups and stews – or eat it as-is with some added lemon and herbs.

### Ingredients:

Carcass and bones of 1 whole chicken  
1 medium onion, peeled and quartered  
1 large carrot, roughly chopped  
2 celery sticks with leaves, roughly chopped  
2-3 slices of fresh ginger, peeled and crushed  
3 cloves of garlic, peeled and crushed  
2 bay leaves  
A few sprigs of thyme  
Handful of fresh parsley (with stalks)  
Generous pinch of freshly ground black pepper  
Pinch of sea salt

1 Tbsp apple cider vinegar or white vinegar  
2.5l of water

### Method:

Place all the ingredients in a large, heavy-based saucepan and bring to the boil. Skim the top occasionally if foam forms on the surface.

Reduce to a simmer, put the lid on and cook for 1½ - 2 hours. If you want a more robust flavour with a bit more depth, you should cook it for more than 3 hours.

Carefully strain the broth through a fine sieve into another pot or clean jars. Freeze right away or use refrigerated stock within 2-3 days.







# R24 project almost complete

## Motorists can look forward to 12km of smooth sailing in the North West

The major upgrade to the R24, which entailed developing a 12km dual carriageway from Magaliesberg Mountain to the Marikana Road at Buiten Street, is one of SANRAL's flagship projects in the North West.

Valued at R194.9m, the project is part of the 1 500km of North West provincial roads that were incorporated into the SANRAL national road network.

The improvements are almost complete and SANRAL anticipates the road will be open to road users in July. The upgrade is intended to reduce heavy congestion during peak hours and create improved accessibility to the N4, Rustenburg's industrial areas and Waterfall Mall, as well as being a conduit to further development on vacant land.

In addition, the project has had some immediate benefits for the region by way of job creation and business opportunities.

SANRAL is committed to creating equitable access for small contractors, particularly black-owned ones, to access opportunities through procurement.

The agency's Senior Project Engineer, Hennie Kotze, said: "As part of the contract, SANRAL required the main contractors to allocate 12% of the value of work to targeted enterprises and 6% to the employment of local labour – a move which has contributed to job creation and skills development in the area."

Makulu Construction is one of 13 small businesses that have been subcontracted on the project.

"Makulu received a R10m allocation for civil works. This included installing sub-soil drains and constructing drain inlet boxes, head and wing walls, kerbs, brick wall and paving," explained Kotze.

The company's directors, Jimmy Ntuli and Johan Jansen van Vuuren, boast a combined eight years' experience and

have been at the helm of the company since it began operations in April 2013.

Ntuli is pleased the company was subcontracted by WBHO (the main contractor) on the project.

"The R24 Rustenburg project is important for the area, as it will help traffic flow and prevent serious traffic incidents," Ntuli said.

"The project also provided work for local people. Our R24 project office, for instance, has 40 employees. Eighty percent (32) are contract-based employees sourced from communities in close proximity to the project.

"Employees also received training to safely operate the grinder, walk behind concrete cutter, handheld concrete cutter and concrete breaker," Ntuli said.

With its head office in Pretoria, Makulu operates countrywide and in neighbouring countries and specialises in civils, drilling and blasting works. The company employs 24 permanent office and management personnel. It is recognised by the Construction Industry Development Board (CIDB) as a Grade 3CE PE contractor.

### R24 project snapshot

**Start date:** March 2013  
**Estimated completion date:** July 2017  
**Scope of work**

**PHASE 1:**  
 From Helen Joseph Street, proceeding north over the N4 until Buiten Street, a new carriageway was constructed on the eastern side. The result is a dual carriageway, where the old road has been converted to become a one-direction northbound carriageway. A new bridge adjacent to the existing one was also constructed over the N4 for the northbound carriageway.

**Main contractor:** Lonerock Construction

**Duration:** 3 years, effective March 2013

**Number of SMMEs subcontracted in Phase 1:** 10

**Number of jobs in Phase 1:** 69 equivalent full-time jobs

**PHASE 2:**  
 From Helen Joseph Street to Oorsaak Road, traffic circles were constructed at intersections on this part of the road. The circles are aimed at improving safety and facilitating easier crossing of the road.

**Main contractor:** WBHO

**Duration:** 2½ years, from March 2015

**Number of SMMEs subcontracted in Phase 2:** 7

**Number of jobs in Phase 2:** 148 equivalent full-time jobs

**GOING OUT TONIGHT?  
SO ARE WE.**

**DON'T DRINK & DRIVE.**

Road Traffic Management Corporation, a lead agency in road safety.

**Road Traffic Management Corporation**



# JUMP THE Q

## What you said

**S**aving time on your journey is pretty important, whether you're hauling freight or going down to the coast to visit family. Nobody wants to be stuck in a queue at a toll gate – especially at peak times. Getting yourself an e-tag means you don't even have to stop while driving through a toll point. We got out there to set up Mobile Payment Stations so people could register and asked interested motorists how they felt about the faster, more convenient shesha lanes, as part of our Jump the Q campaign. Here's what we heard...

### Thabo Chomane, Wesselsbron



"My perception of toll gates, relating to e-tags, is that it's a good thing. Many of us are going to get it and many of us are going to Jump the Q. This is good, I like the promotion and the encouragement that you are doing. Keep it up, SANRAL."

### Wessel Welner, Ventersburg



Wessel is on the road every day, travelling along the N1 from Ventersburg to Johannesburg. "One of my freight trucks was unable to travel past the N4 because of TRAC. Then they said that if I had an e-tag, I would be able to pass. That's why I am registering. I saw the Mobile Payment Station truck standing here and I saw an opportunity to solve my problem."

### Moeketsi Tsueu, Lesotho



Moeketsi frequently travels to Johannesburg to purchase cars at auction. "I'm glad I met you guys here, you made it easy for me."

### Dimakatso Matlala, Vanderbijlpark



"I work in Devland, so I travel to Joburg every day. Some days I try to use the Golden Highway, but it's not worth it."



### Lebo Khobeli, Nelspruit

"I have my own e-tag and we also have for our company vehicles. I was just worried that at Machado and Middleburg there is no e-toll, but now that you say you have it, I'm very happy about that. I always use this road, so it's great that e-toll is working."

So most of the time I use the N1 and I have to pay cash. But I have the tag now, so you guys have saved me time. You know, it's so convenient for us to just come here and fill in the forms. It's a good thing for you guys to come out here, because sometimes we're lazy to go to your offices. It's so easy for us to fill in the forms. And you know we like freebies, hey?"

### Phumla Mokoena, Nelspruit



"It's actually going to save more time for me. It's quite an advantage unlike queuing up when you have to pay at the tollgates and stuff. It's a lifesaver."

### Khanyisa Mchavi, Lydenburg



Khanyisa is a student, who was on her way home to Lydenburg for the weekend when we caught up with her. "I appreciate the N4 and the new e-tolls, because I use the N4 every day."



# SANRAL Scholarship produces bright star



*Luzuko Jack, who graduated from Victoria Park High School last year, knows what it takes to shine*

family. I wanted to relieve them of the pressure of paying for school fees as my mother is unemployed and we all depend on my sister, and that's why I applied. Even though I knew it wasn't going to be easy."

Jack is the first in his family to pursue an engineering degree.

"I am proud of myself. I have a passion for technology and I hope to use mechatronics and technology to benefit South Africa one day," he says.

His Mechatronics course includes 10 modules, including his majors, mathematics and physical science, computer science, engineering drawing and materials science.

"The workload is really a lot," he says, "but I'd like to think I have good time-management skills, because I'm still coping and still have time to learn everything I need to know. University requires a lot more of self-discipline than high school. I worked hard then on keeping my work ethic, so I definitely use that skill now."

In his spare time, Luzuko enjoys reading and playing sport in his local community in Zwide. "I also enjoy cooking and playing video games in my spare time."

But despite his many outside interests, he is passionate about learning and would like to go as far in his studies as possible.

Luzuko has some great advice for other young up-and-comers: "I think people should study after high school, even though the pressures of studying further are great. Once you have your degree, you will reap the rewards. And you'll be able to make the world a better place by contributing your knowledge and applying your passion."

In terms of role models, Luzuko's big sister has that covered. She ensures that their family of six never goes to bed on an empty stomach. "I will always be grateful for that," he says. "She has

managed to keep the family together and happy; I admire her for that. I hope to do just the same one day.

"I am also inspired by my late father. I want to be as successful as he was. He was able to provide for our every need. He was an exceptional father and I am studying hard, partly as a tribute to him, for raising us the way he did. I hope to make him proud."

With his attitude toward studying and hard work, there's no doubt this student will make his whole family exceedingly proud.



**L**uzuko Jack is realising his dream of studying engineering thanks to a SANRAL scholarship.

Jack, who matriculated from Victoria Park High School last year, is registered at Nelson Mandela Metropolitan University (NMMU) in Port Elizabeth. He joined the university's Science, Technology, Engineering and Mathematics (STEM) Pipeline Project in Grade 11. It was at the STEM PP classes that he learned about the scholarship programme.

"I was looking for funding for high school as it was very expensive for my

## At the heart of it all

**O**n 16 June every year, we celebrate Youth Day, named after the events of 16 June 1976, which saw an uprising by Soweto schoolchildren against apartheid, which was triggered by the forced teaching of certain subjects in Afrikaans. The march soon spread across the country and became a major catalyst in the resurgence of anti-apartheid activity.

The public holiday is about commemorating that uprising and honouring those who gave their lives in violent confrontations with the security forces.

The struggle in 1976 had a single focus – ending oppression. Today, life is different in South Africa and so are our challenges.

Young people (those below the age of 35) make up 66% of the population and thus are at the very heart of our future. They face severe challenges. More than 50% are unemployed, HIV infection rates are high, youth-headed households have increased and crime is rampant.

Yet there have been improvements – better and more access to education, housing, water, sanitation, electricity and information technology and resources.

And there is a multiplicity of opportunities – through skills training, bursaries, scholarships and internships. SANRAL is a major player in this field. We hope to keep students like Luzuko Jack studying and growing as professionals.

## APR/MAY Crossword Solutions

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	B		B	L	O	G		B		B	I	B	L	E	S
2	A	E		O	E	R	L	E	M	A	N	S		A	I
3	R	A		G	R	A	B		I	L	K			A	I
4	B	R		G		A			D	L		C	O	L	E
5	E		S	I		F		A	D	O	R	E	S		S
6	R	I	C	A		F	F		E	T				R	
7	S		I	S				A	L	L	S	P	I	C	E
8	P	I	E		W	E	S		B				O	A	H
9	A		N	D		P		M	U	S	I	C		D	O
10	N	I	C	O	L	E	A	B	R	A	H	A	M	S	
11		B	E	T		E	T	A	G		S	P	A		D
12	M	I			Q					B			D		O
13	U	S		J	U	L	Y		M	E	S	H			D
14			P	I	N			W	I	N	E		A	B	O
15	C	H	I	K	U	N	G	A		T	A	M	B	O	



# SANRAL proudly presents Eco-Logic Transport Award



CSIR International Conference Centre



David Parry-Davies publishing editor of The Enviropaedia



From left to right: Sellicia Goncalves, Saeeda Ismail, Charlotte Ngwenya, Willem van der Merwe, Yogie Naidoo, Mpati Makoa and Manjula Reddy

**S**ANRAL is the proud sponsor of the Transport category of the Eco-Logic Awards. These awards identify individuals, organisations and communities who contribute positively towards a sustainable world and encourage consumers to purchase their products and services.

The awards were established by The Enviropaedia, a South African environmental encyclopaedia and networking platform that promotes social and environmental sustainability, in 2011. Since they were launched, the Eco-Logic Awards have grown into South Africa's most glamorously green eco-calendar event, receiving coverage on TV, radio, print media and online.

Every year, the public nominates its eco-champions in 13 categories, highlighting how they contribute to an "Eco-Logically" sustainable society and environment. A team of highly respected, environmentally aware individuals then judge all the entries using the same seven criteria that are the roots of Eco-Logic and select finalists in each category.

The finalists are invited to join an



Willem van der Merwe hands over the SANRAL Transport award for winners Bicycles and Beyond (in absentia)

exclusive group of Green VIPs and thought leaders at the Eco-Logic Awards event, which took place this year on the evening of 14 June at the CSIR International Convention Centre in Pretoria.

Attendees could choose between two fun dress codes – either "Glamorously Green" or "Come as your Environmental Alter-Ego".

The Transport Award is given to a product or service that reduces negative environmental impacts in the transport sector. This year, the award was bestowed upon Bicycles and Beyond (BAB). This organisation was founded in 2015 by Janine Johnson and Beverley Roode, with the aim of empowering women and youth through cycling. The team educates people about cycling as an everyday mode of transport and as a "vehicle" for employment opportunities. Women and youth are trained in cycling safety, competence and basic mechanics, so that they can fix their own bicycles and those of other people in the community.

BAB hosts women's cycling events, bicycle tours, spin classes and ghost rides. They also organise school holiday programmes to keep vulnerable youth busy when they are not at school. These will be expanded to boot camps in which youth are taken on excursions and equipped with life skills through team-building exercises.

SANRAL believes that recognising efforts in this area is vitally important. We believe that minimising the impact of necessary industries should be a priority for all businesses and we constantly strive to preserve the natural systems we build in.

Publishing editor of The Enviropaedia David Parry-Davies said: "Road transport has a huge impact on the state of our environment, in terms of emissions contributing to climate change, and also massive loss of our precious wildlife

through road kill. We are therefore delighted that SANRAL is taking these matters so seriously – and supporting those who are seeking solutions to these challenges – by sponsoring the Eco-Logic Transport Award. Thank you, SANRAL, your actions may not always be popular, but this is a very good thing that you are doing."

### Eco-Logic Awards Categories

1. The Biodiversity Award
2. The Climate Change Award
3. The Eco-Innovation Award
4. The Energy Efficiency Award
5. The Recycling and Waste Management Award
6. The Transport Award
7. The Water Conservation Award
8. The Green Economy Award
9. The Municipalities Award
10. The Eco-Community Award
11. The Eco-Youth Award
12. The Eco-Angel Award
13. The Eco-Warrior Award

### 7 judging criteria for Eco-Logic

- Minimises harm to the earth/benefits the earth (20 points)
- Supports long-term sustainability (10 points)
- Embraces holistic thinking (10 points)
- Shows care and consideration for others (ubuntu) (10 points)
- Of high quality and ethical standards (20 points)
- Demonstrates innovation/vision (10 points)
- Reflects wisdom by being both intelligent and generating a positive emotional impact (smart + feel-good) (20 points)

While the above provides a maximum of 100 points, the advantages and benefits of becoming "an Eco-Logical human being" are limitless.

### Winners and finalists of the Eco-Logic Transport Award

**GOLD**  
Bicycles and Beyond  
Bicycles and Beyond

**SILVER**  
Open Streets Days  
Open Streets Cape Town

**BRONZE**  
EWT Wildlife and Roads Project  
Endangered Wildlife Trust

**FINALIST** Blendwell: Enviroblend, Blendwell Chemicals **FINALIST** Blue Rock Village, Swisatec Trade and Engineering



Greenfingers

## Colouring in

**J**une! The month of the year when your garden is starting to curl up in anticipation of the cold winter to come. How to warm up the place and put your neighbours to shame?

The answer is easy: colour spots.

The nursery will have some lovely pots of colour, already blooming and waiting for you. Remember to water the plant before transferring it into the soil. Group these plants in bare or tired-looking areas and your garden will smile at you.

But don't stop there!

Do some pinching of leggy plants like cosmos, geraniums and chrysanthemums to encourage more blossoms and bushiness. Continue to deadhead your roses and trim back shrubs. It sounds positively naughty, but your plants need trimming to revive them.

Divide spring flowering perennial bulbs like Arabis and Primroses, or sow perennial seeds into the soil. Daffodil bulbs can be moved to a fresh spot now.

Long-stemmed plants need to be staked or cut back to encourage fresh growth.

And never stop checking for insect or disease infestation (like you do for your children) and be pro-active in controlling pests (like you do with your neighbours).

Your lawn will start to look yellow in hot and dry weather, so lift the height of your mower. It is not too late to fertilise your lawn or even seed it. Keep newly seeded areas well-watered and you will be rewarded in spring, when you take out your putter for some practice shots.

It sounds like a lot of work. It's not really. You'll be out in the fresh air, communing with nature (whatever that means to you) and your garden will look so much better than the Jones's after winter.



**TRAC N4  
HELPDESK**  
0800 87 22 64

THE  
ROAD THAT  
**CARES**

TRAC's 24-hour Helpdesk  
is always there for you along  
the N4 Toll Route!  
#MoreThanJustARoad



**We now  
ACCEPT  
automatic  
electronic tags**

Terms and Conditions apply



@TRACN4route



www.tracn4.co.za



facebook.com/TracN4





# The road to fame

Seasoned journalist and celebrated author of the *Hlomu The Wife* book series Dudu Busani-Dube's journey has not been without its interesting little deviations



Dudu Busani-Dube

It dawned on me when I was about 20 minutes away from the Oshoek Border Post that if I had taken the N17 from Johannesburg, I would have been in Swaziland already.

But no, I was travelling with a man. And although he had never been to Swaziland, he insisted he knew the way.

So there we were, me, my dear

husband and a dear friend, in a BMW X1 that sometimes turns into a bakkie, because I'm constantly travelling with at least 10 boxes packed in it.

My friend, she has her own rules: any trip that is over an hour long has to have a cooler-box, an over-supply of snacks and music. She never drives, never knows where we are and doesn't stop talking.

My husband, on the other hand, has never in the 11 years that I have known him uttered the words: "We are lost," even when we are lost.

I know both of them well, so I tolerate it.

This trip, which was to eZulwini in Swaziland in February (for my first-ever book launch outside South Africa), was another of those that required tolerance.

It started from the N1 to the N4 (traffic) on a Friday afternoon.

We had about four hours to travel and the weather wasn't exactly in a good mood.

I pushed back my front seat and relaxed the moment we took the Emalaheni ramp onto the N4; that was where the trip really started.

The N4 from Pretoria to Witbank is always a quick and easy drive, simply because the road is straight, clear and well-maintained.

Another 30 minutes spent cruising through the N4 to Middleburg, where we remembered that our lives depended upon not missing the Carolina off-ramp.

That off-ramp was going to determine whether we made it to the border post on time or if we'd arrive after 10pm and

would have no choice but to sleep in the car or drive back to Joburg.

In heavy rain and dark sky, we found the road to Carolina and lost all civilization.

The R33 isn't a bad route. The road itself is not bad. In fact, if you are looking for a road trip that will grant you peace and quiet, it's the best route to take.

It's mostly lined by farms with names you've never heard of.

Although the areas the highway cuts through are completely rural, I was shocked by how good the road signage is.

Every "sho't left" and "sho't right", whether it is going to a farm or just basically nowhere, has a sign with either a road name or plot name.

There was the farm Helpmekaar. I couldn't help but wonder what it is exactly that a farm with such a humble name produces. There was also a sign pointing to Vaalwater. I wondered if it was referring to a river or an actual farm.

See, those areas are nothing like the N3 or N4, where you can park on the side and pop in. There are fences, gates and you know without being told if you are about to trespass.

We drove past without stopping, because the real goal was to reach Carolina before 7pm.

We had been warned that it being Friday and month-end, the border post would be as busy as a taxi rank.

So we knew we were close when we started seeing thicker traffic on the R33. This was because we were approaching

the left turn to Piet Retief, a small town that borders Mpumalanga and northern KwaZulu-Natal.

We turned right into Carolina, a town with just one road, but two petrol garages, fast-food outlets and a railway line.

It was a busy town. Not Joburg busy, but pretty bustling.

It took about four minutes to drive through the town, which begins at a big "CAROLINA" sign and ends at a T-junction.

We took another right turn and not long after that we were approaching the said junction.

I could not believe my eyes when I saw the N17!

We literally could have taken the N17 – all we had to do was take the N3 and then the Springs off-ramp.

The N17 would have been quicker and easier, but then again, we would have missed the peace and quiet of the R33. My husband would not

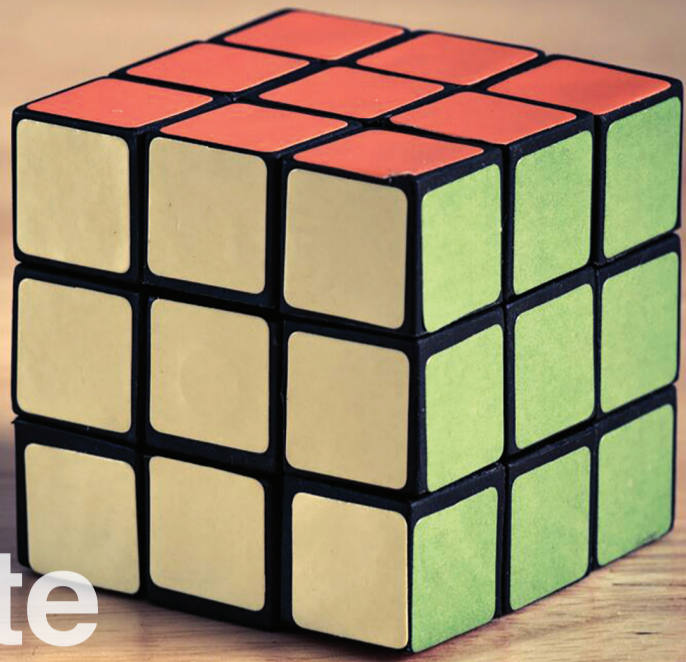
have had his chance to gloat about taking a route he'd never driven before and conquering it. My friend would probably not have been blissfully asleep throughout the trip had it been shorter. I would not have been curious enough to want to know what the heck happens at Helpmekaar.

We spent another hour on the N17, driving in the rain and fog, but we made it to Oshoek before 10pm. And yes, it did look something like Bree Street.



Scramble your brains with our boffin-baffling crossword puzzle

# Captivate & fascinate



## CROSSWORD Some answers can be found in By The Way

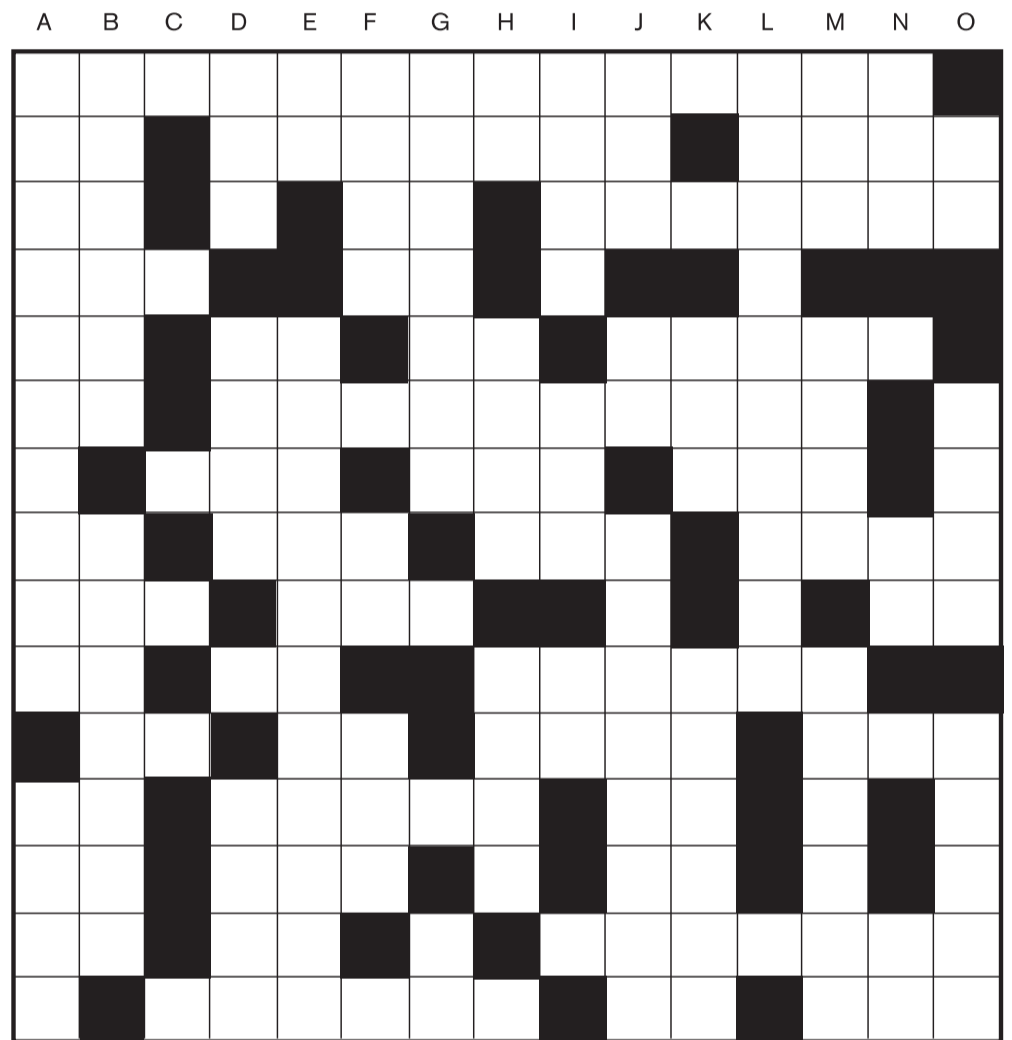
### ACROSS CLUES

- A 1: Once the stuff of science fiction novels and now part of most households (2 words)  
 A 2: Approximate, exact, appropriate or vague position  
 D 2: Horse harnessed next to wheels and behind another  
 L 2: Search for  
 A 3: abbr. Nova Scotia  
 F 3: abbr. Out of print; Overproof  
 I 3: The people who built a Mission Station near Middelburg, Mpumalanga  
 A 4: Wild beast's lair  
 F 4: abbr. Near  
 A 5: colloq. abbr. Elevated Railway  
 D 5: Hypothetical power once thought to pervade nature  
 G 5: Symbol for osmium  
 J 5: Acronym for South African Institute of Civil Engineering  
 A 6: Symbol for Rutherfordium  
 D 6: Name of the Place of Refuge in Sepedi  
 C 7: One more than nine  
 G 7: Slow-growing evergreen coniferous tree  
 K 7: .....calli. Temple of Aztecs, truncated pyramid  
 A 8: abbr. Audio Frequency  
 D 8: Shriill barking  
 H 8: Physics: Hollow semi-circular electrode in cyclotron  
 L 8: Strike with palm of hand, smack  
 A 9: Young boy  
 E 9: Hinged or detached part to cover opening of container  
 N 9: abbr. Delaware  
 A10: abbr. Television  
 D10: Inherited instinctive impulses as part of the person's unconscious  
 H10: World-wide  
 B11: Expression of inquiry or surprise  
 E11: Start, depart, move  
 H11: Line of persons one behind other OR tool for shaping or smoothing  
 M11: Shakespearean play's title: Much..... about nothing

- A12: abbr. Decilitre  
 D12: Name the Toll Plaza near Albertsville Bridge on the N2 south  
 J 12: Attached to or enclosing or supporting  
 A13: abbr. Each  
 D13: colloq. Friend  
 J 13: For or pertaining to United States armed forces  
 A14: abbr. Place of the seal on document  
 D14: Unit of width  
 I 14: Female tiger  
 C15: Right or privilege of admission/ main dish of meal  
 J 15: Internet domain name for China  
 M15: Used in adding to married woman's name after her surname

### DOWN CLUES

- A 1: Surname of SANRAL's Western Region Manager  
 B 1: Who manages SANRAL's toll operation?  
 D 1: By how many million will Johannesburg population grow by 2040  
 E 1: Expression of surprise or questioning  
 F 1: An age of the universe  
 G 1: Chronic infectious disease affecting skin and nerves and cause of mutilations and deformities  
 H 1: abbr. Rugby League  
 I 1: abbr. Electroencephalogram.....plural  
 J 1: Plural of Is  
 L 1: SANRAL's Transportation Manager  
 M 1: English beverage  
 N 1: Longing, yearning or Japanese monetary unit  
 K 2: abbr. Kansas  
 D 5: Follow orders  
 D 5: Name of Western Cape Minister of Transport and Public Works (2 words)  
 H 5: One-storeyed building for storing goods  
 J 5: Symbol for antimony (Lat. Stibium)  
 K 5: abbr. for aetatis (at or of the age of)  
 M 5: Youthful expression for "very nice" or "great"  
 I 6: Reverential feeling of fear or wonder  
 O 6: Garment or part of Mother city's name(.....Town)  
 B 8: Brazilian shacks or slums  
 F 8: Symbol or ratio or circumference (Maths)  
 J 8: The name of SANRAL's thirteen Transport Awards (two words hyphenated)  
 N 8: colloq. Advertisement  
 H10: What makes up 1% of SANRAL's road network  
 I 10: Chinese unit of distance (less than a mile)  
 K10: Gracious, gentle (of climate, personality, etc)  
 M10: First name of SA author who had won a sci-fi award (.....Beukes)  
 F 11: Lubrication for car, etc  
 O11: Very fat, corpulent  
 A12: Small wooded hollow or valley  
 D12: Not closed  
 G14: Male, man  
 N14: Symbol Selenium



\* Solutions to this crossword can be found in the next issue

