Kumba Iron Ore’s Sishen mine near Kathu in the Northern Cape, the largest iron ore mine in the country, will see significant growth over the next eight years. This requires the injection of cash into the mine’s on-site infrastructure to support its development, writes Laura Cornish.

**SISHEN’S BUCKET AND BOWL**

A big workshop for a big mining fleet

The growth of the current 12 x 4 km Sishen opencast pit necessitates additional haul trucks for overburden waste handling. With this in mind, engineering project house TWP (part of the Basil Read Group) was contracted to design and oversee the construction management of a new ‘Bucket and Bowl’ workshop facility, which will cater to the maintenance and service requirements of the mine’s expanded haul truck fleet’s buckets and bowls. Infrastructure and EPCM company BVi Group has been appointed as design subcontractors to TWP, alongside main construction company, Stefanutti Stocks.

Awarded in April 2011, the project took 14 months to complete, coming in on budget, says Digby Glover, CEO of TWP.

“The workshop will enable us to do our business safely and efficiently, while simultaneously allowing us to sweat our growing fleet assets without compromising on maintenance,” says Sishen general manager, Andrew Loots.

Launched in June this year, the workshop is enormous in size, but is only temporary. A permanent facility is already under construction, and is due to be completed in September 2013.
Sishen first became operational in 1953
- It has a current 28 year lifespan
- It mines opencast to an average depth of 400 m
- It produces 41 Mtpa of saleable product
- About 6.25 Mtpa is distributed to local markets.

A permanent facility (life of mine workshop) is already under construction, and is due to be completed in September 2013. The workshop, measuring 50 x 40 m, with a height of 27 m and internal footprint of 2 000 m², has been fitted with two 80 t overhead cranes, and the largest commercially installed tyre press (450 t) in the country, which will be moved to the life of mine workshop when it starts operating. There were 450 people working on site during the project’s peak construction phase period.

It also had four undercover bays and six apron bays outside.

The scope of work for the ‘Bucket and Bowl’ workshop also incorporated a tyre

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yard for storing up to 280 tyres for the mega trucks, an adjacent administration building, compressor room, nitrogen tank storage slab, sewer pump station and 11 kV sub-station.

Mindful of the impact of the mine on the neighboring district within the Kalahari landscape, the workshop was positioned close to the existing waste dump, meaning its location is within a controlled environment isolated from the mine operations, with polluted wash water and contaminated stormwater run-off leading to a new pollution dam complex.

A total of 4 600 m³ of concrete, 560 t of structural steel and 93 000 bricks were used. At peak, a total of 455 employees were on site.

The project achieved a zero lost time injury over 700 885 man-hours and 326 days worked (462 calendar days).
The successful completion of the ‘Bucket and Bowl’ workshop is regarded as a major achievement in that numerous challenges were overcome both prior to commencement of the project and during the study phase, and during the construction phase.

These included the remoteness of the location, environmental considerations, adaptation of the facility for an alternative purpose before the permanent maintenance facility is completed, and the size of the building required to service the mega trucks.

“We consider our most impressive achievement however the zero lost time injuries – over 464 days,” Glover concludes.