



RHODESFIELD STATION: A NEW TRANSPORTATION HUB IN EKURHULENI

The Passenger Rail Agency of South Africa (PRASA) appointed GIBB, one of Africa's largest multi-disciplinary engineering and science companies, to undertake the R125m design, project management and construction supervision of a new rail commuter station in Rhodesfield, Kempton Park. The scope of GIBB's responsibilities included the design of the rail infrastructure, including track, signalling and overhead electrification, as well as the structural, electrical, mechanical and all civil works of the station.

The station is currently under construction on the existing Johannesburg to Pretoria Metro-rail rail commuter route, between Isando and Kempton Park stations, and provides a direct link to the new Gautrain station for rail commuter transfer purposes. By building the PRASA station adjacent to the Gautrain station, it will allow commuters to transfer from one train system to the other. The station facility will serve the increased rail commuter demand for the rapidly developing Rhodesfield suburb, which is being redeveloped to support the growing airport industry.

The remodelling of the rail infrastructure consisted of the realignment of the four railway lines and associated signaling, and overhead electrification works to create space for the

construction of two island platforms. The station consists of an aerial concourse over the two new island platforms with the eastern station entrance connecting to the Gautrain station precinct, and the western station entrance connecting to a dedicated intermodal facility.

This project is considered the future for transportation in Ekurhuleni, as it is the first ever tri-modal transportation hub, joining Metrorail with the Gautrain Rapid Rail and associated Gautrain Feeder Bus system, as well as other public transport modes, bus and taxi services.

Wimpe Oosthuizen, Project Leader for the Rhodesfield Station commented that: "the major project challenge was the short project duration to complete the design and construction of the station facility".

As a result of the time constraints, pre-cast concrete was used. Placement of the pre-cast members could be coordinated to have minimal disruption to the operation of the railway. Due to poor founding conditions, the foundation required piles, pile caps and interconnecting ground beams. Columns, platform retaining walls and beams above the platforms were constructed as cast in-situ reinforced concrete. The concourse deck was made of pre-cast reinforced concrete beams and infill panel

slabs. Thereafter, a concrete structural topping was added to stitch all members together to form the finished slab. There was also significant steel design, with the requirement of a 32m bridge providing access to the station from both the eastern and western side, which spans over Anson Road as well.

Costhuizen continues: "From a technical perspective the biggest challenge was the remodelling of the rail infrastructure and the construction of the station over a 'live' operational railway system. The design and construction interfaces with the Gautrain station which is well advanced already".

Transportation Integration

The PRASA and Gautrain station precincts will be integrated to ensure seamless pedestrian transfer between the stations. The eastern precinct of the PRASA station will allow pedestrians to connect between the station entrances, while the western precinct of the station has a dedicated on-site public transport facility. The reason for two separate public transport facilities is to facilitate public transport accessibility from the east and the west, which is obstructed by the railway line.

