



Dynamic mix of past, present and future Jozi



Artist's impression of principal client Nedbank's offices at Newtown Junction.

Newtown Junction, located in the heart of Johannesburg's Newtown Precinct, will see the long-neglected potato sheds transformed into a vibrant, mixed-used development that will comprise a 36 000m² shopping centre, 30 000m² of office space, gymnasium and four levels of basement parking providing 2 400 bays. The development is right in the middle of Newtown's cultural district, next to the Museum Africa and the striking 1913 Edwardian building that was redeveloped into the popular Market Theatre.

Developed by Atterbury Property, Newtown Junction signals both the growth of Johannesburg's city centre as well as the renewal and revival of the city in a way that preserves its heritage and history. Construction started in October 2012, with completion set for the end of September this year.

Aurecon played the role of structural engineer on this landmark project, bringing to the table a wealth of knowledge around the complexities of working in the downtown Johannesburg environment as well as an ability to ramp up significant project resources at short notice.

The R1,3-billion development is backed by the Johannesburg Property Company and has seen the South African Heritage Resources Agency's inputs carefully considered, because of the historic nature of the site.

"Mixed-use developments often dictate working with a

complex design team. On this project, this included three architects – retail, commercial and heritage. It was essential that Aurecon build strong relationships across these teams, as well as develop construction efficient solutions to expedite the tight programme," says Stoffel Mentz, Aurecon project director and structural engineer.

He goes on to say the new development displays a unique design. "The project team, under the guidance of DHK Architects, took particular care to create a structure that connects the past, present and future with vibrant flair, making it an exciting place for people to work, shop and eat in one of South Africa's most compelling economic hubs."

Newtown Junction's retail area includes a portion of the steel warehouses (potato sheds) that were designed in 1910 for storing vegetables and fodder that were distributed to fresh produce markets across the country by rail.

"There are four basement parking levels, two retail levels above the parking as well as three levels dedicated to office space above the retail portion. A portion of the building was constructed under the elevated M1 highway, which required a unique geometry to accommodate the highway piers," says Mentz.

"Some sections of the structure's roof are only 3 to 4m below the structure of the M1

highway above. Furthermore, the floor level of the lower retail level is up to 3m below the founding levels of the highway piers and columns. This meant the project team had to isolate construction while building around existing highway piers and columns. We had to design lateral support systems to protect the bridge piers, ensure that the safety of motorists was not jeopardised as well as design a roofing system that caters for storm water flooding from the highway in these areas."

Coupled to this, the project site was founded above huge amounts of ground water, with excavations that plummet down to 15m below the ground's surface. This required the project team to remove about 1 500m³ of water per day from the foundation levels.

"To streamline this task, Aurecon designed a series of subsoil drainage systems that collected water under the entire

basement footprint, and then funnelled the water into sumps, before pumping the water into the municipal storm water system at ground level. The same series of pumps now forms part of the permanent structure, and also functions as a mechanism of handling excess storm water resulting from the access ramps into the basements during rainstorms," says Mentz.

He also explains that without this innovation, rainfall would create a pool of water on the access ramps and would end up flooding the basement parking. The newly designed storm water system has eliminated this problem permanently.

Besides ongoing changes to the layout of the retail area of the mall, typical of any retail project, six cinemas were also incorporated into the project a year before the project's projected completion.

Aurecon's project team had to redesign the internal structure of the building to accommodate these changes and make sure that deadlines were met.

"The specialised cinemas required custom sound insulation solution due to their proximity to the highway. In order to muffle the sound of the neighbouring traffic, high-tech insulation was installed in the cinema areas under the guidance of acoustic experts. We also fast-tracked the design of two of the cinemas to ensure that they were fully functional when the mall opened," says Mentz.



Artist's impression of Newtown Junction.