



Contractor integration speeds commuter hub build

Tea Tree Plaza O'Bahn Interchange car park, Adelaide

The Tea Tree Plaza O'Bahn Interchange Car Park completed in January for the South Australian Government's Department of Planning, Transport & Infrastructure (DPTI) benefited from ASI member Ahrens' vertically integrated business approach.

The \$10.7 million multi-deck car park built on a 3600sqm site accommodates 695 car parks over five levels for commuters who take the O'Bahn guided busway into the city. The project was completed in nine months with Ahrens integrated delivery model cutting an estimated two months off a traditional construction program.

Ahrens was initially awarded Stage 1 and 2 of the car park by DPTI following a comprehensive procurement and tender evaluation process. It is the third major multi-storey, steel-framed car park Ahrens has completed in South Australia over the past two years.

DPTI Project Director, **Peter Short** said Ahrens "was selected to deliver the car park design and construction works on the basis of its overall performance, particularly with the success of the recently completed Franklin Street and Adelaide Entertainment Centre Car Parks, its resource structure and its competitive pricing"

"Our Assessment Panel considered many factors and assessed them independently of the final price," Mr Short said.

"These items included the organisation itself, the personnel and their experience, demonstrated technical capacity, capability and ability in project delivery and quality.

"Ahrens and its subcontractors completed this project in a very professional manner and worked very well with DPTI and (its consultant) Mott MacDonald to deliver a great outcome for South Australia that was on-time and within the allocated budget," he said.

DPTI provided a reference design at tender stage, allowing Ahrens to further develop the concept drawings to full Design and Construct while complying with strict Principal Project Requirements.

Site access was very limited and restricted to one side of the car park throughout construction, but by using its in-house steel fabrication facility it allowed for tight scheduling of steel deliveries so the steel erection process was not delayed.

Ahrens Construction Director **Mark Smeaton** said the project differs from a common stick build approach in that it had to leave secondary steel out to enable other trades to gain access to complete their works. An example being constructing the stair shafts with bottom panels being three levels high.



“Once primary steelwork reached level three, the next panel was erected followed by the secondary steel,” he said.

“With a stick building you complete the steel as you progress through the project, but we had to go back in to erect steel and feed it down into a web of primary beams to install the secondary beams.

“Crane and elevated work platform positions and steel deliveries had to be planned carefully to ensure the steel was erected safely and efficiently.”

He said that Ahrens’ integrated approach offers far more flexibility in regard to procurement and construction sequencing and has proven to be a more cost-effective solution than concrete construction.

“We were able to begin steel procurement and erection while still fine-tuning the final design and engineering which meant the project was accelerated from the outset,” he said.

The main structural steel is made up of floor beams typically seven to eight metres long but the columns were one piece universal beams each approximately 15 metres in length.

“We divided the car park into ‘full height’ priorities, sequencing the steel shop drawings, procurement, fabrication, surface treatment, delivery and erection,” Mr Smeaton said.

“Using a marking number system ensured the correct steel was available onsite at the required time. This enabled efficient erection and the project was complete on-time, allowing subsequent trades to commence work.

“A cost efficient design for the client was achieved whereby we custom fabricated the floor beams above the disabled parking areas to obtain a 2.5 metre height clearance when the height clearance for the car park was 2.2 metres.”

All steel was painted internally at Ahrens’ state-of-the-art blast and paint line in South Australia where the surface treatment combined a 2.5 blast and 75 micron coating of inorganic zinc.



“The ability to fabricate and paint the steel in-house was a massive advantage to the scheduling of steel deliveries to site,” he said.

He said that efficient design of steel car parks lends itself to projects in built up areas where the price of land demands multi-level construction.

“As a first tier contractor with control over the whole supply chain, we are able to drive the steel design right from the tender stage,” Mr Smeaton said.

“Through our integrated design, engineering and procurement approach we can demonstrate to clients cost benefits as well as other advantages such as being able to accelerate the construction program.”

Project Team

Client: South Australian Department of Planning, Transport and Infrastructure

Structural Engineering: Bryant Concepts

ASI Steel Fabricator: Ahrens

Building Erection: Ahrens

Steel Detailing: Precision Drafting Australia

ASI Steel Distributor: Brice Metals

ASI Steel Manufacturers: BlueScope Steel and OneSteel