

Reid Highway Duplication, WA

CLIENT Main Roads WA

YEAR 2014

SCOPE OF WORK

- Geotechnical investigation
- Interpretive analyses and reporting
- Bridge foundation advice
- Existing pavement assessment
- Pavement design



Investigation for the new bridge in progress.

Traffic volumes on Reid Highway were significantly greater than the capacity of the two lane road between Duffy Road and Erindale Road. Douglas Partners provided geotechnical and pavement advice for a second carriageway through this stretch of highway, incorporating a new bridge crossing both Mitchell Freeway and the Butler railway line.

Reid Highway forms the northern loop of Perth's Metropolitan Strategic Outer Ring Road. The objective of the project was to increase the traffic capacity Reid Highway, which regularly experienced traffic congestion, by adding a second 2 km long carriageway between Erindale Road and Duffy Road. Douglas Partners was engaged by Main Roads WA to undertake the geotechnical investigation works for the project, which is located in an area underlain by Tamala limestone.

Investigations
for the
new



bridge included boreholes and test pits for the abutments beside the Mitchell Freeway. A foundation of the bridge had previously been constructed within the Joondalup rail reserve. Ground penetrating radar (GPR) was used to confirm the location of this footing. The GPR was extended to include the abutment locations to seek to identify potential karst features in the limestone. Buried utilities were identified and potholed using vacuum drilling for accurate survey to inform detailed design.

The remaining areas of new carriageway required test pits and, where site constraints required, hand augers to identify and sample the underlying soils. Test pits were excavated within the existing carriageway to assess the existing pavement and underlying subgrade. Additionally, falling weight deflectometer (FWD) testing and a surface condition survey using an Automatic Road Analyser (ARAN) were conducted.

The findings of the field works were used to provide recommendations

for the bridge footings, earthworks, assessment of the adequacy of the existing pavements and design of the new pavements.

The field works required considerable logistical planning, including traffic management plans for works beside the Mitchell Freeway. Rail safety plans were mandatory to work within the rail reserve and obtaining timely approval for these was key to delivering the project within the tight timeframe. The project was delivered on time, the significant driver for the client, and within budget.

“Close liaison and cooperation with our project partners and Main Roads WA was essential to deliver this complex investigation on time, and to provide all the necessary advice.”

*Paul Hutchinson
Project Manager*

