



Bruce Highway Upgrade, Section A Cooroy to Curra, Queensland, Australia

Client: Lend Lease

Project Value: \$590 million

The \$590 million Bruce Highway Upgrade (Cooroy to Curra) Section A project is one of Queensland's highest priority upgrade projects. It will provide a 13.5km four lane highway between the Cooroy Southern Interchange and Sankeys Road. Contract 3 includes the upgrade of the existing Cooroy southern interchange, the construction of the new Six Mile Creek bridges, the construction of 6km of new northbound lanes to duplicate the existing highway and the rehabilitation of the existing highway to make the southbound lanes.

GCS has been engaged by the client to assist with some temporary work designs:

- Temporary slope stability design assessments for widening the existing highway embankments for loading conditions ranging between 20kPa and 60kPa.
- Temporary slope stability design to assess the stability of a 2.25m deep excavation to allow for the construction of the pile cap. As the excavation would be open for some time, a shotcrete solution with facing pins was designed.
- Temporary slope stability design for cut batters 1(V):0.4(H) which would remain open for approximately 4 months. An excavation depth of 5.8 m was essential for the permanent installation of a concrete crib wall. A cost effective solution using geosynthetics and u pins was adopted for the design.
- The design of two sheet pile walls to retain the existing Bruce Highway to allow the construction of the headstocks at Six Mile Creek Bridge.
- The design of a piling rig platform for the bridge abutments at Six Mile Creek Bridge.
- Temporary slope stability design for a 4.2m deep excavation next to the Bruce Highway in order to remove the existing culvert headwalls and construct a concrete footing for the future culvert units beneath the new highway alignment.
- Assessment of ground bearing pressure and support requirements for crane lifting operations at the Cooroy Southern Interchange.
- Temporary slope stability design for a 4.4m deep excavation next to the Bruce Highway to allow the extension of existing culverts beneath the new highway alignment.

Major construction on Section A commenced in July 2013 with the new highway opened to traffic in late April 2017. The entire Section A project was completed in May 2017.