Geocomp
Trusted to help mitigate risk

PROJECT BRIEF

Edmonton Light Rail Tunnel Instrumentation & Monitoring

PROJECT PROFILE

CLIENT:
TransED LRT

LOCATION:
Edmonton, AB

VALUE:

- Automated geotechnical instrumentation and monitoring of tunnel and river escarpment saving the client money
- Reduce risk to Public Private Partnership (P3) team, general public and abutting property owners by providing real-time automated alerts and fast turnaround data reports
- Real-time 24/7 automated data monitoring including both automated and manual data collected at the project site in *i*SiteCentral®

SERVICES PROVIDED:

- Geotechnical instrumentation and monitoring
- Vibration monitoring to adjacent structures during active construction

"Automated instrumentation was installed and included ShapeAccelArray (SAA) automated inclinometers, measuring tilt due to soil movement during excavation, multi-point bore-hole extensometers (MPBX) to measure soil settelment during excavation and vibration monitoring."

INSTALLATION OF GEOTECHNICAL INSTRUMENTS & DATA MANAGEMENT COLLECTION

Geocomp was subcontracted to provide geotechnical instrumentation and monitoring support services during construction of the rail tunnel, northern bridge abutment general on-site cut & fill activities. Automated instrumentation was installed and included ShapeAccelArray (SAA) automated inclinometers, measuring tilt due to soil movement during excavation, multi-point bore-hole extensometers (MPBX) to measure soil settlement during excavation, and vibration monitors to monitor and protect adjacent structures during active construction. Additional installations included automated piezometers measuring pore pressure levels during construction and automated tilt meters measuring building movement/tilt. Automated readings from instruments in the field were automatically uploaded to Geocomp's *i*SiteCentral® platform in real-time allowing for reduced time requirements from field staff and significant cost savings for the client. Geocomp's field staff also helped the client install manual survey points to measure soil, building and tunnel movement related to construction where automated monitoring was not feasible. *i*SiteCentral® then integrated with the contractor's manual survey points and tunnel convergence points to provide a comprehensive view of both the manual and automated monitoring of the tunnel stability, allowing the client a full picture of project performance.

BACKGROUND

The Edmonton Light Rail system has 18 stations on two lines and is one of the busiest light rail transit systems in North America, with over 110,000 daily weekday riders. The Valley Line LRT SE project extends the current system to southeast Edmonton and includes the construction of a quarter mile tunnel and a new bridge over the North Saskatchewan River.