



# Evolving to bring you more

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SERVICES TO THE MINING INDUSTRY





## Stantec and safety

Our goal is to carry out our work with zero harm to people and the environment.

The way we treat our people, our clients, and our neighbors reflects who we are, what we believe in, and how we do our work. At Stantec, we believe in doing what is right. We are committed to providing and maintaining a healthy and safe workplace and to ensuring that our staff return home injury-free every day.

We recognize that our work involves risks, but we believe that we can address these risks if we manage them using a dynamic health and safety management system. Our senior leadership has pledged their accountability for our health and safety performance.

To achieve our goal, we take a proactive approach—regularly conducting audits and inspections, providing training, sending regular communications, and maintaining stringent hazard recognition and control. When incidents occur, we share the lessons learned to avoid reoccurrence and to improve our practices. Through training, communication, and our Health, Safety, & Environment policy, we strive to create and nurture a health and safety culture at Stantec where everyone takes responsibility for their own safety and for the safety of others.

■ *We believe that, ultimately, every Stantec employee has a role to play in maintaining and promoting a healthy and safe work environment.*

# Stantec is stronger than ever

Recent acquisitions and organic growth allows us to offer environmental and engineering services to the mining industry in more creative and responsive ways. We're excited about this evolution because it means we can bring you more services, performed by people who, like us, make sure that our relationship is the number one priority. You will continue to see the same people doing business with you the same way, and with the same goal: to safely deliver the highest level of service while always striving to exceed your expectations.

We're better together



## HOW WE'VE EVOLVED

### 2008

Stantec's acquisition of McIntosh Engineering, an industry leader for underground excellence in mine design, gave us capabilities in mining engineering and project management of surface and underground operations

### 2014

Stantec acquired JBR Environmental Consultants, Inc. and USKH, Inc., which enabled us to offer additional services related to environmental studies, permitting, site investigation and remediation

### 2016

Stantec completed its largest-ever acquisition with MWH Global, Inc. (MWH), a 6,800-person firm that vastly expanded our geographic presence and added to our expertise in tailings dam design and environmental services

### 2018

Stantec acquired Norwest Corporation (Norwest), an energy and resources firm that provided us with specialists in hydrology, surface mine planning and drilling project management

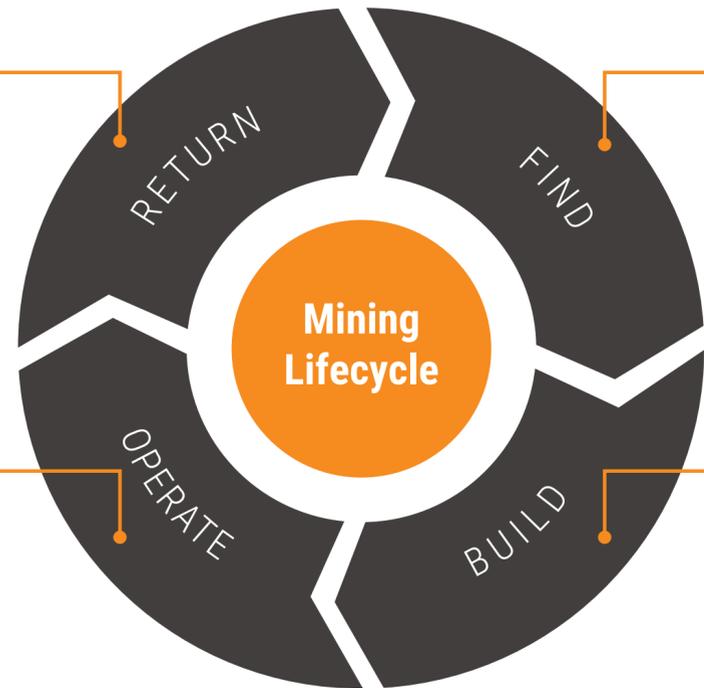
### TODAY

With more than 800 employees dedicated to mining and office locations around the globe, we have the expertise and resources to take on the largest and most challenging projects. Together, we are part of the Stantec team, which comprises over 22,000 employees in over 400 locations globally.

# Services at every stage

## Return

- Mine Closure & Reclamation
- Asset Transformation



## Find

- Mine Exploration & Resource Assessment
- Community Engagement

## Operate

- Underground
- Open Pit
- Mineral Processing
- Operations Support
- Digital Mine
- Mine Tailings & Waste

## Build

- Environmental Planning, Permitting
- Water Management
- Energy Management
- Shafts & Hoisting
- Material Handling Systems
- EPCM



# Want to dig deeper?

Services you'd expect  
and some you don't



←  
Cerro Corona Mine,  
Tailing Management  
Facility Design, Mine  
Water Management  
and Treatment, and  
Construction Services,  
Cajamarca, Peru

## MINING STUDIES

- Conceptual/scoping studies
- Prefeasibility studies
- Feasibility studies
- Property assessment
- Soil and bedrock investigation (land and marine)
- Open pit and underground mine design
- Reserve estimation
- 43-101 Management
- Qualified Persons for 43-101 Studies
- Due diligence/third party review
- Cost and schedule estimating

## SHAFTS & HOISTING SYSTEMS

- Shaft and headframe design
- Shaft sinking/constructability
- Headframes
- Mine hoisting systems
- Underground mine access development

## MATERIAL HANDLING SYSTEMS

- Material transport systems and equipment
- Underground and surface crushing and sizing
- Transfer chutes and bins
- Computer software expertise

## MINE VENTILATION SYSTEMS

- Design of new systems
- Evaluation of systems and operational support
- Computer modelling and simulations
- Computational fluid dynamic analysis

## MINE POWER

- Power supply permitting
- Power studies
- Power generation
- Emergency/auxiliary power systems
- Utility interconnection studies and services
- Transmission and distribution
  - Transmission lines
  - Substations
- Site power distribution systems
- In-pit power systems
- Communication systems and SCADA

## PROJECT DELIVERY & EPCM SERVICES

- Engineering and design management
  - Scoping, preliminary and detailed engineering
  - Risk and constructability
  - Operability/maintainability
  - Field engineering
  - Drawing management
- Project management services
  - Project management
  - Project controls
  - Document control
- Supply chain management/ procurement
  - Procurement and contracts
  - Expediting
  - Logistics
  - Vendor document management and surveillance

- Construction management
  - HSE management and monitoring
  - Quality assurance and control
  - Field inspections
  - Contract administration
  - Cost control and reporting
  - Temporary facilities and services
  - Warehousing and receiving
- Environmental monitoring

## OPERATIONS CONSULTING

- Safety audits and MSHA training
- Mine development
  - Equipment selection
  - Mining cycle analysis
  - Production sequencing
  - Ground support assessment
- Operations assessment
- Infrastructure review

## ENVIRONMENTAL APPROVALS & PERMITTING

- Regulatory support and strategy
- Baseline studies
- Environmental assessments (EIA, ESIA, EA, EIS, EIR)
- Environmental permitting
- Risk and mitigation planning
- Compliance, auditing and monitoring
- Closure planning
- Socioeconomic impact assessments
- Community and public outreach/ involvement
- Aboriginal/indigenous relations

## WATER MANAGEMENT

- Water resource evaluation, development, storage and supply
- Water and wastewater active/ passive treatment
- Water quality modelling assessments
- Treatability testing and process optimization
- Dewatering, impact prediction and management
- Water balance modelling
- Compliance monitoring
- Watershed/aquifer catchment-based management and restoration
- Managed aquifer recharge
- Hydraulic/hydrologic modeling and structures
- Stormwater management
- Water diversion and flood control
- Pumping, storage and pipeline transmission systems
- Dams/levees/impoundments design and safety inspections

## TAILINGS AND MINE WASTE MANAGEMENT

- Mine waste management and containment systems
- Alternative disposal technologies
- Waste minimization and source reduction
- Reclamation and closure plans
- Site evaluations
- Feasibility and treatability studies

- Reclamation and landfill engineering
- Cover and liner systems
- Construction supervision (QA/ QC)
- Dam safety inspections and dam safety reviews
- Preparation of operation, maintenance, and surveillance manuals
- Closure planning

## NATURAL ENVIRONMENT

- Baseline studies for terrestrial and aquatic environments
- Fisheries Act (DFO) approvals for changes to fish habitat
- Biological monitoring or impact assessments related to wetlands, wildlife, fisheries, and the aquatic environment
- Water and sediment quality assessment
- Chemical speciation and water quality modeling
- Environmental Effects Monitoring (EEM)
- Species-at-Risk (SAR) assessments and approvals
- Benthic invertebrate sampling and in-house taxonomy and data interpretation
- Habitat creation, enhancement and compensation plan design
- Fluvial geomorphological assessment and natural channel design
- Noise and air quality monitoring, meteorology

## HUMAN ENVIRONMENT

- Socioeconomic impact assessments
- Consultation and public outreach
- Open houses, public meetings and negotiations with communities
- Aboriginal/indigenous engagement strategies and outreach
- Human health risk assessments

## MINE CLOSURE PLANNING & RECLAMATION

- Asset transformation planning
- Closure and decommissioning planning
- Cost estimating
- Resource recovery
- Reclamation design, implementation, and management
- Closure compliance approvals
- Cover design and landform engineering
- Ecosystem and stream restoration
- Compliance and construction monitoring
- Remediation
- Demolition and decommissioning
- Construction quality assurance and reporting
- Post-closure planning and redevelopment
- Site monitoring and reporting



Province of British Columbia, Britannia Acid Mine Water Treatment Plant, British Columbia, Canada

**BEFORE**



**TRANSPORTATION ENGINEERING & LOGISTICS**

- Rail planning and design
- Access and haul roads
- Airstrips and terminals
- Parking lots/structures
- Bridges
- Transportation planning and traffic engineering
- Marine facilities and ports
- Pavement design and data collection
- Construction inspection

**SITE DEVELOPMENT & SITE SERVICES**

- Land use planning
- Underground and surface infrastructure
- Site and construction layout design
- Municipal infrastructure design
- Grading, drainage design and analyses for bridges and roads
- Landscaping

**AFTER**



Miami Unit,  
Reclamation/Closure  
Program, Globe-Miami  
copper mining district  
in Arizona

## **FACILITY DESIGN & ENGINEERING**

- Site selection, evaluation and servicing
- Functional programming, architecture and engineering
  - Process buildings and services
  - Fuel storage and receiving
  - Maintenance facilities
  - Accommodation complexes
  - Administration offices
  - Remote modular camps
  - Mine dry and muster facilities
- Process engineering, modelling and optimization
- Safety and regulatory compliance
- Sustainable design/LEED certification

## **SURVEYING & GEOMATICS**

- Topographic mapping
- Geodetic and control surveys
- Construction stakeout
- 3D laser scanning
- LIDAR and drone service

→  
Thompson Creek  
Mine, Third-party EIS  
& Baseline Studies,  
Idaho, US





## **GEOTECHNICAL INVESTIGATIONS**

- Soil and bedrock investigation (land and marine)
- Laboratory soil and bedrock testing - Construction supervision
- Construction materials investigation and testing services
- Rock and soil engineering
- Foundation and retaining system design

## **TELECOMMUNICATIONS**

- Telemetry - SCADA and control networks
- Digital/analog A/V systems, CCTV, and camp television entertainment systems
- UPS design, and power distribution
- Microwave and cellular/radio site acquisition
- Antenna and tower specifications
- Frequency coordination, Interference analysis and licensing support

## **MINE SURFACE INFRASTRUCTURE**

- Vehicle fueling
- Explosives storage
- Compressed air plants
- Heating and refrigeration
- Hoist house design
- Mine backfill systems

## **MINERAL PROCESSING**

- Material handling
- Crushing and grinding
- Floatation/leaching
- Concentrate dewatering and storage
- Heap leaching/ADR
- Standardization/ modularization
- Tailings disposal (conventional and thickened)



Diavik Diamond Mines Inc., Diavik Lac de Gras Underground Feasibility Study, 300km north of Yellowknife, Canada



■ Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of place and of belonging. That's why at Stantec, we always design with community in mind.

We care about the communities we serve—because they're our communities too. This allows us to assess what's needed and connect our expertise, to appreciate nuances and envision what's never been considered, to bring together diverse perspectives so we can collaborate toward a shared success.

We're designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe.

Stantec trades on the TSX and the NYSE under the symbol STN. Visit us at [stantec.com](http://stantec.com) or find us on social media.



**Design with community in mind**