

# Alexander Trapp, M.Sc.

## WATER RESOURCES CONSULTANT

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### EDUCATION

- M.Sc., Water Resources Engineering and Management, University of Stuttgart, Germany, 2012
  - Visiting Research Student, Simon Fraser University, Vancouver, 2011
  - B.Eng., Civil Engineering, University of Applied Sciences, Konstanz, Germany, 2009
  - International Student, Lund University, Lund, Sweden, 2008
  - Paramedic Certification, EMS School Nellinghof, Germany, 2005
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### EXPERIENCE

#### SUMMARY

Alex Trapp has a M.Sc. in Water Resources Engineering and Management and a B.Eng. in Civil Engineering. He has eight years professional experience in mining hydrogeology and environmental analyses. Alex joined Robertson GeoConsultants Inc. in 2012 as a Water Resources Consultant and again in 2016.

His technical experience includes numerical groundwater flow and solute transport modeling ranging from 1D models for seawater intrusion and seepage analysis to large, complex 3D models in support of mine permitting and mine water management. Alex also has experience in planning and supervision of drilling programs, hydraulic testing, well installation, and water quality sampling. Furthermore, he has experience in reviewing geotechnical testing and finite strain consolidation modelling for tailings seepage analysis and has contributed to various water and load balance modeling studies.

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### PROFESSIONAL HISTORY

2016-present:	Water Resources Consultant, Robertson GeoConsultants Inc.
2014-2015:	Environmental Consultant, Independent
2012-2014:	Water Resources Consultant, Robertson GeoConsultants Inc.
2010	Research Assistant, University of Stuttgart
2008	Site Engineering Intern, Zueblin Scandinavia
2002-2005	Emergency Medical Technician, Red Cross Germany

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### PROJECT EXPERIENCE

#### MINE PERMITTING AND PRE-FEASIBILITY

##### ***Browns Oxide Project, NT, Australia (2017 - 2019) for The Doe Run Company***

- Assisted in management of various hydrogeological drilling programs
  - Analyzed hydraulic testing (hydraulic packer and pump testing)
  - Developed and calibrated 3D numerical groundwater flow model (FEFLOW) for mine inflow predictions
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***Prairie Creek Mine, NWT, Canada (2012 - present) for CZN Corporation***

- Supervised overburden and baseline water quality characterization study
- Developed hydrostratigraphic model (GMS)
- Performed transient calibration of 3D numerical groundwater flow model (FEFLOW) and completed predictive simulations for mine dewatering and closure planning

***Magino Gold Project, Ontario (2013-present) for SLR Consulting***

- Supervised hydrogeological core drilling and hydraulic testing campaign including packer testing and installation of vibrating wire piezometers and monitoring wells
- Assisted in mine dewatering test planning and installation of pumping and monitoring equipment
- Performed 2D vertical numerical modelling (FEFLOW) to estimate seepage from adjacent lakes into proposed open pit
- Developed conceptual and numerical site-wide 3D groundwater flow model (GMS/MODFLOW) to simulate mine dewatering and tailings seepage
- Completed numerical groundwater flow modelling (FEFLOW) to study tailings seepage and interception strategies

***San Antonio Gold Project, Mexico (2012-2013) for SLR Consulting***

- Constructed 2D numerical density-dependent flow model (FEFLOW) to study the impacts of open pit mining on seawater intrusion

## OPERATING MINES AND MILLS/ TAILINGS FACILITIES

***Las Tortolas Tailings Facility, Chile (2017) for Anglo American Chile***

- Reviewed geotechnical material testing and derived parameters relevant for seepage estimation
- Performed finite strain consolidation modeling to predict tailings consolidation and basal seepage rates
- Completed 2D and 3D numerical groundwater flow modeling to simulate flows to a proposed network of horizontal drains beneath the tailings management facility

***El Abra Mine, Chile (2012 - 2013) for ARCADIS Chile***

- Reviewed geotechnical material testing and derived parameters relevant for seepage estimation
- Developed integrated seepage model for the life of mine using finite strain consolidation (FSConsol) and spreadsheet modeling
- Estimated basal seepage for post-closure period using unsaturated flow draindown modeling (FEFLOW)

***Sierra Gorda, Chile (2012) for Sociedad Contractual Minera***

- Performed water balance modeling to determine make-up water requirements for various proposed tailings storage scenarios

***Myra Falls Mine, BC (2016 - present) for Nyrstar***

- Completed field testing of drain system and performed ground and surface water quality sampling
- Assisted in optimization of drain system operation and development of site-wide seepage and groundwater interception plan

- Constructed 3D numerical groundwater flow model (FEFLOW) in support of designing a seepage interception system consisting of pumping wells and drain
- Performed annual performance review of seepage interception system
- Annual review of groundwater quality data
- Developed conceptual groundwater flow and load balance spreadsheet model

## MINE CLOSURE

### ***Faro Mine, Yukon (2014-present) for Yukon Government***

- Involved in waste rock drilling program
- Supervised Symmetrix drilling, and monitoring and pumping well installation
- Performed hydraulic testing
- Calibrated 3D groundwater flow model (FEFLOW) and completed groundwater flow modeling in support of designing a seepage interception system
- Assisted in designing seepage interception system and completed annual performance reviews

### ***Redbank Mine, NT, Australia (2021-present) for NT Government***

- Developed conceptual site model including hydrostratigraphic model, analysis of hydraulic testing, and flow and load balance
- Developed and calibrated 3D numerical groundwater flow model (MODFLOW) and completed groundwater flow modeling in support of closure planning

### ***Bouchard Hebert Mine, Ontario (2021-present) for Nyrstar***

- Completed numerical groundwater flow modeling in support of closure planning

## SITE INVESTIGATION AND REMEDIATION

### ***Shell Service Station, BC (2012) for NEXT Environmental***

- Assisted in construction quality assurance and performance monitoring of a hydraulic shotcrete barrier and drainage system

## SITE ENGINEERING AND PROJECT COORDINATION

### ***Citybanan, Stockholm (2009) for Swedish Transport Authority***

- Supervised sheet piling, rock bolt installation, drilling, and rock and jet grouting for tunnel construction
- Site-wide monitoring of groundwater levels

## GROUNDWATER DEVELOPMENT

### ***Various Sites (2012-present)***

- Design, analysis, and interpretation of slug and pumping tests
- Numerical groundwater flow modelling to provide professional opinion on aquifer yields