

Navdeep Inder Singh Sidhu

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ACADEMIC QUALIFICATION

Master of Engineering, University of Manitoba, Civil Engineering Department, 2016-2018

Bachelor of Technology, Punjab Technical University, Civil Engineering Department, India, 2010-2014

PROFESSIONAL EXPERIENCE

Site Engineer, M/s Sukhmander Singh Construction Company, Bathinda, PB, India, July 2014 to April 2016.

- Looked after QA and QC aspects for the material used and the work carried out
- Performed material and soil testing
- Served onsite project representative to clients and crewmembers
- Drove business growth with positive client relations and staff development
- Estimated quantities and cost of materials, equipment and labor to determine project feasibility

Research Assistant, University of Manitoba, Winnipeg, MB, Canada, May 2016 to October 2018.

- Pump test evaluation in porous and fractured media.
- Geothermal investigation of the fractured aquifer.
- Calibration of water investigation sensors.

SOFTWARE SKILLS

- Groundwater models: FEFLOW, Visual MODFLOW, ModelMuse
- Pump test evaluation: AQTESOLV
- Geotechnical design: GeoStudio
- Technical Drawing: Autodesk Fusion 360, AutoCAD
- Geographic Information Systems: ArcGIS

PRJOECTS

- **Geodetic survey of Khajjiar Valley, Chamba, Himachal Pradesh, India.**

A geodetic survey of the valley was performed using survey instruments like theodolite and auto level. In addition, contours and surrounding objects were plotted by Plane table surveying method.

- **Geotechnical conceptual design recommendations for Two Way Grade Separations**

In this project, Slope stability and consolidation analysis were performed in GeoStudio 2007 software. To compute stresses, pore pressures and embankment stability SIGMA/W and SLOPE/W package was used. In addition, design recommendations for embankment, abutment and drainage were provided in accordance with Schedule 14 of Technical Requirements.

- **Numerical simulation of heat transport in porous and fractured media**

Numerical simulations were performed in FEFLOW to observe the thermal effects on groundwater due to pumping and injection of groundwater during the 20-year operational period of an open loop geothermal system. Fracture networks were incorporated to compare temperature distribution using the porous media attempt in the subsurface and the duration to the thermal breakthrough. In addition, an attempt was made to determine the relationship between finer mesh geometry and the numerical stability of the model.

- **Risk management plan for the installation of a geothermal power plant**

The Objective of the plan was to identify the risks that can arise during installation of a geothermal power plant and their categorization into geological, economic, political, environmental, construction and project management risks. A hypothetical case studies were created to compare two scenarios with different geological, political and economic conditions and the feasibility of the project was determined at these two locations by using the proposed risk management plan.

- **Pump test evaluation, Hutteneberg Formation, Study site: Etosha National Park, Namibia.**

The objective of this project was characterization and determination of properties of the aquifer of the Huttenberg Formation, Namibia and the investigation of the influence of low magnetic dykes on the groundwater flow with the help of data of the pump test that has been already performed in the past using three boreholes. Moench w/slab blocks solution was used in AQTESOLV to analyze the influence of dykes on groundwater flow.

- **Waste to energy**

Various technologies were identified to process waste for energy conversion. Analysis of WTE project influential factors such as available market for WTE technologies, role played by governments and environmental impacts of using these technologies was performed.

COURSES

- Groundwater hydrology
- Groundwater and solute transport modelling
- Flow and transport in fractured rocks
- Risk management in geotechnical engineering
- Soils Engineering
- Solid waste composting and disposal
- Sustainability in construction
- Ecosystem management
- Engineering economics

AFFILIATIONS

- Association of Civil Engineering Students (ACES), India (since 2010)
- Computational Fluid Dynamics Society of Canada (CFD) (since 2018)
- American Concrete Institute (ACI) (since 2018)

PUBLICATION

- Numerical simulation of heat transport in porous and fractured media, Proceedings of the 26th Annual Conference of the Computational Fluid Dynamics Society of Canada 2018 (CFD2018), June 10-12, 2018 , Winnipeg, MB.

VOLUNTEERING AND ACHIEVEMENTS

- Scored 7.5 out of 9 in IELTS (International English Language Testing System)
- Member of poster presentation committee on the occasion of Sanrachna-2013 at Giani Zial Singh College of Engineering and Technology, India
- Convener of discipline committee on the occasion of Sanrachna-2014 at Giani Zial Singh College of Engineering and Technology, India

REFERENCE

- Dr. Hartmut Hollander, Civil Engineering Department, University of Manitoba, Contact: +1 (204) 295-4273, Hartmut.Hollaender@umanitoba.ca
- Jerrold Rentz, Manitoba Infrastructure and Transport, Government of Manitoba, Contact: +1 (204) 509-0599
- Usman Arshad, Geotechnical Engineer, Woods Environment and Infrastructure Solutions, Contact: +1 (204) 962-2466