



Crede Associates LLC

Theresa Patten, PE President/Principal Engineer

PROFESSIONAL REGISTRATIONS

Professional Engineer:
ME #8694
NH #13309

EDUCATION & PROFESSIONAL ACTIVITIES

- ▲ M.S., 1993, Civil Engineering (Environmental Geotechnologies), Tufts University
- ▲ B.S., 1991, Cum laude, Civil Engineering, Rensselaer Polytechnic Institute
- ▲ Member, American Society of Civil Engineers

HIGHLIGHTS OF EXPERIENCE

Ms. Patten is a geotechnical and environmental engineer with over 16 years of engineering experience. In September of 2007, Ms. Patten founded the women-owned business of Crede Associates, LLC. She oversees the daily operation of the office and is principally in charge of the financial and business operations of the company. Ms. Patten serves as the senior reviewer and Principal-in-charge for various on-going projects for Crede.

Ms. Patten's past engineering experience involved a variety of geotechnical and environmental projects including landfill design and construction, geotechnical engineering evaluations and construction, and hydrologic design and evaluations. Her project responsibilities have included managing, coordinating and conducting field work associated with geotechnical and hydrogeologic investigations; observing and documenting construction activities and providing construction quality assurance; performing calculation to support geotechnical and solid waste design projects; performing a variety of geotechnical and hydrological computer analyses; developing geotechnical and civil design recommendations; and report writing. Ms. Patten also has experience in coordinating and scheduling junior staff and subconsultants.

PROJECT EXPERIENCE INCLUDES:

Geotechnical Engineering

Callahan Mine Superfund Site, Brooksville, Maine

A key project which highlights Ms. Patten's experience/abilities is the Geotechnical Investigation of the Tailing Impoundment at Callahan Mine Superfund Site in Brooksville, Maine. The scope of work included a 2 month long field effort, an extensive geotechnical laboratory testing program, and static and seismic stability analyses. The objectives of the geotechnical project were to characterize the subsurface soil properties throughout the tailings impoundment, specifically the thickness and strength parameters of the glaciomarine silt-clay deposit and the tailings; determine the hydrological conditions throughout the impoundment; define the geometric configuration and geotechnical properties of the perimeter berm material; and establish the existing static and seismic stability of the tailings impoundment and evaluate the feasibility of relocating residential and/or ore pad material to the impoundment. Ms. Patten served at the Project Manager and lead geotechnical engineer on this project.

Project Manager/Engineer at various projects. Ms. Patten has coordinated and conducted field work associated with geotechnical evaluations at numerous sites encompassing a wide range of subsurface conditions from deep deposits of sensitive soft clay to bony till. Field work has comprised of completing test boring and test pit programs including logging subsurface conditions, classifying soils, conducting in-situ field vane, collecting undisturbed Shelby tubes and/or bedrock core samples, installing piezometers, inclinations, and settlement plates associated with settlement monitoring programs. Ms. Patten evaluated subsurface conditions; estimated anticipated settlement based on consolidation test; evaluating clay strength and stability of embankments; calculated the allowable bearing capacity of the soil; and developed recommendations for both shallow and deep foundations, retaining walls, pavement sections, reuse of on-site soil materials, and earthwork construction. Ms. Patten provided construction quality control, coordination of soils laboratory testing; performed field moisture-density test of compacted fill. Prepared daily field reports summarizing the contractor's activities, results of field density test, and any additional field recommendations.

BROWNFIELDS PROJECT MANAGEMENT:

Project Management, Eastern Fine Paper, Brewer, Maine: The project involves the “fast track” redevelopment of a mill site into a modular manufacturing facility. Ms. Patten is responsible working with the Maine DEP to meet the requirements of the No Action Assurance Letter. The deliverables include developing a groundwater and soil management plan including a long term pore water monitoring program, weekly construction reports, final closure reports. Other responsibilities included dealing with the financial complexities of a Brownfields project, responding to site/project changes, responding to Maine DEP requests, and coordinating writing, and reviewing reports.

GEOENVIRONMENTAL ENGINEERING/INVESTIGATIONS

Supplemental Assessments and Long Term Groundwater/Gas Monitoring at various projects: Ms. Patten coordinated and conducted field work associated with supplemental hydrologic assessments, including observing and logging the installation of overburden and/or bedrock groundwater quality monitoring wells. Additionally, she was responsible for completing periodic sampling events field work, evaluating and interpreting water quality data, and report writing.

Remediation to support Defense Fuel Supply Center Closure, Harpswell, Maine. The project involved the evaluation and remediation of a site where releases of gasoline and JP-5 jet fuel have contaminated overburden and bedrock aquifers.

Remediation of Contaminated Gasoline Station, Kennebunk, Maine. The project involved the remediation of a site where approximately 58,000 gallons of unleaded gasoline were released into the subsurface and was responsible for contaminating overburden soils and adjacent wetlands.

CONSTRUCTION QA/QC

Bath Iron Works, Bath, Maine. This long term design-build project involved the design and construction of three shipways on filled land in the Kennebec River, as well as new dry dock and landing facilities. Ms. Patten conducted field work associated with geotechnical evaluation including off shore drilling to support the design of a land level transfer system, evaluated subsurface conditions and performed preliminary stability calculation of underwater slopes. Ms. Patten managed and coordinating field staff to provide construction quality assurance for geotechnical aspects of construction, including bedrock probing, blast monitoring, removal of unsuitable dredge material, caisson construction, cofferdam cell construction, precast concrete pile installation, and pile driving. Ms. Patten prepared and/or reviewed daily field reports documenting contractors’ activities and engineering recommendations. Ms. Patten dealt with the day to day management of this 2-year construction project which had up to 12 people covering contractors’ activities on a rotation schedule, 24 hours and day, 7 days a week.

Leachate Force Main and Access Road Construction, Rochester, New Hampshire. The project involved the construction of an approximately 2-mile long access road for a municipal solid waste landfill, installation of leachate force main, and construction of storm water management system.

Soil Management Program, Cambridge, Massachusetts. Ms. Patten was responsible for implementing a site soil management program which involved field screening excavated soil for volatile organic compounds and organizing stockpile areas according to contamination level.

SOLID WASTE ENGINEERING

Design Calculations to Support Construction and Closure Multiple Special Waste Landfill Units, Norridgewock, Maine. The projects involved the design of multiple secure, double-lined special waste landfills overlying deep, sensitive clay and abutting a municipal solid waste landfill which had a massive failure in 1989. Used HELP water balance model and other analytical techniques to predict head build-up on and leakage through the barrier components of the liner and cover system. Assessed anticipated capacity of the drainage system, sized leachate collection system components, and assessed filtration and clogging potential of the specified geotextiles. Performed pipe strength calculations; estimated sump volumes and pump cycles. Performed static liner and cover stability analyses and seismic displacement analyses. Developed preliminary final grading plans based on post-cyclic static stability analysis with reduced clay shear strengths based on the earthquake induce strains. Performed static stability analyses to support recommended fill heights and to develop preliminary final grading plans. Performed calculations to support the design of a road to be constructed over the composite landfill cover system, including required subbase thickness, anticipated pressure on the geomembrane, geomembrane and GCL puncture resistance, and road stability.