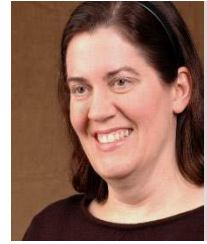


DEBRA L. NELSON, PE

Education

M.S., Civil and Environmental Engineering, University of Wisconsin – Madison, 1984

B.S., Civil and Environmental Engineering, University of Wisconsin – Madison, 1980



Professional Licenses

Professional Engineer – Wisconsin, Illinois, Michigan, and Indiana

Professional Affiliations

American Society of Civil Engineers (ASCE)

American Society for Testing and Materials (ASTM)

Professional Experience

Ms. Nelson has 35 years of experience in geotechnical, civil, and environmental engineering. She is experienced in planning, coordinating, analyzing, designing, monitoring, and performing quality control review for a variety of project types. Her areas of expertise include solid waste landfills, slurry trench cutoff walls, shore protection structures, building foundations and floor slabs, pavements, earthen dams, and soil and groundwater remediation systems. Geotechnical analyses include evaluation of soil compaction, permeability, settlement, bearing capacity, and slope stability, as well as selection of geosynthetics for containment, filtration, drainage, and separation applications. Ms. Nelson has an M.S. in Civil and Environmental Engineering.

Waste Management

Menomonee Falls, Wisconsin, Orchard Ridge Recycling and Disposal Facility. Senior Geotechnical Engineer for design and permitting of the East Expansion. Assisted with preparation of the Feasibility Report and Plan of Operation. Responsibilities included geotechnical analyses for liner hydrostatic uplift, geocomposite underdrain design, geotextile puncture resistance, slope stability, final cover geocomposite drainage layer design, pipe settlement, pipe strength, and filter analysis. Also prepared soil and geosynthetic specifications, clay borrow analysis for liner and cover construction, and the construction quality assurance/quality control plan.

Franklin, Wisconsin, Metro Recycling and Disposal Facility. Senior Geotechnical Engineer for design and permitting of the Northern Expansion - West. Assisted with preparation of the Feasibility Report and Plan of Operation. Responsibilities included geotechnical analyses for geotextile puncture resistance, slope stability, final cover geocomposite drainage layer design, pipe settlement, pipe strength, and filter analysis. Also prepared soil and geosynthetic specifications, clay borrow analysis for liner and cover construction, and the construction quality assurance/quality control plan.

Horicon, Wisconsin, Advanced Disposal Services Glacier Ridge Landfill. Senior Geotechnical Engineer for geotechnical analysis and monitoring performed to allow construction of portions of the east berm of the landfill above soft wetland soils. Based on analysis completed as part of the expansion approval process, the approach for construction of each berm phase included geotechnical borings to define conditions, vane shear testing, installation of vibrating wire piezometers, and daily pore pressure monitoring during fill placement.

Wisconsin, Multiple Sites. Prepared feasibility reports for eight landfill sites in Wisconsin. Responsibilities included coordination for subsurface investigations and laboratory soil testing; geotechnical analyses including slope stability, settlement, and pipe strength; preparation of earthwork plans; preparation of soil and geosynthetic specifications; and completeness review.

Wisconsin, Multiple Sites. Assisted in the preparation of plans of operation and plan modifications for 11 landfill sites in Wisconsin. Responsibilities included geotechnical analyses including slope stability, settlement, filter analysis, and pipe strength; preparation of earthwork plans; preparation of soil and geosynthetic specifications; preparation and review of construction quality control plans; and completeness review.

Wisconsin, Multiple Sites. Prepared construction documentation reports for nine landfill sites in Wisconsin. Responsibilities included direction and supervision of field technicians, coordination and review of field and laboratory testing for soils and geosynthetics, coordination of documentation drawings, and certification of documentation reports. Also performed quality control/senior review of construction documentation reports for seven more landfill sites in Wisconsin.

Ottumwa, Iowa, Ottumwa Midland Landfill. Senior Geotechnical Engineer for a coal combustion residuals (CCR) landfill expansion permitting project in Southern Iowa. The project involved permitting two contiguous landfill expansions. The approved landfill permit covers a composite geomembrane and clay liner, a composite geomembrane and clay final cover, storm water management, contact water management, wetland filling and restoration, stream restoration, and filling operations. SCS provided all landfill design and permitting services for the project including slope stability analyses.

Senior Geotechnical Engineer for construction of the CCR landfill liner. Project involved general site preparation, composite geomembrane/clay liner construction, storm water management, contact water management, wetland mitigation, stream restoration, leachate collection, groundwater underdrain, and site restoration. SCS prepared design drawings, specifications, and bid documents. SCS also provided full-time construction oversight and construction documentation reporting for the liner construction.

Midwest, Confidential Site. Senior Geotechnical Engineer for an ash landfill permitting project. The project involved evaluating landfill siting options including the selected option of constructing the landfill over a former ash settling basin. SCS provided a geotechnical evaluation including slope stability analyses of the closed settling basin, evaluation of site geology and hydrogeology, landfill final cover design, construction phasing, permitting documents, storm water management, and regulatory negotiations.

Portage, Wisconsin, Columbia Generating Station. Senior Geotechnical Engineer for two 10-year Plan of Operation Updates for an ash landfill in Wisconsin. Projects involved bringing the permitted landfill design up to current regulations and modifying the design to meet anticipated ash generation rates. SCS provided air space calculations; site life calculations; economic analysis; and liner system, final cover, and storm water management design modifications.

Senior Geotechnical Engineer for the construction of the ash landfill final cover system. Construction activities involved ash final grading, installation of final cover material including soil barrier layer, geosynthetic clay liner, geomembrane, cover drainage material, top soil, and surface water drainage features. SCS provided engineering services related to wetland management, final cover system design drawings and specifications, construction quality control, surveying, and a construction documentation report.

Senior Geotechnical Engineer for the construction of the ash landfill liner system. Construction activities involved establishing liner subbase grades, installation of liner materials including soil barrier layer, geosynthetic clay liner, geomembrane, leachate drainage material, and surface water drainage features. SCS provided engineering services related to liner system design drawings and specifications, construction quality control, surveying, and a construction documentation report.

Planned, coordinated, and performed a fly ash laboratory and field testing study including field test plots to determine setting characteristics, strength, and permeability for a fly ash disposal evaluation project.

Town of Wilson, Wisconsin, I-43 Ash Landfill. Senior Geotechnical Engineer for a major plan modification to the ash landfill plan of operation. Project involved design and permitting of a composite clay and geomembrane liner system, and a composite clay and geomembrane final cover system.

Watertown, Wisconsin, Deer Track Park Landfill. Provided peer review focused on regulatory completeness for a landfill expansion feasibility report.

Midwest, Multiple Sites. Designed testing programs and evaluated test results to determine the compatibility between compacted clay and leachate for municipal waste, chemical waste, and fly ash landfill liners.

Michigan, Confidential Site. Prepared and certified a construction documentation report as part of a Superfund landfill remedial action. The project included reconstruction of the landfill cover and surface water drainage system, installation of a groundwater extraction system, installation of leachate and landfill gas control systems, and construction of an on-site groundwater and leachate pretreatment system.

Wisconsin and Indiana, Multiple Sites. Designed testing programs to evaluate and select slurry trench backfill mixes and to determine the compatibility between soil barrier materials and contaminated groundwater for soil-bentonite cutoff walls in Wisconsin and Indiana. Prepared plans and technical specifications for construction and documentation of slurry trench cutoff walls.

Geotechnical Engineering

Wisconsin, Confidential Site. Senior Geotechnical Engineer for the expansion of a natural gas combined cycle generation facility. The facility includes a powerhouse and support buildings, turbines and generators, gas compressors, a cooling tower, and storage tanks. SCS performed a subsurface investigation and prepared a geotechnical report to assist the owner in obtaining engineering, procurement, and construction proposals from contractors.

Prairie du Sac, Wisconsin, Prairie du Sac Dam. Coordinated the geotechnical evaluation of an earthen dam at a hydroelectric plant, and prepared the plans and specifications for a deicing system to be installed upstream of the dam.

Midwest, Confidential Site. Organized the geotechnical evaluation of a failed articulated concrete block revetment installed in an urban river.

Midwest, Multiple Sites. Coordinated subsurface investigations, designed laboratory soil testing programs, performed geotechnical analyses, and prepared reports for pavement design recommendations, foundation and slab on grade design recommendations, and Great Lakes shore protection structure design.

Midwest, Multiple Sites. Directed and supervised field technicians, coordinated and reviewed field and laboratory soil testing, and prepared construction documentation reports for earthwork aspects of building and pavement construction.

Wisconsin, Multiple Sites. Performed preliminary geotechnical investigations and design recommendations for several building sites, including two sites with towers and three sites with underground parking.

Appleton, Wisconsin, St. Elizabeth Hospital. Conducted geotechnical analysis of soil and bedrock conditions and prepared geotechnical report recommendations for a hospital addition, including caisson foundations, underpinning, and an earth retention system.

Edgewater/Rogers Park, Illinois. Performed slope stability, bearing capacity, and settlement analyses for a Lake Michigan breakwater design.

Racine, Wisconsin, Marina. Planned and coordinated a subsurface exploration program, and prepared a geotechnical report for a Lake Michigan marina.

Duluth, Minnesota, Highway 61. Coordinated a subsurface investigation and laboratory testing program, and performed recession and slope stability analyses for a Lake Superior coastline erosion control project.

Midwest, Multiple Sites. Performed quality control review of laboratory soil testing procedures and results, including tests for consolidation, direct shear, triaxial compression, and permeability.

Wisconsin, Highway 78. Coordinated and reported field vane shear testing results for soft soils as part of the Wisconsin Highway 78 rerouting project.

Dubuque, Iowa, Northwest Arterial. Conducted a subsurface investigation and prepared a geotechnical report for a four-lane divided roadway extension, including analyses for pavement design parameters, slope drains, slope stability, culvert design, and rock excavation.

Soil and Groundwater Remediation

Wisconsin, Multiple Sites. Prepared design reports; design drawings; technical specifications; construction documentation reports; and operation, maintenance, and monitoring plans for three remediation systems, including soil venting and groundwater pump and treat, to address petroleum impacts to soil and groundwater.

Wisconsin, Multiple Sites. Coordinated groundwater and air sampling and testing, and prepared operation and monitoring status reports at six sites for remediation of soil and groundwater with petroleum impacts.

DeForest, Wisconsin, Danco Prairie FS Coop. Directed groundwater sampling and testing, and prepared monitoring status reports for a site with agricultural chemical impacts to groundwater.

Wisconsin, Multiple Sites. Prepared construction plans and specifications for soil excavation and treatment/disposal for site remediation of petroleum and agricultural chemical impacts.

Brownfield Redevelopment

Cudahy, Wisconsin, Cudahy Self Storage. Prepared plans and specifications for dynamic compaction of a former landfill as part of ground improvement for construction of new warehouses at a brownfield site. Also prepared plans and specifications for removal and crushing of old concrete slabs for reuse as on-site structural fill.

Publications and Presentations

Bosscher, P.J. and Nelson, D.L., "Resonant Column Testing of Frozen Ottawa Sand," Geotechnical Testing Journal, ASTM, September 1987.