SUSAN M. PARTEN, P.E.
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Education and Honors

Institution and Location	Degree	Year	Field of Study
University of Missouri, KC, MO	BA	1980	Spanish/Biology
University of Texas, Austin	BS	1986	Civil Engineering
University of Texas, Austin	MS	1991	Environmental Health Engineering

Recipient of the ASCE John B. Hawley Memorial Fund Fellowship for professional and doctoral research studies related to an innovative low cost waste treatment process, 1993.

Served as a member of the Water Environment Federation's Technical Committee Task Force for the technical review of *Natural Systems for Wastewater Treatment*, Manual of Practice FD-16, 2nd Edition, published by the Water Environment Federation (2001).

Author of the book, *Planning and Installing Sustainable Onsite Wastewater Systems*, McGraw-Hill, October 2009.

Professional Registration

Professional Engineer Registration, State of Texas (#70052);
Professional Engineer Registration, U.S. Virgin Islands, (#2-2052967-2009)

Research and Professional Experience History

1992-Present	Community Environmental Services, Inc. (CES); President and principal engineer, responsible for all company business activities and involved in all engineering project work. Engineering research and consulting services have included federal, state and municipal funded research for a variety of decentralized wastewater and septage treatment processes, designs of numerous decentralized wastewater and water quality protection systems in a wide range of conditions for public and private sector clients, and consulting services for state and local rules and policy development processes.
1991-1994	University of Texas at Austin Dept. of Civil Engineering; Staff research civil engineer responsible for several decentralized wastewater systems research projects, including the development of a large on-line bibliographic database (approximately 10,000 abstracts related to decentralized wastewater systems), and the study of the wastewater treatment capabilities for weathered bedded limestone soils found throughout much of central Texas.
1990-1991	Henningson Durham & Richardson (HDR) Engineers; Project work included hydrologic studies and design, and wastewater planning and cost evaluations for various municipal clients and the Cannon Air Force Base.
1988-1990	Coneway & Associates, Inc.; Engineering services associated with an EPA Construction Grants Program Wastewater Facilities Planning Study for the small municipality of Rollingwood, TX, in addition to other wastewater project assignments.
1984-1988	Camp Dresser & McKee (CDM) Engineers; Engineering staff assigned to variety of municipal wastewater and sludge treatment projects, including large scale effluent irrigation modeling and design, and resident engineer for the clean-up and land application of municipal sludge from lagoons and follow-up lagoon improvements.

Representative Project Experience

Ms. Parten is a licensed professional engineer with approximately twenty-five years of experience with research and engineering design projects. Ms. Parten has served as project manager and/or principal investigator for several federally funded grants and studies, including a two-year nationwide study. As a research engineer for the University of Texas – Austin, Ms. Parten handled all aspects of projects, including funding proposals and project implementation and management. Engineering design experience has included both centralized and decentralized wastewater systems, analysis and design of water distribution systems, hydrologic and hydraulic investigations for design projects, technical assistance for the use of best management practices for water quality protection, and research and planning projects for wastewater sludge and septage treatment systems and composting operations.

Specific projects and clients include:

Water Environment Research Foundation (WERF), Alexandria, Virginia. Ms. Parten was the Principal Investigator for a two-year research project funded by WERF to evaluate the performance of large-scale decentralized wastewater systems. Performance data, operational histories and cost data were collected and evaluated for large/community scale decentralized wastewater systems nationwide with design flows ranging from 5,000 to 50,000 gallons per day. Systems with at least five years of service/operation were evaluated in the study. A wide range of combinations of collection, treatment and dispersal methods were studied in the project.

Fairfax County, Virginia Health Department. Ms. Parten served as a sub-consultant to an east coast firm (AW-AWM) providing regulatory consulting services to the Fairfax County Health Department for the development of a more comprehensive onsite wastewater system management and tracking program. Services over a two-year period included review of current program policies, resources and staffing needs; review of current onsite systems problems and performance needs/issues, development of inspection, operation and maintenance needs for approved methods of treatment and effluent dispersal in the County; and participation in report-writing to the county on all phases of the project work.

Engineering Consulting Services, Government of the U.S. Virgin Islands**.** Ms. Parten served as civil engineering consultant to the Govt. of the USVI for the development of performance standards and rules revisions for decentralized wastewater systems for the islands within the territory. This project work involved extensive data collection and review on the performance and specifications for a wide range of decentralized treatment and dispersal methods, and rules and draft language development for design and construction standards and management practices.

Engineering Consulting Services, City of Austin, Texas. Ms. Parten provided consulting services to the City of Austin on a variety of decentralized and alternative wastewater collection systems projects and programs including: Development of recommendations and draft language for local ordinances and policies related to construction standards and management of decentralized systems; development of draft City standards for alternative wastewater collection systems; technical review of development proposals for decentralized wastewater systems and alternative collection systems submitted to the City's Water Utility; participation on the City's "Smart Growth" task force; and assistance to Council members in negotiating contracts with surrounding communities for wastewater service provided by the City.

Wastewater Systems Improvements, Texas Parks and Wildlife Department**.** Ms. Parten's work on numerous TPWD projects as principal engineer included evaluation of existing wastewater facilities; soils and site evaluations; process selection given site conditions; preliminary and final design; cost estimates; bid review assistance; construction inspection; and overall project coordination and management for wastewater systems improvements at parks statewide. State parks for which these types of engineering services have been provided include Palo Duro Canyon, Caprock Canyon, Copper Breaks, Fort Griffin State Historical Park, Kerrville-Schreiner, Lake Colorado City, Enchanted Rock, Lost Maples, Landmark Inn State Historical Park, and Buescher State Park. Other work for TPWD on these projects has included technical assistance with regulatory permitting processes, and the development of operation and maintenance recommendations for the various types of systems serving the parks.

Lower Colorado River Authority (LCRA). Work by Ms. Parten for LCRA has included preliminary and detailed design engineering and construction oversight for several onsite wastewater systems to serve rural recreational areas owned by the River Authority. Services included site/soil evaluations, preparation of detailed plans and specifications, technical assistance with permitting of the systems, development of detailed cost estimates, assistance to LCRA with construction contractor proposal review, and construction phase inspection and review services.

Wastewater Facility Planning Study, City of Rollingwood, Texas**.** Ms. Parten served as project manager and principal investigator for the preparation of a Construction Grants Program Facility Plan Report and Environmental Information Document for this small municipality. This work included research and collection of all data; inspection and analysis of existing individual onsite wastewater systems; preliminary design and cost analysis of conventional and alternative collection and treatment systems; public hearings; economic analysis of alternative strategies; and environmental impact analysis and assessment. Subsequent work related to wastewater service for the City of Rollingwood involved discussions as a consultant to the City of Austin about serving Rollingwood with effluent sewers and conveying effluent to the City of Austin for treatment and discharge.

Wastewater Systems Improvements, Camp Coca-Cola Youth Camp. This project work included the conceptual and final design of an effluent collection system serving a large complex of cabins, office, dining and other operational facilities, with final onsite treatment and disposal of wastewater effluent from the youth camp. In addition to design services, Ms. Parten prepared the permit application and coordinated with regulatory staff during the review process; prepared preliminary and final construction cost estimates; reviewed contractors bids; and provided construction oversight services.

Alternative Wastewater Management Project, City of Austin, Texas**.** *Study Phase:* This project work consisted of the identification and evaluation of individual and clustered on-site wastewater collection and treatment systems to serve areas located in a variety of environmental and geographic conditions in the City's extra-territorial jurisdiction (ETJ). Several types of wastewater collection systems were evaluated for their suitability to conditions in and around the City. A GIS map was developed showing representative land types in the Austin area, with environmental considerations identified for each land type as related to wastewater collection systems and decentralized wastewater treatment systems. Work on this phase of the project also included the identification and evaluation of O&M and management options for decentralized collection and treatment systems in the City's service area. *Demonstration and Implementation Phase*: This work included the design, construction oversight and monitoring of alternative wastewater demonstration systems to serve areas in and around the City of Austin with sensitive environmental conditions. Other work in latter phases of the project included the design of an onsite wastewater system to serve facilities on one of its conservation lands, and public education and information activities.

Conventional and Alternative Onsite Wastewater Systems Monitoring, City of Austin. This research work included the monitoring of several conventional onsite wastewater systems at private residences located in sensitive environmental conditions (to evaluate the need for more protective standards), and the design and monitoring of several alternative demonstration systems determined to be appropriate for local conditions. Services included working with attorneys to draft language that would either provide limited access easements to properties for monitoring systems, or protect property owners from enforcement action (by maintaining their anonymity and addressing "open records" provisions of state law) in order to obtain data from systems.

Development and Testing of an Innovative/Alternative and Low Cost Method for Septage Dewatering, State of Texas. Work for CES by Ms. Parten on this state-funded research project included process development, design and construction of system components, project management and contract administration for a low cost natural method of filtering domestic septage for subsequent final treatment and disposal or reuse. Effluent quality was found to meet municipal pretreatment standards for wastewater entering the municipal collection system.

Comprehensive Literature Search and Database Development for On-Site and Small Community Wastewater Treatment Systems, State of Texas. This research work was performed while Ms. Parten worked as a research engineer for the University of Texas-Austin Civil Engineering Department, and consisted of the development of a searchable computerized database consisting of approximately 10,000

citations and abstracts. Work included a comprehensive search, collection and review of bibliographic references and abstracts relevant to on-site and small community wastewater treatment systems and issues, including large scale land treatment and reuse systems. Ms. Parten managed the data searching and compilation work of several data specialists with the UT library system, and reviewed materials obtained for relevancy to decentralized and small community wastewater processes and management practices.

Evaluation of the On-Site Wastewater Treatment Capabilities of Caliche-Type Soils, State of Texas**.** Ms. Parten conducted work on this State-funded research project while serving as a research engineer for the University of Texas. Her work consisted of project development and implementation for the evaluation of weathered limestone soils for their natural wastewater treatment capabilities and limitations. The work included budgeting, supervision of project personnel, data collection and analysis, and report preparation. Results of this work have been used to better evaluate and design decentralized wastewater systems suitable to conditions commonly found in the Texas hill country.

Published Works

1. *Planning and Installing Sustainable Onsite Wastewater Systems*, McGraw-Hill Professional Group, New York, published October 2009.
2. Water Environment Research Foundation (WERF), *"Analysis of Existing Community-Sized Decentralized Wastewater Treatment Systems"*, Susan M. Parten, P.E., co-published by IWA Publishing and WERF, 2008.
3. National Onsite Wastewater Recycling Association (NOWRA) 17th Annual Technical Education Conference & Exposition (Memphis, Tennessee, April 2008), Paper IX-WERF 08-28, "Analysis Of Existing Community-Sized Decentralized Wastewater Treatment Systems"; Susan M. Parten, P.E. and Victor D'Amato, P.E.
4. Fact Sheets developed for the City of Austin and referenced in US EPA's *Onsite Wastewater Treatment Systems Manual* at http://www.ci.austin.tx.us/wri/fact.htm.
5. Water Science and Technology, Volume 33 Number 10-11, pp 213–219 © IWA Publishing 1996 **"**Water Reuse for Sludge Management and Wetland Habitat"; Sherwood Reed P.E., Susan Parten P.E., Gary Matzen P.E., and Randy Pohren P.E.
6. Proceedings for the "Small Wastewater Treatment Plants" Conference, Trondheim, Norway, June 1993; "Design of On-site Treatment Systems in Caliche Soils**"**; Susan M. Parten and Howard M. Liljestrand, University of Texas Dept. of Civil Engineering.
7. *Texas On-Site Insights* (decentralized wastewater systems research and regulatory periodical) published by Texas A&M University; Numerous articles on a variety of decentralized wastewater systems topics and design and research projects carried out by Ms. Parten from 1992 to 2002.
8. Biocycle Magazine, April 1994; "Using Waste Wood Chips to Treat Domestic Septage**"**.