February 2022

CHRISTOPHER A. BAREITHER, PHD, PE

Associate Professor
Civil & Environmental Engineering
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EDUCATION

Ph.D., Geological Engineering — Aug. 2010
University of Wisconsin-Madison
Dissertation: "Compression behavior of solid waste."
Advisers: Professors Craig H. Benson and Tuncer B. Edil
Minor focus: microbiology

M.S., Geological Engineering — Aug. 2006
University of Wisconsin-Madison
Thesis: "Shear strength of backfill sands in Wisconsin."
Advisers: Professors Craig H. Benson and Tuncer B. Edil

B.S., Geological Engineering — May 2004
University of Idaho – Cum laude

Study Abroad — Aug. 2002 - May 2003
Luleå University of Technology, Sweden

PROFESSIONAL EXPERIENCE

Faculty Appointment

Associate Professor, Civil & Environmental Engineering — July 2018 - Present
Colorado State University, Fort Collins, Colorado

Assistant Professor, Civil & Environmental Engineering — Aug. 2012 – July 2018
Colorado State University, Fort Collins, Colorado

Research Experience

Research Associate, Geological Engineering — Sept. 2010 – Aug. 2012
University of Wisconsin-Madison, Madison, Wisconsin

Research Assistant, Geological Engineering — Aug. 2004 – Aug. 2010
University of Wisconsin-Madison, Madison, Wisconsin

Research Assistant, National Aeronautics and Space Administration — Summer 2003
Goddard Space Flight Center, Greenbelt, Maryland

Teaching Experience

Instructor, Civil & Environmental Engineering — Aug. 2010 - Aug. 2012
University of Wisconsin-Madison, Madison, Wisconsin
Courses: Introduction to Society's Engineering Grand Challenges; Waste Geotechnics; Soil Mechanics

Teaching Assistant & Guest Instructor, Geological Engineering — 2005 - 2007
University of Wisconsin-Madison, Madison, Wisconsin
Courses: Soil Mechanics; Seepage and Slopes; Engineering Properties of Soils

PROFESSIONAL REGISTRATION

Professional Engineer, State of Colorado, License No. 0048262 (since 1 Nov. 2013)

PROFESSIONAL SOCIETIES

Member, American Society of Civil Engineers – 2011-present

Member, Society for Mining, Metallurgy, and Exploration – 2014-present

Member, International Geosynthetics Society – 2015-present

UNIVERSITY SERVICE

Fulbright Faculty Advisor, Walter Scott, Jr. College of Engineering – 2016-present

Graduate Instruction Committee, Civil & Environmental Engineering – 2019-present

Awards Committee, Chair, Civil & Environmental Engineering – 2014-2015

Graduate Admissions Committee, Civil & Environmental Engineering – 2013-2016; 2020-present

Search Committee for Geoengineering Faculty, Civil & Environmental Engineering – 2014

OUTREACH AND PROFESSIONAL SERVICE

Co-Chair, *Tailings and Industrial Waste Engineering (TAILENG) Center* – 2020-present

Member, *Tailings Center (Colorado School of Mines, Colorado State University, & University of Arizona)* – 2020-present

Chair, Tailings and Mine Waste Conference Committee, Colorado State University – 2017-present

Member, Tailings and Mine Waste Conference Committee, Colorado State University – 2012-present

Associate Editor, *Waste Management* – 2019-present

Associate Editor, ASCE *Journal of Geotechnical and Geoenvironmental Engineering* – 2017-present

Faculty Advisor, Colorado State University Chapter of Engineers Without Borders – 2013-present

Member, Engineers Without Borders – 2005-present

Member, Geoenvironmental Engineering Committee, Geo-Institute of ASCE – 2012-present

Participant, Creating a Collaborative Learning Environment, Delta Program in Research, Teaching, and Learning, University of Wisconsin-Madison – 2006-2007

Proposal Reviewer:

- Panelist, National Science Foundation, Engineering for Civil Infrastructure – 2019
- Ad hoc, National Science Foundation, Geotechnical Engineering and Materials – 2016
- Panelist, National Science Foundation, Small Business Innovative Research Program – 2011
- Ad hoc, Environmental Research and Education Foundation – 2011, 2015, 2019

Journal Reviewer: *Canadian Geotechnical Journal, Coal Combustion and Gasification Products, Environmental Earth Sciences, Environmental Geotechnics, Geological Society of America, Geosynthetics International, Geotechnical and Geological Engineering, Geotechnical Testing Journal, Geotextiles and Geomembranes, Journal of Geotechnical and Geoenvironmental Engineering, Journal of Environmental Engineering, Journal of Hazardous, Toxic, and Radioactive Waste, Journal of Materials in Civil Engineering, Marine and Petroleum Geology, Minerals, Minerals Engineering, Soil Science Society of America Journal, Waste Management.*

RESEARCH GRANTS AS PRINCIPAL INVESTIGATOR

External Support

Total raised research dollars as Principal Investigator (PI) = $1,053,341 and as Co-PI = $390,650

Evaluation and Management of High-Moisture Waste Disposal in Municipal Solid Waste Landfills, *Environmental Research and Education Foundation*; co-PI, $235,000 – 2018-2020

Compressibility and Hydraulic Conductivity Testing of Mine Tailings, *AECOM*; Co-PI, $63,000 - 2018

Evaluation of Hydraulic Conductivity and Moisture Retention Characteristics of GeoWaste, *Goldcorp Inc.*; PI, $30,000 - 2017

Expansive Soil Mitigation for Transportation Earthworks by Polymer Amendment, *Mountain Plains Consortium*; co-PI, $60,000 – 2015-2016

Enhancing Design of Water Balance Covers Composed of Mixed Mine Waste Materials, *National Science Foundation*; PI, $337,200 – 2015-2018

Coupled Numerical Simulation of Debris Flow-Soil-Structure Interactions for Flexible Barrier Mitigation Systems, *Mountain Plains Consortium*; PI, $49,000 – 2015-2016

Implications of Solid and Liquid Waste Co-Disposal on Organic Stability and Biochemical Compatibility, *Environmental Research and Education Foundation*; PI, $185,000 – 2015-2018

Evaluation of Long-Term Shear Strength of Geosynthetic Clay Liners for Use in Mining Applications, *Colloid Environmental Technologies Company, LLC*; PI, $164,141 – 2014-2016

Post-Fire Ground Treatments for Protection of Critical Transportation Infrastructure, *Mountain Plains Consortium, Colorado Dept. of Transportation*; PI, $186,000 – 2014-2018

Evaluation of Wisconsin's Landfill Organic Stability Rule, *Environmental Research and Education Foundation*; PI, $32,000 – 2014

Re-Use of Mine Waste Materials Amended with Fly Ash in Transportation Earthwork Projects, *Mountain Plains Consortium*; PI, $64,000 – 2013-2015

Microbial Community Composition and Dynamics in Simulated Bioreactor Landfills, *University of Wisconsin System Solid Waste Research Program*; Co-PI, $32,650 – 2009-2010

Microbial Population Dynamics and Diversity in Municipal Solid Waste Anaerobic Laboratory Reactors, *University of Wisconsin System Solid Waste Research Program*; PI, $6,000 – 2008

Internal Support

Total raised research dollars = $655,378

Geotechnical and Geoenvironmental Engineering Research Related to Tailings and Mine Waste, *Tailings and Mine Waste Conference, Colorado State University*; $131,745 – 2021-2022

Geotechnical and Geoenvironmental Engineering Research Related to Tailings and Mine Waste, *Tailings and Mine Waste Conference, Colorado State University*; $120,000 – 2019-2020

Experimental Research in Geoenvironmental Engineering, *Dept. of Civil & Environmental Engineering, Colorado State University*; $11,200 – 2017

Geotechnical and Geoenvironmental Engineering Research Related to Tailings and Mine Waste, *Tailings and Mine Waste Conference, Colorado State University*; $70,000 – 2017-2018

Experimental Research in Geoenvironmental Engineering, *Dept. of Civil & Environmental Engineering, Colorado State University*; $9,367 – 2016

Geotechnical and Geoenvironmental Engineering Research Related to Tailings and Mine Waste, *Tailings and Mine Waste Conference, Colorado State University*; $140,000 – 2015-2016

Experimental Research in Geoenvironmental Engineering, *Dept. of Civil & Environmental Engineering, Colorado State University*; $4,805 – 2015

Research Equipment and Instrumentation for Experimental Research in Geoenvironmental Engineering, *Dept. of Civil & Environmental Engineering, Colorado State University*; $19,861 – 2014

Geotechnical and Geoenvironmental Engineering Research Related to Tailings and Mine Waste, *Tailings and Mine Waste Conference, Colorado State University*; $123,400 – 2013-2014

Instrumentation and Equipment for Experimental Research in Geoenvironmental Engineering, *Dept. of Civil & Environmental Engineering, Colorado State University*; $25,000 – 2013

INVITED LECTURES

Webinar, *Organic Waste Stability: Fundamentals and State-of-Practice*, Environmental Research and Education Foundation – 2016

Technical Speaker, Waste Expo, Las Vegas, Nevada – 2016

Research Seminar, Dept. of Civil, Environmental, & Architectural Engineering, University of Colorado Boulder – 2015

Research Seminar, Dept. of Civil, Architectural, & Environmental Engineering, University of Texas at Austin – 2014

Technical Speaker, Environmental Research and Education Foundation's Regional Summit on Sustainable Solid Waste Practices and Research, Austin, Texas – 2014

Research Seminar, Dept. of Civil & Environmental Engineering, Colorado School of Mines – 2014

Research Seminar, Dept. of Civil, Environmental, & Architectural Engineering, University of Colorado Boulder – 2012

Technical Speaker, Environmental Research and Education Foundation's Regional Summit on Sustainable Solid Waste Practices and Research, Indianapolis, Indiana – 2011

Technical Speaker, Engineering Society of Detroit 19th Annual Solid Waste Technical Conference – 2009

Technical Speaker, Wisconsin Section American Society of Civil Engineers 2007 Spring Technical Conference – 2007

HONORS AND AWARDS

Research

Practical Paper Award, American Society of Testing & Materials D-18 Committee on Soil & Rock – 2014

Thomas A. Middlebrooks Award, American Society of Civil Engineering – 2013

United States Delegate to the 4th International Young Geotechnical Engineering Conference, Geo-Institute of the American Society of Civil Engineering, Alexandria, Egypt – 2009

Academics

Severson Geotechnical Award, University of Wisconsin-Madison Geo-Engineering Program – 2006

Outstanding Geological Engineering Senior, Civil Engineering, University of Idaho – 2004

Outstanding Junior, Materials, Metallurgical, Mining, & Geological Engineering, University of Idaho – 2002

Presidents' Excellence Dessert, Top 100 Sophomores, University of Idaho – 2000

Outstanding Geological Engineering Underclassman, University of Idaho – 2000

Lifetime Member of The National Society of Collegiate Scholars

Phi Eta Sigma National Honor Society

CONSULTING EXPERIENCE

Independent Tailings Review Board – Cadia, Newcrest Mining Limited Aug. 2021 – Present

- Member of the Independent Tailings Review Board for Cadia Mine in New South Wales, Australia. Review design and operations of tailings facilities to provide recommendations and guidance pertaining to tailings management.

Co-Disposal Peer Review – Klohn Crippen Berger Apr. 2020 – Oct. 2020

- External peer review of tailings and mine waste co-disposal project.

In Situ Testing & Performance Evaluation of GeoWaste & Waste Rock Test Piles – Montana Exploradora de Guatemala S.A., Newmont Mar. – Dec. 2019

- Sealed-double ring infiltrometer (SDRI) testing; destructive sampling; seepage analysis; material parameter and characteristic assessment; performance assessment of test piles.

Goldcorp EcoTails Technical Review Session – Goldcorp Inc. July 2018

- Participated in 2-day workshop to discuss, evaluate, and identify the future direction of Ecotails.

Mechanical and Hydraulic Properties of MSW and Sludge June - Dec. 2017

- Conducted laboratory experiments to assess the influence of sludge addition on the mechanical and hydraulic properties of municipal solid waste.

Mine Waste Cover Test Section Construction – Monsanto June - Oct. 2016

- Resident Engineer on a final cover lysimeter project. Tasks included design review, project planning, and construction assistance and management.

Uranium Mill Tailings Cover Test Section Construction – Energy Fuels Sept. 2016

- Resident Engineer on a final cover lysimeter project. Tasks included design review, project planning, and construction assistance and management.

Landfill Organic Stability Rule Evaluation – Wisconsin Dept. of Natural Resources Jul. 2013 - Jun. 2014

- Evaluation of Wisconsin's Dept. of Natural Resources organic stability rule. Tasks included site visits and interviews, landfill report reviews, and assessment of the efficacy of the rule.

Mine Waste Cover Test Section Construction – Monsanto Aug. 2013

- Resident Engineer for construction of two test final cover test sections. Tasks included design review, project planning, and construction assistance and management.

Water Balance Cover Assessment – Missoula Landfill, Republic Services Jul. – Dec. 2011

- Design Engineering for a monolithic water balance cover and field-scale test section to validate the design. Tasks included geotechnical and ecological site characterization, numerical water balance modeling, evaluation of design alternatives, and test section construction.

Landfill Water Balance Simulations – Republic Services Mar. 2009

- Used Hydrologic Evaluation of Landfill Performance (HELP) model to estimate infiltration at the working face of a landfill for various hydrological and landfill conditions.

Settlement Evaluation – Allied Waste Services Oct. 2008

- Evaluated landfill settlement data, constructed relationships between settlement rate and waste thickness and temperature, and compiled literature review of landfill case histories.

Compression Evaluation Processed Green Material – Bryan A. Stirrat & Associates Jun. 2007

- Constructed large-scale compression cell to evaluate compression behavior of processed green material used as daily cover.

Strength Evaluation of Crushed Rock - Soils & Engineering Services Inc. Jul. 2007

- Conducted large-scale direct shear tests on 19-mm, 25-mm, and 50-mm uniform aggregates.

PUBLICATIONS[1]

Journal Articles

Aghazamani, N., Scalia, J., and Bareither, C.A. Phase relations for saline slurry-deposited tailings, *Geotechnical Testing Journal*, In Press, accepted 7 Jan. 2022.

[1] Underlined co-author = graduate student advisee; underlined plus asterisk (*) = undergraduate student advisee.

Gorakhki, M.R.H., Bareither, C.A., and Scalia, J. Hydraulic conductivity testing and destructive sampling of field-scale mine waste test piles, *Canadian Geotechnical Journal,* In Press, available online 13 Dec. 2021. DOI: 10.1139/cgj-2021-0346

Rohlf, E.M., Karimi, S., and Bareither, C.A. (2021). Implications of municipal solid waste co-disposal on biodegradation and biochemical compatibility, *Waste Management*, 129, 62-75. DOI: 10.1016/j.wasman.2021.05.009.

Gorakhki, M.R.H., Bareither, C.A., Scalia, J, and Aparicio, M. (2021). Hydrologic and environmental behavior of GeoWaste and waste rock in field experimental piles, *Mining, Metallurgy & Exploration,* Published online 31 March 2021. 26 Oct. 2020. DOI: 10.1007/s42461-021-00419-6

Karimi, S. and Bareither, C.A. (2021). The influence of moisture enhancement on solid waste biodegradation, *Waste Management*, 123(15), 131-141. DOI: 10.1016/j.wasman.2021.01.022

Ghazizadeh, S. and Bareither, C.A. (2021). Failure mechanisms of geosynthetic clay liner and textured geomembrane composite systems, *Geotextiles & Geomembranes*, 49(3), 789-803. DOI: 10.1016/j.geotexmem.2020.12.009.

Ghazizadeh, S. and Bareither, C.A. (2021). Variability of fiber reinforcement, peel strength, and internal shear strength in needle-punched GCLs, *Journal of Geotechnical and Geoenvironmental Engineering*, 147(3), DOI: 10.1061/(ASCE)GT.1943-5606.0002471.

Taher, Z.J., Scalia, J. and Bareither, C.A. (2020). Comparative assessment of expansive soil stabilization by commercially available polymers, *Transportation Geotechnics,* 24(9), 100387. DOI: 10.1016/j.trgeo.2020.100387.

Bareither, C.A., Benson, C.H., Rohlf, E.M., and Scalia, J. (2020). Hydro-mechanical behavior of municipal solid waste and high-moisture waste mixtures, *Waste Management*, 105, 540-549. DOI: 10.1016/j.wasman.2020.02.030.

Debelak, A.M., Bareither, C.A., and Mahmoud, H. (2020). Finite element model of impact loading and deformation of a flexible steel, ring-net debris flow barrier, *Natural Hazards Review*, 21(3), 1-15. DOI: 10.1061/(ASCE)NH.1527-6996.0000392.

Stock, C., Gorakhki, M.H., Bareither, C.A., and Scalia, J. (2020). Hydrologic comparison of prescriptive and water balance covers, *Journal of Environmental Engineering*, 146(7), 1-14. DOI: 10.1061/(ASCE)EE.1943-7870.0001733.

Ghazizadeh, S. and Bareither, C.A. (2020). Temperature effects on internal shear behavior in reinforced GCLs, *Journal of Geotechnical and Geoenvironmental Engineering*, 146(1), 1-14. DOI: 10.1061/(ASCE)GT.1943-5606.0002193.

Tian, Z., Bareither, C.A., and Scalia, J. (2020). Development and assessment of a seepage-induced consolidation test apparatus, *Geotechnical Testing Journal*, 43(4), 894-917. DOI: 10.1520/GTJ20180375.

Herweynen, W.J., Bareither, C.A., and Scalia, J. (2019) Shear strength of coal combustion product by vane shear, *Coal Combustion and Gasification Products*, 11, 97-111. DOI: 10.4177/CCGP-D-19-00001.1.

Hamade, M.M.P. and Bareither, C.A. (2019). Undrained shear behavior of synthetic waste rock and synthetic tailings mixtures, *Geotechnical Testing Journal*, 42(5), 1207-1232. DOI: 10.1520/GTJ20180007.

Nwaokorie, K.J., Bareither, C.A., Mantell, S.C., and Leclaire, D.J. (2018) The influence of moisture enhancement on landfill gas generation in a full-scale landfill, *Waste Management*, 79, 647-657. DOI: 10.1016/j.wasman.2018.08.036.

Ghazizadeh, S. and Bareither, C.A. (2018). Stress-controlled direct shear testing of geosynthetic clay liners I: apparatus development, *Geotextiles and Geomembranes*, 46(5), 656-666. DOI: 10.1016/j.geotexmem.2018.06.003.

Ghazizadeh, S. and Bareither, C.A. (2018). Stress-controlled direct shear testing of geosynthetic clay liners II: assessment of shear behavior, *Geotextiles and Geomembranes*, 46(5), 667-677. DOI: 10.1016/j.geotexmem.2018.06.004

Ghazizadeh, S., Bareither, C.A., Scalia, J., and Shackelford, C.D. (2018) Synthetic mining solutions for laboratory testing of geosynthetic clay liners, *Journal of Geotechnical and Geoenvironmental Engineering*, 144(10), 1-9. DOI: 10.1061/(ASCE)GT.1943-5606.0001953

Bareither, C.A., Soleimanian, M.R., and Ghazizadeh, S. (2018). Direct shear testing of GCLs at elevated temperature and in a non-standard solution*, Geosynthetic International*, 25(3), 350-368. DOI: 10.1680/jgein.18.00014.

Scalia, J., Bareither, C.A., and Shackelford, C.D. (2018). Advancing the use of geosynthetic clay liners, *Geotechnical Engineering Journal of the SEAGS & AGSSEA*, 49(4), 100-114.

Agapito, L.A. and Bareither, C.A. (2018). Application of a one-dimensional large-strain consolidation model to a full-scale tailings storage facility, *Minerals Engineering*, 119, 38-48. DOI: 10.1016/j.mineng.2018.01.013.

Gorakhki, M.H. and Bareither, C.A. (2018). Compression behavior of mine tailings amended with cementitious binders, *Geotechnical and Geological Engineering*, 36(1), 27-47. DOI: 10.1007/s10706-017-0299-4.

Gorakhki, M.H. and Bareither, C.A. (2017). Sustainable reuse of mine tailings and waste rock in water-balance covers, *Minerals*, 7(7), 128, doi:10.3390/min7070128.

Gorakhki, M.H. and Bareither, C.A. (2017). Unconfined compressive strength of mine tailings amended with fly ash, *Journal of Geotechnical and Geoenvironmental Engineering*, 143(7), 1-14. DOI: 10.3390/min7070128.

Alhomair, S.A., Gorakhki, M.H., and Bareither, C.A. (2017). Hydraulic conductivity of fly ash-amended mine tailings, *Geotechnical and Geological Engineering*, 35(1), 243-261. DOI: 10.1007/s10706-016-0101-z.

Bareither, C.A., Barlaz, M.A., Doran, M., and Benson, C.H. (2017). Retrospective analysis of Wisconsin's organic stability rule, *Journal of Environmental Engineering*, 143(5), 1-11. DOI: 10.1061/(ASCE)EE.1943-7870.0001192.

Jehring, M.M. and Bareither, C.A. (2016). Tailings composition effects on shear strength behavior of co-mixed mine waste rock and tailings, *Acta Geotechnica*, 11(5), 1147-1166. DOI: DOI 10.1007/s11440-015-0429-1.

Bareither, C.A., Foley, J.C.*, and Benson, C.H. (2016). Using surrogate meteorological data to predict hydrology of water balance covers, *Journal of Geotechnical and Geoenvironmental Engineering*, 142(4), 1-16. DOI: 10.1061/(ASCE)GT.1943-5606.0001437.

Gorakhki, M.H. and Bareither, C.A. (2016). Effects of salinity on geotechnical characterization of fine-grained soils and mine tailings, *Geotechnical Testing Journal*, 39(1), 1-14. DOI: 10.1520/GTJ20140283

Gorakhki, M.H. and Bareither, C.A. (2015). Salinity effects on sedimentation behavior of kaolin, bentonite, and soda ash mine tailings, *Applied Clay Science*, 114(9), 593-602. DOI: 10.1016/j.clay.2015.07.018.

Bareither, C.A. and Kwak, S. (2015). Assessment of municipal solid waste settlement models based on field-scale data analysis, *Waste Management*, 42(8), 101-117. DOI: 10.1016/j.wasman.2015.04.011.

Bareither, C.A. and Benson, C.H. (2013). Evaluation of Bouwer-Rice large-particle correction procedure for soil water characteristic curves, *Geotechnical Testing Journal*, 36(5), 1-15. DOI: 10.1520/GTJ20130013

Bareither, C.A., Wolfe, G.L., McMahon, K.D., and Benson, C.H. (2013). Microbial diversity and dynamics during methane production from municipal solid waste, *Waste Management*, 33(10), 1982-1992. DOI: 10.1016/j.wasman.2012.12.013.

Bareither, C.A., Benson, C.H., and Edil, T.B. (2013) Compression behavior of municipal solid waste in bioreactor landfills: mechanical creep and biocompression, *Journal of Geotechnical and Geoenvironmental Engineering*, 139(7), 1007-1021. DOI: 10.1061/(ASCE)GT.1943-5606.0000835.

Bareither, C.A., Benson, C.H., and Edil, T.B. (2012). Effects of waste composition and decomposition on the shear strength of municipal solid waste, *Journal of Geotechnical and Geoenvironmental Engineering*, 138(10), 1161-1174. DOI: 10.1061/(ASCE)GT.1943-5606.0000702.

Bareither, C.A., Benson, C.H., and Edil, T.B. (2012). Compression behavior of municipal solid waste: immediate compression, *Journal of Geotechnical and Geoenvironmental Engineering*, 138(9), 1047-1062. DOI: 10.1061/(ASCE)GT.1943-5606.0000672.

Bareither, C.A., Benson, C.H., Barlaz, M.A., and Edil, T.B. (2012). Abiotic and biotic compression of municipal solid waste, *Journal of Geotechnical and Geoenvironmental Engineering*, 138(8), 877-888. DOI: 10.1061/(ASCE)GT.1943-5606.0000660.

Bareither, C.A., Breitmeyer, R.J., Benson, C.H., Barlaz, M.A., and Edil, T.B. (2012). Deer Track Bioreactor Experiment: a field-scale evaluation of municipal solid waste bioreactor performance, *Journal of Geotechnical and Geoenvironmental Engineering*, 138(6), 658-670. DOI: 10.1061/(ASCE)GT.1943-5606.0000636.

Bareither, C.A., Benson, C.H., Barlaz, M.A., Edil, T.B., Tolaymat, T.M. (2010). Performance of North American bioreactor landfills: I. leachate hydrology and waste settlement, *Journal of Environmental Engineering*, 136(8), 824-838. DOI: 10.1061/(ASCE)EE.1943-7870.0000219

Barlaz, M.A., Bareither, C.A., Hossain, A., Saquing, J., Mezzari, I., Benson, C.H., Tolyamat, T.M., and Yazdani, R. (2010). Performance of North American bioreactor landfills: II. chemical and biological characteristics, *Journal of Environmental Engineering*, 136(8), 839-853. DOI: 10.1061/(ASCE)EE.1943-7870.0000220

Bareither, C.A., Benson, C.H., and Edil, T.B. (2008). Reproducibility of direct shear tests conducted on granular backfill materials, *Geotechnical Testing Journal*, 31(1), 84-94. DOI: 10.1520/GTJ100878.

Bareither, C.A., Benson, C.H., and Edil, T.B. (2008). Comparison of shear strength of sand backfills measured in small-scale and large-scale direct shear tests, *Canadian Geotechnical Journal*, 45(9), 1224-1236. DOI: 10.1139/T08-058.

Bareither, C.A., Edil, T.B., Benson, C.H., and Mickelson, D.M. (2008). Geological and physical factors affecting the friction angle of compacted sands, *Journal of Geotechnical and Geoenvironmental Engineering*, 134(10), 1476-1489. DOI: 10.1061/(ASCE)1090-0241(2008)134:10(1476).

Refereed Conference Papers

Borja, R.N. and Bareither, C.A. (2020). Shear behavior of waste rock and filtered tailings mixtures, *GeoCongress 2020 GCP 318,* ASCE, 872-880. DOI: 10.1061/9780784482810.090.

Ghazizadeh, S. and Bareither, C.A. (2020). Effect of mine process solutions on the internal shear strength of geosynthetic clay liners, *GeoCongress 2020 GCP 316,* ASCE, 619-628. DOI: 10.1061/9780784482797.060.

Ghazizadeh, S. and Bareither, C.A. (2019). Temperature effects on the peak and large-displacement shear strength of needle-punched reinforced GCLs, *Proc. Geosynthetics 2019,* Industrial Fabrics Association International.

Gorakhki, M.R.H., Bareither, C.A., Scalia, J, and Jacobs, M. (2019). Hydraulic conductivity and soil water retention of waste rock and tailings mixtures, *GeoCongress 2019 GSP 312,* ASCE, 41-50. DOI: 10.1061/9780784482148.005.

Ghazizadeh, S. and Bareither, C.A. (2019). Evaluation of GCL and geomembrane characteristics on failure modes and critical shear strength of GCL/geomembrane composite systems, *GeoCongress 2019 GSP 306,* ASCE, 344-353. DOI: 10.1061/9780784482087.032.

Moden, K.M., Ray, T.H., and Bareither, C.A. (2018). Laboratory evaluation of post-fire ground treatment, *Rocky Mountain Geo-Conference 2018* GPP 12, ASCE, 26-41. DOI: 10.1061/9780784481936.003.

Gorakhki, M.R.H. and Bareither, C.A. (2017). The viability of using mixtures of mine tailings and waste rock in water balance covers, *Proc. Geotechnical Frontiers 2017 GSP 276, ASCE,* 160-169. DOI: 10.1061/9780784480434.016.

Ghazizadeh, S. and Bareither, C.A. (2017). Temperature-dependent shear behavior of geosynthetic clay liners, *Proc. Geotechnical Frontiers 2017 GSP 280, ASCE,* 288-298. DOI: 10.1061/9780784480472.031.

Gorakhki, M.R.H. and Bareither, C.A. (2016). Compressibility of synthetic mine tailings amended with fly ash, *Proc. Geo-Chicago 2016 GSP 270, ASCE,* 255-266. DOI: 10.1061/9780784480137.026.

Ghazizadeh, S. and Bareither, C.A. (2016). Critical evaluation of the long-term shear strength of geosynthetic clay liners, *Proc. Geo-Chicago 2016 GSP 271, ASCE,* 11-23. DOI: 10.1061/9780784480144.002.

Hamade, M. M. P. and Bareither, C. A. (2016). Undrained shear behavior of mixed waste rock and tailings, *Proc. COBRAMSEG 2016, Brazilian Conference on Soil Mechanics and Geotechnical Engineering, ABMS*, 1-8. DOI: 10.20906/CPS/GJ-06-0009.

Bareither, C.A., Edil, T.B., and Benson, C.H. (2012). Investigation of White Bluffs landslides in Washington State, *GeoCongress 2012: State of the Art and Practice in Geotechnical Engineering*, *GSP 225*, ASCE, 546-555. DOI: 10.1061/9780784412121.057.

Bareither, C.A., Benson, C.H., and Edil, T.B. (2012). Recent findings on compressibility of municipal solid waste, *GeoCongress 2012: State of the Art and Practice in Geotechnical Engineering*, *GSP 225*, ASCE, 4212-4221. DOI: 10.1061/9780784412121.433.

Benson, C.H. and Bareither, C.A. (2012). Designing water balance covers for sustainable waste containment: transitioning state-of-the-art to state-of-the-practice, *Geotechnical Engineering State of the Art and Practice: Keynote Lectures form GeoCongress 2012, GSP 226*, ASCE, 1-33. DOI: 10.1061/9780784412138.0001

Bareither, C. A., Benson, C. H., and Edil, T. B. (2012). Comparison of waste settlement parameters for bioreactor landfills derived from physical, chemical, and biological processes, *Global Waste Management Symposium 2012*, Penton Media.

Bareither, C. A., Breitmeyer, R. J., Meyer, L. L., Benson, C. H., Edil, T. B., and Barlaz, M. A. (2010). Physical, chemical, and biological characterization of solid waste samples, *Proceedings – Global Waste Management Symposium 2010*, Penton Media, Inc. New York, New York, 1-9.

Breitmeyer, R. J., Meyer, L. L., Bareither, C. A., Benson, C. H., Edil, T. B., and Barlaz, M. A. (2010). Calibration of time domain reflectometry water content sensors in municipal solid waste, *Proceedings – Global Waste Management Symposium 2010*, Penton Media, Inc. New York, New York, 1-16.

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Gorakhki, M.H., Alhomair, S.A., and Bareither, C.A. (2017). Re-Use of Mine Waste Materials Amended with Fly Ash in Transportation Earthworks Projects, MPC-17-332. North Dakota State University - Upper Great Plains Transportation Institute, Fargo: Mountain-Plains Consortium.

Bareither, C.A., Barlaz, M.A., Doran, M., and Benson, C.H. (2014). Retrospective analysis of Wisconsin's landfill organic stability rule: is the rule meeting its objectives?, Sustainability Report No. 13-07, Office of Sustainability, University of Wisconsin-Madison, Madison, WI, USA. Submitted to Wisconsin Department of Natural Resources.

Bareither, C.A. (2011). Report on the Deep Vadose Zone at the Hanford Site: current status and future actions, Consortium for Risk Evaluation with Stakeholder Participation, Vanderbilt University, Nashville, Tennessee.

Benson, C.H. and Bareither, C.A. (2011). Design and performance demonstration of a water balance cover at Missoula Landfill in Missoula, Montana, Geotechnics Report No. 11-21, Wisconsin Geotechnics Laboratory, University of Wisconsin-Madison, Madison, WI.

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Bareither, C.A., Edil, T.B., and Benson, C.H., (2007). Determination of shear strength values for granular backfill used by the Wisconsin Department of Transportation, SPR No. 0092-05-08, Wisconsin Highway Research Program, Madison, Wisconsin.

GRADUATE STUDENTS SUPERVISED

Current PhD Students

Piyathilake, M., Micro- and macro-scale assessment of internally reinforced GCLs, *Expected 2024*.

Current MS Students

Martin, G., Topic to be determined, *Expected 2023*.

Primus, J., Topic to be determined, *Expected 2023*.

Orcutt, H., Topic to be determined, *Expected 2023*.

Hale, C., The Influence of Water Content and Density on Undrained Shear Behavior of Filtered Mine Tailings, *Expected 2022*.

Ciraula, A., Shear Strength of High-Moisture Waste and Municipal Solid Waste Mixtures, *Expected 2021*.

Graduated PhD Students

Karimi, S. (2022). Influence of Co-Disposing Oil and Gas Production Waste and Municipal Solid Waste on Hydraulic Conductivity.

Jiang, C. (2021). Numerical Simulations of Binary Mixtures Under Gravity Deposition Using the Discrete Element Method. (*Co-advisor*)

Gorakhki, M.R.H. (2020). Hydrological Assessment of Field-Scale GeoWaste and Waste Rock Test Piles.

Ghazizadeh, S. (2019). Shear Behavior of Geosynthetic Clay Liners and Textured Geomembranes in Mining Applications.

Peterson, K. (2018) Discrete Element Modeling of Solid-Fluid Interactions in Post-Wildfire Ground Treatment (*Co-advisor*).

Graduated MS Students

Spencer, L. (2021). Characterizing Tailings Professional Labor Demand.

Vander Vis, K. (2020). Proposed Laboratory Investigation into Electroosmotic Dewatering of Mine Tailings.

Borja Castillo, R.N. (2019). Undrained Shear Behavior and Critical State Analysis of Mixed Mine Waste Rock and Tailings.

Kahramanoglu, K. (2019). Development and Verification of a Miniature Cone Penetration Test.

Stock, C. (2018). Hydrologic Comparison of Prescriptive and Water Balance Covers.

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Carroll, A. (2018). Solid Waste Management: A Comparative Carbon Footprint and Cost Analysis. (*Co-advisor*)

Taher, Z. (2017). Effectiveness of Polymer for Mitigation of Expansive Soils. (*Co-advisor*)

Nwaokorie, K.J. (2017). Phase-Based Analysis to Determine First-Order Decay Rates for a Bioreactor Landfill.

Tian, Z. (2017). Seepage-Induced Consolidation Test on Mine Tailings.

Hamade, M.M.P. (2017). Tailings Composition and Mixture Effects on Undrained Behavior of Mixed Mine Waste Rock and Tailings.

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Mantell, S.C. (2016). Landfill Gas Analysis to Support an Assessment of Organic Waste Stability.

Alhomair, S.A.M. (2016). Effects of Fly Ash Amendment on Hydraulic Conductivity of Mixed Mine Waste.

Gorakhki, M.R.H. (2015). Pore Fluid Salinity Effects on Sedimentation and Geotechnical Behavior of Fine-Grained Soils.

Agapito, L.A. (2015). Evaluation of Large-Strain Consolidation Models Applied to Full-Scale Mine Tailings Impoundment.

Kwak, S. (2014). Assessment of Municipal Solid Waste Settlement Models Based on Field-Scale Data Analysis.

Jehring, M.M. (2014). Effect of Tailings Composition on the Shear Strength Behavior of Mine Waste Rock and Tailings Mixtures.