

## NICHOLAS RICH-VETSCH, PE, TRUE ADVISOR

### Education

Bachelor of Bioproducts and Biosystems Engineering, University of Minnesota, Minneapolis, Minnesota, 2016

### Professional Licenses

Professional Engineer – Minnesota and North Dakota

### Specialty Certifications

TRUE Advisor, Green Building Certification Institute

### Professional Affiliations

Minnesota Composting Council – Board of Directors Secretary

Minnesota Biochar Initiative – Board of Directors

Mentor, US Composting Council – Young Professionals Committee

### Professional Experience

Mr. Rich-Vetsch has diverse experience maximizing the recovery and beneficial use of discarded materials. Reframing "waste" as a resource is a core passion of Nick's career and daily life. He has conducted a variety of complex waste composition studies, provided waste diversion recommendations, and generated standard operating procedures for waste processing facilities. He has also contributed to solid waste master planning and waste management trend analysis reports.

Nick is a member of the board of directors of the Minnesota Composting Council (MNCC) and Minnesota Biochar Initiative (MNBI) where he contributes expertise in all forms of organic waste diversion including composting, biochar production, anaerobic digestion, and other waste management methods.

Nick has conducted a number waste composition, processing recommendations, and operational planning projects for the Ramsey/Washington Recycling & Energy (R&E) Center in Newport, Minnesota, including planning work for their source-separated organics co-collected with the municipal solid waste (MSW) system.

### Solid Waste Planning

**Newport, Minnesota, Ramsey/Washington Recycling & Energy.** Assisted in the preparation and execution of an experiment to test the potential of durable compostable bags to be used for household organic waste collection. Reviewed potential bag suppliers, submitted bag samples for laboratory testing, and performed a direct trial using organics-filled bags co-collected in actual trash carts and manually recovered from the mixed and transferred waste.

**Newport, Minnesota, Ramsey/Washington Recycling & Energy.** Provided recommendations for further support and development of the composting industry in Minnesota. Identified potential active or recently completed construction projects in Ramsey and Washington Counties where compost soil



amendment or topdressing could benefit turf establishment. Provided estimates of potential compost volumes to be utilized on projects.

**Newport, Minnesota, Ramsey/Washington Recycling & Energy.** Interviewed various stakeholders in the composting industry to identify regional composting capacity and production, barriers to increased compost use, and recommendations for efforts to increase compost production and use; and ensure market stability in preparation for a multi-County organics collection program expected to greatly increase regional compost production.

**Newport, Minnesota, Ramsey/Washington Recycling & Energy.** Observed bulky waste handling, classified and roughly quantified waste types, and provided recommendations on methods to recover additional materials and reduce the quantity of waste sent to landfill.

**Newport, Minnesota, Ramsey/Washington Recycling & Energy.** Sorted commercial waste samples originating from healthcare facilities. Reviewed applicable regulatory requirements and quantified unacceptable materials in the waste stream. Provided recommendations for outreach to reduce unacceptable waste.

**Newport, Minnesota, Ramsey/Washington Recycling & Energy.** Sorted samples of refuse-derived fuel. Classified and quantified material types including plastic resin types. Submitted samples for biochemical methane potential and combustion value analysis. Provided recommendations on emerging technologies and methods to recover additional materials and/or energy from the refuse-derived fuel.

**St. Cloud, Minnesota, City of St. Cloud, Tri-County Solid Waste Management Commission.** Performed cost feasibility study for a 42-tons-per-hour pre-consumer food waste depackaging facility and output from the depackaging to high strength waste tanks at municipal wastewater treatment plant. Study included cost for facility construction, equipment, and estimate of staffing needs for operation, feedstock procurement, and byproduct management.

**Minneapolis, Minnesota, Compost Research and Education Foundation.** Partnered with researchers at the University of Minnesota to review and analyze existing studies on use of compost in bioretention systems for research methodologies employed and completeness of data gathered. Assisted in organizing industry professional workshops. Provided recommendations on future research topics to be pursued in relation to literature reviewed.

**Shelton, Washington, Brady Trucking.** Coordinated efforts to provide wastewater aeration lagoon and associated pump and pipe design for a compost site expansion. Lagoon piping design was coordinated with mechanical engineering design of advanced covered aerated static pile composting system prepared by Green Mountain Technologies.

**Honolulu, Hawaii, City and County of Honolulu.** Provided recommendations and review of organic waste collection methodologies and assisted in pilot collections program planning.

**Multiple Locations, Anaerobic Digestion Permitting Evaluations.** Performed outreach to County and State permitting agencies across Minnesota, Iowa, Wisconsin, Indiana, Ohio, Illinois, Missouri, Idaho, and Colorado to determine permitting and zoning requirements for proposed food waste and manure co-digestion facilities. Provided recommendations on site design and project feasibility in relation to favorability of permitting requirements, access to feedstock materials, and management requirements of and markets for byproducts.

**Rosemount, Minnesota, Specialized Environmental Technologies.** Researched and evaluated grant funding opportunities applicable to compost site processing and compost end market development.

**Hutchinson, Minnesota, Creekside Soils.** Coordinated civil site design of a composting facility upgrade including incorporation of mechanical engineering system design performed by Green Mountain Technologies.

**Ashby, Minnesota, Utopia Soils.** Provided design, specification, and oversight services for an expansion to an existing clay lined composting pad. Work included interface of the pad with an advanced aerated static pile composting system designed by Engineered Compost Systems and associated permitting requirements. Updated compost site operational plans.

**Kelowna, British Columbia, Pela.** Provided technical assistance for classification of processing unit byproducts and provided recommendations for future market expansion efforts. Performed review of local, state, and federal regulatory standards for organic byproducts.

**Fargo, North Dakota, City of Fargo.** Prepared report sections on the latest local, national, and global trends in waste reduction, recycling, composting, energy recovery, disposal, and technological advances.

**Detroit Lakes, Minnesota, Otter Tail County.** Prepared Diversion Potential section of plan. Researched recycling and reuse technologies, investigated waste management challenges specific to the County, calculated potential diversion quantities, and estimated costs. This research included construction and demolition wastes.

## Publications and Presentations

What Is Biochar?, US Mulch & Soil Council Annual Meeting, 2023; MN Composting Council Annual Training, 2023; MN Biochar Summit, 2023.

Biochar Considerations for Sustainable Agriculture, Sustainable Farming Association - MN Central Chapter Annual Meeting, 2023.

Landfill's Role in Anaerobic Digestion Development, SWANA/AWMA Solid Waste Operator Conference, 2023.

Biochar Initiatives in MN Webinar, MN Composting Council, 2023.

Biochar: Ancient Solution to Modern Problems. MN, Association of Professional Soil Scientists Annual Meeting, 2022.

Compost and Biochar Applications for Improving Soil and Water Quality. RAM/SWANA Conference, 2022.

PFAS Monitoring in Minnesota and Potential Impacts to Compost Sites. USCC COMPOST2022 Conference, 2022.

Implementing Your Stormwater Pollution Prevention Plan (SWPPP). SWANA Landfill Operators Conference, 2022.

Innovative Outlets for Wood Waste: Biochar and Wood Fiber Processing. SDSWMA/NDSWRA Joint Conference, 2022.