Nathaniel D. Landsperger PE

Senior Consultant

Mr. Landsperger is a Senior Consultant for Engineering Systems Inc. (ESi). He has over 20 years of consulting experience with the analysis, design, and construction of geotechnical, structural, civil, and drainage systems with an emphasis on civil sitework and civil infrastructure as well as rail system infrastructure design and construction. He has performed engineering and forensic studies for the inspection, assessment, and repair designs of damaged, distressed or failed structural elements, including residential and commercial properties, roadway and railroad structures, culverts and storm drain piping, walls, tunnels, and marine structures. His experience includes detailed reviews of construction documents, construction materials, and construction practices, as well as engineering and design of site grading, retaining walls, foundation underpinning, drainage systems, pavements, earthwork volumes, and bridge repairs. In the residential and commercial property market, he has assessed property damages related to water intrusion, soil and/or foundation movement, expansive clays, frost heave, site drainage/flooding, site grading, and inadequate construction practices.

Prior to joining ESi, Mr. Landsperger worked for over fourteen years as manager of rail engineering and construction. His workload included multi-disciplinary rail projects involving railroad track bed stabilization, landslide or slope stability assessment and mitigation, earthwork and grading design, rail line capacity feasibility studies, geotechnical studies, stormwater modeling and management, groundwater studies, bridges, tunnels, culverts, retaining walls, passenger stations, marine and port facilities, industrial facilities, mines, intermodal facilities, railyards, and mainline trackage. He has experience working in challenging geotechnical conditions such as landslide-prone regions, rockfall hazard areas, high-groundwater settings, coastal and/or riverine settings, karst (sinkhole) topographies, and on swamp/soft ground soil deposits. Mr. Landsperger is also very familiar with typical construction procedures and costs for earthwork, bridges, tunnels, pavements, road and track, drainage systems, specialty geo-structural techniques for ground stabilization such as soil nailing, rock bolting, micropiles, grout injection, rockfall hazard mitigation, and structural underpinning. Mr. Landsperger has been involved in emergency response engineering related to train derailments, landslides, rockfalls, sinkholes, washouts, severe flooding, bridge or retaining wall collapse, tunnel failures, drainage culvert failures and has informed clients of safe, practical, and effective means to restore or repair damaged infrastructure to a safe operating condition.

In addition, Mr. Landsperger has authored several engineering standards used by Class 1 railroads and has provided peer review analysis of third-party construction plans and documents for bridges, tunnels, drainage systems, retaining walls, and civil earthworks to assess for feasibility, fatal flaws, and

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Education
B.S. Civil Engineering
Pennsylvania State University. 2003

Areas of Specialization

- Assessment and Repair of Tunnels
- Civil Earthworks and Grading
- Constructability Assessments
- Construction Cost Estimating
- Construction Procedures / Inspections
- Design and Analysis of Railroad Track bed and Structures
- Differing Site Conditions
- Drainage Systems
- Earth Movement, Landslides and Slope Stability
- Geotechnical Engineering
- Erosion Assessment and Prevention
- Inspection and Evaluation of Structures
- Marine Bulkheads
- Pavement Design
- Retaining Walls
- Slope Stabilization
- Stormwater Flow and Flooding Analysis
- Trenchless Pipe Installations
- Underground Utility Installations
- Vibration Assessments
- 3rd Party Technical Review

construction-related schedule or cost risks. Mr. Landsperger has performed peer review analysis of third-party work plan submittals for heavy crane lifts, pile driving and/or rock blasting vibrations, temporary shoring, tunneling, pipe jacking/boring, settlement predictions and monitoring, and job hazard analysis. He has provided forensic analyses related to damages caused by blasting, pile driving and/or other construction vibrations, shoring system failures, slope failures, soil liquefaction, retaining wall failure, tunnel failures, track settlement, improper soil compaction, flooding and poor drainage, and erosion and sediment control practices. Mr. Landsperger has also led engineering due diligence reviews to support and educate potential investors in evaluating the overall short-term and long-term risks with purchasing and operating railroad lines or rail facilities.

Licenses & Certifications

- State of Alabama PE License No. 39760-E
- State of Connecticut PE License No. PEN.0037401
- State of Florida PE License No. 95458
- State of Georgia PE License No. 044318
- State of Illinois PE License No. 062.064373
- State of Indiana PE License No. PE11200141
- State of Iowa PE License No. P28391
- State of Kentucky PE License No. 28472
- State of Maryland PE License No. 0046040
- State of Michigan PE License No. 6201312474
- State of Minnesota PE License No. 60211
- State of Missouri PE License No. 2024007869
- State of Montana PE License No. PEL-PE-LIC-76240
- State of North Dakota PE License No. PE-30059
- State of North Carolina PE License No. 060433
- State of Tennessee PE License No. 112536
- State of Wisconsin PE License No. 48145

Positions Held

Engineering Systems Inc., Aurora, Illinois

- Senior Consultant, 2020 – Present

Wood Environment & Infrastructure Solutions Inc, Nashville, Tennessee (formerly Amec Foster Wheeler, formerly Amec Environment & Infrastructure)

- Associate Engineer (Rail Program Manager), 2016 – 2020
- Senior Engineer (Rail PM), 2009-2016
- Staff Engineer, 2005-2009

Ralph Stone & Company, Los Angeles, California

- Staff Soils Technician and Engineer, 2004-2005

Presentations

History of Roadbed Stabilization Techniques on CSX River Line Subdivision

N. Landsperger, presented to a Railroad Member Technical Advisory Group in Albany NY, 2019

Remediation of a Progressive Slope Failure

B. Erickson, S. Schmidt, N. Landsperger., AREMA Technical Sessions, Minneapolis, MN, 2019

Continuing Education

- **Instrumentation and Monitoring of Adjacent Structures during Construction**, AIA CES Course #202216WJE (2022 Online)*
- **HydroCAD Stormwater Training** by HydroCAD Software Solutions LLC (2022 Online Course)*
- **OSHA – Stairways and Ladders**, Course H1005 (2021 Online)*
- **OSHA – Trench and Excavation Safety**, Course 802 (2021 Online)*
- **US Army Corps of Engineers - Design of Sheet Pile Walls**, Course GE1002 (2021 Online)*
- **US Army Corps of Engineers - Design of Conduits, Culverts, and Pipes**, Course P2019 (2021 Online)*
- Attendance and Participation in **AREMA Technical Committee Meetings and Technical Conferences** on a basis of two to three times per year (2014 to present)
- **Fundamentals of Project Management**, Amec Environment & Infrastructure (2013)
- **LRFD for Geotechnical Engineering Features**: Drilled Shaft Foundations, ASCE (2012)
- **Fundamentals of Professional Practice (FOPP)**, Magna Cum Laude, ASFE Geo-professional Business Association (2012)
- **Pile Driving Wave Equation Workshop**, GRL Engineers (2011)
- **Design and Installation of Cost-Efficient Piles**, Pile Driving Contractors Association (2010)
- **Rock Slope Stability Analysis & Mitigation**, Assoc. of Environmental & Engineering Geologists, AEG (2008)

*Online study course from pdhdirect.com

Professional Affiliations/Honors

American Railway Engineering and Maintenance (AREMA)

- Member, Committee 1: Roadway and Ballast, 2014 – present
- Member, Committee 8: Concrete Structures and Foundations, 2014 – present

Professional Experience

Mr. Landsperger has been involved with thousands of engineering projects over the course or his career involving a large variety of civil, structural, geotechnical, environmental, and water resources issues. Mr. Landsperger has also served as an expert and/or testified on matters involving:

- Property damages due to illicit or improper stormwater runoff.
- Slope failures/landslides as a result of construction activity.
- Improper construction of drilled shaft foundations for railroad bridge.
- Pavement failures as a result of unanticipated traffic overloading.
- Foundation settlement and structural distress of residential and commercial structures including single story homes to multi-story commercial buildings and parking garages.
- Damage to stormwater drainage systems due to improper stormwater controls.
- Failure or movement of retaining walls including concrete, masonry, gabion, MSE, and pile supported walls.
- Failure causation of old railroad tunnels.
- Engineering standard of care for railroad tunnel repair design and construction practices during repairs.
- Improper construction of horizontally bored pipeline causing ground subsidence and train derailment.
- Improper construction oversight and practices leading to defective concrete poured for a new airport runway.
- Expected vibration levels from different types of construction activity and the potential to cause damage to nearby structures.
- Collapse of underground stormwater detention system due to design inadequacies.
- Impacts of temporary shoring and construction vibration on adjacent building.
- Probable construction costs for repairs to railroad trackage inside industrial facility.
- Reasonable scope and costs to repair distressed slopes and retaining structures.
- Stormwater encroachment, soil erosion resulting from stormwater detention pond.
- Dispute over mass excavation earthwork volumes and costs involving large excavation into bedrock.
- Engineering standard of care for geotechnical and civil design works for railroad siding construction within swamp lands.
- Engineering and construction issues related to stormwater ponding within highly erodible loess soil.
- Usage of LiDAR and other remote sensing techniques to detect and analysis ground surface conditions and changes occurring over time.
- Analysis/review of earthwork practices during grading of residential and commercial developments.
- Engineering standard of care for stormwater drainage system design in residential subdivision.
- Flooding analysis of various properties/locations related to heavy rainfall events.
- Inspection and maintenance practices and procedures for low volume roadways including repair, maintenance and upkeep of stormwater systems and culverts.
- Failure of temporary shoring or temporary excavation systems.
- Inspection practices and engineering assessments of rock slopes and potential rockfall hazards along freight railways.
- Engineering ethics and professional obligations of licensed professional engineers while in the performance of their job duties.
- Underground utility line field location and protection practices and cause(s) of line strikes or damage.