KOEHLER ENGINEERING AND LAND SURVEYING, INC.

COMPANY DATA & STANDARD QUALIFICATIONS SUBMISSION

Koehler Engineering & Land Surveying, Inc. is a Missouri Registered General Business (subchapter S) Corporation. Their principal office is located at 194 Coker Lane, in Cape Girardeau, Missouri. Our firm has been providing professional services in Missouri and the Midwest region for over 46 years.

The contact at Koehler Engineering and Land Surveying, Inc. for additional information relevant to this submission is Chris Koehler, PE, PLS, the company president and principal. He may be reached by phone at (573) 335 – 3026, or by email at ckoehler@koehlerengineering.com. Wayne Koehler, PLS, is the company founder, and maintains a minority position in the company as the only other shareholder.

Koehler Engineering and Land Surveying is a multidiscipline firm focused on civil engineering and related services. We have a total employment of 22 persons (full time equivalent), broken down as follows:

Business Personnel by Discipline:

The key technical personnel of Koehler Engineering & Land Surveying, Inc. available to work on ongoing and new projects, broken down according to discipline, are as outlined below:

Key Personnel Designation:	**# of Personnel**
Licensed Professional Engineers:	*3*
Non - Licensed Engineers:	*3*
Registered Geologist / Environmental Professionals	*2*
Licensed Professional Land Surveyors:	*2*
Non-Licensed Land Surveyors:	*2*
Certified Construction Inspectors:	*5*
Office Administrative Staff:	*3*
Engineering Design Technical Staff:	*2*

Several of the personnel indicated above, in particular the non-licensed surveyors, construction inspectors, and office engineering design are cross trained, and have dual roles within the firm, which are altered based upon need at a given time. Mr. Koehler is the only dual PLS / PE registrant within our firm.

Koehler Engineering and Land Surveying, Inc., is Cape Girardeau County's oldest engineering and land surveying firm. Wayne Koehler originally founded the company in 1976 as Koehler Land Surveying, Inc. and the name of the company was changed in the early 1990's to reflect our expanding capabilities.

Today we are one of the largest engineering firms in Southeast Missouri providing a full range of engineering and related services on public and private projects in 8 states.

With our personnel, facilities, equipment, and technology, we offer a complete range of civil engineering, structural engineering, geotechnical engineering, site planning, land surveying, construction observation, materials testing, and geological / environmental services. We offer services in areas of commercial, municipal, and industrial infrastructure planning and design; site analysis, design, and development, bridge engineering; building structural engineering, geotechnical exploration, analysis and design; wastewater collection; treatment planning; analysis and facilities design; potable water distribution system design; hydrology and hydraulics studies; stormwater systems design, monitoring and facility design, and structural analysis and design. We also provide construction inspection, materials testing, and construction management for facilities we design, as well as designs by others, in order to streamline the construction process for the client and general contractor. A partial listing of our services is as follows:

Professional Engineering Services:

- We provide Transportation Engineering services covering all of the following areas:
  - Roadway Planning and Design
  - Multi-Use Trail and Sidewalk Planning and Design
  - Parking, Staging, and Recreational Spaces
  - Bridge analysis, rating, and design
  - Traffic Study (volume, performance, projection, speed, travel, etc.) and Analysis
  - Railroad Main line, Spur Line, Switch, and Related Facilities Design
  - Signal Warrant Analysis and Signalized Intersection Design
  - Traffic Capacity Analysis
  - Intersection Geometric Analysis and Improvement Design
  - Bridge and Culvert Design including structure, hydraulics, scour analysis, etc.

- We provide Structural Design of Bridges, Box Culverts, Buildings, and other structures:
  - Design of single and multiple span bridges with steel plate girder superstructure, or pre-cast / pre-stressed concrete I-beam, bulb-T, or box beam superstructure.
  - Designs in accordance with AASHTO, Mo-Dot, and I-Dot specifications and requirements
  - Design of single and multiple story steel structures
  - Design of single and multiple story timber structures
  - Shallow and Deep foundation analysis and designs for structures designed in-house or pre-engineered facilities design by others.

- We provide Site Development, Analysis, and Design services covering all of the following areas:
  - Initial Boundary and Topographic Surveys to document existing conditions
  - Layout / siting of proposed improvements and infrastructure
  - Grading analysis to balance earthwork quantities when possible
  - Design of new pedestrian and vehicle access points and routing
  - Design and routing of new or expanded utility mains and services
  - Design of site retaining structures and hardscapes outside the building envelope
  - Coordination with architectural and other engineering disciplines for overall site development
  - Coordination with landscape professionals for final site plantings
  - Construction administration and oversite of civil project improvement

- We provide Hydrologic and Hydraulic Study and facilities design in all of the following areas:
  - Hydrologic analysis of drainage basins to develop flood runoff quantities utilizing state of the art computer simulations
  - Hydraulic Modeling of streams and adjacent floodplains
  - No-Rise analysis for modifications to streams and floodplains
  - LOMA / LOMR preparation and submission for individual sites or full developments
  - Floodplain mapping in accordance with FEMA standards
  - Certified floodplain modeling and mapping
- We provide Geotechnical Exploration, analysis, and design including:
  - Site drilling exploration, in situ sampling of native and imported materials, rock coring and examination.
  - Analysis of soil and rock properties
  - Preparation of geotechnical reports and foundation recommendations for buildings, bridges, pavements, and other structures.
- We provide Storm Water Management design services covering all of the following areas:
  - Design of Storm Water collection and conveyance facilities
  - Design of Storm Water detention facilities to mitigate increased runoff from project development
  - Design of Storm Water quality (filtration or settlement) facilities for storm water treatment
  - Design of site erosion control facilities
  - Preparation of site-specific storm water prevention / pollution plans (SWPPP)
  - Preparation of / obtaining permits for land disturbance from the Missouri DNR
  - Monitoring erosion control measures and reporting of same
  - Permitting of impacts and mitigation required for jurisdictional waters and resources of the United States through the US Army Corps of Engineers
- We provide Wastewater Collection & Treatment services covering all of the following areas:
  - Sanitary Sewer Trunk Sizing and Design
  - Inflow and Infiltration (I&I) Studies and Remediation
  - Wastewater Treatment Facility Design including various treatment processes ranging from lagoon treatment (aerated or flow through) to mechanical plant design (extended aeration, contact media, recirculating media filters, etc.).
- We provide Potable Water System design services covering all of the following areas:
  - Design and Reporting for Public and Community Supply Wells
  - Design of Distribution System Piping
  - Design of Flow metering and pressure boosting facilities
  - Potable Water Storage and Treatment facilities

In addition to the general engineering capabilities described above, Koehler Engineering has extensive experience working with grant funded projects from various agencies, including grants from the State Departments of Natural Resources, the State Departments of Economic Development, the Environmental Protection Agency, the US Department of Agriculture and others.

Koehler Engineering also has extensive experience in facilitating project developments through the MoDOT Local Public Agency process, the National Environmental Policy Act (NEPA) process, and in preparing and obtaining paperwork filings for permits to the United States Army Corps of Engineers, the Missouri Department of Natural Resources.

Professional Surveying Services:

- We provide Topographic Surveying for project development and design.
- We provide Boundary Surveying in accordance with Missouri/Illinois and ALTA/ACSM standards for private and public usage.
- We provide GPS and geodetic control surveys
- We provide aerial photography and LIDAR scanning using multiple UAV aircraft
- We provide 3D laser scanning for photo / point cloud creation
- We provide hydrographic surveying services with crewed and unmanned remote craft
- We provide Construction Layout and Staking for any type of project, including the following:

  Bridge Construction, Water Line and System Construction, Road Construction, Building Construction, Site Grading and Construction, Sanitary Sewer Construction, Railroad Construction, Storm Sewer Construction, Any other type of project construction

Construction Materials Testing Services:

- We provide Materials Sampling and Testing* of the following construction activities:
  - Soil moisture and compaction testing according to standard and modified proctors
  - Soil liquid, plastic, and shrinkage limit analysis
  - Relative density and compaction of aggregate fill
  - Temperature, air content, and slump of concrete
  - Cast, cure, and break concrete cylinder specimens
  - Inspect and test concrete reinforcement placement
  - Cast, cure, and break grout cubes and cylinders
  - Assemble, grout, cure, and break masonry prisms
  - Visual inspection and testing of structural welded connections
  - Level II Ultrasonic (Single Beam and Phased Array) weld inspection
  - Inspect and test structural steel bolted connections
  - Perform dynamic cone penetrometer soil bearing capacity analysis with California Bearing Ratio determination and static cone penetrometer testing
  - Test asphalt temperature, composition, placement, and compaction
  - Core concrete, masonry, and asphalt for thickness and strength test
  - Falling head hydraulic conductivity test
  - Sieve (gradation) analysis of aggregate materials
  - Non-destructive testing of concrete with Swiss hammer or Windsor probe
  - Primary and secondary drained / un-drained consolidation test
  - Tri-axial shear / friction test
  - Direct Shear / friction test
  - Marshall Mix Design for Asphaltic Pavement
  - Various other test methods not itemized above

*Materials testing is conducted in accordance with applicable standards from the American Society of Testing and Materials (ASTM), the American Concrete Institute (ACI), American Association of State Highway Transportation Officials (AASHTO), the American Welding Society (AWS), the American Institute of Steel Construction (AISC), and others as specified. Our materials laboratory participates in annual proficiency sampling and verification from CCRL and AMRL, holds current certifications from the United States Army Corps of Engineers (USACE), and our materials testing personnel are ACI, MoDOT, and NDT certified.