

Engineers and Environmental Consultants

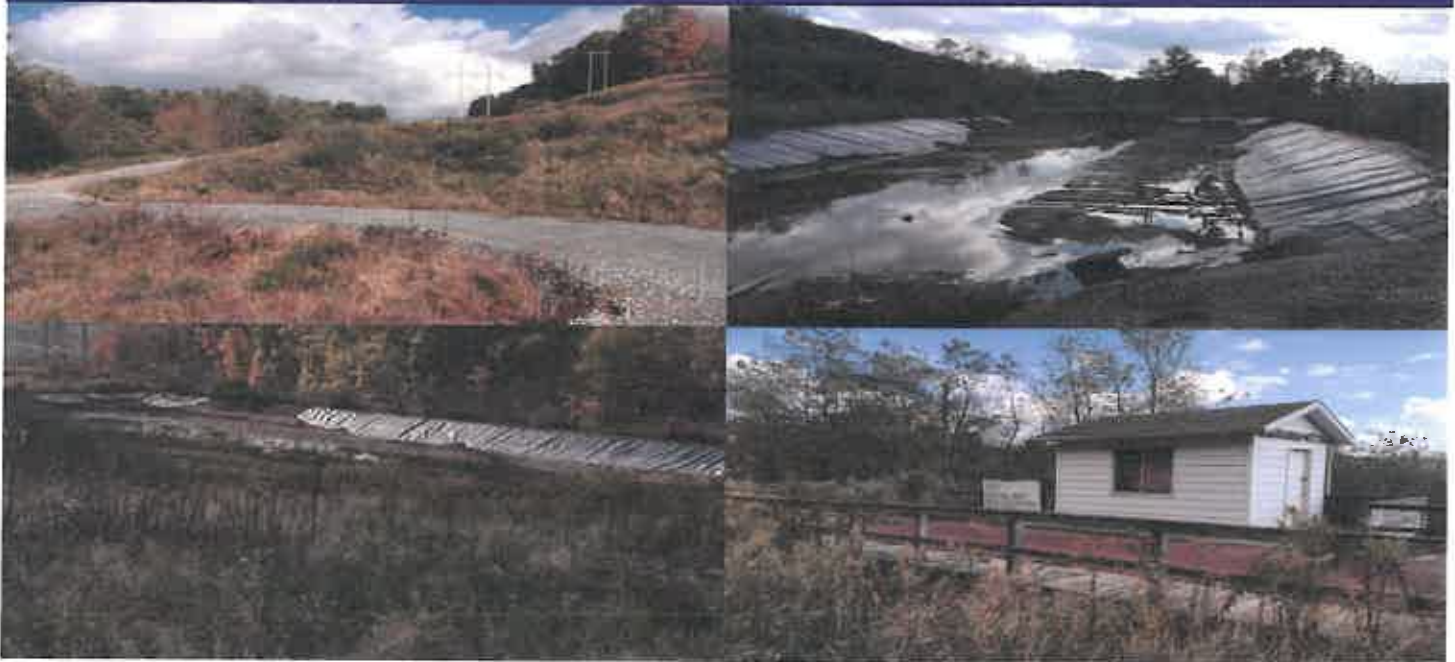
EXPRESSION OF INTEREST

Prepared for the

10/17/17 11:35:40
WV Purchasing Division

West Virginia Department of Environmental Protection Office of Environmental Remediation Site Characterization Study, Leachate Management and Closure Cap Design, Construction QA/QC for the Webster County Landfill – DEP1800000002

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EXPRESSION OF INTEREST

SITE CHARACTERIZATION STUDY, LEACHATE MANAGEMENT AND CLOSURE CAP DESIGN, CONSTRUCTION QA/QC FOR THE WEBSTER COUNTY LANDFILL

1.0 INTRODUCTION

Potesta & Associates, Inc. (POTESTA) is well qualified to provide site characterization study, engineering design, leachate management and closure cap design, preparation of site closure drawings and specifications, preparation of appropriate documents and application for all required permits related to the West Virginia Department of Environmental Protection, Landfill Closure Assistance Program's (WVDEP, LCAP) Webster County Landfill Project. Our expression of interest addresses the requirements as stipulated in Solicitation No. CEOI 0313 DEP180000002.



POTESTA has completed the No-Debt Affidavit in accordance with the instructions in the request for quotation (RFQ). Our signed no-debt affidavit can be found in **Appendix A**. POTESTA's signed Expression of Interest (EOI) can also be found in **Appendix A**.

POTESTA's corporate qualifications are summarized in Section 2.0. Related Prior Experience is provided in Section 3.0. Our Consultant Confidential Qualification Questionnaire is included in **Appendix B**. Our registered professional engineers are listed in Section 4.0. Section 5.0 discusses our office work location and work flow chart. POTESTA's organization chart is contained in **Appendix C**. **Appendix D** includes additional corporate information applicable to this project. A discussion of our work plan is included in Section 6.0 of this expression of interest.

POTESTA has extensive experience with the closure of small, rural landfills in West Virginia. Many of these landfill closure projects were completed for WVDEP, LCAP. POTESTA has completed site characterization study, leachate management, and closure cap design for five landfill projects since 1997 including LCAP's Fleming Sanitary Landfill (Kanawha County), Jackson County Sanitary Landfill, Big Bear Lake Landfill (Preston County), South Charleston Landfill (Kanawha County), and City of Kingwood Landfill (Preston County). POTESTA also performed construction quality assurance monitoring services for the capping and closure of Wyoming County Landfill for LCAP. Our experience with capping and leachate management at the above projects plus the other municipal solid waste and industrial solid waste landfill projects we have completed will position POTESTA to effectively evaluate options and design a closure plan for the Webster County Landfill.

2.0 PRIMARY STAFF (CORPORATE) EXPERIENCE

POTESTA is an engineering and environmental consulting firm that provides professional services to deliver innovative, cost-effective solutions to complex problems. Our firm has a diversified practice covering engineering (civil, environmental, geotechnical, mechanical, and mining), landfill design, surveying, construction monitoring, permitting, regulatory liaison, site characterization and remediation, and general environmental consulting. Landfill design for expansions and closures and regulatory permitting of these projects are areas of extensive expertise at POTESTA. We have worked on numerous large projects throughout the region. Our 12 registered professional engineers, led by Mr. Dana Burns, P.E., Vice President, have over 300 years of experience among them and are supported by a large group of engineers, designers, and surveyors. Environmental engineering, regulatory liaison and environmental compliance are also areas of exceptional strength for POTESTA. Mr. Ronald R. Potesta, President, served as a former director of the West Virginia Department of Natural Resources.

Our clients include landfills, manufacturers, utility companies, waste management companies, mining and chemical companies, architects, attorneys, financial institutions, insurance companies, colleges/universities, land developers, construction companies, and local, state, and federal government agencies. We provide services to clients throughout the mid-Atlantic region.

POTESTA, formed in 1997, has grown to include the following mix of professionals:

29	Engineers (civil, environmental, geotechnical, mining, chemical, and mechanical)
20	Scientists (biologists, ecologists, environmental scientists, etc.)
3	Geologists/Hydrogeologists
11	Surveyors
7	CADD Operators/Designers
5	Technicians
26	Support and Other Staff

A more detailed breakdown of staff is shown on our completed consultant confidential qualification questionnaire in **Appendix B**.

POTESTA has completed several LCAP projects for the WVDEP. Most recently, POTESTA completed the South Charleston Landfill closure project and the City of Kingwood Landfill closure project. These projects included landfill closure and sewer line designs; site assessments of the landfills; monitoring well installation and sampling/analysis; development of conceptual closure plans and cost estimates; development of detailed closure plans; preparation of contract bid documents including technical specifications, drawings, required contractor submittals, quality assurance/quality control requirements, contractor's bid form, and engineer's construction cost estimate. The Fleming Landfill sewer line design included site assessment, feasibility study of possible sewer line design, design of the sewer line, preparation of contract documents, preparation of permit applications, and negotiations with Sissonville Public Service District. POTESTA also completed the design for a sewer line extension serving the Jackson County Landfill. POTESTA completed QA/QC services for the Wyoming County Landfill

closure project, Fleming Sanitary Landfill closure project, and Jackson County Landfill closure project. POTESTA's staff of engineers, surveyors, computer drafting and design operators, technicians, and construction monitors has relevant experience with the West Virginia Landfill Closure Assistance Program.

We are familiar with the requirements as contained in the Title 33, Series 1 Solid Waste Management Rules that govern work on landfill closure projects and the Bureau of Public Health Rules that govern the design and construction of sewer lines and pump stations. We are also experienced with the typical design expectations and requirements of the Landfill Closure Assistance Program based on experience gained from our work on past landfill closure projects from 1997 through the present. This experience will allow POTESTA to continue to provide engineering and related services to meet the requirements of LCAP.

POTESTA has successfully performed several projects for WVDEP within project timelines and proposed budgets and looks forward to continuing to do so under this contract. POTESTA's staff has 200+ years combined experience working on landfill projects and 200+ years combined experience working on the types of projects expected under this contract. Our commitment is to provide quality service, rapid response and project completion, and to exceed your expectations for services performed under this contract. The track record of our professionals working with WVDEP personnel demonstrates our ability and commitment.

POTESTA offers expertise in the following professional services.

- ▶ 404 Permit Preparation and Negotiation
- ▶ Acid Mine Drainage Control
- ▶ Asbestos Inspection
- ▶ Biological Studies
- ▶ CADD Services (AutoCAD, Microstation, Various Software Design Packages, Digitizing and Plotting)
- ▶ Civil Engineering
- ▶ Clean Air Act Compliance
- ▶ Construction Monitoring
- ▶ Corporate Environmental Management
- ▶ Design of Slurry Impoundments and Refuse Disposal Sites
- ▶ Dewatering Plans
- ▶ Environmental Engineering
- ▶ Environmental Impact Studies
- ▶ Environmental Site Assessments
- ▶ Environmental Audits
- ▶ Erosion and Sedimentation Control Plans
- ▶ Expert Witness and Litigation Support
- ▶ Feasibility Studies
- ▶ Foundation Design
- ▶ Geological Services
- ▶ Geotechnical Engineering
- ▶ Ground and Surface Water Sampling
- ▶ Groundwater Investigation and Remediation
- ▶ Groundwater Protection Plans
- ▶ Hazardous Waste Management
- ▶ Hydrologic and Hydraulic Evaluations
- ▶ In-Situ and Ex-Situ Biostimulation/Bioaugmentation
- ▶ Landfill Design
- ▶ Landfill Closure Plans
- ▶ Landscape Architecture
- ▶ Mining Engineering
- ▶ Mixing Zone Analysis
- ▶ Multimedia Sampling (Air, Fly Ash, Rock, Soil, Water)
- ▶ Permitting (Air, FERC, Fly Ash Haulback, Mining, NPDES, Quarry and Solid and Hazardous Waste)
- ▶ Permitting and Compliance
- ▶ Pollution Prevention and Waste Minimization Planning
- ▶ Pre-Blast and Pre-Subsidence Surveys
- ▶ Preparation of Construction Documents (Calculations Brief, Construction Drawings, Contractor's Bid Sheet, Engineer's Cost Estimate, QA/QC Manual and Technical Specifications)
- ▶ Reclamation Design and Planning
- ▶ Reclamation Liability Assessments

- ▶ Regulatory Liaison Services
- ▶ Retaining Wall Design
- ▶ Risk-Based Environmental Assessment
- ▶ SARA Title III, TIER II and Form R Inventory and Reporting
- ▶ Sewer Line Design
- ▶ Site Characterization and Remediation Planning
- ▶ Site Design/Planning
- ▶ Slope Stability Analysis
- ▶ Spill Prevention Control and Countermeasures Plans
- ▶ Stabilization and Closure of Waste Impoundments
- ▶ Storm Water Management and Permitting
- ▶ Stream Benthic Macroinvertebrate Surveys
- ▶ Toxicity Evaluations
- ▶ Subsidence Studies
- ▶ Subsurface Explorations
- ▶ Surface and Groundwater Monitoring, Statistical Analysis and Reporting
- ▶ Surveying (Traditional and Global Positioning System)
- ▶ UST Closure and Site Remediation
- ▶ UST Installation Monitoring
- ▶ Waste Facility Permitting and Design
- ▶ Waste Disposal Design
- ▶ Water Line Design
- ▶ Water/Wastewater Treatment Design
- ▶ Wetland Investigation and Delineation, Mitigation Design and Monitoring

3.0 RELATED PRIOR EXPERIENCE

POTESTA is well qualified to provide all of the services as described in the scope of services of the request for qualifications: site investigation of existing features, surveying and mapping, laboratory analysis of soil and water, subsurface explorations to determine location as well as limits and depths of waste, location of potential borrow areas either on-site or nearby, engineering and design of the capping system to be installed including grading plans and cross sections of the cap system, leachate collection and storage systems, sediment and erosion control plans including required ponds, preparation of construction contract drawings and specifications suitable for letting of construction bids and permitting, and all applicable permit applications, right-of-ways, right-of-entries, and approvals. POTESTA's previous experience, professional staff, and participation/involvement with the WVDEP LCAP program, other municipal waste landfills, and various industrial landfills will allow us to provide you with a quality project in an efficient manner.

All work for this project will be completed in-house with the exception of aerial mapping, drilling, and laboratory analysis. POTESTA has a staff of 101 engineers, designers, surveyors, scientists, and support personnel. The key personnel section of this technical proposal describes our project team and **Appendix B** contains the qualifications of our key professionals.

We have been providing design services for the expansion/closure of landfill facilities continuously since 1997. Following is a brief description of similar projects completed by POTESTA.

- ◆ **WVDEP-LCAP** – POTESTA has completed several projects for the Landfill Closure Assistance Program including site assessments, design of closure plans, preparation of contract and related documents, and construction quality assurance monitoring. These projects include:

- South Charleston Landfill Closure Project
- City of Kingwood Landfill Closure Project
- Fleming Sanitary Landfill Closure Plan
- Jackson County Sanitary Landfill Closure Plan
- Big Bear Lake Landfill Closure Design, Preston County, West Virginia
- Wyoming County Landfill Construction Quality Assurance Monitoring
- Fleming Sanitary Landfill Site Assessment
- Jackson County Sanitary Landfill Site Assessment
- Fleming Sanitary Landfill Final Design
- Fleming Sanitary Landfill Construction Quality Assurance Monitoring
- Jackson County Sanitary Landfill Final Design
- Jackson County Sanitary Landfill Construction Quality Assurance Monitoring
- Evaluation of Air Space and Flood Debris Disposal for the McDowell County Landfill and Wyoming County Landfill
- Wyoming County Flood Debris Disposal As-Built Survey
- Fleming Sanitary Landfill Sewer Line Design
- Fleming Sanitary Landfill Sewer Line Construction Quality Assurance Monitoring

POTESTA is wrapping up work on two projects for the Landfill Closure Assistance Program including site assessments, design of closure plans, preparation of contract and related documents, and construction quality assurance monitoring. These projects include:

- South Charleston Landfill Closure Plan – Construction began during January 2016. POTESTA is performing the QA/QC construction monitoring.
- City of Kingwood Landfill Closure Project – Project is 85 percent complete and has been submitted for regulatory review.

Activities completed for the various projects included:

1. Surveying to complete topographic mapping. Surveying was completed to establish ground control for use with aerial photography to complete topographic mapping conforming to National Map Accuracy Specifications. POTESTA also edited existing topographic mapping by field survey.
2. Surveying to locate existing features including monitoring wells, leachate seeps, leachate underdrain outfalls, property boundaries, etc. POTESTA also provided surveying to locate new monitoring wells, borings, test pits, soil sample locations, surface water sample locations, and leachate sample locations.
3. Development of topographic mapping using survey data. POTESTA uses Land Development and Civil 3D computer design software to create topographic mapping from survey data.

4. Site assessment of each landfill to determine problem areas and potential impacts. The site assessments included:
- a. Field reconnaissance to evaluate the conformance of each landfill to the Solid Waste Management Rules.
 - b. Review of historical information to help assess the landfill's impact on surface water and groundwater. Historical information was also reviewed to help POTESTA and LCAP understand the past compliance of the site and violations that occurred.
 - c. Surface water monitoring plan development and implementation to determine the type and degree of impact of the landfill on receiving streams.
 - d. Leachate monitoring plan development and implementation to obtain data on the quantity and quality of leachate generated by the landfill for use in the assessment of and development of leachate management/treatment strategies.
 - e. Test pit program to locate the edge of solid wastes in order that accurate capping plans could be developed. Test pits were also utilized to verify the thickness of existing soil covering solid waste. Test pits were also excavated in potential soil borrow areas to estimate potential soil volumes and to obtain soil samples for laboratory testing.
 - f. Soil boring/rock coring program to assess bedrock formations in order to target potential aquifer zones for installation of groundwater monitoring wells. Borings were also utilized to determine subsurface conditions in conjunction with design of leachate collection systems, leachate storage systems (leachate tanks), landfill slope stability, and to characterize material for planned excavations.
 - g. Laboratory testing on leachate, groundwater, surface water and soils. Leachate, groundwater, and surface water analysis were for WVDEP Phase I parameters. Soil samples were analyzed for engineering properties to determine suitability for use in the cap system and to predict the performance of these materials in the cap.
 - h. Groundwater User Survey for the Fleming and Jackson County Landfill Closure Projects for residents located within 1-mile of the landfill. The survey included determination of water-use sources, interviews with residents not served by public water, and sampling of representative private water wells and springs. Results of the well analyses were compared with typical leachate indicators.

- i. Assessment of existing groundwater monitoring wells to determine their effectiveness in monitoring the uppermost significant aquifer and their conformance to the rules. POTE STA sampled existing groundwater monitoring wells and drilled new monitoring wells.
 - j. Preparation of a final report summarizing findings of the site assessment and recommending proposed closure activities.
 5. Preparation of conceptual closure plan alternatives with corresponding engineer's construction cost estimates.
 6. Preparation of detailed landfill closure bid documents including construction drawings, technical specifications, list of required contractor submittals, list of required quality assurance tasks, bid form, and engineer's construction cost estimate.
 7. Attendance and presentation at pre-bid and pre-construction meetings. Bidder and contractor questions were answered and additional information was developed, as required.
 8. Preparation of required permit applications and notifications for the project including:
 - a. DEP Solid Waste Facility Permit
 - b. Division of Highways Permit
 - c. Public Lands Corporation Stream Activity Permit
 - d. U.S. Army Corps of Engineers Section 404/401 Permits
 - e. Local Planning Commission Approvals
 9. Construction oversight and certifications.
- ◆ **City of Elkins Landfill Project** – POTE STA was selected by the City of Elkins to provide engineering services for the continued operation of their landfill, the Elkins-Randolph County Landfill. POTE STA was selected by the City based on our engineering qualifications in late 2008. The landfill was facing several difficult situations including very limited airspace in the lined disposal area, leachate management and treatment challenges, limited money with which to make upgrades, extensive uncapped historical solid waste disposal areas, and shrinking tonnage and revenue received by the landfill. POTE STA's environmental and engineering capabilities were

utilized to assist the City to define required actions and to implement a plan to allow the City to continue operating the landfill.

POTESTA first reviewed available historical records available from the City and the WVDEP to develop an idea and understanding of the historical engineering, permitting, landfill development, and operations of the landfill. POTESTA provided preliminary cost estimates associated with what the City could anticipate for capping the closed areas of the landfill and with constructing new, lined disposal cells.

POTESTA evaluated different options for constructing a new disposal cell for the landfill in order to recommend the option with the most airspace at the lowest cost. POTESTA and the City reviewed the preliminary options and decided to design and permit two separate cells. One cell was designed over a historical waste area and was a cell for the dedicated disposal of construction and demolition (C&D) wastes. An obvious benefit of this cell was that the new cell would cover a historical waste disposal area, thereby conserving area covered under the landfill permit for municipal solid waste (MSW) operations and that the C&D cell would in effect cap an old waste disposal area. POTESTA designed the access road, lines systems, leachate collection system, and C&D waste placement plan.

POTESTA also completed design and engineering work on a new MSW disposal cell within an area used as a soil borrow area and within the permitted boundary of the landfill. The new MSW cell included a grading plan for the landfill subgrade; compacted soil subbase; geosynthetic leak detection layer; soil, GCL, and synthetic membrane composite liner; geosynthetic leachate collection layer; and protective cover layer. POTESTA designed leachate underdrains and related piping, and access to the new cell.

POTESTA submitted new cell development drawings and technical specifications to WVDEP Solid Waste Permitting to obtain concurrence and approval. WVDEP provided their approval.

POTESTA prepared a contractor's bid form and an engineer's construction cost estimate for the project.

The City eventually decided to cease landfill operations and close the landfill.

- ◆ **Solutia Inc. RCRA Corrective Measures** – POTESTA was retained by Solutia Inc. to provide engineering and environmental consulting services to develop and implement corrective measures on a 120-acre property located in Nitro, West Virginia. This project included areas impacted by manufacturing, waste disposal, and wastewater treatment.

POTESTA completed extensive work characterizing the property including soil, surface water, and groundwater sampling and analysis.

POTESTA evaluated site characterization data and different remedial measures. The remedy finally selected and implemented included the following key elements.

- 2,500 linear feet of riverbank regraded and covered by a riprap armoring blanket placed over an engineering geotextile.
- 8,000 linear feet of soil-bentonite slurry wall to create a groundwater containment barrier surrounding four areas totaling approximately 22 acres. The slurry wall was 60 feet deep and 3 feet wide.
- 22 acres of impervious final cap including geotextile, 40 mil HDPE geomembrane, drainage layer composite, and 18 inches of clean soil cover.
- 24 acres of low permeability cap including geotextile, 40 mil HDPE geomembrane, and 18 inches of clean soil cover.
- 63 acres of permanent permeable cap including a geotextile marker layer and 18 inches of clean soil cover.
- Surface water run-off control system.
- Groundwater pump and treat system including nine wells, three pre-treatment units, and one final groundwater treatment plant.



The project was completed under the regulatory jurisdiction of the United States Environmental Protection Agency and WVDEP.

- ◆ **Armour Creek Landfill** – POTESTA was retained by a chemical manufacturing company to provide engineering services for the Central Area Closure Plan and East Cell Berm Extension project.

POTESTA prepared a detailed design of the cap and berm extension plans. Included were railroad right-of-way (ROW) permit, West Virginia Division of Highways ROW permit, regrading of the site, final cap design, leachate monitoring system design, and drainage channel design. POTESTA prepared construction drawings, technical specifications, engineer's construction cost estimate and bid form.

POTESTA was also retained by the chemical manufacturer to prepare construction drawings, technical specifications, engineer's construction cost estimates and bid forms for closure of an industrial landfill in Putnam County, West Virginia. Services included

regrading of the site, railroad right-of-way permit, leachate collection, underdrain upgrade, final cap design, and drainage channel design.

- ◆ **Pocahontas County Sanitary Landfill** - POTEESTA serves as the engineer of record for the Pocahontas County Landfill. Our main projects completed over the last five years include preparation of contract documents (drawings, specifications, bid form, engineer's construction cost estimate, and instructions to bidders) for 4 acres of landfill cap covering two cells, a haul road extension, and three expansions of the composite liner system totaling 3.3 acres. POTEESTA was able to negotiate cost savings measures with the WVDEP on these projects, including the use of geosynthetic materials. POTEESTA helped with the review of bids, made recommendations as to the most favorable bid, provided construction oversight, and prepared certifications required prior to WVDEP approval of the closure areas and the new waste cells. POTEESTA also helped Pocahontas County Landfill by negotiating a much reduced monetary fine covering 77 notices of violations. POTEESTA met with WVDEP and negotiated a 75 percent reduction of the original fine amount. We also prepared a Supplemental Environmental Project to allow three-fourths of the fine to be directed to a tire recycling project. POTEESTA also provides annual surveys and volume computations required for the year-end reports required by WVDEP, assists Pocahontas County Landfill with leachate treatment issues, has helped the landfill with compliance issues, monitors and submits reports for the groundwater monitoring well system, and has served as a liaison with WVDEP permitting and enforcement.

- ◆ **Fort Martin CCB Landfill Expansion** – POTEESTA was retained by Allegheny Energy Supply as the engineer of record for a new landfill to serve the Fort Martin Power Station in Monongalia County, West Virginia. POTEESTA first completed a siting study to identify and evaluate candidate sites for the new landfill. Following selection of the preferred site, POTEESTA completed a permit application for the new landfill and detailed design drawings, technical specifications, bid documents, engineer's construction cost estimate, and quality assurance/quality control plan. The project included approximately 100 acres of composite liner with leachate collection system and two lined ponds for collection of leachate and stormwater.

POTEESTA prepared a detailed bid package for the first phase of construction including 40 acres of a composite-lined landfill cell, one 2-acre double-lined pond, leachate pump station and a 6000-foot force main, access roads, and a concrete pad for a stacking conveyor stockpile.

POTEESTA has completed QA/QC services during construction. The contract amount for the initial phase of construction was \$10,000,000.



POTESTA subsequently provided detailed design drawings for the second phase of construction including a second phase of construction including a second storm water and leachate basin, 60 acres of lined landfill, leachate collection system, and almost 2 miles of force main sewer.

- ◆ **Nicholas County Landfill** - POTESTA has completed several projects for the Nicholas County Landfill including permitting approval and the detailed design of a sediment control pond and a leachate storage tank for the landfill. POTESTA prepared drawings and specifications, assisted with the solicitation of bids, and oversaw construction of the pond and tank. POTESTA has also performed several year-end surveys and volume reports for landfill airspace utilization.

- ◆ **Dry Run Landfill** - DuPont retained the services of POTESTA in 1997 to assist their in-house environmental department in obtaining a favorable renewal of their landfill permit for Dry Run Landfill. Dry Run Landfill dated back to before the Title 33 Series 1 Solid Waste Management Rules and did not include the required leachate collection systems or liner systems. POTESTA worked with DuPont and the WVDEP to design and permit improvements to the landfill that DuPont could implement in light of budget constraints and the WVDEP could accept in light of the Solid Waste Management Rules.



The liner system used synthetic-only components for cost savings and ease of construction. POTESTA supplemented information developed by DuPont including engineering calculations and drawings and negotiated with WVDEP for a permit renewal. POTESTA attended the public hearing and assisted both DuPont and WVDEP through the public comment period in responding to comments.

POTESTA developed contract/bid documents for two different expansions for the facility including drawings, specifications, instructions to bidders, and bid forms. The projects included 10 acres of a synthetic liner/leachate collection system, lined leachate storage pond, new landfill access road, stormwater control devices, and new monitoring well construction. POTESTA provided construction oversight and certification of the newly constructed features.

- ◆ **Brooke County Landfill** – POTEFTA provided quality assurance/quality control monitoring and certification of two landfill expansion cells at Brooke County Landfill. Included was compaction testing of the clay subbase, monitoring of HDPE geomembrane, drainage net and geotextile layers.



- ◆ **Wetzel County Landfill** – POTEFTA provided quality assurance/quality control monitoring and certification of an expansion of the Wetzel County Landfill including monitoring of the installation of HDPE geomembrane, drainage net, and geotextile.
- ◆ **Industrial Waste Landfill** - POTEFTA provides environmental and engineering services to a national manufacturing company for their industrial waste landfill located near Charleston, West Virginia. POTEFTA has completed several projects to support the closure and ongoing post-closure maintenance at the facility. Included was:
 - Development of detailed topographic mapping of the landfill and surrounding area.
 - Detailed design and WVDEP approval of two capped areas totaling about 6 acres, including the use of synthetic layers to achieve a cost savings.
 - Construction of a new “maintenance” waste cell for the containment of small amounts of waste discovered during subsequent operation/closure of the site.
 - Construction of a pump station and double-walled force main sewer for management of leachate from the facility.
 - Permit renewal applications, groundwater monitoring and statistical analysis, and miscellaneous WVDEP compliance activities.
 - Ongoing maintenance and facility care including monitoring, mowing, leachate management, and reporting.
- ◆ **Elkem Metals’ Jarrett Branch Landfill** – POTEFTA prepared an engineering design for a new waste disposal cell for disposal of manufacturing wastes from the plant, engineering design and approval from WVDEP for closure of a 6-acre cell within the existing landfill area, and year-end surveys/annual reporting for the landfill.

- ◆ Surveys for Kanawha Western, Fayette County, Berkeley and Hampshire County Landfills LCAP Construction - POTEESTA was retained by the construction contractor to conduct surveying required for project layout, quantity measurement, and as-built record drawings for these landfill closure projects.
- ◆ BASF Landfill - POTEESTA provides semi-annual sampling, analysis, and reporting of groundwater monitoring wells associated with the closed BASF Landfill in Huntington, West Virginia.

POTEESTA's involvement in these projects included engineering and design services, preparation of contract documents, and completion of permit applications for regulatory approval. Several of the projects included construction monitoring, quality assurance and quality control services, documentation of construction activities, preparation of final summary reports, and certification of the completed construction. These projects included:

- ◆ Specification/drawing review to determine quality assurance/quality control requirements.
- ◆ Developing and following procedures for the required QA/QC items including testing and observation frequency.
- ◆ Developing and utilizing forms and checklists used for QA/QC work.
- ◆ Completion of daily field activity logs and data sheets to record both construction and QA/QC activities.
- ◆ Review of contractor methods and completed work to assess compliance with project specifications and recommended procedures.
- ◆ Reporting of non-compliance and documentation of repairs to achieve compliance.
- ◆ Preparation of certifications.
- ◆ Review of contractor pay applications to verify quantities.
- ◆ Photographic documentation.
- ◆ Maintaining as-built drawings and sketches of the work.
- ◆ Preparation of final summary report and project certification.

Appendix D includes service briefs and project abstracts for our engineering and QA/QC capabilities.

4.0 LIST OF PROFESSIONAL ENGINEERS

Professional Engineer	Years of Experience
Dana L. Burns, PE, PS (Charleston Office)	36
D. Mark Kiser, PE, LRS (Charleston Office)	32
Terry Moran, PE (Charleston Office)	26
Robert Ammirato, PE (Charleston Office)	15
Jarrett Smith, PE (Charleston Office)	14
Patrick A. Taylor, PE (Charleston Office)	36
Patrick Ward, PE (Charleston Office)	34
Mark Sankoff, PE (Charleston Office)	33
Joe Knechtel, PE (Winchester Office)	25
Dave Sharp, PE (Morgantown Office)	21
Chad Griffith, PE (Morgantown Office)	11

5.0 WORK LOCATION AND ORGANIZATIONAL CHART

POTESTA will perform this project from our Charleston, West Virginia office. Our office is located in close proximity to WVDEP's Charleston office. POTESTA can be at WVDEP's office within minutes for required meetings or to resolve critical issues. This will allow for a cost-effective approach to the project.

Our organizational chart is located in **Appendix C**. Both POTESTA's principal-in-charge (Dana L. Burns, PE) and project manager (D. Mark Kiser, PE) have worked on numerous solid waste landfill design and closure projects and associated QA/QC projects.

6.0 PRELIMINARY WORK PLAN

POTESTA has developed this preliminary work plan for the Webster County Landfill. The following discussion summarizes our approach to the project.

1. POTESTA will review property ownership information (deeds and plats) to verify the extent of the property encompassing the landfill. We will verify that the landfill and proposed work areas are on the landfill's property.
2. POTESTA will develop topographic mapping of the landfill area, borrow areas, access roads, and potential work areas. POTESTA's surveyors will establish ground control. Keddal Aerial Mapping will develop aerial photography and contour mapping. POTESTA will establish survey benchmarks.

3. POTESTA will review information available from regulatory agencies and the Webster County Solid Waste Authority to obtain historical information to be used in the site characterization study and design.
4. POTESTA will complete a subsurface exploration to locate the edge and depth of waste, areas of potential soil borrow, and the depth of soil cover over areas of waste. The landfill property will be evaluated to see if potential soil borrow areas can be located on the property. Otherwise, an off-site soil borrow area will be required.
5. POTESTA will select soil and rock samples from the subsurface exploration for laboratory analysis of engineering properties in order to characterize potential soil and rock borrow areas. This information will be used in planning and design and will be available to bidders.
6. POTESTA will sample leachate exiting the landfill areas and will sample water discharged from the existing leachate ponds at the landfill. POTESTA will review available leachate quality and quantity data. POTESTA will develop and evaluate leachate management and treatment strategies. These may include leachate trucking, on-site treatment, and construction of a sewer system.
7. POTESTA will evaluate the landfill's leachate pond. POTESTA will also evaluate sites for a new sediment pond. This evaluation will include a subsurface exploration to determine soil and rock conditions for design of the sediment pond.
8. Based on the results of the test pit subsurface exploration program, POTESTA will evaluate consolidation of waste in order to reduce the size of the landfill cap required. POTESTA will evaluate removing waste from around the edges of the landfill and filling over the "flat" top area to achieve a 4:1 slope in order to reduce the footprint of the landfill. POTESTA will compare costs of waste relocation versus capping.
9. POTESTA will evaluate and design perimeter run-on control (clean water diversions) to route surface runoff around the landfill. POTESTA will evaluate and design runoff collection channels to direct runoff from disturbed areas to the new sediment pond.
10. POTESTA will evaluate and design a passive gas venting system as well as a gas management and monitoring plan.
11. POTESTA will evaluate and design a leachate management system for the landfill including leachate collection drains and a leachate storage tank.
12. POTESTA will review leachate flow meter equipment and recommend upgrades or replacement.

13. POTESTA will develop a reclamation and revegetation plan for areas disturbed as part of closure construction.
14. POTESTA will develop a fencing and access road plan for the landfill. Perimeter fencing and gates will be designed around the perimeter of the landfill cap area. Access roads will be provided to groundwater monitoring wells, the leachate pond, and sediment pond.

Following the completion of design and the preparation of construction documents, POTESTA will complete permitting required for the landfill and the proposed improvements.

7.0 CLOSING

POTESTA is excited about the opportunity to work with the WVDEP on this project. POTESTA believes we understand the scope of work, have assembled a highly-qualified technical team, and have adequate staffing to handle the logistics of this project in the most efficient manner. We look forward to an interview to discuss your project and our capabilities in more detail.





Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

State of West Virginia
 Centralized Expression of Interest
 02 – Architect/Engr

Proc Folder: 364606

Doc Description: EOI: Webster County Landfill Closure Cap Design

Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2017-09-14	2017-10-17 13:30:00	CEOI 0313 DEP1800000002	1

BID RECEIVING LOCATION

BID CLERK
 DEPARTMENT OF ADMINISTRATION
 PURCHASING DIVISION
 2019 WASHINGTON ST E
 CHARLESTON WV 25305
 US

VENDOR

Vendor Name, Address and Telephone Number:

FOR INFORMATION CONTACT THE BUYER

Brittany E Ingraham
 (304) 558-2157
 brittany.e.ingraham@wv.gov

Signature X 

FEIN # 31-150-9066

DATE October 17, 2017

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION:

Expression of Interest

The West Virginia Purchasing Division is soliciting Expression(s) of Interest for the Agency, The Department of Environmental Protection, from qualified firms to provide architectural/engineering services to provide necessary engineering, and other related professional services to design and specify for construction as well as provide construction contract administration, for Webster County Landfill Closure Cap Design, per the bid requirements, specifications, terms and conditions as attached hereto.

*Online submissions of Expressions of Interest are Prohibited.

BUYER TO	SHIP TO
ENVIRONMENTAL PROTECTION OFFICE OF ENVIRONMENTAL REMEDIATION 601 57TH ST SE CHARLESTON WV25304 US	ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue
1	EOI: Webster County Landfill		

Comm Code	Manufacturer	Specification	Model #
81100000			

Extended Description :

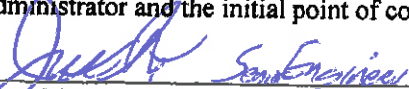
Site Characterization Study, Leachate Management and Closure Cap Design, Construction QA/QC for the Webster County Landfill per the attached specifications, bid requirements, and terms and conditions, incorporated here by reference and made a part hereof.

DEP1800000002	Document Phase Final	Document Description EOI: Webster County Landfill Closure Cap Design	Page 3 of 3
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ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.



 (Name, Title)
Jarrett M. Smith, Senior Engineer

 (Printed Name and Title)
7012 MacCorkle Avenue, SE, Charleston, WV 25304


 (Address)
(304) 342-1400 (304) 343-9031

 (Phone Number) / (Fax Number)
jmsmith@potesta.com

 (email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Potesta & Associates, Inc.

 (Company)


 (Authorized Signature) (Representative Name, Title)
Dana L. Burns, PE / Vice President

 (Printed Name and Title of Authorized Representative)
October 17, 2017

 (Date)
(304) 342-1400 (304) 343-9031

 (Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.:

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

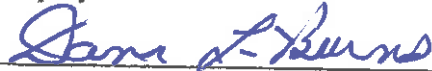
NONE

- | | |
|---|--|
| <input type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Potesta & Associates, Inc.

Company



Authorized Signature

October 17, 2017

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

ALL OTHER CONTRACTS: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Potesta & Associates, Inc.

Authorized Signature: *Sara L. Burns* Date: October 17, 2017

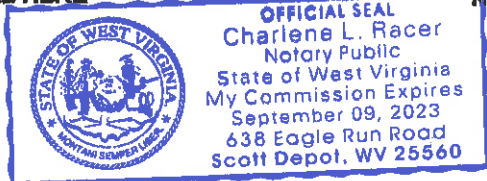
State of West Virginia

County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 17 day of October, 2017.

My Commission expires September 9, 2023.

AFFIX SEAL HERE



NOTARY PUBLIC

Charlene L. Racer

Purchasing Affidavit (Revised 07/07/2017)

West Virginia Ethics Commission

Disclosure of Interested Parties to Contracts

Contracting business entity: Potesta & Associates, Inc.

Address: 7012 MacCorkle Avenue, SE, Charleston, West Virginia 25304

Contracting business entity's authorized agent: Dana L. Burns

Address: Same

Number or title of contract: DEP1800000002

Type or description of contract: EOI: Webster County Landfill Closure Cap Design

Governmental agency awarding contract: WVDEP

Names of each Interested Party to the contract known or reasonably anticipated by the contracting business entity (attach additional pages if necessary):

1) Test Boring Services, Inc.; 2) Pace Analytical; 3) Keddal Aerial Mapping

4) Martin Engineering, PLLC

Signature: Dana L. Burns Date Signed: 10/17/17

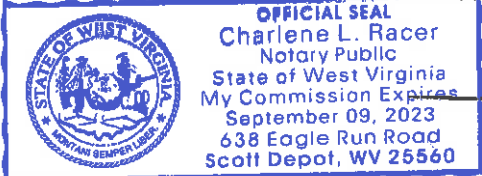
Check here if this is a Supplemental Disclosure.

Verification

State of West Virginia, County of Kanawha

I, Dana L. Burns, the authorized agent of the contracting business entity listed above, being duly sworn, acknowledges that the Disclosure herein is being made under oath and under the penalty of perjury.

Taken, sworn to and subscribed before me this 17th day of October, 2017.



Charlene L. Racer Notary Public's Signature

To be completed by State Agency:

Date Received by State Agency:

Date submitted to Ethics Commission:

Governmental agency submitting Disclosure:

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
CONSULTANT QUALIFICATION QUESTIONNAIRE**

PROJECT NAME Webster County Landfill Alandfi8ll Closure Cap Design		DATE (DAY, MONTH, YEAR) 17, October, 2017	FEIN 31-1509066	
1. FIRM NAME Potesta & Associates, Inc.		2. HOME OFFICE BUSINESS ADDRESS 7012 MacCorkle Avenue, SE Charleston, WV 25304		3. FORMER FIRM NAME Not Applicable
4. HOME OFFICE TELEPHONE (304) 342-1400	5. ESTABLISHED (YEAR) 1997	6. TYPE OWNERSHIP INDIVIDUAL, CORPORATION, PARTNERSHIP, JOINT-VENTURE Corporation	6A. WV REGISTERED DBE (DISAVANTAGED BUSINESS ENTERPRISE) YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
7. PRIMARY OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. (name particular type) PERSONNEL EACH OFFICE 7012 MacCorkle Avenue, SE, Charleston, WV 25304 / (304) 342-1400 / Dana L. Burns / 85				
8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM Ronald R. Potesta, President Dana L. Burns, Vice President		8a. NAME, TITLE, & TELEPHONE NUMBER-OTHER PRINCIPALS Not Applicable		
9. NUMBER OF PERSONNEL BY DISPLINE (Bold Lettering Indicates Minimum Design Team Members) Detailed information On Team To Be Included				
9 ADMINISTRATIVE	2 ECOLOGISTS	0 LANDSCAPE	0 STRUCTURAL	
0 ARCHITECTS	1 ECONOMISTS	ARCHITECTS	ENGINEERS	
11 BIOLOGIST	0 ELECTRICAL	1 MECHANICAL	11 SURVEYORS	
7 CADD OPERATORS	ENGINEERS	ENGINEERS		
1 CHEMICAL ENGINEERS	7 ENVIRONMENTALISTS	2 MINING ENGINEERS	12 OTHER	
18 CIVIL ENGINEERS	1 ESTIMATORS	0 PHOTOGRAMMETRISTS		
5 CONSTRUCTION	2 GEOLOGIST	0 PLANNERS:		
INSPECTORS	0 HISTORIANS	URBAN/REGIONAL	101 TOTAL	
2 DESIGNERS	1 HYDROLOGISTS	3 SANITARY ENGINEERS	PERSONNEL	
** DRAFTSMEN		4 SOILS ENGINEERS		
		1 SPECIFICATION WRITERS		
(** See CADD Operators)				
TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: <u>9</u>				
*RPEs other than Civil must provide supporting documentation that qualifies them to supervise and perform this type of work.				
10. If submittal is by joint venture, list participating firms & outline specific areas of responsibility (including administrative, technical, & financial) for each firm. Each participating firm must complete a "Consultant Confidential Qualification Questionnaire". Not Applicable				
10a. HAS THIS JOINT-VENTURE WORKED TOGETHER BEFORE?		YES	NO	

12. A. Is your firm experienced in (Solid Waste Landfill Closure Design)?

YES Description and Number of Projects:

Yes. Potesta & Associates, Inc. have completed numerous landfill closure projects. Refer to Attachment 12.A for representative examples of our previous completed projects.

NO

B. Is your firm experienced in Solid Waste landfill site characterization assessment and evaluation?

YES Description and Number of Projects:

Yes. The projects highlighted in Attachment 12.A each included site characterization assessment and evaluation. Attachment 12.B includes additional information regarding our experience.

NO

C. Is your firm experienced in landfill closure construction inspection?

YES Description and Number of Projects:

Yes. Potesta & Associates, Inc. has completed numerous landfill capping and closure projects as described in Attachment 12.C.

NO

D. Is your firm experienced in Aerial Photography and the Development of Contour Mapping?

YES Description and Number of Projects:

Yes. Potesta & Associates, Inc. routinely completes aerial mapping for our engineering and environmental projects including landfill construction and closure projects. Attachment 12.D includes additional information.

NO

E. Is your firm experienced in evaluating ground water contamination, such as may be associated with landfills?

YES Description and Number of Projects:

Yes. Refer to Attachment 12.E for information.

NO

F. Is your firm experienced in Landfill Closure cost estimating?

YES Description and Number of Projects:

Yes. Refer to Attachment 12.F for information.

NO

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project) (Furnish Complete data but keep to essentials)

NAME & TITLE (Last, first, Middle Int.) Burns, Dana L. Vice President	YEARS OR EXPERIENCE		
	YEARS OF (type) EXPEIRENCE:	YEARS OF (type) EXPEIRENCE:	YEARS OF (name type) EXPEIRENCE:
	37		

Brief Explanation of Responsibilities:
 Preparation of construction documents for landfill expansion/closures for 20 municipal solid waste landfills including permit revisions and permit negotiation. Detailed review of hydrogeology and groundwater flow regime. Management of QA/QC for landfill expansion including clay/synthetic liner system, double walled leachate tank, sedimentation pond, drainage channels and associated facilities.

 Management/design of 18 non-hazardous industrial landfill design projects involving design report, technical specifications, construction drawings, QA/QC manual, operation manual, permit application, and environmental assessment. Included meetings with state and federal regulatory agencies. Also three site selection studies. Complete geologic and hydrogeologic investigations including installation of monitoring wells.

EDUCATION (DEGREE, YEAR, SPECIALIZATION)
 MS / 1979 / Civil Engineering
 BS / 1978 / Civil Engineering
 OSHA 40-Hour HAZWOPER Certification

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS: American Society of Civil Engineers National Society of Professional Engineers WV Society of Professional Surveyors	REGISTRATION (Type, Year, State) Professional Engineer: 1985, WV; 1994, IL Professional Surveyor: 1995, WV
---	--

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (name type of design or work) (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.) Kiser, David M. Chief Engineer	YEARS OF EXPERIENCE		
	YEARS OF EXPERIENCE (name type):	YEARS OF EXPERIENCE (name type):	YEARS OF EXPERIENCE (name type):
	33 Civil Engineering, Landfill Design		

Brief Explanation of Responsibilities:
 Project manager/engineer for assessment, engineering, and permitting for the expansion of the City of Elkins Landfill.

 Project engineer/manager for capping of a 120-acre property to comply with RCRA Corrective Measures. Responsible for engineering design and construction oversight/monitoring of 110 acres of engineering caps and covers, 8,000 feet of soil-bentonite slurry wall, 2,500 feet of riverbank armoring, and a groundwater pumping and treatment system. Project construction cost was \$20 million.

 Responsible for monitoring and maintenance of a 26-acre closed industrial waste landfill in Putnam County, West Virginia. Responsibilities include mowing, cap maintenance, inspections, surface water monitoring, leachate treatment, groundwater monitoring, and reporting to the regulatory agency.

 Project manager responsible for Department of Environmental Protection's Landfill Closure Assistance Program from 1997 through 2008. Performed engineering and project management on the following projects.
 - Wyoming County Landfill quality assurance monitoring

- Fleming Sanitary Landfill closure project design
- Fleming Sanitary Landfill quality assurance monitoring
- Jackson County Landfill closure project design
- Fleming Sanitary Landfill site assessment
- Jackson County Landfill site assessment
- Fleming sewer line design
- Jackson County Landfill sewer line design
- Jackson County Landfill Closure quality assurance/quality control monitoring
- Fleming Landfill sewer quality assurance/quality control monitoring

Project Manager responsible for construction quality assurance monitoring for three landfill expansions at Brooke County Sanitary Landfill, including 6.5 acres of composite liner.

Project Manager for preparation of response action plan, construction drawings and specifications, and construction quality assurance monitoring for capping of a 3-acre area used for industrial purposes.

Project Manager responsible for construction quality assurance monitoring for 0.8-acre composite liner expansion at Wetzel County Landfill.

Project Manager/Project Engineer for design of two composite liner system expansions totaling 3 acres, design and construction quality assurance for two 2-acre final landfill caps, and design of a new access road serving Pocahontas County Landfill.

Project Manager for design and permitting of a CCB landfill including 80-acre composite liner system, two 2-acre leachate and stormwater lined ponds, lined conveyor stockpile area, pump station, 12,000 feet of 12-inch force main at Fort Martin, WV. Construction cost of first phase was \$10,000,000; construction cost of second phase was \$12,000,000.

EDUCATION (Degree, Year, Specialization)

BS / 1984 / Civil Engineering
OSHA 40-Hour HAZWOPER Certification

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

REGISTRATION (Type, Year, State)

Professional Engineer: 1990, WV;
2000, SC
Licensed Remediation Specialist: WV

13b. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE QA/QC (Furnish complete data but keep to essentials)

NAME & TITLE (last, first, middle int.)	YEARS OF EXPERIENCE		
	YEARS OF EXPERIENCE (name type):	YEARS OF EXPERIENCE (name type):	YEARS OF EXPERIENCE (name type):
Grose, Christopher A. Senior Engineering Associate I	26		

Brief Explanation of Responsibilities:

- Landfill Closure Design/Leachate Collection, Montgomery Landfill, Montgomery, WV
- Municipal Landfill Permitting and Design, North Fork Landfill, Wheeling, WV
- Municipal Landfill Permitting and Design, Sycamore Landfill, Hurricane, WV
- Closure Plan Development/Groundwater Investigation and Monitoring, AA-4 Chemical Sludge Impoundment, Willow Island
- Closure Design and Construction Management of 7-Acre Biological Sludge Pond, Pump A-3, Nitro, WV

EDUCATION (Degree, Year, Specialization)

MS / 1990 / Geological Engineering
BS / 1988 / Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

National Groundwater Association

REGISTRATION (Type, Year, State)

Licensed Remediation Specialist,
1995, WV

13c. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR HEAVY EARTH WORK CONSTRUCTION PROJECTS (Furnish complete data but keep to essentials)

NAME & TITLE (last, first, middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF EXPERIENCE (name type)	YEARS OF EXPERIENCE (name type)	YEARS OF EXPERIENCE (name type)
Smith, Jarrett M. Senior Engineer	13		

Brief Explanation of Responsibilities
 Project engineer and manager of landfill closure projects. Oversight of geotechnical exploration, waste and leachate characterization sampling. Development of phased construction design plans and specifications. Detailed review of hydrology and hydraulic calculations. Design of cap and liner systems. Review of submittal packages for compliance with Solid Waste Management Rules.

- Field Engineer – Fleming Sanitary Landfill Closure Project
- Project Engineer – South Charleston Landfill Closure Project
- Project Manager – Kingwood Landfill Closure Project

EDUCATION (Degree, Year, Specialization)

 BS / 2003 / Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
	Professional Engineer: 2007, WV

13d. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR HEAVY EARTH WORK CONSTRUCTION PROJECTS (Furnish complete data but keep to essentials)

NAME & TITLE (last, first, middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF EXPERIENCE (name type)	YEARS OF EXPERIENCE (name type)	YEARS OF EXPERIENCE (name type)
Moran, Terence C. Senior Engineer	27, Civil Engineering		

Brief Explanation of Responsibilities
 Project manager for following project:

- Part 2 permit application for S&S Landfill in Harrison County, WV.
- Construction documents and construction monitoring for Phase 1, 2, 2B and 3 expansions of the S&S Landfill.
- Construction documents for the LCAP Central Landfill project in Braxton County, WV and the LCAP Mingo County Landfill project.
- Construction documents for the leachate collection and storage facilities for the closure of the LCAP Fleming Landfill project in Kanawha County, WV.
- Construction documents for closure of the old S&S Landfill.
- NPDES permit application for a West Virginia Solid Waste Management Board landfill near Morgantown, WV.
- Estimation of remaining airspace volume at the Bayside of Marion Landfill.

EDUCATION (Degree, Year, Specialization)

 MS / 1989 / Civil Engineering
 BS / 1987 / Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
National Society of Professional Engineers American Society of Civil Engineering	Professional Engineer: 1995, WV

13e. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR HEAVY EARTH WORK CONSTRUCTION PROJECTS (Furnish complete data but keep to essentials)

NAME & TITLE (last, first, middle int.)	YEARS OF EXPERIENCE		
	YEARS OF EXPERIENCE (name type)	YEARS OF EXPERIENCE (name type)	YEARS OF EXPERIENCE (name type)
Ammirato, Robert J. Engineer	14		
<p>Brief Explanation of Responsibilities</p> <p>Project manager for the Wyoming County Leachate Force Main Project. Designed a new pump station with approximately 2,200 feet of force main and 1,400 feet of gravity main. The design allowed the existing leachate force main to remain in service during and after construction of the new leachate force main.</p> <p>Designer for the pump station and force main portions of the Kingwood Landfill Closure. Communicated with the City of Kingwood and designed the system to be compliant with existing systems and standards. The system consists of two pump stations and approximately 4,700 feet of force main and 2,100 feet of gravity main, and one stream crossing.</p>			
<p>EDUCATION (Degree, Year, Specialization)</p> <p>BS / 1999 / Mechanical Engineering OSHA 40-Hour HAZWOPER Certification</p>			
<p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS</p>		<p>REGISTRATION (Type, Year, State)</p> <p>Professional Engineer: 2009, WV</p>	

14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE THIS PROJECT (name project)
Microsoft Office (Excel, Access, Word, PowerPoint)
Corel Office 2000 (Quattro Pro, WordPerfect, Presentations)
Haestead Methods Hydraulic Software for Channel, Culvert, and Pond Design
AutoCAD 2015, Civil 3D
HELP (Hydrologic Evaluation of Landfill Performance) Computer Model
TR-55 Software for Precipitation and Hydrologic Modeling
HEC-HMS and HEC-RAS for Modeling of Watersheds and River/Stream Flows
Maptech, Terrain Navigator (Regional Topographic Mapping Database)
gINT Geotechnical/Geoenvironmental Software (Relational Database for Digital Boring Logs, Well Construction Details, Cross Sections, Etc.)
EQUIS V5.0 (Relational Database for Organization, Screening, and Presentation of Environmental Analytical Quality Data)
GMS 5.0 (Groundwater Modeling Software)
ArcView 10.2 (Geographic Information System)
Troxler Moisture-Density Testing Gage
Miscellaneous Concrete and Grout Testing Equipment
Soil Proving Ring to Determine Bearing Capacity of Soils
Digital Cameras for Photographic Documentation of Construction
Monitoring Well Sampling Equipment Including Pumps, Bailers, and Supplies
Win-Situ V.5.6.25 – Transducer Software
DUMPStat 2.1.9 – Statistical Analysis Software

15. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS THE DESIGNATED ENGINEER OF RECORD ASSOCIATED WITH OR RELATING TO LANDFILL CLOSURE OR CONSTRUCTION.

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESOPNSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
Solutia Inc. Corrective Measures Closure/Capping, Nitro, WV	Solutia Inc. 575 Maryville Centre Drive, St. Louis, MO 63141	Engineering design, environmental consulting, construction monitoring of 120-acre property.	\$20 Million	90%
City of Kingwood Landfill Closure Project, Kingwood, WV	WVDEP 601 57 th Street, SE, Charleston, WV 25304	Site assessment, design of landfill closure and construction monitoring.	\$4 Million	98% (Design) 0% (Construction Monitoring)
Armour Creek Industrial Landfill, Putnam County, WV	Solutia Inc. 575 Maryville Centre Drive, St. Louis, MO 63141	Engineering design of Leachate treatment plant.	\$600,000	10%
Pocahontas County Landfill, General Consulting, Regulatory Reporting, Etc.	Pocahontas County Solid Waste Authority 900H 10 th Avenue, Marlinton, WV 24954	Annual surveys, annual reports, groundwater monitoring, general consulting.	N/A	N/A
TOTAL NUMBER OF PROJECTS:			TOTAL ESTIMATED CONSTRUCTION COSTS:	
# <u>4</u>			\$ <u>24.6 Million</u>	

17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD (List 5 to 7)

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
Fort Martin CCB Landfill, 40-Acre Landfill Expansion, Fort Martin, Monongalia County, WV	Allegheny Energy 800 Cabin Hill Drive Greensburg, PA 15601 (724) 838-6878	\$10,000,000	2010	Yes
City of Elkins Landfill Expansion, Elkins, Randolph County, WV	City of Elkins 401 Davis Avenue Elkins, WV 26241 (304) 638-7021	\$400,000	2010	No
Big Bear Lake Landfill Closure Project, near Hazelton, WV	WVDEP 2031 Pleasant Valley Road, Fairmont, WV 26554 Paul Benedum	\$300,000	2011	Yes
Spelter Smelter Voluntary Remediation Project, Spelter, Harrison County, WV	DuPont Corporation Remediation Group 3317 Lancaster Pike Barley Mill Plaza Wilmington, DE 19805 Sathya Yalvigi (302) 892-8035	\$14,000,000	2010	Yes
South Charleston Landfill Closure Project, Kanawha County, WV	WVDEP 601 57 th Street, SE, Charleston, WV 25304	\$2.8 Million	2016	Yes

18. COMPLETED WORK WITHIN LAST 5 YEARS IN WHICH YOUR FIRM HAS BEEN A SUBCONSULTANT TO OTHER FIRMS (INDICATE PHASE OF WORK WHICH YOUR FIRM WAS RESPONSIBLE) LIST 5 TO 7.

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST OF YOUR FIRM'S PORTION	YEAR	CONSTRUCTED (YES OR NO)	FIRM ASSOCIATED WITH
None					

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the WV Department of Environmental Protection.

POTESTA's large, experienced professional staff and our successful completion of landfill closure projects for WVDEP, LCAP make us exceptionally well-qualified to perform work required for this project.

Our Expression of Interest summarizes our relevant landfill closure site characterization study, leachate management, and closure cap design experience. POTESTA's key professional staff includes nine registered professional engineers located in our primary, Charleston, West Virginia office. POTESTA will perform this project from our Charleston, West Virginia office using the same key staff members who worked on previous WVDEP, LCAP closure projects.

20. The foregoing is a statement of facts

Signature: *Dana L. Burns*
Title: Vice President

Date: October 17, 2017

Printed
Name: Dana L. Burns

ATTACHMENT 12.A

Potesta & Associates, Inc. (POTESTA) and our staff are experienced in solid waste landfill closure design. Section 3.0 of our Expression of Interest presents a list and descriptions of our landfill engineering design experience. POTESTA has successfully completed engineering services for landfill closure and capping projects, new landfill development/construction projects, expansions at existing landfills, landfill operations monitoring and related regulatory reports, and landfill construction quality assurance monitoring and certification of construction. We have presented an expanded description of a few of these projects below. Following are some examples of our firm's experience.

South Charleston Landfill Closure Plan

POTESTA was retained by the West Virginia Department of Environmental Protection (WVDEP), Landfill Closure Assistance Program (LCAP) to conduct a site assessment and develop a closure plan for the South Charleston Landfill. The landfill consisted of 6.5 acres of landfilled waste. Problems included numerous, uncontrolled leachate seeps, a stormwater and leachate combination pond, lack of surface water control devices, lack of a final landfill cap, and a substandard sewer line for conveying leachate from the landfill. A portion of the leachate pond was also constructed across the property boundary, on property owned by others.

POTESTA evaluated options for remedial measures and developed a conceptual closure plan. POTESTA then proceeded to design the closure plan and develop bid documents including drawings, technical specifications, bid form, and engineer's construction cost estimate. POTESTA developed a grading plan to relocate waste in order to minimize the landfill's footprint and the final cap acreage. This also allowed relation of the new sediment basin to avoid encroachment on the adjacent property. POTESTA designed primary and secondary leachate storage tanks, leachate collection piping systems, run-on and run-off control channels and culverts, final landfill capping system, landfill access road, sediment basin, and final revegetation of disturbed areas. POTESTA also designed a new sewer line to replace the existing, insufficient sewer.

POTESTA submitted engineering drawings, specifications, and supporting documents to the Division of Water and Waste, Solid Waste Permitting for modification of the landfills solid waste closure/national pollutant discharge elimination system (NPDES) permit.

POTESTA will provide construction quality assurance monitoring during construction of the closure and final landfill cap, and will prepare a certification of construction and final summary of construction report to document closure and capping activities.

City of Kingwood Landfill Closure Project

POTESTA was retained by WVDEP, LCAP to conduct a site assessment and develop a closure plan for the City of Kingwood Landfill. The landfill consisted of approximately 12 acres of

waste which was placed in a former surface coal mine. Problems at the landfill included uncontrolled leachate seeps, steep slopes including mine spoils, lack of run-on and run-off control measures, lack of a final landfill cap, and a lack of leachate storage and management.

POTESTA evaluated the landfill and options for remedial measures including developing a conceptual closure plan. After reviewing the plan with LCAP representatives, POTESTA proceeded with final engineering, design, and preparation of contract documents to incorporate LCAP recommendations.

The closure plan developed included a primary and secondary bolted, glass fused to steel leachate storage tank, leachate collection and conveyance piping, construction of a temporary sediment pond with spillways, landfill access roads, a new landfill cell for relocated wastes excavated for leachate control, a final landfill cap system, a sewer system to convey leachate from the landfill to the City of Kingwood sanitary sewer system, leachate pump stations, and revegetation of disturbed areas.

Solutia Inc. RCRA Corrective Measures

POTESTA was retained by Solutia Inc. to provide engineering and environmental consulting services to develop and implement corrective measures on a 120-acre property located in Nitro, West Virginia. This project included areas impacted by manufacturing, waste disposal, and wastewater treatment.

POTESTA completed extensive work characterizing the property including soil, surface water, and groundwater sampling and analysis.

POTESTA evaluated site characterization data and different remedial measures. The remedy finally selected and implemented included the following key elements.

- 2,500 linear feet of riverbank regraded and covered by a riprap armoring blanket placed over an engineering geotextile.
- 8,000 linear feet of soil-bentonite slurry wall to create a groundwater containment barrier surrounding four areas totaling approximately 22 acres. The slurry wall was 60 feet deep and 3 feet wide.
- 22 acres of impervious final cap including geotextile, 40 mil HDPE geomembrane, drainage layer composite, and 18 inches of clean soil cover.
- 24 acres of low permeability cap including geotextile, 40 mil HDPE geomembrane, and 18 inches of clean soil cover.
- 63 acres of permanent permeable cap including a geotextile marker layer and 18 inches of clean soil cover.
- Surface water run-off control system.

- Groundwater pump and treat system including nine wells, three pre-treatment units, and one final groundwater treatment plant.

The project was completed under the regulatory jurisdiction of the United States Environmental Protection Agency and WVDEP.

Fleming Sanitary Landfill Closure Plan for WVDEP

POTESTA was retained by the WVDEP to develop bid and construction documents for the Fleming Sanitary Landfill closure project located in Pocatalico, West Virginia. Our services included the design of the closure plan and the preparation of technical specifications, drawings, and related documents for the closure of the 19-acre municipal solid waste landfill.

POTESTA's closure plan included the design of a glass-lined, bolted steel leachate storage tank (primary and secondary); leachate flow metering station; leachate collection drains, piping, and related valves; a new sediment pond including principal and emergency spillways; access roads; regrading of the landfill surface and construction of a landfill toe buttress to improve slope stability of the cap; closure of an existing leachate collection pond; construction of a geosynthetic cap system including gas management geocomposite, 40-mil LLDPE geomembrane, drainage geocomposite, and 2-foot protective soil cover; passive gas venting system; and runoff/run-on control channels and culverts.

POTESTA also prepared a conceptual plan with cost estimates and analysis of pay-back period for construction of a sewer system to convey leachate from the Fleming Sanitary Landfill to the Sissonville Public Service District's sewer system. POTESTA designed and prepared bid documents for a sewer extension to connect the landfill to the Sissonville Public Service District sewer system.

POTESTA submitted engineering drawings, specifications, and supporting documents to the Division of Water and Waste, Solid Waste Permitting for modification of the landfills solid waste closure/NPDES permit.

POTESTA provided construction quality assurance monitoring during construction of the closure and final landfill cap. POTESTA prepared a certification of construction for the project and prepared a final summary of construction report to document closure and capping activities.

Jackson County Sanitary Landfill Closure Plan for WVDEP

POTESTA was retained by the WVDEP to develop bid and construction documents for the Jackson County Sanitary Landfill closure project. Our services included the design of the closure plan and the preparation of technical specifications, drawings, and related documents for the closure of the 21-acre municipal solid waste landfill.

POTESTA's closure plan included the design of a bolted stainless steel leachate storage tank (primary and secondary); leachate pump station and related high density polyethylene piping and

valves; leachate flow metering station with controls and data recorder; leachate collection underdrains; an enlarged sediment pond with principal and emergency spillways; access roadways; regrading of the existing landfill surface to result in the required maximum and minimum slopes; closure of an existing leachate collection pond; construction of a geosynthetic cap system including gas management geocomposite, 40-mil LLDPE geomembrane, drainage geocomposite, and a 2-foot protective soil cover; passive gas venting system; and run-on/runoff control channels.

POTESTA also prepared plans and specifications for a sewer line to convey flow from the landfill to the City of Ripley's sanitary sewer system.

POTESTA submitted engineering drawings, specifications, and supporting documents to the Division of Water and Waste, Solid Waste Permitting for modification of the landfills solid waste closure/NPDES permit.

POTESTA provided construction quality assurance monitoring during construction of the closure and final landfill cap. POTESTA prepared a certification of construction for the project and prepared a final summary of construction report to document closure and capping activities.

Pocahontas County Landfill Closure of Cell 1-B and Cell 2-A for PCSWA

POTESTA has served as the engineer of record for Pocahontas County Landfill since the late 1990s. Working for the Pocahontas County Solid Waste Authority (PCSWA), POTESTA prepared construction documents and provided construction monitoring for closure of two separate 2-acre municipal solid waste cells at the PCSWA's landfill near Dunmore, West Virginia. Our services included the design of the closure plan for Cells 1-B and 2-A and the preparation of construction drawings and technical specifications. The following is a list of closure items:

1. Regrading existing slopes to result in a landfill surface of three horizontal to one vertical or flatter to allow for subsequent capping.
2. Preparation of the existing landfill surface to receive the cap.
3. Construction of leachate seep collector drains on regraded areas on the slope.
4. Construction of the final cap system including a geonet composite gas management layer, flexible membrane cap, geonet composite drainage layer, 2-foot protective soil cover layer, and passive gas vents.
5. Development, operation, and reclamation of an on-site soil borrow area for soil required for construction of the cap.
6. Revegetation of disturbed area.

POTESTA submitted bid documents to the Division of Water and Waste, Solid Waste Permitting for review and approval prior to soliciting bids for the capping construction work. POTESTA conducted pre-bid meetings, issued addenda as required, reviewed and evaluated bids received by PCSWA, and assisted PCSWA with administration of the construction contracts.

Construction was completed with POTESA providing construction monitoring and a certification of construction for both projects.

Nine Cell Cap – Armour Creek Landfill for a Chemical Manufacturer

POTESA was retained by a chemical manufacturer to prepare construction drawings, technical specifications, engineer's construction cost estimates and bid forms for closure of an industrial landfill in Putnam County, West Virginia. Services included regrading of the site, railroad right-of-way permit, leachate collection, underdrain upgrade, final cap design, and drainage channel design.

Landfill Capping Project for a Chemical Manufacturer

POTESA was retained by a chemical manufacturing company to provide engineering services for the design of a synthetic capping system for a closed landfill disposal cell. POTESA initially performed a site assessment to evaluate environmental conditions at the landfill.

POTESA prepared a detailed design of the cap plan. Included were regrading of the site, construction of a leachate collection underdrain, final cap design, and drainage channel design. POTESA prepared construction drawings, technical specifications, engineer's construction cost estimates and bid documents.

Central Area Closure Plan and East Cell Berm Extension – Armour Creek Landfill for a Chemical Manufacturer

POTESA was retained by a chemical manufacturing company to provide engineering services for the Central Area Closure Plan and East Cell Berm Extension project.

POTESA prepared a detailed design of the cap and berm extension plans. Included were railroad right-of-way (ROW) permit, West Virginia Division of Highways ROW permit, regrading of the site, final cap design, leachate monitoring system design, and drainage channel design. POTESA prepared construction drawings, technical specifications, engineer's construction cost estimate and bid form.

ATTACHMENT 12.B

POTESA is experienced in solid waste landfill site characterization assessment and evaluation. A few examples follow:

South Charleston Landfill Closure Project Site Characterization

POTESA's South Charleston Landfill Closure Project included surveying of existing features and development of topographic mapping, excavated test pits to establish the edge of landfilled

wastes and information on the amount of soil cover over wastes, soil and rock borings, and leachate and surface water sampling and analysis. POTESTA also reviewed historical landfill records available from the City of South Charleston and WVDEP, completed a site reconnaissance, assessed the site's compliance with the Solid Waste Management Rule, and considered the information from the site characterization assessment in developing the conceptual closure plan.

City of Kingwood Landfill Closure Project Site Characterization Assessment

POTESTA completed a site characterization assessment for the City of Kingwood Landfill Closure Project including site reconnaissance, surveying to locate existing features, test pits to locate the edge of waste and soil cover conditions, soil borings to characterize subsurface conditions, leachate and surface water sampling and analysis, assessment of the site's compliance with the Solid Waste Management Rule, and review of historical information available regarding the facility from the WVDEP's files. This information was used to prepare a conceptual closure and capping plan for the site.

Solutia Inc. Corrective Measures

POTESTA was retained by Solutia Inc. as their engineering and environmental consultant to conduct site characterization, assessment, and engineering services to comply with Solutia's responsibilities under a RCRA corrective action permit. This effort was multi-year in duration and included subsurface exploration, installation of monitoring wells, collection and analysis of groundwater samples on a quarterly frequency, statistical analysis of groundwater sample results, surface water sampling and analysis, sediment sampling and analysis, soil sampling and analysis, and review of historical information. POTESTA analyzed site characterization data and issued reports presenting and summarizing the results. POTESTA used site characterization and assessment information to develop corrective measures to be implemented including groundwater containment, pumping and treating of groundwater, and capping and covering 110 acres of the 120-acre property. Monitoring of groundwater and surface water is continuing in order to demonstrate the effectiveness of the corrective measures.

Fleming Sanitary Landfill Site Characterization for WVDEP

POTESTA was retained by the WVDEP to complete a site characterization of the Fleming Sanitary Landfill. The site characterization included surveying, subsurface investigation including auger and rock core borings, leachate and surface water sampling, groundwater user survey including sampling of water wells, review of historical records, site reconnaissance, assessment of the sites's compliance with the Solid Waste Management Rules, and development of a conceptual closure plan.

Jackson County Sanitary Landfill Site Characterization for WVDEP

POTESTA was retained by the WVDEP to complete a site characterization for the Jackson County Landfill. The site characterization included surveying, development of topographic mapping, subsurface investigation including auger and rock core borings, leachate and surface

water sampling, groundwater user survey including sampling of water wells, review of historical records, site reconnaissance, assessment of the site's compliance with the Solid Waste Management Rules, and development of a conceptual closure plan.

Nine Cell Cap – Armour Creek Landfill for a Chemical Manufacturer

POTESTA was retained by a chemical manufacturer to perform a site characterization assessment to evaluate environmental conditions at the landfill. The site characterization included surveying, monitoring well abandonment, leachate and surface water sampling, leachate collection and discharge for treatment, review of historical records, site reconnaissance, leachate level monitoring, development of a conceptual closure plan and interface with the West Virginia Department of Environmental Protection Office of Water Resources (WVDEP-OWR).

Central Area Closure Plan and East Cell Berm Extension – Armour Creek Landfill for a Chemical Manufacturer

POTESTA was retained by a chemical manufacturer to perform a site characterization assessment to evaluate environmental conditions at the landfill. The site characterization included surveying, monitoring well abandonment, leachate level monitoring, seep delineation, design of containment berm options, review of historical records, site reconnaissance, development of a detailed closure plan, and interface with the WVDEP-OWR.

Fort Martin CCB Landfill for Allegheny Energy Supply

POTESTA was retained to complete a site assessment for a 100-acre landfill expansion. POTESTA's assessment included (1) excavation of test pits to quantify clay soils for construction of the landfill liner system, (2) laboratory analysis of soils for engineering properties, (3) soil and rock core borings to determine the geologic conditions present at the site, and (4) oversight of the drilling of new groundwater monitoring wells including development and sampling of eight new wells.

ATTACHMENT 12.C

POTESTA is experienced in landfill closure construction inspection. POTESTA's construction monitoring and QA/QC services includes soil testing, compaction testing, concrete and grout testing, destructive and non-destructive testing of geosynthetic materials, and final certification of construction when requested by the client. POTESTA will prepare a summary of construction report including test data, daily field activity logs, and as-built record drawings along with the certification. Following are a few examples of our firm's experience.

Solutia Inc. Corrective Measures

POTESTA provided construction administration and monitoring services for the installation of 110 acres of caps and covers placed as part of a RCRA Corrective Measures Project. This project required three years to complete. The main elements of the corrective measures included:

- 8,000 linear feet of soil-bentonite slurry wall. The soil-bentonite slurry wall was 60 feet deep, 3 feet wide, and 8,000 feet in length.
- Regrading, engineering geotextile, and limestone riprap placed to armor and cap 2,500 linear feet of the riverbank of the Kanawha River.
- Construction of a stormwater management run-off control system including over 1 mile of HDPE piping.
- 23 acres of impervious final cap including geotextile, 40 mil HDPE geomembrane, drainage layer composite, soil, and cap system underdrains.
- 23 acres of impervious cap including 40 mil HDPE geomembrane, geotextile, soil, and cap system underdrains.
- POTESTA provided full-time construction monitoring for construction of the above items including testing, reporting, and certifications.

Fleming Sanitary Landfill Construction Monitoring for WVDEP

POTESTA was retained by the WVDEP to provide construction monitoring for the Fleming Sanitary Landfill Closure Project. POTESTA provided a technician to monitor construction on a full-time basis. POTESTA reviewed manufacturer/supplier submittals including shop drawings for pre-cast concrete items, QA/QC test results for geosynthetic materials, and specifications for other materials incorporated in construction. POTESTA's technician observed construction of 19 acres of a geosynthetic cap including daily trial seaming and testing, destructive sample testing, and non-destructive testing of the 40-mil LLDPE geomembrane.

The project also included the construction of a new sediment pond, glass-lined bolted steel leachate storage tanks, flow metering station, access roads, drainage channels, and culverts and leachate collection underdrains.

Wyoming County Landfill Closure Construction - Quality Assurance Monitoring for WVDEP

POTESTA was retained by the WVDEP to provide construction quality assurance monitoring for the Wyoming County Landfill Closure project. POTESTA provided a technician to monitor construction on a full-time basis. POTESTA also reviewed contractor submittals for materials, quality control tests, and payment applications.

The project included regrading of the site; construction of a new sediment pond with principal and emergency spillways; construction of a 219,000-gallon glass-coated, bolted steel leachate storage tank with a secondary containment tank; construction of a leachate wet well, pump station, 3-inch force main, and gravity sewer line; construction of grout-filled fabric-lined ditches (over 2 miles in length); construction of leachate collection underdrains and construction of a Subtitle D cap.

Pocahontas County Landfill Closure of Cells 1-B and 2-A for Pocahontas County Solid Waste Authority

See Attachment 12.A for description.

Nine Cell Cap – Armour Creek Landfill for a Chemical Manufacturer

POTESTA was retained by a chemical manufacturer to provide construction quality assurance monitoring for the Nine Cell Cap project. POTESTA provided a technician to monitor construction on a full-time basis. POTESTA also reviewed contractor submittals for materials, quality control tests, and payment applications.

The project included reconstruction of a leachate collection underdrain line; regrading of the site; excavation of an anchor trench; installation of a 2.2-acre gas collection layer; installation of a 2.2-acre, 40-mil HDPE cap layer; installation of a 2.2-acre drainage layer; installation of a 2.2-acre soil cover layer; construction of a drainage diversion ditch and construction of an access road.

Central Area Closure Plan and East Cell Berm Extension – Armour Creek Landfill for a Chemical Manufacturer

POTESTA was retained by a confidential chemical manufacturing company to provide construction quality assurance monitoring for the Central Area Closure Plan and East Cell Berm Extension project. POTESTA provided a technician to monitor construction on a full-time basis, and also reviewed contractor submittals for materials, quality control tests and payment applications.

The project included construction of a leachate monitoring system; regrading of the site; excavation of an anchor trench; installation of a 5-acre gas collection layer; installation of a 5-acre, 60-mil HDPE cap layer; installation of a 5-acre drainage layer; installation of a 5-acre soil cover layer; installation of an 800-foot cut-off anchor trench; installation of an 800-foot soil containment berm; installation of drainage diversion ditches and construction of two access roads.

Construction Monitoring and Certification – Cell F-3a for Brook County Sanitary Landfill

POTESTA was retained by Brooke County Sanitary Landfill to provide construction quality assurance for the installation of the geosynthetic components of the liner system for Cell F-3a at the Brook County Sanitary Landfill.

The liner system consisted of five geosynthetic layers placed over a prepared soil subgrade. POTESTA provided a full-time construction monitor to observe placement and witness quality control testing for the construction of the new cell. Cell F-3a was approximately 2.5 acres. POTESTA reviewed QA/QC test results provided by the manufacturer, observed and documented the arrangement of panels for the geosynthetic materials, observed placement and tying of two HDPE drainage net layers for leak detection and leachate collection, observed and documented daily trial seaming and testing for 80-mil HDPE geomembrane (primary liner) and 60-mil HDPE geomembrane (secondary liner), and observed and documented destructive and nondestructive seam testing of HDPE geomembrane panel.

Construction Monitoring and Certification – Cell F-3b for Brook County Sanitary Landfill

POTESTA was retained by Brooke County Sanitary Landfill to provide construction quality assurance for the installation of the geosynthetic components of the liner system for Cell F-3b at the Brook County Sanitary Landfill.

The liner system consisted of five geosynthetic layers placed over a prepared soil subgrade. POTESTA provided a full-time construction monitor to observe placement and witness quality control testing for the construction of the new cell. Cell F-3b was approximately 1.8 acres. POTESTA reviewed QA/QC test results provided by the manufacturer, observed and documented the arrangement of panels for the geosynthetic materials, observed placement and tying of two HDPE drainage net layers for leak detection and leachate collection, observed and documented daily trial seaming and testing for 80-mil HDPE geomembrane (primary liner) and 60-mil HDPE geomembrane (secondary liner), and observed and documented destructive and nondestructive seam testing of HDPE geomembrane panel.

Construction Quality Assurance Monitoring – Fort Martin CCB Landfill Expansion

POTESTA was retained to provide construction quality assurance monitoring and certification of construction services for the Phase I construction of the Fort Martin CCB Landfill. The schedule for construction was 60 weeks. POTESTA provided a full time soils and concrete inspector to monitor grading, complete compaction testing for fill construction and provide compaction testing for the clay layer of the liner system. The inspector also monitored concrete, grout, and flowable fill pours by testing slump, air content, and making test cylinders. POTESTA provided a geosynthetic liner components inspector to provide quality control monitoring of GCL, 60 mil HDPE, and drainage composite construction. Other technicians assisted as needed during peak work times. The contractor's work force was as large as 50 persons on this \$10 million construction project. POTESTA's project manager completed interim certifications on each layer of the liner system as well as preparation of a final summary of construction report and final certification.

ATTACHMENT 12.D

POTESTA is experienced in aerial photography and development of contour mapping. POTESTA has the necessary equipment and staff to produce contour mapping. See Attachment 12.B for project examples. For this project, we anticipate using our surveyors to set and establish ground control and Keddal Aerial Mapping to produce aerial photography and mapping. We have successfully used Keddal on numerous prior projects. We believe aerial photography will be the preferred method of establishing topographic mapping. Our surveyors will complete field location and verification work necessary.

ATTACHMENT 12.E

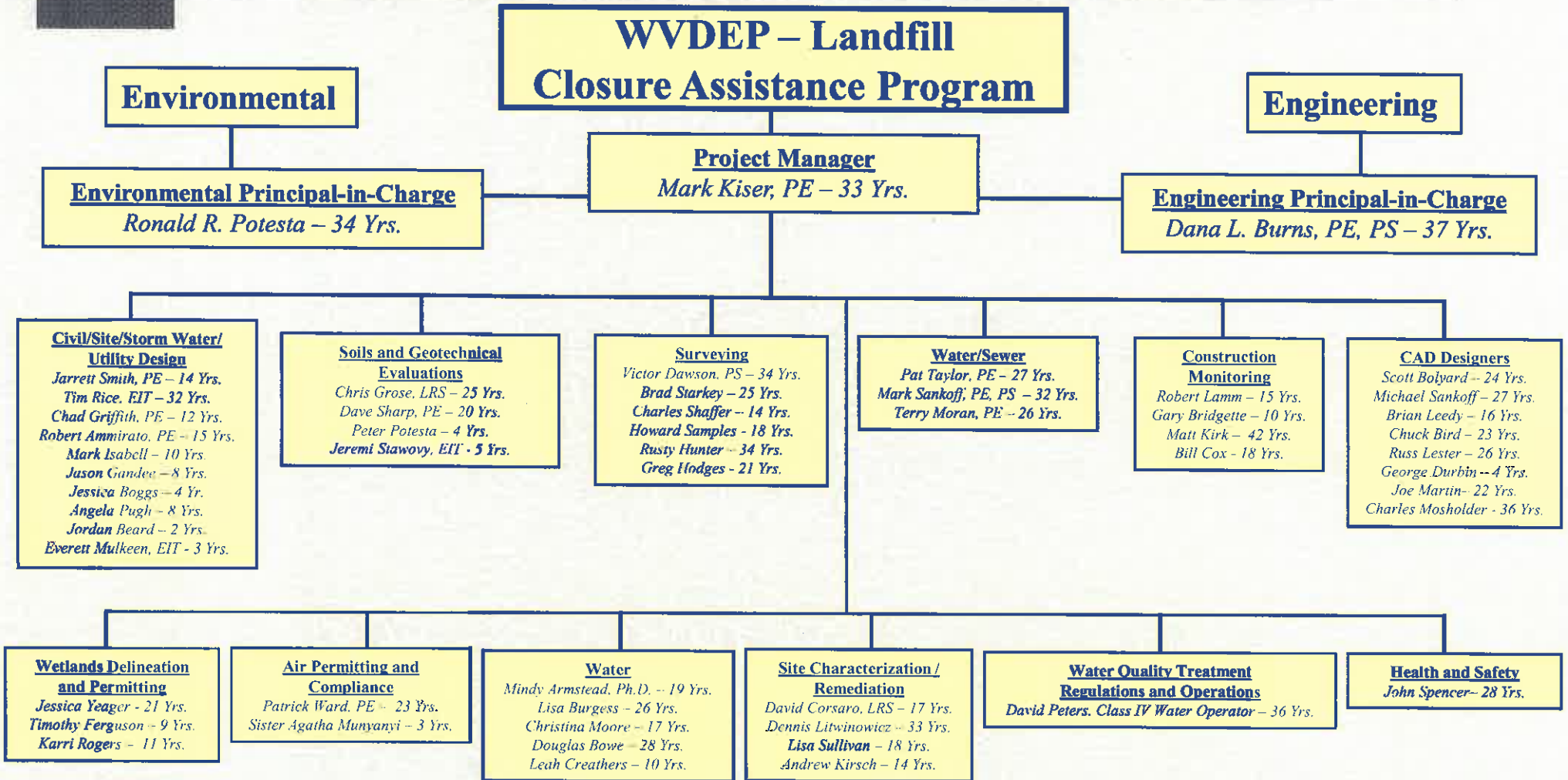
POTESTA is experienced in evaluating groundwater contamination associated with landfills. POTESTA has qualified and experienced staff to handle the evaluation of groundwater contamination. See Attachment 12.B for project examples. We complete semi-annual groundwater monitoring at Pocahontas County Landfill along with statistical analysis and reporting of results to WVDEP. POTESTA was retained by Allegheny Energy Supply to both develop and sample eight new groundwater monitoring wells at the Fort Martin CCB Landfill expansion. POTESTA routinely samples groundwater monitoring wells on several industrial, voluntary remediation, and landfill sites in West Virginia.

For this project we anticipate using BioChem Testing as our contract laboratory for analysis of groundwater samples.

ATTACHMENT 12.F

POTESTA is experienced in landfill closure cost estimating. See Attachment 12.A for project examples. POTESTA maintains a construction bid cost database for projects in West Virginia. We will also obtain historical LCAP bids to assist in preparation of accurate construction cost estimates for this project. POTESTA has prepared engineers construction cost estimates for WVDEP-LCAP projects, projects at Pocahontas County Landfill, projects in conjunction with the Fort Martin CCB Landfill, and chemical company industrial waste landfills.

TEAM MEMBERS



Public acceptance and available land for new landfills have decreased in recent years. This is evidenced by increased state and federal regulations requiring more public input and detailed technical investigations prior to regulatory approval for a new landfill or solid waste management facility.

Potesta & Associates, Inc. (POTESTA) is knowledgeable of these challenges and stands ready to assist you in overcoming them. We possess the technical expertise and the regulatory liaison ability to cost-effectively and expediently permit your facility.

Our capability to provide you with complete turnkey, investigative, engineering, environmental and regulatory services within one firm prevents important aspects of your project from being overlooked, while producing a thorough and well-organized product.

We have extensive experience with the design and permitting of a wide variety of solid waste management facilities. Members of our staff have experience with facilities in West Virginia and many surrounding states. These include municipal solid waste landfills and transfer stations; industrial waste landfills; hazardous waste landfills and other transfer, disposal and storage (TSD) facilities; coal combustion by-product (e.g., fly ash) landfills; coal refuse disposal areas; and construction demolition and debris landfills. We also have experience with bioremediation, resource recovery, composting, sludge handling and recycling facilities.

Our diverse and experienced staff includes professional civil, geotechnical, environmental, and mining engineers; geologists; hydrogeologists; biologists; economists; CADD designers; surveyors; and field technicians.

Each project is evaluated prior to commencing work to determine the disciplines and qualifications that will be required. A team is then developed from our

staff to meet your goals and needs. Our extensive solid waste management services are detailed below:



INVESTIGATIVE SERVICES

- Comprehensive Siting Studies
- Feasibility and Cost/Benefit Studies
- Geotechnical Explorations
- Hydrogeologic Evaluations
- Water Quality Evaluations
- Soil and Groundwater Contamination Evaluations
- Waste Material/Liner Compatibility Studies
- Remedial Investigations and Feasibility Studies (RI/FS)
- Waste Characterization Studies
- Wetlands Delineation and Mitigation
- Perennial Stream Determination
- Environmental Assessments
- Environmental Monitoring
- Groundwater Monitoring Well Installation, Sampling and Statistical Analyses
- Groundwater Usage Surveys
- Surface Water Monitoring
- Methane Monitoring



POTESTA & ASSOCIATES, INC.

7012 MacCorkle Avenue, SE, Charleston, West Virginia 25304
Phone: (304) 342-1400 • Fax: (304) 343-9031 • www.potesta.com
Regional Offices: Morgantown, WV and Winchester, VA

DESIGN AND PERMITTING SERVICES

- **Permitting**
 - Solid Waste Facilities (Municipal and Industrial)
 - Hazardous Waste Facilities
 - Closures
 - Modifications
 - NPDES
- **Regulatory Liaison Assistance**
- **Facility Design**
 - Erosion and Sedimentation Control
 - Surface and Subsurface Drainage
 - Borrow Area Determination
 - Access Roads
 - Liner Systems (Clay and Synthetic)
 - Capping Systems
 - Leachate Management/Treatment
 - Gas Management
 - Closure and Post-Closure
- **Remedial Design**
- **Construction Drawings and Specifications**
- **QA/QC Manuals**

CONSTRUCTION SERVICES

- **Health and Safety Plans**
- **Construction Monitoring**
- **Hazardous Waste Management**
- **Implementation of Remediation Plans**

OPERATIONAL CONSULTING

- **Site Management**
- **Recycling Programs**
- **By-Product Utilization/Marketing Studies**
- **Hazardous Waste Screening Programs**
- **Health and Safety Programs**

POTESTA's diverse staff has wide-ranging experience with solid waste facilities that allows us to efficiently look at alternatives and assist you in selecting a cost-effective solution for your situation.

If you are contemplating construction of a new landfill, expansion of your existing landfill, closure of a cell, have a potential solid waste problem, or are turning your landfill into an integrated solid waste management facility, please allow us the opportunity to meet with you.



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Potesta & Associates, Inc. (POTESTA) provides construction monitoring and construction management services to assist clients in achieving regulatory and contractual compliance, to document that contractor activities are in compliance with design requirements, and to serve as an extension of clients' staff. POTESTA can provide full-time or part-time field services utilizing one or more engineers or technicians.

Regulatory compliance is often best documented by providing full-time construction monitoring services for a construction project. POTESTA can assist clients in observation of construction activities and documenting compliance. Our typical involvement in such projects includes:

- Conducting a pre-construction review of design and contract documents to identify potential problem areas, and consultation with the owner or client to develop strategies or procedures to avoid anticipated problems.
- Assistance in contractor selection. POTESTA can recommend construction contractors who specialize in the type of work associated with the project and can assist in bid evaluation by reviewing proposed quantities, unit costs, lump sum costs, and any proposed exceptions or qualifiers for the project. POTESTA can conduct pre-bid conferences to help contractors understand project requirements. We can also conduct pre-construction conferences prior to the start of the project to help establish lines of communication, review detailed plans, discuss testing requirements and establish proper reporting procedures.

- POTESTA can provide surveying for construction layout, measurement for payment quantities, and documentation of as-built conditions. Survey results are downloaded to form computer-aided drafting (CAD) drawings allowing the efficient preparation of record drawings and any subsequent evaluations required.
- Construction monitoring can include field testing to document compliance such as field density tests, concrete testing, sampling of materials for laboratory analysis, and documentation of site conditions and work performed on a daily basis or as required.
- Preparation of summary of construction reports, including photographs, videotape documentation, test results, daily construction logs, industrial hygiene monitoring, and other documentation as may be required by the client.
- Preparation of certifications as may be required.



During the transaction of business, whether involving property transfers or the completion of environmental audits, it may be necessary to perform environmental site assessment (ESA) activities to identify actual and potential environmental liabilities and perform remediation to mitigate these liabilities. Potesta & Associates, Inc. (POTESTA) professionals have performed numerous Phase I and Phase II site assessments designed to assist clients with property assessments and are experienced with many different remediation technologies. These activities are completed in accordance with applicable environmental regulations, American Society for Testing and Materials (ASTM) guidelines and other accepted industry practices.

PHASE I: INITIAL SITE EVALUATION

The All Appropriate Inquiry (AAI) Rule (effective November 1, 2006) requires that Phase I ESAs be performed according to guidance outlined by the U.S. Environmental Protection Agency (USEPA) for the user to potentially qualify for the innocent landowner defense. POTESTA professionals conduct Phase I site assessments in accordance with ASTM Standard Number E 1527-05, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process," the standard compliant with the AAI Rule. Phase I assessments generally involve only non-intrusive methods such as deed and tax searches, review of Sanborn maps, site visits, review of regulatory files for the site and surrounding properties, and interviews with individuals knowledgeable of site history and activities.

PHASE II: SITE INVESTIGATION WITH SAMPLING

Phase II site assessments involve sampling and are generally conducted when potential contaminants or

sources of contaminants have been identified during the Phase I process. Samples may be collected from structural materials (such as asbestos sampling), containers (such as drums, tanks and transformers), soil, surface water or groundwater. A Phase II site assessment may involve placement of groundwater monitoring wells.

Soil samples are typically collected with a hand auger, rotary drill rig and split spoon sampler or a direct-push sampling rig. Groundwater samples may be collected from direct-push sample borings, temporary piezometers, or groundwater monitoring wells. Established sampling methods, preservation and decontamination procedures are strictly adhered to during sampling events. Samples are submitted to a qualified laboratory and analyzed for potential contaminants identified during the Phase I process or field observations. POTESTA professionals review the analytical results to determine if additional site assessment is necessary. Data generated during the Phase I and Phase II assessment processes are utilized to establish the nature and extent of environmental liabilities.

Phase I and Phase II activities may be combined to increase efficiency and reduce overall cost.



POTESTA & ASSOCIATES, INC.

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REMEDIATION

The presence of regulated contaminants exceeding regulatory limits may require the development of a remedial action plan. Our staff utilizes data generated during the Phase I and Phase II activities to develop cost-effective remedial alternatives based on site-specific criteria. Interaction with regulatory agencies is often vital to the success of remedial activities.



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Potesta & Associates, Inc. (POTESTA) helps clients evaluate and plan projects by completing the following types of preliminary evaluations and analyses.

- Phase I Environmental Site Assessments
- Floodplain Determination
- Geotechnical Explorations Including Soil, Bedrock, and Groundwater Characterization
- Foundation Recommendations
- Monitoring Well Systems and Site Characterization Plans
- Boundary, Topographical and Photogrammetric Surveys
- Utility Planning
- Earthwork Evaluations Including Volume Analysis
- Opinion of Probable Costs/Engineer's Construction Cost Estimates

Once the project has been determined feasible, POTESTA's design professionals complete preliminary and final designs. Frequent communication is made with the client and any other design professionals to review completed activities and obtain input for the design process. Our goal is to provide our services to achieve or exceed our clients' expectations.

Our design services include:

- Erosion and Sediment Control Plans
- Earth Retaining Structures Design
- Geometric Site Layout
- Grading and Drainage Plans, Including Excavation and Fill Optimization
- Access Road Design
- Hydraulic Structure Design
- Water and Sewer Design
- Slope Stability Analysis
- Subsurface Drainage System Design
- Construction Drawings, Specifications and Contract Document Preparation

POTESTA offers experienced environmental engineers and scientists to prepare applications for various environmental permits that may be required. These services include:

- Stormwater Management Permit/Erosion and Sediment Control Plans
- Office of Air Quality Permit to Construct
- Wetland Delineation and Permits
- National Pollutant Discharge Elimination System (NPDES) Permits
- Floodplain Management Permits
- Groundwater Protection Plans
- Spill Prevention, Control and Countermeasure Plans
- Environmental Site Assessments
- Environmental Impact Statements

POTESTA routinely provides professional services throughout construction of our projects. These services include survey layout, construction management, construction monitoring, record drawing preparation, and bid evaluation assistance.



Our surveyors are experienced in many aspects of surveying such as topographic mapping, boundary surveys (rural/farms, city lots, and subdivisions), ALTA surveys, control surveys, flood certificate surveys, well location surveys, construction surveys for layout of work, record drawings, and quantity measurements. Related areas include courthouse research, preparation of right-of-way plans, and verification of property owners. Potesta & Associates, Inc. (POTESTA) has licensed professional surveyors registered in West Virginia, North Carolina, South Carolina, Ohio, Virginia, and Pennsylvania. Their total combined surveying experience comes to well over 50 years.

POTESTA's surveyors use state-of-the-art equipment such as Topcon total stations, Trimble R-8 GNSS, and SMI data collectors with SMI software. Autodesk Civil 3D reduction and design software is used.

POTESTA is equipped with modern surveying instruments, allowing efficient data processing and accurate gathering of field information. Total station instruments equipped with data collectors are utilized for complete field-to-office automation allowing for high levels of productivity in the field. The latest versions of software are then used to process survey data and create drawings or required end products. These products can be supplied to our clients in AutoCAD and/or Microstation format.

Small topographic mapping projects can be completed in-house using the aforementioned process. Larger projects are better suited for mapping using aerial photography.

POTESTA can provide the necessary surveying required for establishing ground control for aerial mapping. As a quality control measure, aerial mapping is field checked for accuracy by surveying cross sections or random points.



Surveys completed by POTESTA are performed by or under the direction of a professional licensed surveyor. Surveys and mapping are completed to the standards outlined by the National Map Standards, as well as other applicable quality standards.

Our staff is experienced in global positioning surveys (GPS). GPS equipment, Trimble R-8 GNSS, and existing base stations are among POTESTA's surveying tools. Based upon the site location and ultimate use of the survey information, a recommendation is made to the client as to whether or not traditional survey or GPS is most applicable to their project.



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WYOMING COUNTY LANDFILL CLOSURE CONSTRUCTION QUALITY ASSURANCE MONITORING

*West Virginia Department of Environmental Protection
Pineville, West Virginia*

Potesta & Associates, Inc. (POTESTA) was retained by the West Virginia Department of Environmental Protection to provide construction quality assurance monitoring for the Wyoming County Landfill Closure Project. POTESTA provided a technician to monitor construction on a full-time basis. POTESTA also reviewed contractor submittals for materials, quality control tests, and payment applications.

The project included regrading of the site; construction of a new sediment pond with principal and emergency spillways; construction of a 219,000-gallon, glass-coated, bolted steel leachate storage tank with a secondary containment tank; construction of a leachate wet well, pump station, 3-inch force main, and gravity sewer line; construction of grout-filled fabric-lined ditches (over 2 miles in length); construction of leachate collection underdrains and construction of a Subtitle D cap.

POTESTA prepared a final summary report and certification of construction.



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Project Abstract

FLEMING SANITARY LANDFILL CLOSURE PLAN

West Virginia Department of Environmental Protection

Sissonville, West Virginia



Construction of the cap system was completed in phases. A buttress was constructed over the face of the landfill to flatten slopes to 4 horizontal to 1 vertical to improve stability of the cap.

Potesta & Associates, Inc. (POTESTA) was retained by the West Virginia Department of Environmental Protection, 1356 Hansford Street, Charleston, West Virginia 25301, (304) 558-6350, to develop bid and construction documents for the Fleming Sanitary Landfill closure project located in Pocatalico, West Virginia. POTESTA developed technical specifications, drawings, and related documents for the closure of the 19-acre municipal solid waste landfill.

POTESTA prepared the closure plan for the landfill including construction of a glass-lined,

bolted steel leachate storage tank (primary and secondary tanks); leachate flow metering station; leachate collection drains, piping, and related valves; a new sediment pond including principal and emergency spillways; access roads; regrading of the landfill surface and construction of a landfill toe buttress to improve slope stability of the cap; closure of an existing leachate collection pond; construction of a geosynthetic cap system including gas management geocomposite, 40-mil LLDPE geomembrane, drainage geocomposite, and 2-foot protective soil cover; passive gas venting system; and runoff/run-on control channels and culverts.

POTESTA also prepared a conceptual plan with cost estimates and analysis of pay-back period for construction of a sewer system to convey leachate from the Fleming Sanitary Landfill to the Charleston Sanitary Board's sewer system.

POTESTA completed permit applications to allow construction of the project to proceed.



The project included construction of a 19-acre geosynthetic cap system.

POTESTA & ASSOCIATES, INC.

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Project Abstract

FLEMING SANITARY LANDFILL CONSTRUCTION MONITORING

West Virginia Department of Environmental Protection

Sissonville, West Virginia

Potesta & Associates, Inc. (POTESTA) was retained by the West Virginia Division of Environmental Protection (WVDEP), 1356 Hansford Street, Charleston, West Virginia 25301, (304) 558-6350, to provide construction monitoring for the Fleming Sanitary Landfill Closure Project. POTESTA provided a technician to monitor construction on a full-time basis. POTESTA reviewed manufacturer/supplier submittals including shop drawings for pre-cast



The project included construction of 19 acres of a geosynthetic cap system.

concrete items, quality assurance/quality control test results for geosynthetic materials, and specifications for other materials incorporated into construction. POTESTA's technician observed construction of 19 acres of a geosynthetic cap including daily trial seaming and testing, destructive sample testing, and non-destructive testing of the 40-mil LLDPE geomembrane.



The emergency spillway from the sediment pond drains to a riprap-lined channel and through a box culvert.

The project also included construction of a new sediment pond, glass-lined bolted steel leachate storage tanks, flow metering station, access roads, drainage channels and culverts, and leachate collection underdrains.

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Project Abstract

FLEMING SANITARY LANDFILL SITE CHARACTERIZATION

West Virginia Department of Environmental Protection

Sissonville, West Virginia

Potesta & Associates, Inc. (POTESTA) was retained by the West Virginia Division of Environmental Protection (WVDEP) to complete a site characterization for the Fleming Sanitary Landfill. The site characterization included surveying; subsurface investigation including auger and rock core borings; leachate and surface water sampling; groundwater user survey including sampling of water wells; review of historical records; site reconnaissance; assessment of the site's compliance with the Solid Waste Management Rules; and development of a conceptual closure plan.



Portions of the landfill were steeply sloped which presented a challenge in designing the geosynthetic cap system.

POTESTA completed surveying to edit existing historical topographic mapping to reflect earthwork completed after the mapping was developed. POTESTA also located test pits, borings, leachate seeps, existing structures, and the property boundaries of the landfill property.

Water sampling included establishment of upstream and downstream monitoring points, sample acquisition, and analysis to evaluate the landfill's impact upon receiving streams. POTESTA also obtained and analyzed leachate samples from numerous locations in order to evaluate and select appropriate leachate management strategies.



Prior to capping, the landfill area was poorly vegetated and experienced much erosion.

POTESTA performed a groundwater user survey for residents utilizing private water supplies within a 1-mile radius of the landfill. POTESTA selected ten representative residents to include in the survey, conducted interviews with these ten residents, sampled wells/springs, analyzed results, and prepared a report to assess impacts of the landfill on the private water supplies.

POTESTA excavated test pits on and around the landfill to determine soil cover thickness, to locate the edge of solid waste, and to evaluate potential soil borrow areas. Soil borrow area samples were tested for Standard Proctor, Atterberg limits, grain size, permeability, pH, and nutrients.

POTESTA completed a subsurface investigation including auger borings and rock coring to evaluate subsurface conditions at the landfill. POTESTA developed a conceptual closure plan for the site including upgrades of the existing sediment ponds, run-on and run-off control channels, leachate collection underdrains, proposed 200,000-gallon leachate storage tank, access roads, final cap and cover, and a sewer line to convey leachate to the Guthrie Public Service District wastewater treatment system.

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Project Abstract

JACKSON COUNTY SANITARY LANDFILL CLOSURE PLAN

West Virginia Department of Environmental Protection

Jackson County, West Virginia

Potesta & Associates, Inc. (POTESTA) was retained by the West Virginia Department of Environmental Protection, 1356 Hansford Street, Charleston, West Virginia 25301, (304) 558-6350, to develop bid and construction documents for the Jackson County Sanitary Landfill closure project. POTESTA developed technical specifications, drawings, and related documents for the closure of the 21-acre municipal solid waste landfill.

POTESTA prepared the closure plan for the landfill including a bolted stainless steel leachate storage tank (primary and secondary tanks); leachate pump station and related high density polyethylene piping and valves; leachate flow metering station with controls and data recorder; leachate collection underdrains; an enlarged sediment pond with principal and emergency spillways; access roadways; regrading of the existing landfill surface to result in the required maximum and minimum slopes; closure of an existing leachate collection pond; construction of a geosynthetic cap system including gas management geocomposite, 40-mil LLDPE geomembrane, drainage geocomposite, and a 2-foot protective soil cover; passive gas venting system; and run-on/runoff control channels.

POTESTA also prepared plans and specifications for a sewer line to convey flow from the landfill to the City of Ripley's sanitary sewer system.

POTESTA prepared the necessary permit applications to allow the project to proceed, and prepared an engineer's construction cost estimate for the project.

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Project Abstract

JACKSON COUNTY SANITARY LANDFILL SITE CHARACTERIZATION

West Virginia Department of Environmental Protection

Jackson County, West Virginia

Potesta & Associates, Inc. (POTESTA) was retained by the West Virginia Division of Environmental Protection (WVDEP), 1356 Hansford Street, Charleston, West Virginia 25301, (304) 558-6350, to complete a site characterization for the Jackson County Landfill. The site characterization included surveying; development of topographic mapping; subsurface investigation including auger and rock core borings; leachate and surface water sampling; groundwater user survey including sampling of water wells; review of historical records; site reconnaissance; assessment of the site's compliance with the Solid Waste Management Rules; and development of a conceptual closure plan.

POTESTA provided surveying to establish ground control for aerial mapping, and to locate test pits, borings, leachate seeps, and existing features. POTESTA also located property boundaries since some problem areas were in close proximity to the property line. POTESTA developed topographic mapping from aerial photography for approximately 110 acres.

Water sampling included surface water samples to evaluate the landfill's impact on the receiving stream. POTESTA also obtained and analyzed samples of leachate in order to evaluate leachate treatment options and requirements.

POTESTA completed a groundwater user survey for residents utilizing private water supplies within 1-mile of the landfill. POTESTA selected ten representative residents to include in the survey, conducted interviews with these ten residents, sampled wells/springs, analyzed results, and prepared a report to assess impacts of the landfill on the private water supplies.

POTESTA excavated test pits on and around the landfill to determine soil cover thickness, to locate the edge of solid waste, and to evaluate potential soil borrow areas. Soil borrow area samples were tested for Standard Proctor, Atterberg limits, grain size, permeability, pH, and nutrients. POTESTA also completed a subsurface investigation including auger borings and rock coring to evaluate subsurface conditions at the landfill.

POTESTA developed a conceptual closure plan for the site, including upgrades of the existing sediment ponds, run-on and run-off control channels, leachate collection underdrains, proposed leachate storage tank, access roads, final cap and cover, and a sewer line to convey leachate to the Ripley wastewater treatment system.

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Project Abstract

POCAHONTAS COUNTY LANDFILL CELL 3-A EXPANSION

Pocahontas County Solid Waste Authority

Dunmore, West Virginia

Potesta & Associates, Inc. (POTESTA) was retained by the Pocahontas County Solid Waste Authority (PCSWA) to prepare construction documents and provide construction monitoring for construction of a new 1.25-acre solid waste cell at the PCSWA's landfill near Dunmore, West Virginia. To complete this project, POTESTA designed the landfill expansion for Cell 3-A, including:

- Design of subgrade elevations of the liner system to balance available airspace versus excavation to obtain the required base slope and berms along the edges of the liner;
- Design of leachate detection and collection pipes and aggregate bedding;
- Design of the leachate collection system utilizing geosynthetic layers where possible to result in savings.



POTESTA also prepared construction/bid documents and assisted PCSWA in the bidding, bid evaluation, and contract award/administration. POTESTA prepared instructions to bidders, construction drawings, specifications, and contractor's bid form. POTESTA attended the mandatory on-site pre-bid meeting and provided an overview of the project and responded to questions raised by the bidders.

POTESTA evaluated bids and made recommendations to PCSWA on execution of a construction contract. POTESTA provided full-time construction observation during earthwork and construction of the subbase, leak detection zone, 24-inch clay liner, 60-mil HDPE geomembrane, leachate collection system, and protective cover layers. POTESTA prepared certifications for each layer required by the WV Department of Environmental Protection.

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Project Abstract

POCAHONTAS COUNTY LANDFILL CLOSURE OF CELL 1-B

Pocahontas County Solid Waste Authority

Dunmore, West Virginia

Potesta & Associates, Inc. (POTESTA) was retained by the Pocahontas County Solid Waste Authority (PCSWA) to prepare construction documents and provide construction monitoring for closure of an approximate 2-acre municipal solid waste cell at the PCSWA's landfill near Dunmore, West Virginia. To complete this project, POTESTA designed the closure plan for Cell 1-B and prepared construction documents (i.e., drawings and specifications) including the following closure items.



Cell 1-B slope covered with geosynthetic cap prior to placing the final soil cover layer.

1. Regrading existing slopes to result in a landfill surface of three horizontal to one vertical or flatter to allow for subsequent capping.
2. Preparation of the existing landfill surface to receive the cap.
3. Construction of leachate seep collector drains on regraded areas on the slope.
4. Construction of the final cap system including a geonet composite gas management layer, flexible membrane cap, geonet composite drainage layer, 2-foot protective soil cover layer, and passive gas vents.
5. Development, operation, and reclamation of an on-site soil borrow area for soil required for construction of the cap.
6. Revegetation of disturbed areas.



A bulldozer was used to place the 2-foot thick final soil cover layer working from the bottom of the slope to the top.

Construction was completed with POTESTA providing construction monitoring and a certification of construction.

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