



ATTACHMENT I – General Qualifications
**ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729**

STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007

(If a firm has branch offices, complete for each specific branch office seeking work.)

1. **Annual Request for Qualifications**

a. FIRM (OR BRANCH OFFICE) NAME:	Brown and Caldwell
b. FIRM (OR BRANCH OFFICE) STREET:	201 East Washington Street, Suite 500
c. FIRM (OR BRANCH OFFICE) CITY:	Phoenix
d. FIRM (OR BRANCH OFFICE) STATE:	Arizona
e. FIRM (OR BRANCH OFFICE) ZIP CODE:	85004
f. YEAR ESTABLISHED:	1982
(g1). OWNERSHIP - TYPE:	Corporation
(g2) OWNERSHIP - SMALL BUSINESS STATUS:	Not Applicable
h. POINT OF CONTACT NAME AND TITLE:	Larry Williams, RG
i. POINT OF CONTACT TELEPHONE NUMBER:	602-567-3822
j. POINT OF CONTACT E-MAIL ADDRESS:	lwilliams@brwncald.com
k. NAME OF FIRM (If block 1a is a branch office):	Brown and Caldwell



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2. EMPLOYEES BY DISCIPLINE

a. Discipline Title	b. Function: Primary (P) or Secondary (S)	c. No. of Employees - Firm	d. No. of Employees - Branch
Chemical Engineer	P	17	1
Civil Engineer	P	440	14
Electrical Engineer	P	33	2
Environmental Engineer	P	205	10
Geologist	P	102	9
Technician/Analyst	P	39	2
Structural Engineer	P	25	0
Sanitary Engineer	P	16	1
Mechanical Engineer	P	28	1
Mining Engineer	P	15	4
Architect	P	1	0
Other	P	557	41
Total		1,478	85



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3. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST YEAR

a. Approximate No. of Projects	b. Experience	c. Revenue Index Number (see below)
10	Automation; Controls; Instrumentation	7
23	Construction Management	8
15	Cost Estimating; Cost Engineering & Analysis	4
2	Desalinization (Process and Facilities)	4
30	Electrical Studies and Design	5
178	Environmental Impact Studies, Assessments	8
1	Heating, Ventilating, Air Conditioning	3
37	Industrial Waste Treatment	6
109	Infrastructure	7
32	Mining and Mineralogy	6
87	Sewage Collection, Treatment and Disposal	6
72	Solid Waste; Incineration; Landfill	6
16	Structural Design; Special Structures	4
103	Storm Water Handling and Facilities	5
12	Toxicology	3
106	Water Resources; Hydrology; Groundwater	6

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

- | | |
|--|--|
| <ul style="list-style-type: none"> 1. Less than \$100,000 2. \$100,000 to less than \$250,000 3. \$250,000 to less than \$500,000 4. \$500,000 to less than \$1 million 5. \$1 million to less than \$2 million | <ul style="list-style-type: none"> 6. \$2 million to less than \$5 million 7. \$5 million to less than \$10 million 8. \$10 million to less than \$25 million 9. \$25 million to less than \$50 million 10. \$50 million or greater |
|--|--|



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4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section 4 for each key person.)*

a. NAME Angela Balliet, PE	b. ROLE IN THIS CONTRACT Project Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 16	2. WITH CURRENT FIRM 16
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Phoenix, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> MS, Environmental Engineering, University of Arizona, 1995 BS, Civil Engineering, University of Arizona, 1993		f. PROFESSIONAL TRAINING - REGISTRATIONS Arizona, Professional Environmental Engineer, #37337 New Mexico, Professional Environmental Engineer, #17130	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> 40-Hour OSHA HAZWOPER, 1998; 8-Hour OSHA HAZWOPER Refresher, 2010; 8-Hour OSHA HAZWOPER Manager/Supervisor, 2003; 8-Hour MSHA, 2010			

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Facility Pollution Prevention Plans (FPPPs), ADOT Environmental Services, Various Locations, Arizona	2013	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager. Developed templates for a combined SWPPP and SPCC Plan for ADOT maintenance yards and other sites; three templates were developed, to reflect the variety of ADOT sites around the state. The resulting FPPP is a more concise and usable plan, which makes it easier and more practical for ADOT employees to comply with both sets of regulations, and eliminates duplication of activities. Ms. Balliet directed preparation of FPPPs for approximately 90 maintenance yards and other sites throughout the state using the three templates; this included coordination and oversight of several teams in conducting the field work and preparing draft documents. Ms. Balliet provided final technical review and certified all 90 Plans. Consultant Fee: \$997,000	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	Environmental Research and Environmental Policy Drafting Assistance, ADOT Environmental Services, Various Locations, Arizona	2013	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Technical Resource. Assisted OES with researching information on environmental practices and policies in the other 49 states; compiled this information into a searchable database that was then uploaded into ADOT's system. BC then incorporated this information to assist OES in preparing draft environmental policies for 18 topics. For each topic, BC coordinated and conducted meetings with various stakeholders to obtain input and feedback on the draft policies, and then prepared several iterations of drafts for review and comment by OES, before providing final draft versions of the policies. Consultant Fee: \$336,000	<input checked="" type="checkbox"/>	Check if project performed with current firm



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a. NAME Barbara Sylvester, PE	b. ROLE IN THIS CONTRACT Project Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 17	2. WITH CURRENT FIRM 19
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Phoenix, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> MS, Civil (Environmental) Engineering, Texas A&M, 1994 BA, Physics, Reed College, 1989		f. PROFESSIONAL TRAINING - REGISTRATIONS Arizona, Environmental Engineer, #40268	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> 40-Hour OSHA HAZWOPER, 1995; 8-Hour OSHA HAZWOPER Refresher, 2010; 8-Hour OSHA HAZWOPER Manager/Supervisor, 1998; 8-Hour MSHA, 2010			

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Landfill Groundwater, Leachate, and Soil Monitoring, Waste Management, Various Location, Arizona		
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager. Managed routine monitoring for eight landfills in Arizona including groundwater, leachate, soil vapor, and soil sampling. Responsible for reviewing results against standards, performing DUMPStat statistical analysis and drafting all notifications to ADEQ. Performed related additional work such as pump replacement, gas probe and well installations and abandonments. Extensive negotiations with regulators to standardize analytical and reporting requirement and maintain site to site consistency. This is a yearly project. Consultant Fee: \$120,000-\$150,000 annually	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	Aquifer Protection Permit (APP), Waste Management, Phoenix, Arizona	2013	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager. Permitted new evaporation ponds at two different sites. Negotiated permit language and requirements. Consultant Fee: \$40,000	<input checked="" type="checkbox"/>	Check if project performed with current firm



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4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section 4 for each key person.)*

a. NAME Jarrell Southall	b. ROLE IN THIS CONTRACT Technical Advisor	c. YEARS EXPERIENCE	
		1. TOTAL 42	2. WITH CURRENT FIRM 19
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Phoenix, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS, Mathematics/Chemistry, Henderson State University, 1963		f. PROFESSIONAL TRAINING - REGISTRATIONS	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> OSHA 40-Hour HAZWOPER, 1995; OSHA 8-Hour HAZWOPER Refresher, 2010; 8-Hour OSHA HAZWOPER Manager/Supervisor, 1998; 8-Hour MSHA, 2010			

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Florence Copper Project , Florence, Arizona	2013	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Technical Advisor. BC managed project to obtain APP and UIC Permit for installation and operation of approximately 2,500 injection and recovery wells and SX/EW facility. Subsequently served as technical advisor for the transfer of permits (under temporary cessation) to new owner and for preparation of new applications. Consultant Fee: \$2M+	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	BHP Copper - Northwest Study Area, Soil Remediation, Superior, Arizona	2013	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Technical Advisor. BC Served as technical advisor for preparation of BHP Copper's VRP application and for preparation of plans for soil characterization of approximately 130 NSA properties, for area-wide and property-specific human health risk assessments for arsenic, and for the replacement of soils exceeding action levels. Consultant Fee: \$1M+	<input checked="" type="checkbox"/>	Check if project performed with current firm



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a. NAME Lauren Handley, RG	b. ROLE IN THIS CONTRACT Geologist	c. YEARS EXPERIENCE	
		1. TOTAL 7	2. WITH CURRENT FIRM 3
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Phoenix, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS, Geological Sciences, Arizona State University, 2007		f. PROFESSIONAL TRAINING - REGISTRATIONS Arizona, Registered Geologist, #54329	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i>			

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Groundwater Investigation, Cyprus Tohono Corporation, Tohono Nation, Arizona	2013	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Hydrogeologist. Project was a long-term groundwater monitoring program at an inactive copper mine in southern Arizona. Responsibilities include coordination of field sampling equipment and oversight of field sampling teams during quarterly monitoring of over 75 wells, mine shafts, exploration boreholes, and the pit lake; coordination with the analytical laboratories; data review and validation; groundwater monitoring report preparation; assisting with the development and ensuring strict adherence to the health and safety plan, investigation-derived waste management plan, field sampling plan, and quality assurance project plan. Consultant Fee: \$300,000	<input type="checkbox"/>	Check if project performed with current firm
2.	Groundwater Monitoring, IMSAMET of Arizona, Goodyear, Arizona	2013	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Hydrogeologist. Aquifer protection permit monitoring at a metal recycling plant in Goodyear, Arizona. Primary responsibilities include managing quarterly sampling activities, manage and analyze groundwater data, and preparation of quarterly reports. Consultant Fee: \$13,000	<input checked="" type="checkbox"/>	Check if project performed with current firm



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a. NAME Thayne Loendorf	b. ROLE IN THIS CONTRACT Construction Manager	c. YEARS EXPERIENCE	
		1. TOTAL 31	2. WITH CURRENT FIRM 24
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Phoenix, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> AS, Water/ Wastewater Technology, Clackamas Community College; AS, Turf; Management/Soils, University of Maryland		f. PROFESSIONAL TRAINING - REGISTRATIONS	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i>			

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	2013 Sewer Rehabilitation Phase II, Reno, Nevada	2013	2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager. Responsible for the analysis, design, and construction management for 44,000 lf of 8- to 72-inch sewer pipeline rehabilitation. Rehabilitation methods were determined as the assessment was completed and bid documents were prepared for seventeen separate project areas. Design effort included coordination with several other contractors with projects in the same locations and property owners for pipeline across easements on private property. Consultant Fee: \$1.5M	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	2012 Sewer Rehabilitation, Reno, Nevada	2013	2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager. Responsible for the analysis, design, and construction management for 31,000 lf of 8- to 36-inch sewer pipeline rehabilitation. Rehabilitation methods were determined as the assessment was completed and bid documents were prepared for twenty separate project areas. Design effort included coordination with airport personnel for rehabilitation of pipeline located beneath one of the airport runways. Consultant Fee: \$841,000	<input checked="" type="checkbox"/>	Check if project performed with current firm



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a. NAME Brandon McLean, RG	b. ROLE IN THIS CONTRACT Geologist	c. YEARS EXPERIENCE	
		1. TOTAL 7	2. WITH CURRENT FIRM 3
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Phoenix, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> MS, Geological Sciences, Arizona State University, 2007 BS, Geological Sciences, SUNY Binghamton, 2004		f. PROFESSIONAL TRAINING - REGISTRATIONS Registered Geologist: Arizona, No. 53079	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i>			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> 16th Street and Camelback Road WQARF Site, ADEQ, Phoenix, Arizona	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Hydrogeologist II. This project consists of monitoring two groundwater contaminant plumes, the north plume of PCE from a former dry cleaner and the south plume of 1, 2-DCA from former service stations. Mr. McLean acts as the project hydrogeologist and assists with groundwater monitoring of water levels and sampling using passive diffusion bags. Mr. McLean documents the field work and interprets results in technical reports to the State agency. Project is on-going. Consultant Fee: \$91,000	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	(1) TITLE AND LOCATION <i>(City and State)</i> Former Fedmart, ADEQ, Phoenix, Arizona	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Hydrogeologist II. This project consists of the site characterization and remediation of petroleum contaminated soil and groundwater at a former service station. Mr. McLean supported the project manager in the field by assisting with the initial groundwater sampling event and performed drilling oversight and lithologic logging during the installation of 10 nested soil vapor extraction (SVE)/air sparge (AS) wells. He also performed oversight during the installation of the remediation system which integrated each of the nested wells. Project is on-going. Consultant Fee: \$102,108	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	(1) TITLE AND LOCATION <i>(City and State)</i> Andrews' Property, ADEQ, San Simon, Arizona	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Hydrogeologist II. This project consists of the site characterization and remediation of soil and groundwater contamination at a former gasoline station where four USTs were removed in 1999. Mr. McLean supported the project manager in the field by performing oversight and lithologic logging during the drilling and installation of eight nested soil vapor extraction (SVE)/air sparge (AS) wells. Mr. McLean also assisted on the project after two additional USTs were removed by performing oversight and lithologic logging during the drilling and installation of three monitor wells with soil sampling for chemical analysis at one monitor well and at three shallow soil borings related to the tank investigation. Project is on-going. Consultant Fee: \$354,302	<input checked="" type="checkbox"/>	Check if project performed with current firm



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a. NAME Tim Miller, CRS	b. ROLE IN THIS CONTRACT Scientist	c. YEARS EXPERIENCE	
		1. TOTAL 20	2. WITH CURRENT FIRM 1
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Phoenix, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS, Northern Arizona University, Forest Land Management, 1993		f. PROFESSIONAL TRAINING - REGISTRATIONS Arizona, Certified Remediation Specialist, #47780	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i>			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> La Estancia de Tucson, Tucson, Arizona	(2) YEAR COMPLETED	
		Professional Services 2012	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager. The Site consists of 500 acres of desert land located in southeast Tucson, Arizona. Limited historical residential development existed on the site; although, the environmental concerns were associated with an adjoining industrial facility. The Site received discharges from the adjoining industrial facility, which was a hazardous waste treatment and storage facility, for approximately 30 years. The result of these discharges was heavy metal contamination in the site surface soils. Consultant Fee: \$200,000	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	(1) TITLE AND LOCATION <i>(City and State)</i> Orchid Tree Apartment, Scottsdale, Arizona	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager. The site consisted of an abandoned apartment complex situated on 20 acres and developed with 27 structures and over 300 dwelling units. The scope of work was a comprehensive Asbestos and Lead-based Paint Inspection. Tim Miller was the Project Manager on of the Site and was responsible for coordinating inspection and reporting efforts. The site was anticipated for full demolition and redevelopment as a multi-use commercial and residential development known as Sonoran Village. Consultant Fee: \$70,000	<input checked="" type="checkbox"/>	Check if project performed with current firm



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a. NAME Tracy Moraca, PE, PMP	b. ROLE IN THIS CONTRACT Project Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 19	2. WITH CURRENT FIRM 16
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Phoenix, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS, Environmental Engineering, Northern Arizona University, 1996		f. PROFESSIONAL TRAINING - REGISTRATIONS Arizona, Professional Environmental Engineer, #35199; Arizona Professional Civil Engineer, #48993; Project Management Professional, #1444623	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i>			

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Kingman Downtown Wastewater Treatment Plant Management Plan, Kingman, Arizona	2012	2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <small>Project Manager. Studied alternatives to managing the wastewater currently being treated at the City of Kingman Downtown Wastewater Treatment Plant (WWTP). The WWTP process consists of two aerated lagoons, is not meeting effluent quality limits established in the current discharge permit, and lies within a 100-year floodplain. The project determined how and if there was a course of action to bring the WWTP into compliance. If not, an alternate solution will be found to make modifications to the collection system to route the wastewater currently being discharged into the WWTP to another treatment location. The decisions made were documented in a Management Plan for the downtown wastewater service area. Consultant Fee: \$496,800</small>	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	Phoenix International Raceway (PIR) Lift Station, Avondale, Arizona	2012	2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <small>Project Manager. Phoenix International Raceway (PIR) had an existing septic system that serviced the property, and twice a year holds large racing events that produce high sewer flows exceeding the capacity of the septic system, requiring alternative disposal methods. The City constructed a new lift station to be used during these race events in lieu of the septic system and other disposal methods. BC was contracted for the evaluation of alternatives, preliminary design, and detailed design for the new lift station. BC completed a Technical Memorandum that described the expected peak flows to be handled by the new lift station, use of the existing PIR septic system for other flows, the forcemain size and capacity, and conceptual level wetwell sizing and pump selection for this new lift station. A single forcemain was installed with a contingency plan developed in case of an emergency. BC then completed a Basis of Design Report (Report) for the new raw sewage lift station. Consultant Fee: \$89,820</small>	<input checked="" type="checkbox"/>	Check if project performed with current firm



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a. NAME Chris Reichard	b. ROLE IN THIS CONTRACT Environmental Planner	c. YEARS EXPERIENCE	
		1. TOTAL 15	2. WITH CURRENT FIRM 2

d. LOCATION *(City and State)* Brown and Caldwell, Denver, Colorado

e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS, Natural Resources, Concentration Environmental Science, University of Maine-Orono, 1998	f. PROFESSIONAL TRAINING - REGISTRATIONS
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g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)*

Certificate of Training in the 1987 Army Corps of Engineers Wetlands Delineation Manual; USFWS-accepted surveyor for the Ute Ladies'-tresses orchid (*Spiranthes diluvialis*); USFWS-permitted surveyor for the Preble's meadow jumping mouse (*Zapus hudsonius preblei*)

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Downtown Wastewater Treatment Plant EID, City of Kingman, Arizona	2010	2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE NEPA Compliance and Biology for AZPDES Permitting. Prepared Environmental Information Documents (EIDs) for the Water Infrastructure Finance Authority of Arizona (WIFA) for this wastewater treatment plant replacement project by the City of Kingman. The EID established NEPA compliance and included evaluations for biology, cultural resources, water quality, and socioeconomic. Coordinated early with Region 2 of the USFWS and obtained biological and cultural resource clearances in a timely fashion. Obtained USACE approvals and coordinated floodplain map revisions for the modification and armoring of a stream channel. Obtained modified then new AZPEDES discharge permits for both plants. BC also completed the design portion of the project and was used during construction activities.	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	South Rasmussen Valley Exploration License Environmental Assessment, Vegetation and Wildlife Evaluations, Soda Springs, Idaho	2013	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Permitting Specialist & Biologist. Performed biological baseline review for wetlands, vegetation, wildlife habitat and migratory birds. Authored biological portions of the EA. Evaluated project impacts and developed environmental mitigation measures. Considered potential impacts to threatened and endangered species. Consultant Fee: \$6M+	<input checked="" type="checkbox"/>	Check if project performed with current firm



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a. NAME Neil Waterman, PE	b. ROLE IN THIS CONTRACT Technical Reviewer	c. YEARS EXPERIENCE	
		1. TOTAL 35	2. WITH CURRENT FIRM 35

d. LOCATION *(City and State)* Brown and Caldwell, Phoenix, Arizona

e. EDUCATION *(DEGREE AND SPECIALIZATION)*
MS, Environmental Science and Engineering, Virginia Polytechnic Institute and State University, 1978;
BS, Civil Engineering, University of Arizona, 1980; BS, Forestry, Virginia Polytechnic Institute and State University, 1975

f. PROFESSIONAL TRAINING - REGISTRATIONS
Arizona, Professional Civil Engineer, #15297; California, Professional Civil Engineer, #68047;
Louisiana, Professional Engineer, #32910

g OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)*

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Zone 1, 1A, 2 Infrastructure Improvements Project, Phoenix, Arizona	2013	2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Technical Advisor. Served as technical advisor on this program management project involving multiple water transmission main segments, pressure reducing valve stations, and booster pumping stations. Was actively engaged in developing the preliminary design for Booster Pumping Station 2A-B12, and served as a reviewer for the Preliminary Design Report prepared as part of program management responsibilities. Consultant Fee: \$2.5M	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	Kingman Downtown Wastewater Treatment Plant Management Plan, Kingman, Arizona	2012	2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager. Studied alternatives to managing the wastewater currently being treated at the City of Kingman Downtown Wastewater Treatment Plant (WWTP). The WWTP process consists of two aerated lagoons, is not meeting effluent quality limits established in the current discharge permit, and lies within a 100-year floodplain. The project determined how and if there was a course of action to bring the WWTP into compliance. If not, an alternate solution will be found to make modifications to the collection system to route the wastewater currently being discharged into the WWTP to another treatment location. The decisions made were documented in a Management Plan for the downtown wastewater service area. Consultant Fee: \$496,800	<input checked="" type="checkbox"/>	Check if project performed with current firm



ATTACHMENT I – General Qualifications
ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729

STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007

4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section 4 for each key person.)*

a. NAME Jeff Weaver	b. ROLE IN THIS CONTRACT Hydrogeologist	c. YEARS EXPERIENCE	
		1. TOTAL 28	2. WITH CURRENT FIRM 2
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Denver, Colorado			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> MS, Hydrology, University of Arizona, 1989 BS, Environmental Geography, Western Michigan University, 1985		f. PROFESSIONAL TRAINING - REGISTRATIONS	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i>			

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Hydrogeologic and Groundwater Modeling: Upper Santa Clara River Chloride TMDL Collaborative Process, Santa Clarita, California	2012	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Technical Project Leader. Provided hydrogeologic and groundwater modeling expertise as part of a multi-stakeholder Technical Working Group to assess TMDL related surface and groundwater interactions of chloride within the Upper Santa Clara River watershed. Work includes development of watershed-scale water and chloride load balances, conceptual model development related to surface water and groundwater interactions, and development of a basin scale integrated surface and groundwater model using the MODHMS code. Lead modeler in application of MODHMS model to simulate a variety of water and chloride management options to achieve TMDL limits Consultant Fee: \$1.5M+	<input type="checkbox"/> Check if project performed with current firm	
2.	Groundwater Flow and Transport Modeling, West Van Buren Study Area, Phoenix, Arizona	2013	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Modeling Leader. Provide senior review and oversight on updating an existing groundwater flow model for the WVBSA WQARF site in Phoenix, Arizona. Model is used to assess potential movement of a large PCE and TCE plume under the City of Phoenix. Served as client representative to a multiple PRP stakeholders working group. Lead the technical working group for application of the groundwater flow model to assess remedial options. Consultant Fee: \$250,000	<input type="checkbox"/> Check if project performed with current firm	



ATTACHMENT I – General Qualifications
ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729

STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007

4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section 4 for each key person.)*

a. NAME Randy Mills	b. ROLE IN THIS CONTRACT EI&C Services	c. YEARS EXPERIENCE	
		1. TOTAL 30	2. WITH CURRENT FIRM 8

d. LOCATION *(City and State)* Brown and Caldwell, Phoenix, Arizona

e. EDUCATION *(DEGREE AND SPECIALIZATION)*
BS, Business Management, University of Phoenix, 2013

f. PROFESSIONAL TRAINING - REGISTRATIONS

g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)*

EPRI Certified Level II Instrumentation Technician; SKM Systems Power Studies Software Trained; Lyncole Grounding Systems Design Applications and Testing Certified; Journeyman Wireman, I.B.E.W. Local 640 Apprenticeship Training Program Phoenix, Arizona;

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Cave Creek WRF Treatment Plant, Phoenix, Arizona		
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager. BC has continuously worked at the Union Hills WTP since 2004 completing various tasks for the EI&C systems testing and inspections services. Under the recently completed contract BC provided design and construction support for major electrical rehabilitation upgrades, the design and installation of DBP Mitigation project work, upgrades to other major components of the electrical distribution system, and the chlorine scrubber replacement project for the design phase. BC is maintaining the arc flash hazard analysis study for the plant, and relabeling the equipment as required. Project is on-going. Consultant Fee: various cost, used on as-needed basis	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	Arc-Flash Hazard Analysis and Engineering Services, Phoenix, Arizona		
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Senior Design Engineer. BC worked as the Program Manager with the City of Phoenix to support Arc Flash through EI&C inspection services, design reviews for Arc Flash mitigation, coordination studies, and Arc Flash Hazard analysis for over one hundred Water Service Department sites and six WTP and WWTPs. Since development and implementation of Arc Flash projects, BC has been written into the City's 16215 specifications for all new construction projects requiring an updated Arc Flash analysis. We are currently written into the 16061 specification to perform ground grid testing for all construction projects. We have provided Arc Flash analysis and additional engineering services for the Val Vista WTP, Union Hills WTP, Cave Creek WRF, 24th Street WTP, Deer Valley WTP, Verde WTP, 23rd Avenue WWTP, 91st Avenue WWTP, and Distributions and Collections sites. Project is on-going. Consultant Fee: various cost, used on as-needed basis	<input checked="" type="checkbox"/>	Check if project performed with current firm



ATTACHMENT I – General Qualifications

**ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729**

**STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007**

4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section 4 for each key person.)*

a. NAME Ken Chandler, PE	b. ROLE IN THIS CONTRACT Electrical and I&C Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 30	2. WITH CURRENT FIRM 16
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Phoenix, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS, Electronics Engineering Technology, Devry, 1980		f. PROFESSIONAL TRAINING - REGISTRATIONS Arizona Professional Electrical Engineer, #36697 Arizona Professional Control Systems Engineer, #35940	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> Certified Documents Technologist: Construction Specifications Institute, 2012			

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Downtown WWTP Upgrade and Expansion, Kingman, Arizona	2013	2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Electrical and I&C Engineer. Processes includes headworks, coarse and fine screening, grit removal, membrane bioreactors, sludge and scum pumping, belt filter press sludge dewatering and polymer feed system, bio-filter odor control, and ultraviolet disinfection. Ken designed I&C, fiber optic network, and SCADA and Allen-Bradley ControlLogix PLC systems. This is a Construction Manager at-Risk delivery project. Consultant Fee: \$496,800	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	Phoenix International Raceway (PIR) Lift Station, Avondale, Arizona	2012	2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Lead Electrical and I&C Engineer. Phoenix International Raceway (PIR) had an existing septic system that serviced the property, and twice a year holds large racing events that produce high sewer flows exceeding the capacity of the septic system, requiring alternative disposal methods. The City constructed a new lift station to be used during these race events in lieu of the septic system and other disposal methods. BC was contracted for the evaluation of alternatives, preliminary design, and detailed design for the new lift station. Project included variable speed pumping, line flush system, and carbon canister odor control. Ken designed electrical, I&C, and Allen-Bradley Control Logix PLC system. Consultant Fee: \$89,820	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	64th Street 3B-B3 Booster Pump Station, Phoenix, Arizona		on-going
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Lead Electrical and I&C Engineer. Demolition and replacement of existing booster pump station on an existing reservoir facilities site. Process includes: Booster pumps, pressure relief valve, hydropneumatic surge tank, and natural gas fueled standby generator. Designed Electrical, I&C, and Modicon M340 PLC system. This is a Construction Manager at-Risk delivery project. Project is on-going. Consultant Fee: \$725,000	<input checked="" type="checkbox"/>	Check if project performed with current firm



ATTACHMENT I – General Qualifications
ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729

STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007

4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section 4 for each key person.)*

a. NAME Robert McCandless, PE	b. ROLE IN THIS CONTRACT Project Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 23	2. WITH CURRENT FIRM 4
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Phoenix, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> MS, Civil Engineering, Arizona State University, 1993 BS, Civil Engineering, Arizona State University, 1988		f. PROFESSIONAL TRAINING - REGISTRATIONS Arizona, Professional Engineer, # 27301; Colorado, Professional Engineer, #40971; Nevada, Registered Engineer, #16411	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i>			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> Advanced Water Treatment Plant Expansion Phase IV, Scottsdale, Arizona	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Engineer. Provided design of reverse osmosis (RO) facility expansion. The project included a detailed investigation into the occurrence of emerging contaminants, treatment alternatives for emerging contaminants including ozonation, 28 mgd of new microfiltration systems, upgrade of the RO system to 20 mgd of permeate, advanced oxidation, improvements to the finished water stabilization and blending, and improvements to the recharge well system. The existing 14 mgd RO facility receives microfiltered, denitrified tertiary effluent. The 6 mgd expansion will be implemented with three new RO trains utilizing large diameter membranes. Responsible for the evaluation and preliminary design improvements of all support systems including sulfuric acid dosing, threshold inhibitor dosing, flush system, cleaning system, and product water stabilization. Consultant Fee: \$600,000	<input type="checkbox"/> Check if project performed with current firm	
2.	(1) TITLE AND LOCATION <i>(City and State)</i> Enaville Well Filtration Plant Kellogg, Idaho	(2) YEAR COMPLETED	
		Professional Services 2012	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager. Managed design and procurement of 5.6 mgd GE Zenon membrane filtration systems and associated facilities. The water source is from two shallow, off-bank wells which were determined to be groundwater under direct influence (GWUDI) of surface water. Services included consultation and review of the pilot study results, procurement document development, procurement contract administration, preliminary design report and detailed design for membrane system installation, equalization facilities ahead of the membrane systems and backwash recovery basins. Consultant Fee: \$300,000	<input type="checkbox"/> Check if project performed with current firm	



ATTACHMENT I – General Qualifications
ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729

STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007

4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section 4 for each key person.)*

a. NAME Larry Williams, PE, RG	b. ROLE IN THIS CONTRACT Project Manager	c. YEARS EXPERIENCE	
		1. TOTAL 21	2. WITH CURRENT FIRM 2
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Phoenix, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS, Geological Engineering, University of Missouri, 1992		f. PROFESSIONAL TRAINING - REGISTRATIONS Arizona, Professional Environmental Engineer, #51374; Arizona, Registered Geologist, #54803	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i>			

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Sub-slab Soil Vapor Sampling and Analysis, Former Dry Cleaner Facility, Phoenix, Arizona	2012	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Senior Engineer. Collected soil and soil vapor samples from beneath the floor of a former dry cleaner facility. Evaluated soil vapor contaminant data using the Johnson & Ettinger (J&E) Model and helium tracer data to establish sample integrity. Consultant Fee: \$20,000	<input type="checkbox"/>	Check if project performed with current firm
2.	Brownfields Site Investigation, Arizona Department of Environmental Quality, Cottonwood, Arizona	2012	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Senior Engineer. Assisted in the preparation of a Sampling & Analysis Plan for investigating metals impacts (most notably Arsenic) at a Brownfields Site. Prepared a final report documenting investigation results including a statistical evaluation of the arsenic data set. Consultant Fee: \$20,000	<input type="checkbox"/>	Check if project performed with current firm
3.	Brownfields Site Investigation, Arizona Department of Environmental Quality, Somerton, Arizona	2012	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Senior Engineer. Assisted in the preparation of a Sampling & Analysis Plan for investigating VOC, PAH, and Metals impacts at a Brownfields Site. Prepared a final report summarizing investigation findings Consultant Fee: \$15,000	<input type="checkbox"/>	Check if project performed with current firm



ATTACHMENT I – General Qualifications
ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729

STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007

4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section 4 for each key person.)*

a. NAME Chad Haley	b. ROLE IN THIS CONTRACT Scientist	c. YEARS EXPERIENCE	
		1. TOTAL 7	2. WITH CURRENT FIRM 7

d. LOCATION *(City and State)* Brown and Caldwell, Phoenix, Arizona

e. EDUCATION *(DEGREE AND SPECIALIZATION)*
 BS Geology, West Texas A&M University, 2006

f. PROFESSIONAL TRAINING - REGISTRATIONS
 OSHA 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) Training: #0247911742;
 HAZWOPER 8-hour Management Supervisor Training;
 Mine Safety and Health Administration (MSHA) 16-hour New Miner Training;
 First Aid/CPR/AED;
 Half-Face Respirator certified

g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)*

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	ADEQ - JP Phillips - Phoenix, Arizona	Ongoing	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager. Provided oversight on a site status investigation of hydrocarbon impacts in soil and groundwater. Consultant Fee: \$87,000	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	ADEQ - Coulter 7 - Phoenix, Arizona	Ongoing	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager. Provided oversight on a site status investigation of hydrocarbon impacts in soil and groundwater. Consultant Fee: \$163,000	<input checked="" type="checkbox"/>	Check if project performed with current firm



ATTACHMENT I – General Qualifications
ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729

STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007

4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section 4 for each key person.)*

a. NAME Wesley Hipke, RG	b. ROLE IN THIS CONTRACT Hydrogeologist	c. YEARS EXPERIENCE	
		1. TOTAL 25	2. WITH CURRENT FIRM 2
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Boise, Idaho			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> MS, Geology, Wichita State University, 1993 BS, Geology, University of Nebraska, 1983		f. PROFESSIONAL TRAINING - REGISTRATIONS Idaho, Registered Geologist PGL-1467	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i>			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> USF, WS, and APP Permit Applications, City of Goodyear, Arizona	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Assisted the City of Goodyear with Underground Storage Facility (USF), Water Storage (WS), and Aquifer Protection (APP) permit applications as part of the City's long term water supply goals. Mr. Hipke supervised the development of the groundwater flow model and authored the USF and WS permit applications and accompanying hydrogeological report. The hydrogeological report included all of the geological and hydrological background, feasibility/impact analysis, and potential unreasonable harm from the proposed facility. This application required working with Arizona Department of Water Resources (ADWR) to develop expanded methods for assessing unreasonable harm. Cost: \$120,000	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	(1) TITLE AND LOCATION <i>(City and State)</i> Well Impact Analysis, City of Goodyear, Arizona	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Assisted the City of Goodyear with conducting a well impact analysis to increase the permitted well capacity of a production well. Mr. Hipke supervised the development of the groundwater flow model and associated modeling refinements to determine the potential impact to increased pumping from the production well. The results of the groundwater modeling were used in an application to ADWR to modify the City of Goodyear's permitted pumping volume. Cost: \$30,000	<input checked="" type="checkbox"/>	Check if project performed with current firm



ATTACHMENT I – General Qualifications
ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729

STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007

4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section 4 for each key person.)*

a. NAME Ryan Sanders, PE	b. ROLE IN THIS CONTRACT Project Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 15	2. WITH CURRENT FIRM 1
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Phoenix, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS, Mechanical Engineering, Arizona State University, 1993 BS, Engineering Mathematics, Grand Canyon University, 1991		f. PROFESSIONAL TRAINING - REGISTRATIONS Arizona, Professional Engineer, #49563 40-Hour OSHA Health & Safety Certification (29 CFR 1910.120) 8-Hour OSHA Health & Safety Annual Refresher 8-Hour OSHA Supervisor's Certification	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i>			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> Site Remediation, Various Sites, ADEQ, Willcox, Arizona	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE BC, under the ADEQ State Lead Program, has been conducting LUST remediation at multiple former petroleum fueling facilities along historic Haskell Avenue. Through collaboration with the City of Willcox, property owners, and current businesses, BC implemented multiple remediation techniques such as multi-phase extraction, SVE, ozone injection, vacuum enhanced free product skimming, AS, and air diffusion to remove up to 70,000 gallons of petroleum hydrocarbons. Cost: \$1,164,000	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	(1) TITLE AND LOCATION <i>(City and State)</i> Site Characterization/Remediation, Former Douglas Property, ADEQ, Randolph, Arizona	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE BC performed soil and groundwater remediation in response to gasoline releases from USTs formerly located at this site. Close proximity to County and State right-of-ways (ROWS), the large footprint of the building, and overhead and underground utilities limited the types of corrective actions that could have been implemented. In addition, the presence of the fine-grained lithology containing a large portion of the release near the saturated zone prevented the use of conventional SVE. In response to these challenges, BC proposed chemical oxidation for remediation of soil and groundwater, ozone sparging (OS) for the saturated zone and RegenOX™ for the unsaturated zone. BC also performed limited soil gas sampling to determine the potential vapor inhalation hazards associated with the remaining soil contamination. Cost: \$136,000	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	(1) TITLE AND LOCATION <i>(City and State)</i> Site Characterization/Remediation, Crane School District, ADEQ, Yuma, Arizona	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE BC installed and is performing O&M of an OS and SVE remediation system at this facility. The remediation system consists of a 6-pound per day ozone generator and sparge system that delivers ozone to 16 sparge wells within the dissolved hydrocarbon plume. To capture offgas generated during sparging operations and to prevent vapor intrusion into adjacent administration building, BC installed five shallow SVE wells within the building and connected five existing groundwater monitoring wells to an electric catalytic oxidizer (ECAT) vapor extraction system operated under an ADEQ General Air Quality Permit. Cost: \$1,402,000	<input checked="" type="checkbox"/>	Check if project performed with current firm



ATTACHMENT I – General Qualifications
ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729

STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007

4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section 4 for each key person.)*

a. NAME Ryan Schaefer, RG	b. ROLE IN THIS CONTRACT Geologist	c. YEARS EXPERIENCE	
		1. TOTAL 8	2. WITH CURRENT FIRM 4
d. LOCATION <i>(City and State)</i> Brown and Caldwell, Los Angeles, California			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS, Geological Sciences, Arizona State University, 2006		f. PROFESSIONAL TRAINING - REGISTRATIONS Registered Professional Geologist #50999, Arizona	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i>			

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	New Facility Regulatory Compliance and Permitting, Nationwide	Ongoing	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager - Manages a nationwide team of compliance specialists to conduct permit reviews for a large nationwide retail client. The program was established to provide operations support to a nationwide retailer for their New Store program in a 17 State region across the US. Permits researched and applied for were for all operations impacted by local, state, and federal environmental regulations. Annual booking > \$500,000.	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	SWPPP Update for Aggregate Mining Sites, Multiple Clients/Locations, Arizona	2011	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Field Geologist – ADEQ issued its two new storm water Multi-Sector General Permits (MSGPs), all affected facilities had to update their Storm Water Pollution Prevention Plans (SWPPPs) to comply with the new permits. Performed the site visits and assisted report preparation to update SWPPPs for numerous aggregate mining facilities to comply with the new	<input checked="" type="checkbox"/>	Check if project performed with current firm



ATTACHMENT I – General Qualifications
ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729

STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007

4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section 4 for each key person.)*

a. NAME Beth Ann Scully	b. ROLE IN THIS CONTRACT Scientist	c. YEARS EXPERIENCE	
		1. TOTAL 17	2. WITH CURRENT FIRM 4

d. LOCATION *(City and State)* Brown and Caldwell, Tucson, Arizona

e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS, Earth and Environmental Science, Wilkes University, 1994	f. PROFESSIONAL TRAINING - REGISTRATIONS Geographic Information System
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g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)*
Member Society of Mining Engineers

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Soil Characterization, Bisbee, Arizona	2014	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager. Provided document review and soil characterization as part of an assessment for future on-site pond closures, which led to development of conceptual, then final design drawings. Role on the project included client contact, generating project status reports, soil sampling, initiating meetings between the client and team, making sure the scope of work, budget and schedule were met. Project cost for both phases was approximately \$70K	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	Characterization Investigation, Yerington, Nevada	2014	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Field Manager. Performed field management for a \$3.1M drilling program focused on vadose zone investigation at a closed Mine site. The investigation was performed to characterize nature and extent of potential chemicals of concern contributors to groundwater. Field management of a drilling program which involved two roto-sonic drilling rigs operating on 10-day shifts for seven months to investigate historical mining features. Other responsibilities included, coordinating with analytical laboratory; coordinating with EPA contractor; approving drilling invoices, and implementation of strict health and safety guidelines. Prepared a data summary report of results for Environmental Protection Agency.	<input checked="" type="checkbox"/>	Check if project performed with current firm



ATTACHMENT I – General Qualifications

**ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729**

**STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007**

5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present no more than five (5) projects. Complete one Section 5 for each project.)

a. TITLE AND LOCATION <i>(City and State)</i> EID Environmental Planning and Permitting for the Kingman Downtown Wastewater Treatment Plant, Kingman, Arizona	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2010	CONSTRUCTION <i>(If applicable)</i> 2012

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER City of Kingman	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$496,800	e. TOTAL COST OF PROJECT \$496,800
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Brown and Caldwell (BC) provided services for the Planning and Design Phases of a replacement wastewater treatment plant (WWTP) for the Kingman Downtown area. The new plant will be a 0.67 million gallons per day (mgd) membrane bioreactor (MBR) plant, producing A+ effluent as defined by ADEQ standards. BC performed a preliminary evaluation of alternatives (pumping to another location, reconstructing on the existing site and piping to another site for treatment at a developer's planned WWTP).

The project included extensive permitting including Determination of Consistency with the Mohave County 208 Plan, and a hydrologic/hydraulic study in support of a Conditional Letter of Map Revision (CLOMR) from FEMA to determine the 100-year flood elevation in the adjacent wash after significant improvements. Additional permitting included a Waters of the U.S. Assessment to obtain a preliminary jurisdictional determination from the U.S. Corps of Engineers, a replacement permit for the existing Aquifer Protection Permit (APP), an AZPDES Permit Amendment and a Clean Closure Plan for the existing aerated lagoon facility. BC assisted the City of Kingman prepare Environmental Information Documents (EIDs) for the Water Infrastructure Finance Authority of Arizona (WIFA) in order to construct a crucial wastewater treatment plant replacement project. The EID established NEPA compliance and included evaluations for biology, cultural resources, water quality, and socioeconomics. BC coordinated early with Region 2 of the USFWS and obtained biological and cultural resource clearances in a timely fashion. BC obtained USACE approvals and coordinated floodplain map revisions for the modification and armoring of a stream channel.

Because of the permitting complexity and phasing needed to support an operating plant while constructing a new one on a small site, the project will be delivered using the CMAR procurement method. BC worked with the CMAR during the design phase to identify and implement value engineering ideas to reduce project cost while maintaining the Owner's quality goals.

The project included significant site work elements such as soil cement erosion protection and multi-box culvert and roadway for all-weather site access. The process is a two-train plate-style membrane bioreactor, preceded by coarse and fine screening and grit removal, and followed by in-vessel ultraviolet disinfection. Solids from the process will be centrifuge dewatered and either land-applied or landfilled.



ATTACHMENT I – General Qualifications

**ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729**

**STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007**

5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present no more than five (5) projects. Complete one Section 5 for each project.)

a. TITLE AND LOCATION <i>(City and State)</i> Section 404 Compliance and Biological Surveys for the Plant Interconnect Project, Tucson, Arizona	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2007	CONSTRUCTION <i>(If applicable)</i> 2010

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Pima County Regional Wastewater Reclamation Department	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$2,300,000	e. TOTAL COST OF PROJECT \$2,300,000
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Pima County Regional Wastewater Reclamation Department (PCRWRD) looked to Brown and Caldwell (BC) to conduct feasibility assessments and ultimately Construction Manager At-Risk (CMAR) of the 5.5-mile, 60- to 72-inch pipeline interconnect between Roger Road and Ina Road Water Reclamation facilities. This project allows PCRWRD to better provide flow and capacity management between the two facilities with the pipeline carrying 36 mgd average, 145 mgd peak wet weather flow.

BC coordinated the delineation of waters of the U.S. along the proposed sewer alignment and prepared a Jurisdictional Determination Report under U.S. Army Corps of Engineers Rapanos guidance documents. We coordinated with the project design team and developed an approach that would allow the project to proceed under a non-notification Nationwide Permit, which saved substantial amounts of permitting time on the project. We collaborated with a biological and cultural resource subcontractor to complete a cultural resource survey of the alignment and temporary construction easements as well as a Biological Evaluation for threatened and endangered species.

Due to BC's successful completion of the previous work, we were selected to design the Plant Interconnect pipeline. These design tasks included securing permitting, environmental and cultural studies, hydrologic and scour analyses, field surveying, geotechnical investigations, subsurface utility engineering, corrosion control and cost analyses.

To meet the schedule and budget, considerable effort was expended at the beginning stages of the project to gather input from PCRWRD, other County departments, the City of Tucson, the Town of Marana, ADOT, ADEQ, and the Corps of Engineers. BC established a series of meetings where stakeholders were presented with the proposed project and comments were received on potential impacts and issues. As each issue was subsequently addressed, follow-up meetings were held to review alternatives for resolution.



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(Present no more than five (5) projects. Complete one Section 5 for each project.)

a. TITLE AND LOCATION <i>(City and State)</i> Bullard Water Campus, Goodyear, Arizona	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2009	CONSTRUCTION <i>(If applicable)</i> 2009

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER City of Goodyear	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$4,500,000	e. TOTAL COST OF PROJECT \$4,500,000
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

The City of Goodyear, Arizona, is one of the fastest growing communities in the country with an average annual growth rate of 15 to 20 percent. With growth exceeding the existing infrastructure capabilities, the City has developed a program to quickly grow their potable water delivery capacity. The brackish groundwater from local perched aquifers requires treatment for potable use in most cases.

BC led three design-build teams that delivered new potable water sources and treatment projects. The \$18 million effort included developing water sources, permitting, design and construction. Initially, we researched and evaluated potential water sources including:

- Converting existing agricultural wells that are becoming dormant with land use changes.
- Drilling and equipping new/replacement water wells.
- Purchasing water from adjacent purveyors.

We surveyed existing water treatment systems and were responsible for:

- Developing reverse osmosis (RO) equipment standards.
- Enhancing the performance of existing plants.
- Expanding existing plants.
- Developing new treatment systems through symbiotic business relationships with nearby irrigation districts.

The services provided are described below.

Converting Agricultural Wells. Converting existing agricultural wells was a quick method of delivering a large quantity of water. To assist, our hydrogeologists and engineers investigated a dozen agricultural wells to determine the feasibility of their use. The BC team installed a sleeve in one well, called Well No. 20, and converted the agricultural well into a 1,500 gpm potable water well to help meet peak summer 2006 demand. This well is high in total dissolved solids (TDS). Water from the well blends with treated water to achieve acceptable TDS levels without additional treatment costs.

Replacement Water Wells. BC was charged with replacing an existing water supply well being displaced by a road widening project. Well No. 19 is a 1,200 gpm well that was constructed as an emergency project, including decommissioning the existing well upon completion of the replacement well. As part of this conversion, an existing City-owned surge tank was retrofitted and installed at the existing metering station facility. This project required constant coordination with other design-build teams with adjacent and connecting roadway improvements, potable water distribution lines, and raw water transmission lines.

Locating, Permitting, Drilling and Equipping New Wells. BC installed a new 1,800 gpm well between summer 2006 and summer 2007. Well No. 22 was located on existing City property located in close proximity to the treatment facility and Well No. 19 to reduce cost and schedule. The well could only be permitted for a maximum 600 gpm average daily pumping rate, but we determined that sizing the pump for 1,800 gpm would allow the City to meet their peak summer demands. We established an operating procedure to limit use of the well during non-peak demand to stay below the permitted maximum. The well is located near a residential development; therefore, we took into consideration noise levels. A submersible pump was considered, but it was determined that a sound enclosure over a vertical turbine pump would reduce capital expenditures and operating costs.



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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present no more than five (5) projects. Complete one Section 5 for each project.)

a. TITLE AND LOCATION <i>(City and State)</i> Zone 1, 1A, and 2 Infrastructure Improvements, Phoenix, Arizona	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2013	CONSTRUCTION <i>(If applicable)</i> 2013

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER City of Phoenix	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$2,500,000	e. TOTAL COST OF PROJECT \$2,500,000
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Brown and Caldwell (BC) was the Program Manager for the design and construction of infrastructure improvements to mitigate low- and high-pressure issues in Zones 1 and 2 including 8.5 miles of 16- to 36-inch diameter transmission main, a new Booster Pump Station (BPS 2A-B12) at the 64th Street Reservoir facility, BPS 2A-B11 and six new Pressure Reducing Valve (PRV) Stations. The projects were completed as two separate programs using CMAR delivery. The first was a Public Private Partnership where Entellus (engineer for the Indian School pipeline project) was the design engineer and Achen Gardner was the contractor. BC provided 3rd party CA&I to oversee the construction activities on behalf of the City. During the construction BC led the efforts to review the installation and develop solutions to issues that arose during construction. This was accomplished by developing a collaborative approach with the developer, design engineer and contractor to ensure that the final product met the needs of the City.



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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present no more than five (5) projects. Complete one Section 5 for each project.)

a. TITLE AND LOCATION <i>(City and State)</i> Unlined Concrete Sewer Condition Assessment Program Phase II and III, Phoenix, Arizona	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 1999	CONSTRUCTION <i>(If applicable)</i> 2010

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER City of Phoenix	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$776,000	e. TOTAL COST OF PROJECT \$776,000
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Brown and Caldwell (BC) performed an asset evaluation and life cycle cost analysis on the City of Phoenix collection system. The majority of the unlined concrete sewers in the City of Phoenix are large diameter pipelines installed in the mid-1960s. The flat slopes and warm sewage temperatures produce high concentrations of hydrogen sulfide gas resulting in severe pipeline corrosion. The City's Sewer Condition Assessment Program is an ongoing program and is designed to identify and respond to structural and operational problems impairing sewer function and potentially impacting public health/safety. BC conducted Phase II and Phase III to inspect, assess, and develop a Capital Improvement Plan (CIP) for required rehabilitation/replacement of 307,880 feet of large-diameter unlined concrete sewers.

The major components of the project included assessing the facilities, evaluating of data, developing recommendations and prioritizing the recommendations. All of the data was housed in a comprehensive GIS database to make tracking and updates easier in the future.

The findings of the inspections and condition assessment formulated the sewer rehabilitation recommendations. While individual pipe reaches could have been rehabilitated as single activities, the cost of contracting and mobilization generally made it costly. To limit the overall costs, segments were grouped into projects based on criticality, condition, and location. BC worked with the City of Phoenix staff to develop a 10 year CIP to plan and budget for the repair of the City's aging infrastructure. We identified 32,000 linear feet of pipeline needing immediate repair for a total cost of \$41 million completed in 2003 and an additional \$75 million completed in 2010.



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ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
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6. ADDITIONAL INFORMATION

a. PROVIDE ANY ADDITIONAL INFORMATION YOU FEEL MAY BE NECESSARY TO DESCRIBE YOUR FIRMS QUALIFICATIONS. (ATTACH ADDITIONAL SHEETS AS NEEDED.)

7. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

a. Percentage of Total Work Attributable to State, Federal and Municipal Government Work:	75
b. Percentage of Total Work Attributable to Non-Government Work:	25

8. AUTHORIZED REPRESENTATIVE. The foregoing is a statement of facts.

Signature: 

Date: 12/23/2014

Name: Larry Williams, RG

Title: Managing Geological Engineer