



Offer and Acceptance

State of Arizona
State Procurement Office
100 N. 15th Ave. Suite 201
Phoenix, AZ 85007

SOLICITATION NO.: ADSP016-00005912 Request
for Qualifications: 2016 Annual Professional
Services List

PAGE
1

Offeror: Natural Channel Design, Inc.

OF
1

OFFER

TO THE STATE OF ARIZONA:

The Undersigned hereby offers and agrees to furnish the material, service or construction in compliance with all terms, conditions, specifications and amendments in the Solicitation and any written exceptions in the offer. Signature also certifies Small Business status.

Natural Channel Design, Inc.

Company Name

2900 N. West St, Ste 5

Address

Flagstaff

AZ

86004

City

State

Zip

allen@naturalchanneldesign.com

Contact Email Address

Allen Haden

Digitally signed by Allen Haden
DN: cn=Allen Haden, o=Mango Tree
Enterprises, ou,
email=ahaden@commspeed.net, c=US
Date: 2015.12.18 19:30:02 -07'00'

Signature of Person Authorized to Sign Offer

George Allen Haden

Printed Name

President

Title

Phone: 928-774-2336

Fax: 928-774-9023

By signature in the Offer section above, the Offeror certifies:

1. The submission of the Offer did not involve collusion or other anticompetitive practices.
2. The Offeror shall not discriminate against any employee or applicant for employment in violation of Federal Executive Order 11246, State Executive Order 2009-9 or A.R.S. §§ 41-1461 through 1465.
3. The Offeror has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted offer. Failure to provide a valid signature affirming the stipulations required by this clause shall result in rejection of the offer. Signing the offer with a false statement shall void the offer, any resulting contract and may be subject to legal remedies provided by law.
4. The Offeror certifies that the above referenced organization IS/ IS NOT a small business with less than 100 employees or has gross revenues of \$4 million or less.

ACCEPTANCE OF OFFER

The Offer is hereby accepted.

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the solicitation, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by the State.

This Contract shall henceforth be referred to as Contract No. ADSP016-00005912

The effective date of the Contract is March 1, 2016

The Contractor is cautioned not to commence any billable work or to provide any material or service under this contract until Contractor receives purchase order, contract release document or written notice to proceed.

State of Arizona
Awarded this

29

day of

February

2016

Procurement Officer



ATTACHMENT I – General Qualifications

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DEFINITIONS

Architect Services, Engineer Services, Land Surveying Services, Assayer Services, Geologist Services and Landscape Architect Services: Those professional services within the scope of the practice of those services as provided in ARS § 32-101.

Branch Office: A geographically distinct place of business or subsidiary office of a firm that has a key role on the team.

Discipline: Primary technical capabilities of key personnel, as evidenced by academic degree, professional registration, certification, and/or extensive experience.

Firm: Defined in ARS § 32-101(B.19.).

Key Personnel: Individuals who will have major contract responsibilities and/or provide unusual or unique expertise.

SPECIFIC INSTRUCTIONS:

1. Complete this form for each branch office seeking work under this RFQ.

a. – e. **Firm (or Branch Office) Name and Address.** Self-explanatory.

f. **Year Established.** Enter the year the firm (or branch office, if appropriate) was established under the current name.

g. **Ownership.**

(g1). *Type.* Enter the type of ownership or legal structure of the firm (sole proprietor, partnership, corporation, joint venture, etc.).

(g2). *Small Business Status.* A firm is a small business if the firm has less than 100 employees or has gross revenues of \$4 million or less.

h.-j. **Point of Contact.** Provide this information for a representative of the firm that the Customer can contact for additional information. The representative must be empowered to speak on contractual and policy matters.

k. **Name of Firm.** Enter the name of the firm.

2. **Employees by Discipline.**

a. Select disciplines from the List of Disciplines (Function Code) listed on Page 3 of 4 Instructions. For employees that do not qualify for any of the disciplines, select "Other". *Note: The intended searchable database indicated in the RFQ will be populated from the Qualifications Form I Excel attachment only.*

b. Each person can be counted only twice; once for his/her primary function and once for his/her secondary function. Primary and secondary functions should be indicated by including a "P" or an "S" in column b after the Description Title is given.

c-d. If the form is completed for a firm (including all branch offices), enter the number of employees by disciplines in column c. If the form is completed for a branch office, enter the number of employees by discipline in column d and for the firm in column c.

3. **Profile of Firm's Experience and Annual Average Revenue for Last Year.**

a. Enter the approximate number of projects the firm (or branch) has done attributable by Profile Code listed on Page 3 of 4 Instructions over the last year.



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- b. Enter the appropriate Profile Codes from Instructions Pages 3 of 4 that represent the type of work the firm (or branch) has done over the last year.
 - c. Using the Revenue Index Number on Page 3 of 6 Form, indicate the approximate revenue the firm has earned over the last year per Profile Code entered into the table.
4. **Resumes of Key Personnel Proposed for This Contract.** Complete this section for each key person who will participate in this contract.
- a. Self-explanatory.
 - b. Self-explanatory
 - c. Total years of relevant experience (block c1), and years of relevant experience with current firm, but not necessarily the same branch/office (block c2).
 - d. Name, City and State of the firm where the person currently works, which must correspond with one of the firms (or branch office or a firm, if appropriate) listed in Section 1.
 - e. Provide information on the highest relevant academic degree(s) received. Indicate the area(s) of specialization for each degree.
 - f. Provide information on current relevant professional registration(s) and in which State(s) they are current.
 - g. Provide information on any other professional qualifications relating to this contract, such as education, professional registration, publications, organizational memberships, certifications, training, awards, and foreign language capabilities.
 - h. Provide information on no more than five (5) projects in the last year which the person had a significant role that demonstrates the person's capability relevant to her/his proposed role in this contract. These projects do not necessarily have to be any of the projects presented in Section 5 for the project team if the person was not involved in any of those those projects or the person worked on other projects that were more relevant than the team projects in Section 5. Use the check box provided to indicate if the project was performed with any office of the current firm. If any of the professional services or construction projects are not complete, leave Year Completed blank and indicate the status in Brief Description and Specific Role.
5. **Example Projects Which Best Illustrate Firms Qualification for this contract.** Select project where multiple team members worked together, if possible, that demonstrate the team's capability to perform work similar to that required for this contract. Complete one Section 5 for each project. List no more than five (5) projects.
- a. Title and Locations of project or contract. For an indefinite delivery contract, the location is the geographic scope of the contract.
 - b. Enter the year completed of the professional services (such as planning, engineering study, or design), and/or the year completed if construction. If any of the professional services or the construction projects are not complete, leave Year Completed blank and indicate the status in Brief Description of Project and Relevance to This Contract (block f).
 - c. Project Owner or user, such as a government agency or installation, an institution, a corporation or private individual.
 - d. Provide the original budget or not to exceed dollar amount for the project.
 - e. Provide the Total Cost of the Project. If any of the professional services or construction projects is not complete, indicate the percentage complete and whether this project will be on budget, over or under budget.
 - f. Brief Description: Indicate scope, size, and length of project, principle elements and special features of the project. Discuss the relevance of the example project to this contract.
6. **Additional Information.** Use this section to provide additional information you feel may be necessary to describe your firm's qualifications for this contract.
7. **Annual Average Professional Services Revenues of Firm for Last 3 Years.** Complete this block for the firm or branch office for which this form is completed. In column a, enter an approximate percentage of total work attributable to State, Federal or Municipal Work. In column b, enter an approximate percentage of total work attributable to Non-Government work. Percentages should take into consideration work completed over the last 3 years.



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8. **Authorized Representative.** An authorized representative of the firm or branch office must sign and date the completed form. Signing attests that the information provided is current and factual. Provide the name and title of the authorized representative who signed the form.

List of Disciplines (Function Codes) for Question 2

- | | | |
|---------------------------|--|--------------------------|
| Aeronautical Engineer | Environmental Engineer | Mining Engineer |
| Agricultural Engineer | Environmental Scientist | Nuclear Engineer |
| Archeologist | Fire Protection Engineer | Petroleum Engineer |
| Architect | Geodetic Surveyor | Photogrammetrist |
| Architectural Engineering | Geographic Information System Specialist | Project Manager |
| Biologist | Geological Engineer | Sanitary Engineer |
| CADD Technician | Geologist | Soils Engineer |
| Chemical Engineer | Hydrographic Surveyor | Structural Engineer |
| Civil Engineer | Hydraulic Engineer | Technician/Analyst |
| Construction Manager | Hydrologist | Transportation Engineer |
| Construction Inspector | Industrial Engineer | Water Resources Engineer |
| Control Systems Engineer | Landscape Architect | |
| Cost Engineer/Estimator | Mechanical Engineer | |
| Ecologist | Metallurgical Engineer | |
| Electrical Engineer | | |

List of Experience Categories (Profile Codes for Question 3)

- | | |
|---|--|
| Acoustics, Noise Abatement | Dams (<i>Concrete; Arch</i>) |
| Aerial Photography; Airborne Data and Imagery Collection and Analysis | Dams (<i>Earth; Rock</i>); Dikes; Levees |
| Activity Centers | Desalinization (<i>Process and Facilities</i>) |
| Air Pollution Control | Design-Build - Preparation of Requests for Proposals |
| Airports; Navajds; Airport Lighting; Aircraft Fueling | Digital Elevation and Terrain Model Development |
| Airports; Terminals and Hangars; Freight Handling | Digital Orthophotography |
| Agricultural Development; Grain Storage; Farm Mechanization | Dining Halls; Clubs; Restaurants |
| Animal Facilities | Dredging Studies and Design |
| Anti-Terrorism/Force Protection | Design & Planning Structured Parking Facilities |
| Area Master Planning | Detention Security Systems |
| Auditoriums and Theaters | Disability / Special Needs |
| Automation; Controls; Instrumentation | Ecological and Archeological Investigations |
| Barracks; Dormitories | Educational Facilities; Classrooms |
| Bridge Design: Bridges | Electrical Studies and Design |
| Cartography | Electronics |
| Cemeteries (<i>Planning and Relocation</i>) | Elevators; Escalators; People-Movers |
| Chemical Processing and Storage | Energy / Water Auditing Savings |
| Child Care/Development Facilities | Energy Conservation; New Energy Sources |
| Codes; Standards; Ordinances | Environmental Impact Studies, Assessments or Statements |
| Cold Storage; Refrigeration and Fast Freeze | Fallout Shelters; Blast-Resistant Design |
| Commercial Building (<i>Low Rise</i>); Shopping Centers | Fire Protection |
| Community Facilities | Fisheries; Fish Ladders |
| Communications Systems; TV; Microwave | Forensic Engineering |
| Computer Facilities | Garages; Vehicles Maintenance Facilities; Parking |
| Conservation and Resource Management | Gas Systems (<i>Propane; Natural, Etc.</i>) |
| Construction Management | Geodetic Surveying: Ground and Airborne |
| Construction Surveying | Heating; Ventilating; Air Conditioning |
| Corrosion Control; Cathodic Protection Electrolysis | Highways; Streets; Airfield Paving; Parking Lots |
| Cost Estimating; Cost Engineering and Analysis; Parametric Costing; Forecasting | Historical Preservation |
| Cryogenic Facilities | Hospital and Medical Facilities |
| Construction Materials Testing | Hotels; Motels |
| | <i>Housing (Residential, Multi-Family; Apartments; Condominiums)</i> |



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Hotels; Motels
Hydraulics and Pneumatics
Hydrographic Surveying
Industrial Buildings; Manufacturing Plants
Industrial Processes; Quality Control
Industrial Waste Treatment
Intelligent Transportation Systems
Infrastructure
Irrigation; Drainage
Judicial and Courtroom Facilities
Laboratories; Medical Research Facilities
Land Surveying
Landscape Architecture
Libraries; Museums; Galleries
Lighting (*Interior; Display; Theater, Etc.*)
Lighting (*Exteriors; Streets; Memorials; Athletic Fields, Etc.*)
Labs - General
Labs – Research – Dry
Labs – Research – Wet
LEED Accredited A/E
LEED Independent 3rd Party Building Commissioning
Mapping Location/Addressing Systems
Materials Handling Systems; Conveyors; Sorters
Metallurgy
Materials Testing
Measurement / Verification / Conservation Water Consumption Savings
Mining and Mineralogy
Medical Related
Modular Systems Design; Fabricated Structures or Components
Mold Investigation
Museums
Nuclear Facilities; Nuclear Shielding
Office Buildings; Industrial Parks
Outdoor Recreation
Petroleum and Fuel (*Storage and Distribution*)
Photogrammetry
Pipelines (*Cross-Country - Liquid and Gas*)
Phase I Environmental
Prisons & Correctional Facilities
Plumbing and Piping Design
Prisons and Correctional Facilities
Product, Machine Equipment Design Pneumatic Structures, Air-Support Buildings Power Generation, Transmission, Distribution Public Safety Facilities
Radar; Sonar; Radio and Radar Telescopes
Radio Frequency Systems and Shielding's
Railroad; Rapid Transit
Recreation Facilities (*Parks, Marinas, Etc.*)
Refrigeration Plants/Systems
Rehabilitation (*Buildings; Structures; Facilities*)
Research Facilities
Resources Recovery; Recycling
Roof Infrared Imaging to Identify Water Leaks

Roofing
Safety Engineering; Accident Studies; OSHA Studies
Security Systems; Intruder and Smoke Detection
Seismic Designs and Studies
Sewage Collection, Treatment and Disposal
Soils and Geologic Studies; Foundations
Solar Energy Utilization
Solid Wastes; Incineration; Landfill
Special Environments; Clean Rooms, Etc.
Structural Design; Special Structures
Surveying; Platting; Mapping; Flood Plain Studies
Sustainable Design
Swimming Pools
Storm Water Handling and Facilities
Specifications Writing
Toxicology
Testing and Inspection Services
Traffic and Transportation Engineering
Topographic Surveying and Mapping
Towers (*Self-Supporting and Guyed Systems*)
Tunnels and Subways
Traffic Studies
Transportation
Urban renewals; Community Development
Utilities (*Gas and Steam*)
Value Analysis; Life-Cycle Costing
Warehouse and Depots
Water Resources; Hydrology; Ground Water
Water Supply; Treatment and Distribution
Wind Tunnels; Research/Testing Facilities Design
Waste Water Treatment Facility
Water Well Rehabilitation; Water Well Work
Zoning; Land Use Studies



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(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:	Natural Channel Design, Inc.
b. FIRM (OR BRANCH OFFICE) STREET:	2900 N West St, Suite 5
c. FIRM (OR BRANCH OFFICE) CITY:	Flagstaff
d. FIRM (OR BRANCH OFFICE) STATE:	AZ
e. FIRM (OR BRANCH OFFICE) ZIP CODE:	86004
f. YEAR ESTABLISHED:	2000
(g1). OWNERSHIP - TYPE:	S-Corporation
(g2) OWNERSHIP - SMALL BUSINESS STATUS:	Small Business
h. POINT OF CONTACT NAME AND TITLE:	George Allen Haden
i. POINT OF CONTACT TELEPHONE NUMBER:	928-774-2336
j. POINT OF CONTACT E-MAIL ADDRESS:	allen@naturalchanneldesign.com
k. NAME OF FIRM (If block 1a is a branch office):	



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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
Agricultural Engineer	S		
Biologist	P	1	
CADD Technician	S		
Civil Engineer	P	2	
Ecologist	P	1	
Environmental Engineer	S		
Geographic Information System	P	1	
Hydrologist	S		
Project Manager	S		
Water Resource Engineer	S		
Total	4 Primary, 6 Secondary	5	



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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)
30	Conservation and Resource Management	1
7	Construction Management	1
9	Construction Surveying	1
9	Digital Elevation and Terrain Model Development	1
2	Ecological and Archeological Investigations	1
2	Fisheries; Fish Ladders	1
4	Irrigation; Drainage	1
2	Structural Design; Special Structures	1
1	Sustainable Design	1
3	Storm Water Handling and Facilities	1
25	Specifications Writing	1
9	Topographic Surveying and Mapping	1
30	Water Resources; Hydrology; Ground Water	1

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

- | | |
|---|---|
| 1. Less than \$100,000 | 6. \$2 million to less than \$5 million |
| 2. \$100,000 to less than \$250,000 | 7. \$5 million to less than \$10 million |
| 3. \$250,000 to less than \$500,000 | 8. \$10 million to less than \$25 million |
| 4. \$500,000 to less than \$1 million | 9. \$25 million to less than \$50 million |
| 5. \$1 million to less than \$2 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 Allen Haden	b. ROLE IN THIS CONTRACT Aquatic Ecologist – Project Manager	c. YEARS EXPERIENCE	
		1. TOTAL 22	2. WITH CURRENT FIRM 10
d. LOCATION <i>(City and State)</i> Natural Channel Design, Flagstaff, AZ			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> MS Aquatic Ecology, Northern Arizona University BS Forestry and Wildlife, Virginia Tech, Blacksburg VA		f. PROFESSIONAL TRAINING - REGISTRATIONS	

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

Completed levels I-IV River morphology short courses from Wildland Hydrology, Multiple referenced publications on effects of habitat change and nonnative species on aquatic systems in the southwest, Extensive knowledge of aquatic and riparian T&E species biology in the southwest.

Completed WARSSS Training – Watershed Assessment of River Stability and Sediment Supply

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Laguna Conservation Area Restoration, Yuma, AZ	2010 - 2015	2012 -2015
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE This multi-year project for the Bureau of Reclamation Multispecies Conservation Program, includes concept development, design, permitting and construction oversight of a 1250 ac wetland restoration project below Imperial Dam. Project included development of grading plans, water control structure and delivery and planting design. Allen provided project management, public outreach, habitat design and permitting.	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	Schultz Fire and Flooding Recovery Sediment Reduction Alternatives Coconino County, AZ	2011- 2012	NA
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE The 2010 Schultz Fire burned 15,000 acres of national forest land in Coconino County. Subsequent flooding caused significant loss of project and lives. Severe sediment production and transport hampered efforts to mitigate further damage. This study provided field surveys of over 60 miles of channels within the fire area, estimates of sediment production from multiple sources and modeling of sediment transport. Additionally, conceptual designs were developed and modeled to show where significant sediment reductions could be made within the watershed using stream restoration techniques. Allen provided study design, field work, analysis and public outreach of the results.	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	Apache Trout Fish Barrier Assessment and Repair Arizona Game and Fish Department, AZ	2010 - present	2010 - present
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE This project provided assessment of structural and geomorphic stability and effectiveness of multiple fish barriers utilized for Apache Trout conservation. Tasks included field visits and survey of over 20 sites, analysis of hydrology and barrier hydraulics, development and testing of effectiveness model that considered hydraulic conditions and trout jumping ability. Designs for enhancement of each barrier were provided. Allen provided project management, study design development, analysis and public outreach of findings.	<input checked="" type="checkbox"/>	Check if project performed with current firm
4.	Tonto Creek Aquatic Habitat Improvement Gila County, AZ	2006- 2010	2010 - present
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE	<input type="checkbox"/>	Check if project performed with current firm



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	<p>(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE</p> <p>Purpose is to improve trout holding and fish-ability on important stocked fishery for Arizona Game and Fish Department. Provided assessment of trout and native fish habitat conditions on 4.5 mile reach of Tonto Creek. Developed geomorphic analysis of conditions and provide conceptual designs for improvement. Upon approval of client provided final designs for treatments then worked with contractor to oversee installation of improvements.</p>	<p><input checked="" type="checkbox"/> Check if project performed with current firm</p>		
	<p>(1) TITLE AND LOCATION (<i>City and State</i>)</p> <p>Restoration of the Gila River at Apache Grove Greenlee County, AZ</p>	<p>(2) YEAR COMPLETED</p> <table border="1"> <tr> <td>Professional Services 2010 - present</td> <td>Construction (if applicable) 2012</td> </tr> </table>	Professional Services 2010 - present	Construction (if applicable) 2012
Professional Services 2010 - present	Construction (if applicable) 2012			
<p>5.</p>	<p>(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE</p> <p>This is an Arizona Water Protection Fund sponsored project on private lands. The purpose of the project was to improve floodplain function of the Gila River through a 1.5 mile reach that was impacted by a dike and heavy infestation of nonnative Tamarisk. The project removed the dike and the tamarisk forest and reshaped the floodplain to proper geomorphic dimensions and built bank protection. The entire area was replanted with multiple species of native riparian vegetation. Construction was scheduled around southwest willow flycatcher breeding season and the landowners' agricultural practices. Allen provided project management, assessment, riparian habitat mapping, design, weed management planning, permitting and construction oversight. □</p>	<p><input checked="" type="checkbox"/> Check if project performed with current firm</p>		



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

a. NAME Michael D. Kearly, PE, CFM	b. ROLE IN THIS CONTRACT Professional Engineer/Designer	c. YEARS EXPERIENCE	
		1. TOTAL 20	2. WITH CURRENT FIRM 2.5

d. LOCATION *(City and State)* Flagstaff, AZ

e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> Bachelor of Science in Engineering (Civil)	f. PROFESSIONAL TRAINING - REGISTRATIONS Registered Civil Engineer; AZ 34587; CO 0050515; NV 22774; UT 9570660-2202
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g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)*

Certified Floodplain Manager (CFM); Cert# US-11-50834

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> East Industrial Drive Improvements, Flagstaff, AZ	(2) YEAR COMPLETED	
		Professional Services 2009	Construction (if applicable) 2015
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Lead Designer for one half mile of improvements to a small local road to convert it to a fully developed, paved corridor. Professional services included road plan and profile development, layout and design of utilities including water and sewer mains and hydrologic and hydraulic calculations and modeling of stormdrain systems, stormwater detention basins and Low Impact Development (LID). Approx \$2M Construction cost.	<input type="checkbox"/> Check if project performed with current firm	
2.	(1) TITLE AND LOCATION <i>(City and State)</i> Brandis Way EWP Flood Mitigation Plan	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Engineering Project Manager for design services when employed by Coconino County as Assistant County Engineer. Managed design of a \$3.6M Emergency Watershed Protection project funded by NRCS. Project included drainage improvements/flood mitigation and extended approximately 2 miles from within USFS lands, through rural residential areas to ADOT right-of-way. Managed all engineering design from procurement of consultant services through completion and final acceptance of design.	<input type="checkbox"/> Check if project performed with current firm	
3.	(1) TITLE AND LOCATION <i>(City and State)</i> Wiltbank Low Water Crossing – Apache County, AZ	(2) YEAR COMPLETED	
		Professional Services 2014-2015	Construction (if applicable) 2015
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Lead Designer/Project Manager for construction of a multi-barrel concrete box culvert/ low water crossing of the Little Colorado River. The design included a five barrel box culvert across the river and restoration of the river channel section upstream and downstream of the culverts to provide a more geomorphically appropriate cross section for sediment transport and hydraulic capacity. The box culvert was designed to pass the bankfull event and allow larger flow to pass over the crossing in a low water crossing fashion. Construction Cost was approximately \$200K.	<input checked="" type="checkbox"/> Check if project performed with current firm	
4.	(1) TITLE AND LOCATION <i>(City and State)</i> Picture Canyon Meander Restoration - Phase II: Flagstaff, AZ	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable) 2014
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Lead Designer for a stream channel restoration project in northeast Flagstaff, AZ. Included grading design and plan development, field data collection, identifying Ordinary High Water Mark (OHWM), preparing Preliminary Jurisdictional Determination report for ACOE submittal and approval, 404 permitting through ACOE, and providing construction administration services through completion of construction. Earthwork related construction costs of approximately \$100K.	<input checked="" type="checkbox"/> Check if project performed with current firm	



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5.	(1) TITLE AND LOCATION (<i>City and State</i>) Spruce Avenue Wash Restoration Project and Permitting	(2) YEAR COMPLETED	
		Professional Services 2015	Construction (if applicable) 2016
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Lead Designer for a project that included plan, profile and specifications for geomorphic restoration of a reach of the Spruce Avenue Wash in Flagstaff. Prepared Preliminary Jurisdictional Delineation and Nationwide 404 Permit application and obtained 404 permitting for the restoration reach as well as for an upstream concrete box culvert installation and a downstream low water crossing related to a pedestrian trail. Consulting fees for design and permitting totaled approximately \$18K. Construction related to the stream restoration estimated at approximately \$50K.	<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 Catherine Scudieri	b. ROLE IN THIS CONTRACT Engineer in Training/Ecologist	c. YEARS EXPERIENCE	
		1. TOTAL 17	2. WITH CURRENT FIRM 4
d. LOCATION <i>(City and State)</i> Natural Channel Design, Flagstaff, AZ			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS, Civil Engineering, Virginia Tech MS, Environmental Engineering, University of Illinois, Urbana-Champaign MS, Forestry (Restoration Ecology), Northern Arizona University		f. PROFESSIONAL TRAINING - REGISTRATIONS Engineer in Training (EIT), Illinois	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> Wetland Delineation Training			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> Schultz Fire-Flood Assistance Area Emergency Watershed Protection, Watershed Restoration Project Design and Construction Administration. Coconino County near Flagstaff, AZ	(2) YEAR COMPLETED	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Provided flood protection and watershed restoration benefits to offset the continued impacts and threats by flooding, erosion, and debris damage from the June 2010 Schultz fire. The project will reduce sediment loads originating in the Schultz watershed in USFS lands by restoring proper channel function and installation of stabilization measures. Served as associate designer. Design and construction for some watersheds was completed in 2013, others are ongoing. Project Wide Budget: \$11.5 million, NCD Budget: \$540,000	Professional Services 2010 - 2015	Construction (if applicable) 2011 - 2015
<input checked="" type="checkbox"/> Check if project performed with current firm			
2.	(1) TITLE AND LOCATION <i>(City and State)</i> Lower South Fork Little Colorado River Fish Barrier Enhancement, near Springerville, AZ	(2) YEAR COMPLETED	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Enhancement of existing fish barrier to ensure nonnative fish cannot gain entry to upstream habitat. Project included hydraulic analysis of existing and proposed barrier and design of enhanced barrier. Served as associate designer. Project is ongoing, 90% Design is complete. Budget ~\$4,000.	Professional Services 2014	Construction (if applicable) 2014
<input checked="" type="checkbox"/> Check if project performed with current firm			
3.	(1) TITLE AND LOCATION <i>(City and State)</i> Montezuma Well Riparian Restoration Project, Montezuma Castle National Monument, near Camp Verde, AZ	(2) YEAR COMPLETED	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project will enhance the mesquite bosque habitat along Wet Beaver Creek by managing nonnative weeds and water delivery to the site and by planting appropriate native vegetation. Project will restore valuable wildlife habitat along the creek and improve water quality by reducing erosion and sediment deposition. Responsible for vegetation monitoring, data management and monitoring report. Project design and implementation is complete, monitoring is ongoing. Project Budget: \$311,000	Professional Services 2010 - 2014	Construction (if applicable) 2010 - 2011
<input checked="" type="checkbox"/> Check if project performed with current firm			
4.	(1) TITLE AND LOCATION <i>(City and State)</i> Restoration of the Gila River at Apache Grove Apache Grove, AZ	(2) YEAR COMPLETED	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project restored 1,000 linear feet of eroding stream bank to reduce sediment input and enhance wildlife habitat. Project included field survey, hydraulic, hydrologic and geomorphic analyses and the design and construction of stream stabilization practices. Responsible for vegetation monitoring, data management and monitoring report. Project design and construction is complete, monitoring and weed management is ongoing. Project Budget: \$744,750	Professional Services Ends in 2015	Construction (if applicable) 2012
<input checked="" type="checkbox"/> Check if project performed with current firm			



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(1) TITLE AND LOCATION <i>(City and State)</i> Lee Valley Fish Barrier Removal and Headcut Stabilization Plans, near Springerville, AZ	(2) YEAR COMPLETED	
	Professional Services 2015	Construction (if applicable) 2015

5.

(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE	<input checked="" type="checkbox"/> Check if project performed with current firm
Project will remove two nonfunctioning fish barriers and stabilize the headcut to ensure it does not migrate upstream with a minimum of site disturbance. The grade control stabilization structure will allow for fish passage. Project included site assessment, topographic survey, geomorphic data collection, hydrologic analysis, design of grade control structure and construction observation. Served as associate designer. Project Budget: \$14,000	



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

a. NAME Christopher Tressler	b. ROLE IN THIS CONTRACT Project Manager, Designer	c. YEARS EXPERIENCE	
		1. TOTAL 5	2. WITH CURRENT FIRM 5
d. LOCATION <i>(City and State)</i> Natural Channel Design, 2900 N West St, Suite 5, Flagstaff, AZ 86004			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS – Civil Engineering, Utah State University MS Geology, Utah State University		f. PROFESSIONAL TRAINING – REGISTRATIONS P.E. Arizona, Civil Engineering	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> Wildland Hydrology River Short Courses, Levels I-IV			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> Meadow Valley Wash Geomorphic Assessment Near Caliente, NV	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable) N/A
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager of an assessment of 25 miles of Meadow Valley Wash for the restoration of aquatic and riparian resources. Work included field surveys, GIS analysis, hydraulic modeling, geomorphic characterization and the development of treatment recommendations within a final report. Project Budget - \$100,000	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	(1) TITLE AND LOCATION <i>(City and State)</i> Coyote Creek Watershed Improvement Project, funded by ADEQ Near Springerville, AZ	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project Manager and designer of best management practices for the improvement of water quality within the Coyote Creek watershed, an impaired tributary of the Little Colorado River. Work included hydraulic and hydrologic analysis, development of construction plans and EOPC. Project Budget including construction > \$500,000	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	(1) TITLE AND LOCATION <i>(City and State)</i> Emergency Repair of Moenkopi Sewage Lagoons Near Tuba City, AZ	(2) YEAR COMPLETED	
		Professional Services 2012	Construction (if applicable) 2012
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Project manager and associate designer for the design and construction observation of rip rap stream bank protection. Work included field surveys, hydraulic and hydrologic analysis as well as rock sizing, geomorphic assessment, and the development of construction plans. Project budget including construction - \$450,000	<input checked="" type="checkbox"/>	Check if project performed with current firm
4.	(1) TITLE AND LOCATION <i>(City and State)</i> Post Schultz Fire – Watershed Restoration and Sediment Reduction EWP Project near Flagstaff, AZ	(2) YEAR COMPLETED	
		Professional Services 2010 - 2015	Construction (if applicable) 2011 - 2015
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Associate designer and field survey project manager for the development of sediment reduction strategies and channel restoration measures. Design work included hydraulic, hydrologic, and geomorphic analysis and characterization, GIS analysis and map creation, and EOPC. Project Wide Budget \$11.5 million. NCD Budget for Assessment, Design, and Construction Observation - \$540,000	<input checked="" type="checkbox"/>	Check if project performed with current firm



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5.	(1) TITLE AND LOCATION (<i>City and State</i>) Virgin River Restoration Plan and Environmental Assessment Near Mesquite, NV	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable) N/A
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Associate Project manager for field work, development of geomorphic characterization, and conceptual designs of potential restoration sites along the Virgin River to improve stream function and increase habitat for targeted species. NCD Professional Services Budget - \$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 Mark Wirtanen	b. ROLE IN THIS CONTRACT Biologist/Engineering Tech	c. YEARS EXPERIENCE	
		1. TOTAL 24	2. WITH CURRENT FIRM 16
d. LOCATION <i>(City and State)</i> Natural Channel Design, Flagstaff, AZ			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS – Wildlife Biology, Northern Arizona University		f. PROFESSIONAL TRAINING - REGISTRATIONS	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> Wildland Hydrology River Short Courses – Levels 1-3			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> Canyon and Haigler Creeks Aquatic Habitat Enhancement	(2) YEAR COMPLETED	
		Professional Services Ends in 2016	Construction (if applicable) 2015 - 2016
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE This is an \$81,000 project with the AZ Game and Fish Department. I assisted in the assessment, design, and prepared construction drawings for stream stabilization and trout habitat improvement structures on approximately 2 miles of stream channel on Canyon Creek and 1 mile on Haigler Creek. These streams had been severely impacted by flooding and high sedimentation following the Rodeo-Chediski fire. Phase I construction began in 2015 and Phase II will be completed in 2016. Current duties include construction supervision and on-site plan modifications.	<input checked="" type="checkbox"/> Check if project performed with current firm	
2.	(1) TITLE AND LOCATION <i>(City and State)</i> Restoration of the Gila River at Apache Grove, Apache Grove, AZ	(2) YEAR COMPLETED	
		Professional Services Ends in 2015	Construction (if applicable) 2012
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE This is a \$744,747 AZ Water Protection Fund project with a private landowner. This project included restoring the natural floodplain function and riparian habitats along 1.6 miles of the Gila River, covering over 200 acres. On this project I was responsible for coordinating and supervising the riparian re-vegetation activities on 200 acres. I coordinate the annual weed management activities; I also conduct the annual monitoring and write associated reports.	<input checked="" type="checkbox"/> Check if project performed with current firm	
3.	(1) TITLE AND LOCATION <i>(City and State)</i> Picture Canyon Rio de Flag Meander Restoration Project, Flagstaff, AZ	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable) 2012
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE This is a \$330,225 , AZ Water Protection Fund project with the City of Flagstaff. This multifaceted project included restoring the natural channel meander and floodplain functions on almost 4000 linear feet of stream, restoring native riparian habitat over 12 acres and conducting weed management activities on 40 acres within the project area. I assisted in all aspects of the project including assessment and topographic surveys, development of restoration design and construction drawings, coordination and supervision of re-vegetation activities, coordination of weed management, and annual monitoring.	<input checked="" type="checkbox"/> Check if project performed with current firm	
4.	(1) TITLE AND LOCATION <i>(City and State)</i> Billy Creek Riparian Restoration Project, Pinetop-Lakeside AZ	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2011
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE This was a \$248,826 Water Protection Fund project with the Town of Pinetop-Lakeside. The purpose of the project was to remove impairments and enhance the function of the creek and riparian habitat. Served as Project Manager and assisted in all aspects of the project: assessment, topographical survey, development of design and the construction drawings. I coordinated and supervised the construction and re-vegetation activities. I was in charge of monitoring, writing reports and budget management.	<input checked="" type="checkbox"/> Check if project performed with current firm	



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(1) TITLE AND LOCATION <i>(City and State)</i> Wenima Wildlife Area Stream Restoration, Springerville, AZ	(2) YEAR COMPLETED	
	Professional Services 2013	Construction (if applicable) 2013

5. (3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE Check if project performed with current firm
 This was \$72,000 project with the AZ Game & Fish Dept. The purpose of the project was the restoration of 1,000 linear feet of eroding stream bank to reduce sediment input and enhance wildlife habitat. My role was Project Manager. I assessed the current conditions, assisted the project engineer in the development of the restoration design and drawing of construction plans, applied for permitting from the Army Corp of Engineers, coordinated and supervised construction activities, performed annual monitoring of the site, prepared reports and managing the budget.



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

a. NAME Stephanie Yard	b. ROLE IN THIS CONTRACT Principal/Project Manager/Senior Design Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 28	2. WITH CURRENT FIRM 15
d. LOCATION <i>(City and State)</i> Natural Channel Design, Inc. Flagstaff, AZ			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS Civil Engineering, Northern Arizona University		f. PROFESSIONAL TRAINING - REGISTRATIONS Licensed Civil Engineer in: Arizona (#26889), Alaska (#11189), New Mexico (#19006) Nevada (#20690), Utah (#7293638-2202)	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> Cert: ACOE Wetland Delineation Training (2009) Cert: Rosgen Level II, III (1996) Cert: Rosgen Level IV (1997, 2011)			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> SCHULTZ: Thames Watershed Restoration Project Design and Construction Administration Coconino County near Flagstaff, Arizona	(2) YEAR COMPLETED	
		Professional Services 2012-2013	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Served as Project Manager and Engineer of Record for design and construction administration services. Provide flood protection and watershed restoration benefits to offset the continued impacts and threats by flooding, erosion, and debris damage from the June 2010 Schultz fire. The project will reduce sediment loads originating in the THAMES watershed in USFS lands by restoration of proper channel function and installation of stabilization measures. PROFESSIONAL SERVICES: \$67,600 CONSTRUCTION ADMINISTRATION SERVICES: \$100,000	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	(1) TITLE AND LOCATION <i>(City and State)</i> SCHULTZ: Lenox Watershed Restoration Project Design and Construction Administration Coconino County near Flagstaff, Arizona	(2) YEAR COMPLETED	
		Professional Services 2012-2013	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Served as Project Manager and Engineer of Record for design and construction administration services. Provide flood protection and watershed restoration benefits to offset the continued impacts and threats by flooding, erosion, and debris damage from the June 2010 Schultz fire. The project will reduce sediment loads originating in the LENOX watershed in USFS lands by restoration of proper channel function and installation of stabilization measures. PROFESSIONAL SERVICES: \$55,500 CONSTRUCTION ADMINISTRATION SERVICES: \$60,000	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	(1) TITLE AND LOCATION <i>(City and State)</i> SCHULTZ: Campbell Watershed Restoration Project Design and Construction Administration Coconino County near Flagstaff, Arizona	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Served as Project Manager and Engineer of Record for design and construction administration services. Provide flood protection and watershed restoration benefits to offset the continued impacts and threats by flooding, erosion, and debris damage from the June 2010 Schultz fire. The project will reduce sediment loads originating in the CAMPBELL watershed in USFS lands by restoration of proper channel function and installation of stabilization measures. PROFESSIONAL SERVICES: \$60,810 CONSTRUCTION ADMINISTRATION SERVICES: \$69,500	<input checked="" type="checkbox"/>	Check if project performed with current firm



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4.	(1) TITLE AND LOCATION <i>(City and State)</i> SCHULTZ: Paintbrush Watershed Restoration Project Design Coconino County near Flagstaff, Arizona	(2) YEAR COMPLETED	
		Professional Services 2012-2014	Construction (if applicable) 2014
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Served as Project Manager and Engineer of Record for design services. Provide flood protection and watershed restoration benefits to offset the continued impacts and threats by flooding, erosion, and debris damage from the June 2010 Schultz fire. The project will reduce sediment loads originating in the PAINTBRUSH watershed(s) in USFS lands by restoration of proper channel function and installation of stabilization measures. PROFESSIONAL SERVICES: \$128,750	<input checked="" type="checkbox"/>	Check if project performed with current firm
5.	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE	<input type="checkbox"/>	Check if project performed with current firm



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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> SCHULTZ EMERGENCY WATERSHED PROTECTION (EWP) PROJECT Coconino County, near Flagstaff, Arizona	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2010 – ONGOING	CONSTRUCTION <i>(If applicable)</i> 2013 - 2015

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Coconino County Public Works Coconino National Forest	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$811,460 (NCD amount to date)	e. TOTAL COST OF PROJECT ~\$10 million Construction ~\$2 million Technical Services
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Project Description: The June 2010 Schultz fire on the Coconino National Forest burned approximately 15,000 acres of ponderosa pine forest on the eastern flanks of the San Francisco Peaks approximately four miles northeast of Flagstaff, Arizona. Increased runoff from the burned area has caused extreme flooding in the neighborhoods located downstream. Post fire flooding has damaged stream channels and caused increased erosion and sediment supply to the lower reaches of seven affected watersheds. Both Civiltec and Natural Channel Design (NCD) have acted on behalf of Coconino County to provide management and liaison services as well as comprehensive planning towards the greater Schultz watershed drainage master plan under the USDA NRCS Emergency Watershed Protection Program (EWP). This program provides financial and technical assistance for projects relating to flooding and erosion.

Project Objectives: Schultz EWP project goals are to provide immediate and long-term flood protection and watershed restoration benefits to offset the continued impacts and threats by flooding, erosion, and debris damage as a result the Schultz fire. The project includes an integrated watershed approach that ties watershed recovery efforts on forest to flow conveyance and flood protection measures in the neighborhood. The project will reduce sediment loads originating in USFS lands and will safely convey flood waters through developed public and private lands.

Project Status: Project was funded by NRCS in 2012. Three large scale watershed designs are complete, both on-forest and through the neighborhood; with construction complete on two of those designs. Summer 2013 monsoon rain events were significant, but runoff never entered into the neighborhood; flows spread across rehabilitated fans on-forest as intended. Construction has started on the third design with final completion estimated in Spring 2014. Two other watershed projects are under design. Continued comprehensive planning efforts are ongoing; requires coordination with USFS, Coconino County, local residents and many design consultants and contractors.

Services Provided:

- Development of NRCS EWP action plan and funding request (2011)
- Assist with hydrologic modeling of entire burn area (2011 and 2012)
- Sediment reduction analysis (2012)
- USACE jurisdictional determination (2012)
- Prepared NEPA documents for USFS Environmental Assessment (2012)
- Completed individual treatment measures on private properties (2012)
- Completed Thames watershed forest restoration design plan (2013)
- Completed Lenox watershed forest restoration design plan (2013)
- Completed Campbell watershed forest restoration design plan (2013)
- Developing Paintbrush watershed forest restoration design plans (2013-ongoing)
- Provided construction administration services for Thames and Lenox forest measures (2013)
- Providing construction administration services for Campbell forest measures (2013-ongoing)
- Provided comprehensive design management services for large scale project planning within the Schultz project area





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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> Marshall Lake Enhancement Feasibility Study, south of Flagstaff, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2015 – ONGOING	CONSTRUCTION <i>(If applicable)</i>

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Arizona Game and Fish Department	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$28,000 (Conceptual Design Work)	e. TOTAL COST OF PROJECT N/A
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Marshall Lake is a closed watershed wetland-lake system in northern Arizona near Flagstaff. While this ~130 acre wetland provides important waterfowl habitat and fishing opportunities it has experienced extended drying periods over the last decade. Arizona Game and Fish Department in cooperation with Coconino National Forest sponsored Natural Channel Design, Inc. to conduct a study to determine if the lake is leaking or has diminished inflow from the watershed due to land use and road drainage. Natural Channel Design, Inc. conducted topographic surveys, vegetation surveys, and hydrologic analysis to determine the volume of the lake and the amount of inflow intercepted by road drainage and stock tanks. Natural Channel Design, Inc. made design recommendations that will preserve the wetland functions during low water years and enhance fisheries and waterfowl habitat during medium and high water years. Design measures include, road drainage improvements, fish habitat improvement and separation of the lake and fishing areas through a water control structure. Improvements were provided in a manner consistent with USFS NEPA process to speed up the permitting and implementation phase of the project.



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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> MEADOW VALLEY WASH Lincoln County, near Caliente, Nevada	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2010 – 2015	CONSTRUCTION <i>(If applicable)</i>

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Nevada Department of Wildlife USDA Natural Resources Conservation Service USDA Bureau of Land Management US Fish and Wildlife Services	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$104,000 (NCD)	e. TOTAL COST OF PROJECT
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Project Description:

Meadow Valley Wash is one of the larger streams in southern Nevada. It provides important riparian and aquatic habitat for a variety of native wildlife, although it only has perennial flows in certain reaches. The watershed has been subject to repeated floods and high sediment loads causing damage in City of Caliente infrastructure, to transportation infrastructure, and to natural resources. A multi-agency Technical Review Team has identified the need for a fluvial geomorphology study, to guide efforts in making the watershed more resilient to flooding so that damage to infrastructure and natural resources can be minimized.

Project Objectives:

This study uses a combination of empirical and analytical approaches to determine current stream condition and potential restored function. Direct surveys of the soils, geology, geomorphology, and vegetation of the active stream corridor within a ~25-mile portion of Meadow Valley Wash; have been used to understand the physical and biological elements of Meadow Valley Wash. These observations are augmented and verified with analytical engineering tools and combined to determine stability and proper functioning condition. The final product is a planning document providing treatment recommendation that identify management priorities, possible restoration actions and guidelines for proposed infrastructure and other development projects for impaired reaches within the project area.

Services Provided:

- Natural Channel Design, Inc. is the primary consultant for the project.
- Geomorphic assessments including fluvial and riparian investigations
 - Hydrology and Hydraulics analysis
 - Assessment of riparian and aquatic resources assessments
 - Practice Recommendations
 - Priority matrix for potential restoration sites





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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> Laguna Division Conservation Area Restoration Project Yuma County, Arizona	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2009 - 2015	CONSTRUCTION <i>(If applicable)</i> 2012-2015

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER US Bureau of Reclamation Lower Colorado Multi-Species Conservation Program	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$500,000	e. TOTAL COST OF PROJECT \$25,000,000
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Project Status: Conceptual Restoration Plan Complete in 2009, Detailed Feasibility Study Completed in 2010, Construction of the water delivery system and earthwork commenced in 2011 with expected completion in 2015.

Project Description:

The Bureau of Reclamation is undertaking a large-scale restoration project within the Laguna Reach of the Colorado River near Yuma, Arizona, as part of the Lower Colorado River Multi-Species Conservation Program (LCR-MSCP). The project will restore water flows to the area and replace large stands of salt cedar with a mosaic of marsh, riparian and upland habitats, restoring as much as 1,200 acres of native vegetation along 3-miles of historic Colorado River meanders. The resulting wetland complex is expected to attract many migratory birds and increase acreage for several native birds and mammals on the Endangered Species list.

Project Objectives:

- Construct a water delivery system to convey 100 cfs of water to the wetland. This work includes the construction of a headworks tie-in to the Gila Gravity Main Diversion Structure, installation of 2,800 feet of 48-inch diameter HDPE pipe, and the construction of an outlet works structure.
- Remove invasive vegetation on the 1,200 acre site. This work includes clearing, grubbing, and burying salt cedar and other invasive species and associated long-term weed treatment thereafter.
- Re-contour site to optimize habitat. This work includes moving nearly 1.4 million cubic yards of soil in and around historic floodplain channels of the Colorado River. Spoils from excavation will be utilized to create maintenance roads and an associated trail system.
- Install multiple, large water control structures to allow seasonal water management and site maintenance.
- Revegetate the 1,200 acre site with a mosaic of native wetland, riparian, and upland plants.

Services Provided:

Natural Channel Design, Inc. (NCD) is the lead design consultant for the project with revegetation and permitting assistance provided by Fred Phillips Consulting, LLC (FPC).

- Development of a Conceptual Restoration Plan – NCD provided conceptual design, quantities, and costs for a restoration and revegetation plan that maximized high-quality native riparian plant communities and associated wildlife habitats, minimized maintenance, protected existing infrastructure, and protected and/or enhanced existing riparian habitat.
- Development of a Detailed Feasibility Study – NCD provided a detailed alternative analysis that built upon the previous conceptual plan. Feasibility-level costs for infrastructure, revegetation, and long-term maintenance were provided as a basis for comparison. Based on the analysis, a preferred alternative was chosen by the MSCP steering committee.
- Permitting Assistance – NCD coordinated with the USBR on the Army Corps of Engineers (ACE) Jurisdictional delineation and NEPA compliance, and provided all documents for the ACE 404 permit and Stormwater Pollution Prevention Plan.
- Design for the Water Delivery System Plan – NCD provided analysis for the water delivery system, including hydraulic design, air/vacuum release valve design, pressure manhole design and associated fabrication details, throttling valve design, ring compression, deflection, and buckling analysis for typical pipe sections, buoyancy and thrust block analysis, and structural concrete design.
- Design for the Earthwork and Water Control Plan - NCD provided analysis for the grading and water control plan including hydraulic design and typical channel cross-section development for the wetland channels, earth balance calculations, structural concrete calculations, overshot gate hydraulic design and the development of seasonal water maintenance hydrographs.
- Development of the Water Delivery System Plan & Earthwork and Water Control Plan – NCD created bid-ready construction



ATTACHMENT I – General Qualifications

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- drawings, technical specifications, and engineer's estimates for the project.
- Development of the Revegetation Plan – NCD worked with FPC, as needed, to develop the revegetation plan including plant types and zones and soil and water analysis.
- Project Coordination – Worked with MSCP to coordinate work and provide progress reports/presentations to the Yuma Area Office of USBR, project partners, local water users and irrigation districts, and local residents. All areas of the design were closely coordinated with the general contractor chosen for the project, and recommendations for constructability were incorporated in the final plans.
- Construction Observation – NCD observes construction as needed.





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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> Native Trout Conservation Barrier Analysis and Design Apache, Gila and Coconino County, Arizona	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2008 - present	CONSTRUCTION <i>(If applicable)</i> N/A

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Arizona Game and Fish Department	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT On-Call Services	e. TOTAL COST OF PROJECT N/A
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Project Description:

Barriers preventing the upstream movement of nonnative salmonids are a keystone practice in the conservation of southwestern native trout. Arizona Game and Fish Department manage dozens of barriers throughout the state. However, monitoring has shown that many of the barriers are ineffective. Natural Channel Design was asked to develop an assessment protocol, assess both problem and performing barriers for fish passage, propose, design and oversee the construction of repairs, additions and new barriers as needed. NCD provided hydraulic, structural and geomorphic stability assessments of over twenty barriers. Barriers were prioritized for treatments. Concept designs were developed for approval by AGFD and the USFS. Barrier modifications were implemented in remote areas only accessible by foot, pack animal or helicopter. Final designs and construction drawings have been completed and 6 projects have been implemented. Several large barrier designs are currently underway and assessments are ongoing as a result of severe wildfire and consequent changes in hydrology.

Project Objectives:

Develop design criteria for successful fish barriers to help achieve conservation goals and delisting of endangered southwestern salmonids.

Services Provided:

Natural Channel Design, Inc. is the lead design consultant for the project.

- Develop assessment protocol and hydraulics/fish jump model
- Detailed field assessments
- Analysis and reports determining fish passage risk
- Develop conceptual enhancements
- Develop designs and construction plans
- Supervise construction and repair



Bear Willow Creek – San Carlos Apache Indian Reservation



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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:	80%
b.	Percentage of Total Work Attributable to Non-Government Work:	20%

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

Signature: _____

Date: 12/18/2015 _____

Name: Allen Haden _____

Title: President _____