

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.
 - 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.

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.

**RFQ# ADSP014-00003465, Annual Request for Qualifications and Experience
REVISED - Attachment I – General Qualifications**

List of Disciplines (Function Codes) for Question 7

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 8)

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

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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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REVISED - Attachment I – General Qualifications**

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

1. REVISED ADSPO13-00003465: Annual Request for Qualifications

a.	FIRM (OR BRANCH OFFICE) NAME:	Natural Channel Design, Inc.
b.	FIRM (OR BRANCH OFFICE) STREET:	206 South Elden Street
c.	FIRM (OR BRANCH OFFICE) CITY:	Flagstaff
d.	FIRM (OR BRANCH OFFICE) STATE:	AZ
e.	FIRM (OR BRANCH OFFICE) ZIP CODE:	86001
f.	YEAR ESTABLISHED:2000	2000
(g1).	OWNERSHIP - TYPE:	S-Corporation
(g2)	OWNERSHIP - SMALL BUSINESS STATUS:	Small Business
h.	POINT OF CONTACT NAME AND TITLE:	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 <i>(If block 1a is a branch office):</i>	

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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	P	1	
Environmental Scientist	S		
Geographic Information System	S		
Hydrologist	P	1	
Project Manager	S		
Water Resources Engineer	S		
Total	5 primary, 6 secondary	6	

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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)
19	Conservation and Resource Management	1
4	Construction Management	1
3	Construction Surveying	1
1	Dams (<i>Concrete; Arch</i>)	1
4	Digital Elevation and Terrain Model Development	1
5	Ecological and Archeological Investigations	1
4	Fisheries; Fish Ladders	1
2	Irrigation; Drainage	1
3	Pipelines (<i>Cross-Country - Liquid and Gas</i>)	1
1	Structural Design; Special Structures	1
19	Sustainable Design	1
2	Storm Water Handling and Facilities	1
19	Specifications Writing	1
19	Topographic Surveying and Mapping	1
19	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 Stephanie Yard	b. ROLE IN THIS CONTRACT Principal/Project Manager/Senior Design Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 26	2. WITH CURRENT FIRM 13
d. FIRM NAME AND LOCATION (City and State) Natural Channel Design, Inc. Flagstaff, AZ			
e. EDUCATION (DEGREE AND SPECIALIZATION) BS Civil Engineering, Northern Arizona University		f. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Licensed Civil Engineer in the following states: Arizona (#26889), Alaska (#11189), New Mexico (#19006) Nevada (#20690), Utah (#26889)	
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) 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 (City and State) SCHULTZ: Thames Watershed Restoration Project Design and Construction Administration Coconino County near Flagstaff, Arizona	(2) Year Completed	
		Professional Services 2012-13	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm 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		
2)	(1) TITLE AND LOCATION (City and State) SCHULTZ: Lenox Watershed Restoration Project Design and Construction Administration Coconino County near Flagstaff, Arizona	(2) Year Completed	
		Professional Services 2012-13	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm 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		
3)	(1) TITLE AND LOCATION (City and State) SCHULTZ: Campbell Watershed Restoration Project Design and Construction Administration Coconino County near Flagstaff, Arizona	(2) Year Completed	
		Professional Services 2013	Construction (if applicable) ongoing
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm 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		
4)	(1) TITLE AND LOCATION (City and State) SCHULTZ: Paintbrush Watershed Restoration Project Design Coconino County near Flagstaff, Arizona	(2) Year Completed	
		Professional Services ongoing	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm 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		
5)	(1) TITLE AND LOCATION (City and State)	(2) Year Completed	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input 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 Allen Haden	b. ROLE IN THIS CONTRACT Aquatic Ecologist – Project Manager	c. YEARS EXPERIENCE	
		1. TOTAL 20	2. WITH CURRENT FIRM 8
d. FIRM NAME AND LOCATION (City and State) Natural Channel Design, Inc., 206 S. Elden St. Flagstaff, AZ 86001			
e. EDUCATION (DEGREE AND SPECIALIZATION) MS Aquatic Ecology Northern Arizona University, Flagstaff BS Forestry and Wildlife, Virginia Tech, Blacksburg VA		f. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)	
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) Completed levels I-IV River morphology short courses from Wildland Hydrology, Multiple refereed 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.			

H. RELEVANT PROJECTS

1)	(1) TITLE AND LOCATION (City and State) Laguna Conservation Area Restoration, Yuma, AZ	(2) Year Completed	
		Professional Services 2010 - 2015	Construction (if applicable) 2012 -2015
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) 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)	(1) TITLE AND LOCATION (City and State) Schultz Fire and Flooding Recovery Sediment Reduction Alternatives Coconino County, AZ	(2) Year Completed	
		Professional Services 2011- 2012	Construction (if applicable) NA
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) 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)	(1) TITLE AND LOCATION (City and State) Apache Trout Fish Barrier Assessment and Repair Arizona Game and Fish Department, AZ	(2) Year Completed	
		Professional Services 2010 - present	Construction (if applicable) 2010 - present
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE This project provided assessment of structural and geomorphic stability an 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 ehancement 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)	(1) TITLE AND LOCATION (City and State) Tonto Creek Aquatic Habitat Improvement Gila County, AZ	(2) Year Completed	
		Professional Services 2006- 2010	Construction (if applicable) 2011
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE		

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5)	<p>(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE</p> <p>Purpose is to improve trout holding and fishability 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 align="right"><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 align="center">(2) Year Completed</p> <table border="1"> <tr> <td data-bbox="966 262 1253 304">Professional Services</td> <td data-bbox="1253 262 1563 304">Construction (<i>if applicable</i>)</td> </tr> <tr> <td data-bbox="966 304 1253 378">2010 - present</td> <td data-bbox="1253 304 1563 378">2012</td> </tr> </table>		Professional Services	Construction (<i>if applicable</i>)	2010 - present
Professional Services	Construction (<i>if applicable</i>)					
2010 - present	2012					
	<p>(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE</p> <p>This is a 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>					

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4. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT (Complete one Section 4 for each key person.)

a. NAME Michael Kearly	b. ROLE IN THIS CONTRACT Professional Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 18 yrs	2. WITH CURRENT FIRM 8 mo.
d. FIRM NAME AND LOCATION (City and State) Natural Channel Design, Flagstaff, AZ			
e. EDUCATION (DEGREE AND SPECIALIZATION) BS, Civil Engineering, Northern Arizona University		f. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Professional Engineer, Arizona, Civil Engineer Lic.# 34587	
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) Certified Floodplain Manager (CFM); Cert# US-11-05834 Member Association of State Floodplain Managers Member Arizona Floodplain Managers Association Member American Society of Engineers			

H. RELEVANT PROJECTS

1)	(1) TITLE AND LOCATION (City and State) Floodplain Mapping of South Fork Clay Avenue Wash, Flagstaff, AZ	(2) Year Completed	
		Professional Services 2007	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <div style="float: right;"><input type="checkbox"/> Check if project performed with current firm</div> Lead Designer for CLOMR/LOMR relative to approximately one half mile of channel through private property that had previously been mapped as Approximate Zone A. The CLOMR/LOMR provided formal and final FEMA and Local permitting & approval of grading activities that had previously been completed along and within two adjacent reaches of the wash. One reach had previously received CLOMR approval and another downstream reach had been modified by the owner outside of permitting.		
2)	(1) TITLE AND LOCATION (City and State) East Industrial Drive Improvements, Flagstaff, AZ	(2) Year Completed	
		Professional Services 2009	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <div style="float: right;"><input type="checkbox"/> Check if project performed with current firm</div> 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).		
3)	(1) TITLE AND LOCATION (City and State) Picture Canyon Meander Restoration - Phase II: Flagstaff, AZ	(2) Year Completed	
		Professional Services 2013	Construction (if applicable) 2014 (scheduled)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <div style="float: right;"><input checked="" type="checkbox"/> Check if project performed with current firm</div> Lead Designer for a steam channel restoration project on northeast Flagstaff. Included grading design and plan development, field data collection, identifying Ordinary High Water Mark (OHWM) and preparing Preliminary Jurisdictional Determination report for ACOE submittal and approval.		
4)	(1) TITLE AND LOCATION (City and State) Mountain Meadow Farm Drainage Design, Flagstaff, AZ	(2) Year Completed	
		Professional Services 2013	Construction (if applicable) 2014 (scheduled)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <div style="float: right;"><input checked="" type="checkbox"/> Check if project performed with current firm</div> Lead Designer. Analysis of hydrology and hydraulics of the project site and upstream watersheds to determine best ways to increase stormwater runoff and sediment transport through the site. This was followed by developing an engineered grading plan set for the work for submittal to the local governing agency for approval.		
5)	(1) TITLE AND LOCATION (City and State) Kerley Valley Irrigation Bridge Repair, Tuba City, AZ.	(2) Year Completed	
		Professional Services 2013	Construction (if applicable) 2014 (scheduled)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <div style="float: right;"><input checked="" type="checkbox"/> Check if project performed with current firm</div> Lead Designer/Project Manager. Replacement of a small, failing bridge with concrete box culvert at a perennial wash crossing of local road. Included hydrologic and hydraulic analysis as well as designing permanent scour protection to an impaired reach of the wash below the bridge.		

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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 3	2. WITH CURRENT FIRM 3
d. FIRM NAME AND LOCATION (City and State) Natural Channel Design, Inc, Flagstaff, Arizona			
e. EDUCATION (DEGREE AND SPECIALIZATION) BS - Civil Engineering, Utah State University MS- Geology, Utah State University		f. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) E.I.T, Arizona, Civil Engineering	
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) Wildland Hydrology River Short Courses, Levels I-IV			

H. RELEVANT PROJECTS

1)	(1) TITLE AND LOCATION (City and State) Meadow Valley Wash Geomorphic Assessment near Caliente, NV	(2) Year Completed	
		Professional Services 2013/2014	Construction (if applicable) N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) 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 and hydrologic modeling, geomorphic characterization and the development of treatment recommendations within a final report. Project Budget ~\$100,000		
2)	(1) TITLE AND LOCATION (City and State) Coyote Creek Watershed Improvement Project, funded by ADEQ near Springerville, AZ	(2) Year Completed	
		Professional Services 2013	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) 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 an EOPC. Project Budget including construction >\$500,000		
3)	(1) TITLE AND LOCATION (City and State) Emergency Repair of the Moenkopi Sewage Lagoons near Tuba City, AZ	(2) Year Completed	
		Professional Services 2012	Construction (if applicable) 2012
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Project manager and associate designer for the design and construction observation of rip rap streambank 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		
4)	(1) TITLE AND LOCATION (City and State) Post Schultz Fire - Watershed Restoration and Sediment Reduction EWP Project near Flagstaff, AZ	(2) Year Completed	
		Professional Services 2010 - Present	Construction (if applicable) 2011 - Present
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) 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		
5)	(1) TITLE AND LOCATION (City and State) Virgin River Restoration Plan and Environmental Assessment near Mesquite, NV	(2) Year Completed	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) 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		

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REVISED - Attachment I – General Qualifications**

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 15	2. WITH CURRENT FIRM 2
d. FIRM NAME AND LOCATION (City and State) Natural Channel Design, Flagstaff, AZ			

e. EDUCATION (DEGREE AND SPECIALIZATION) BS, Civil Engineering, Virginia Tech MS, Environmental Engineering, University of Illinois, Urbana-Champaign MS, Forestry (Restoration Ecology), Northern Arizona University	f. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Engineer in Training (EIT), Illinois
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g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)
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H. RELEVANT PROJECTS

1)	(1) TITLE AND LOCATION (City and State) Schultz Fire-Flood Assistance Area Emergency Watershed Protection, Watershed Restoration Project Design and Construction Administration. Coconino County near Flagstaff, AZ	(2) Year Completed	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) 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	<input checked="" type="checkbox"/> Check if project performed with current firm	
2)	(1) TITLE AND LOCATION (City and State) Lower South Fork Little Colorado River Fish Barrier Enhancement, near Springerville, AZ	(2) Year Completed	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) 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.	<input checked="" type="checkbox"/> Check if project performed with current firm	
3)	(1) TITLE AND LOCATION (City and State) Montezuma Well Riparian Restoration Project, Montezuma Castle National Monument near Camp Verde, AZ	(2) Year Completed	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) 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	<input checked="" type="checkbox"/> Check if project performed with current firm	
4)	(1) TITLE AND LOCATION (City and State) Restoration of the Gila River at Apache Grove Apache Grove, AZ	(2) Year Completed	
		Professional Services	Construction (if applicable) 2012
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) 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	<input checked="" type="checkbox"/> Check if project performed with current firm	
5)	(1) TITLE AND LOCATION (City and State) Lee Valley Fish Barrier Removal and Headcut Stabilization Plans, near Springerville, AZ	(2) Year Completed	
		Professional Services: 2013	Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE 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	<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 22	2. WITH CURRENT FIRM 14
d. FIRM NAME AND LOCATION (City and State) Natural Channel Design, Inc, Flagstaff, AZ			
e. EDUCATION (DEGREE AND SPECIALIZATION) BS - Wildlife Biology, Northern Arizona University		f. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)	
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) Wildland Hydrology River Short Courses – Levels 1-3			

H. RELEVANT PROJECTS

1)	(1) TITLE AND LOCATION (City and State) Schultz Fire-Flood Assistance Area Emergency Watershed Protection, Watershed Restoration Project Design and Construction Administration Coconino County near Flagstaff, AZ	(2) Year Completed	
		Professional Services Ends in 2014	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) 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. I was an Associate Designer in the design and development of construction drawings. I was also the construction observer for the company. This project is ongoing. Project budget: \$11,500,000. NCD budget ~ \$540,000		
2)	(1) TITLE AND LOCATION (City and State) 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 (Brief scope, size, cost, etc.) 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.		
3)	(1) TITLE AND LOCATION (City and State) Picture Canyon Rio de Flag Meander Restoration Project, Flagstaff, AZ	(2) Year Completed	
		Professional Services Ends in 2014	Construction (if applicable) 2012
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) 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.		
4)	(1) TITLE AND LOCATION (City and State) Billy Creek Riparian Restoration Project, Pinetop-Lakeside AZ	(2) Year Completed	
		Professional Services 2013	Construction (if applicable) 2011
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) 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.		
5)	(1) TITLE AND LOCATION (City and State) Wenima Wildlife Area Stream Restoration, Springerville, AZ	(2) Year Completed	
		Professional Services 2013	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE 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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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 - ONGOING

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Coconino County Public Works Coconino National Forest	d. DOLLAR AMOUNT OF PROJECT \$811,460 (NCD amount to date)	e. TOTAL COST OF PROJECT <u>TOTAL PROJECT BUDGET</u> ~\$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.)

b. TITLE AND LOCATION <i>(City and State)</i> PICTURE CANYON – PHASE I & II Flagstaff, Arizona	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2008 – ONGOING	CONSTRUCTION <i>(If applicable)</i> 2010 - ONGOING

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER City of Flagstaff	d. DOLLAR AMOUNT OF PROJECT \$145,000 (NCD amount)	e. TOTAL COST OF PROJECT TOTAL PROJECT BUDGET - \$625,000 \$480,000 Construction \$145,000 Technical Services
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Project Status: AWPf grant was awarded to the City of Flagstaff (COF) in 2008 for Phase I and in 2013 for Phase II. Phase I objectives included restoring the function and habitat quality of a 1-mile reach of the Rio de Flag (RDF) downstream of the Wildcat Hills Waste Water Treatment Plant. Earthwork, water control structures, revegetation, fencing and irrigation system installation have been completed. Annual monitoring, weed management, and public outreach are expected to continue through 2013. Phase II will extend the restoration area to a 3500-foot long RDF reach immediately upstream of, and adjacent to the Picture Canyon Phase I. Initial planning Phase II is underway with implementation expected in 2014 and final completion in 2015.

Project Description: RDF is the primary watercourse winding through Flagstaff, Arizona. The stream channel is ephemeral or intermittent depending on the season and local geology. PHASE I: stream channel was dredged and straightened, removing a number of natural meanders leaving no access to the floodplain and very limited riparian plant community. Noxious weeds invaded the site due to ground disturbing activities. PHASE II: this portion is degraded by many of the same factors including encroachment of utility infrastructure, multiple unused stream crossings that hinder natural hydraulics, trash and fill dumping and invasion of nonnative weeds.

Project Objectives: Restore fluvial processes of the stream and enhance the riparian corridor for habitat, recreation, and aesthetics. Public support and participation has been tremendous and the City of Flagstaff recently purchased the Phase I restoration site and adjacent property for inclusion as a natural resource and archaeological site conservation area.

Services Provided: Natural Channel Design, Inc. (NCD) is the lead design consultant for the project. Responsibilities included site assessment and design analysis; design of all conservation practices; preparation of construction documents; permitting under sections 404 and 401 of the Clean Water Act and others; construction oversight during earthwork and structure installations, weed management, revegetation, and fence installation; annual monitoring; and public workshop activities. NCD partnered with many public, private, and governmental entities, including: City of Flagstaff, Coconino County, US Fish and Wildlife Service, Coconino Natural Resource Conservation District, COF Wildcat Hill Wastewater Treatment Plant, Arizona State Land Department, Manterola Sheep Company, Arizona Game and Fish, Northern Arizona University – Centennial Forest and Dept of Anthropology, COF Open Space Commission, University of Arizona Cooperative Extension, Coconino National Forest, Flagstaff Biking Organization, Northern Arizona Trail Runners Association, Museum of Northern Arizona, Audubon Society, Picture Canyon Core Working Group, Friends of Rio de Flag, Rupestrian Cyberservices, and Natural Resources Conservation Service.



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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.)

c. TITLE AND LOCATION <i>(City and State)</i> MEADOW VALLEY WASH Lincoln County, near Caliente, Nevada	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2010 – ONGOING	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. DOLLAR AMOUNT OF PROJECT \$104,000 (NCD)	e. TOTAL COST OF PROJECT
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g. 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 de

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 <table border="1"> <tr> <td data-bbox="982 254 1250 329"> PROFESSIONAL SERVICES 2009 - 2015 </td> <td data-bbox="1250 254 1554 329"> CONSTRUCTION <i>(If applicable)</i> 2012 - 2015 </td> </tr> </table>		PROFESSIONAL SERVICES 2009 - 2015	CONSTRUCTION <i>(If applicable)</i> 2012 - 2015
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. DOLLAR AMOUNT OF PROJECT \$500,000	e. TOTAL COST OF PROJECT \$25,000,000
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h. 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

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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.)

b. 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> NA
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23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Arizona Game and Fish Department	d. DOLLAR AMOUNT OF PROJECT On-Call Services	e. TOTAL COST OF PROJECT NA
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i. 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

6. ADDITIONAL INFORMATION

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

Natural Channel Design, Inc. (NCD) is an engineering consulting firm with an interdisciplinary team of natural resource specialists providing services in conservation engineering, restoration ecology, natural resource planning and river engineering. NCD has been operating for over 15 years and has designed, managed, and supervised construction of stream channel projects throughout the southwest.

NCD has extensive experience in surveying and field data inventory, engineering, watershed assessment, geomorphology, hydrology, hydraulics, drainage, flood control, erosion control, irrigation, wetland and riparian ecology, wildlife biology, aquatic ecology, stream bank stabilization, enhancement of stream channels, GIS and spatial modeling, socio-ecology, and sociology. NCD has applied that expertise to community planning, design and permitting, construction implementation, and monitoring of projects for federal and state agencies, tribal entities, municipalities, and private owners.

Philosophy of Firm

Our work utilizes a combination of stream assessments and geomorphic evaluations supplemented by analytic assessments. Stream channel assessment requires three distinct steps: characterization of existing conditions, identification of the potential, or reference condition, for the system, and finally comparing the existing condition against the potential of the system to identify stream needs and design criteria. The geomorphic approach utilizes the characterization of an appropriate, functioning “reference reach” to establish the basic geomorphic design parameters. Once these parameters are established an analytical assessment of critical velocities, shear stresses, and other physical processes are incorporated to complete the design to meet project objectives.

Stream channels are created and maintained by the processes of their watersheds. In simplistic terms, their primary functions are to convey flood flows, transport sediment, and dissipate energy. To perform these functions, the fluvial processes of the stream create specific forms. The inherent stability of any natural channel is dependent on an appropriate dimension, pattern, and profile of the bankfull channel and associated floodplain and terraces. Many times traditionally “designed” or engineered channels have resulted in altered natural stream forms reducing the stream’s ability to perform its basic functions. Closely matching the central tendencies of the natural channel in both form and process results in a design that works with the existing stream processes rather than against it reducing instability and maintenance cost.

The results are design components that lie within the natural variability of stream channel morphology, sediment transport, watershed hydrology, valley shape/slope, and alluvial substrate along with educational, aesthetic, recreational, and other social considerations that will best meet project objectives. We have extended these principles successfully to a range of projects including habitat enhancement, bank stabilization, transportation infrastructure, drainage design, cultural resource protection, fish passage, and watershed planning efforts in both urban and rural environments.

We also consider how society and the natural processes of rivers can coincide. We have pioneered ways to safely and effectively integrate river function with public safety and community needs. A project’s success is often dependent on stakeholder and general public understanding of objectives and goals as well as the techniques utilized. We try to include public outreach and education in as many of our projects as possible.

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: 12/12/2013

Name: Allen Haden

Title: Vice President