

# Arizona Water Protection Fund FY 2011 Grant Application Review

Application # WPF0399 Applicant: City of Show Low

Title of Project: Show Low Creek Erosion Control

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Additional materials were submitted with this application that could not be reproduced and distributed for review. These materials may be reviewed in person at the Arizona Water Protection Fund offices at (3550 N. Central Avenue, 2<sup>nd</sup> Floor, Phoenix). The additional materials available are the following:

Maps  
 Photographs  
 Disk  
 Other

WPF0399

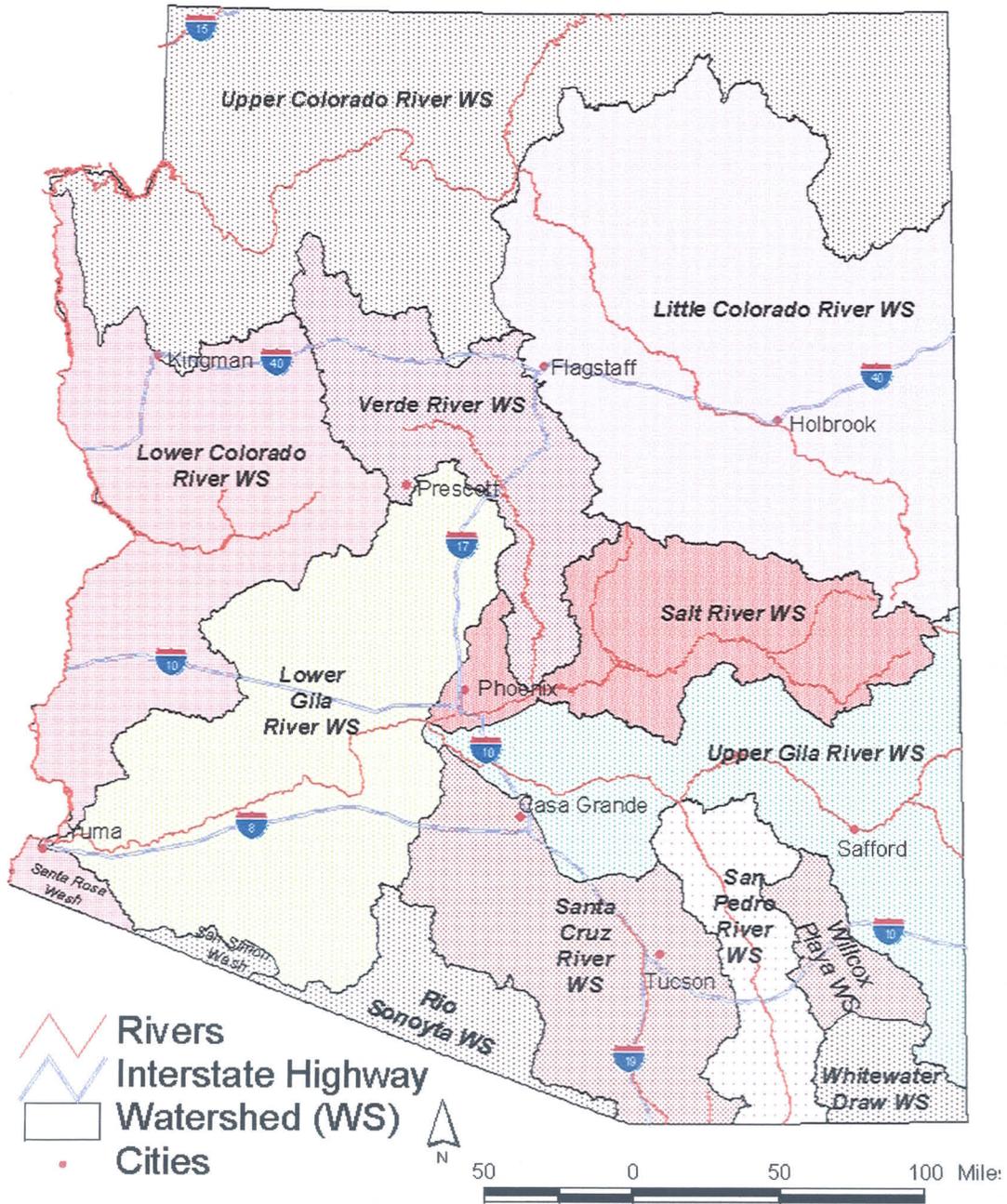
**Arizona Water Protection Fund  
Application Cover Page  
FY 2011**

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<b>Title of Project:</b> Show Low Creek Erosion Control		<b>Water Protection Fund</b>											
<b>Type of Project:</b> <input checked="" type="checkbox"/> Capital or Other <input type="checkbox"/> Water Conservation <input type="checkbox"/> Research		<b>Stream Type:</b> <input checked="" type="checkbox"/> Perennial <input type="checkbox"/> Intermittent <input type="checkbox"/> Ephemeral											
<b>Your level of commitment to maintenance of project benefits and capital improvements:</b> <input type="checkbox"/> < 5 years <input type="checkbox"/> 5-10 years <input type="checkbox"/> 11-15 years <input checked="" type="checkbox"/> 16-20 years													
<b>Applicant Information:</b> Name/Organization: City of Show Low Address 1: 550 North 9 <sup>th</sup> Place Address 2: City: Show Low State: AZ ZIP Code: 85901 Phone: (928) 532-4097 Fax: (928) 532-4009 Tax ID No.: <span style="background-color: black; color: black;">XXXXXXXXXX</span>			<b>Inside an AMA:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>  <b>If yes, which AMA:</b> <input type="checkbox"/> Phoenix <input type="checkbox"/> Tucson <input type="checkbox"/> Prescott <input type="checkbox"/> Pinal <input type="checkbox"/> Santa Cruz										
			<b>Type of Application:</b> <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation										
<b>Contact Person:</b> Name: Harvey "Holiday" Van Sciver Title: Grant Coordinator Phone: (928) 532-4097 Fax: (928) 532-4009 e-mail: holiday@showlowaz.gov			<b>Any Previous AWPf Grants:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  <b>If yes, please provide Grant #(s):</b>										
<b>Arizona Water Protection Fund Grant Amount Requested:</b>  \$263,875.00  If the application is funded, will the Grantee intend to request an advance: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<b>Matching Funds Obtained and Secured:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 70%;"><u>Applicant/Agency/Organization:</u></td> <td style="width: 30%;"><u>Amount (\$):</u></td> </tr> <tr> <td>1. Applicant</td> <td align="right">0</td> </tr> <tr> <td>2.</td> <td></td> </tr> <tr> <td>3.</td> <td></td> </tr> <tr> <td align="right" colspan="2"><b>Total: 0.00</b></td> </tr> </table>		<u>Applicant/Agency/Organization:</u>	<u>Amount (\$):</u>	1. Applicant	0	2.		3.		<b>Total: 0.00</b>	
<u>Applicant/Agency/Organization:</u>	<u>Amount (\$):</u>												
1. Applicant	0												
2.													
3.													
<b>Total: 0.00</b>													
Has your legal counsel or contracting authority reviewed and accepted the Grant Award Contract General Provisions? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A													
<b>Signature of the undersigned certifies understanding and compliance with all terms, conditions and specifications in the attached application. Additionally, signature certifies that all information provided by the applicant is true and accurate. The undersigned acknowledges that intentional presentation of any false or fraudulent information, or knowingly concealing a material fact regarding this application is subject to criminal penalties as provided in A.R.S. Title 13. The Arizona Water Protection Fund Commission may approve Grant Awards with modifications to scope items, methodology, schedule, final products and/or budget.</b>													
Rick Fernau		Mayor (928) 521-0171											
<b>Typed Name of Applicant or Applicant's Authorized Representative</b>		<b>Title and Telephone Number</b>											
		8/31/10											
<b>Signature</b>		<b>Date Signed</b>											

# Arizona Watershed Map FY 2011



Title of Project: Show Low Creek Erosion Control

**Project Location & Environmental Contaminant Information  
FY 2011**

<b>Project Location Information</b>			
1. County: <u>Navajo</u>	2. Section: <u>17</u>	3. Township: <u>10 North</u>	4. Range: <u>22 East</u>
<p>5. Watershed: <u>Little Colorado</u></p> <p>6. 8 or 10 Digit Hydrologic Unit Code (HUC): <u>1502000501</u></p> <p>7. Name of USGS Topographic Map where project area is located: <u>Show Low North</u></p> <p>8. State Legislative District: <u>AZ-01</u></p> <p>(Information available at:  <a href="http://159.87.126.6/mapping/default2.asp?tname=Original.2009.Legislative.Map&amp;org2009leg=on&amp;service=ircmaps&amp;init=true">http://159.87.126.6/mapping/default2.asp?tname=Original.2009.Legislative.Map&amp;org2009leg=on&amp;service=ircmaps&amp;init=true</a>)</p> <p>9. Land ownership of project area: <u>City of Show Low</u></p> <p>10. Current land use of project area: <u>riparian</u></p> <p>11. Size of project area (in acres): <u>1.0</u></p> <p>12. Stream Name: <u>Show Low Creek</u></p> <p>13. Length of stream through project area: <u>300 feet</u></p> <p>14. Miles of stream benefited: <u>2.0 miles</u></p> <p>15. Acres of riparian habitat: <u>1000 acres</u> will be:</p> <p align="right"> <input checked="" type="checkbox"/> Enhanced  <input checked="" type="checkbox"/> Maintained  <input checked="" type="checkbox"/> Restored  <input type="checkbox"/> Created         </p>			
16. Provide directions to the project site from the nearest city or town. List any special access requirements:			
<b>Environmental Contaminant Location Information</b>			

1. Does your project site contain known environmental contaminants? YES NO If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants:
  
2. Are there known environmental contaminants in the project vicinity? YES NO If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants: The Show Low Waste Treatment Lagoons are situated approximately 40 feet west of the Show Low Creek, separated by the berm, which we hope to restore and stabilize with this funding. The lagoons contain high levels of fecal coliform bacteria, various enteric pathogens, elemental and chemical contaminants, in addition to pharmaceuticals that have been disposed in the waste system. There has not been any migration of these dangerous contaminants from the waste treatment lagoons into the creek, nor is there any immediate threat that they will do so.
  
3. Are you asking for Arizona Water Protection Fund monies to identify whether or not environmental contaminants are present? YES NO

## STATE HISTORIC PRESERVATION OFFICE Review Form

In accordance with the State Historic Preservation Act (SHPO), A.R.S. 41-861 *et seq.*, effective July 24, 1982, each State agency must consider the potential of activities or projects to impact significant cultural resources. Also, each State agency is required to consult with the State Historic Preservation Officer with regard to those activities or projects that may impact cultural resources. Therefore, it is understood that **recipients of state funds are required to comply with this law** throughout the project period. All projects that affect the ground-surface that are funded by AWPf require SHPO clearance, **including those on private and federal lands.**

The State Historic Preservation Office (SHPO) must review each grant application recommended for funding in order to determine the effect, if any, a proposed project may have on archaeological or cultural resources. To assist the SHPO in this review, the following information **MUST** be submitted with each application for funding assistance:

- A completed copy of this form, and
- A United States Geological Survey (USGS) 7.5 minute map
- A copy of the cultural resources survey report if a survey of the property has been conducted, and
- A copy of any comments of the land managing agency/landowner (i.e., state, federal, county, municipal) on potential impacts of the project on historic properties.  
NOTE: If a federal agency is involved, the agency must consult with SHPO pursuant to the National Historic Preservation Act (NHPA); a state agency must consult with SHPO pursuant to the State Historic Preservation Act (SHPA),  
**OR**
- A copy of SHPO comments if the survey report has already been reviewed by SHPO.

### Please answer the following questions:

1. Grant Program: Arizona Water Protection Fund
2. Project Title: Show Low Creek Erosion Control
3. Applicant Name and Address: City of Show Low, 550 N. 9<sup>th</sup> Place, Show Low, AZ 85901
4. Current Land Owner/Manager(s): City of Show Low
5. Project Location, including Township, Range, Section: 10N, 22E, 17
6. Total Project Area in Acres (or total miles if trail): 1.0
7. Does the proposed project have the potential to disturb the surface and/or subsurface of the ground?      YES      NO
8. Please provide a brief description of the proposed project and specifically identify any surface or subsurface impacts that are expected: We propose to remediate the natural erosion occurring along 300 feet of the western bank of Show Low Creek near the Show Low waste treatment lagoons by restoring the stream banks with fill and installing gabions to protect the creek bank from further erosion and preserve the affected area.

9. Describe the condition of the current ground surface within the entire project boundary area (for example, is the ground in a natural undisturbed condition, or has it been bladed, paved, graded, etc.). Estimate horizontal and vertical extent of existing disturbance. Also, attach photographs of project area to document condition: A long berm, supporting a 10 foot wide unpaved road, has been constructed along the western side of Show Low Creek for a distance of approximately 750 feet, and this berm, which is about 15 feet high from the creek, separates two waste treatment lagoons on the west of Show Low Creek from the creek. The bank on the west of the creek has been naturally disturbed by high flow conditions, causing extensive erosion along the bank. Photographs are attached.

10. Are there any known prehistoric and/or historic archaeological sites in or near the project area?  
 YES  NO

11. Has the project area been previously surveyed for cultural resources by a qualified archaeologist?  
 YES  NO  UNKOWN

**If YES, submit a copy of the survey report. Please attach any comments on the survey report made by the managing agency and/or SHPO**

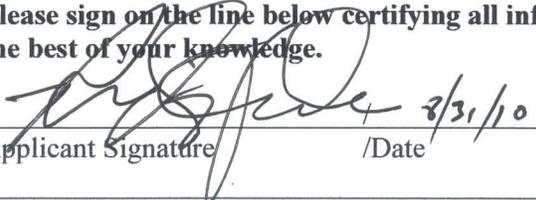
12. Are there any buildings or structures (including mines, bridges, dams, canals, etc.), which are 50-years or older in or adjacent to the project area?  YES  NO

**If YES, complete an Arizona Historic Property Inventory Form for each building or structure, attach it to this form and submit it with your application.**

13. Is your project area within or near a historic district?  YES  NO

**If YES, name of the district:**

**Please sign on the line below certifying all information provided for this application is accurate to the best of your knowledge.**

  
 Applicant Signature /Date 8/31/10

RICK FERNAU, Mayor  
 Applicant Printed Name

FOR SHPO USE ONLY	
SHPO Finding: <input type="checkbox"/> Funding this project will not affect historic properties. <input type="checkbox"/> Survey necessary – further GRANTS/SHPO consultation required ( <i>grant funds will not be released until consultation has been completed</i> ) <input type="checkbox"/> Cultural resources present – further GRANTS/SHPO consultation required ( <i>grant funds will not be released until consultation has been completed</i> )	
SHPO Comments	
For State Historic Preservation Office:	Date:

**I. Executive Summary.** Show Low Creek passes through the City of Show Low for a distance of approximately 7.5 meandering miles from Show Low Lake in the South to Fools Hollow Lake in the North. In its course, the creek passes by the Show Low Waste Treatment plant, which is separated from the stream on its east by a long mound or berm of soil, approximately 15 feet in height and 40 feet in width. High water flows and natural hydraulic turbulence have effected significant erosion and soil loss along a 300 foot stretch of the berm, which serves as a bank of Show Low Creek and protection for its rich riparian resources. The City of Show Low is seeking a grant from the Arizona Water Protection Fund to restore and stabilize this length of the western bank of Show Low Creek, to minimize future soil erosion and soil migration into the riparian areas downstream and to prevent possible contamination from the waste treatment lagoons.

## **II. Project Overview.**

**a. Background.** The City of Show Low purchased ten acres of land between North 6<sup>th</sup> Street and the Show Low Creek in 1960. Subsequently, it constructed a waste treatment plant with two large aerated ponds or lagoons. To protect the waters of the Show Low Creek and its riparian areas nearby and downstream, the City constructed a mound of dirt supporting a 10-foot wide roadway between the lagoons and the creek. High water flows over the years have caused significant erosion along the eastern side of the berm, especially along a 300 feet length of the bank parallel to the southern lagoon.

**b. Goals.** The ultimate goal of the City is to restore the eroded berm and employ measures to prevent further erosion of the stream bank near the waste treatment plant.

**c. Objectives.** The City seeks through this project to (1) protect the native riparian vegetation and habitat of the Show Low Creek from the project site, northward to Fools Hollow Lake; (2) to restore the habitat needs of fish and wildlife associated with the creek; (3) to restore proper stream geomorphology by preventing further soil loss and stream migration adjacent the waste treatment plant; (4) to prevent further damage from seasonal flooding and fast stream flows along the waste treatment plant, and (5) to protect the creek and riparian areas from pollution originating in the waste treatment lagoons in the event of total erosion of the prophylactic berm.

**d. Statement of Problems/Causes.** During periods of snow melt and monsoon rains, the Show Low Creek rises in depth and speed of flow, and through natural dynamic action, its increased force and turbulence erodes the soft soils of its western bank near the southern lagoon of the municipal waste treatment plant. Substantial soil loss has already occurred, undermining the city-erected fence situated on the bank.

**e. Statement of Solutions.** The optimal solution requires the restoration of the lost stream bank and the installation of a gabion revetment system to prevent future erosion. Gabions are double twisted hexagonal wire mesh box-shaped baskets of various sizes and dimensions compartmented into internal cells. The gabion baskets are connected to adjoining gabion baskets and filled with hard durable stone to create flexible, permeable, durable monolithic structures. Flexibility is an important benefit of any gabion structure. The double-twist hexagonal mesh construction permits it to tolerate differential settlement without fracture. This property is especially important when a structure is on unstable soil conditions or in areas where scour from wave action or currents can undermine the toe of the structure and cause structural settlement. Gabions support plant growth which provides a live coating for the wire mesh and stones, adding to their durability. This is an environmentally sensitive solution to slope stabilization. Gabions are filled with natural stones, making the gabions porous, allowing for the deposition of soil between the stone voids and promoting vegetative growth.

**f. Statement of Project Years of Benefit.** With routine maintenance, the gabion revetment system should provide at least 50 years of erosion control and bank stabilization.

**III. Project Location and Environmental Contaminant Information.** The project is located along a 300 foot stretch of the western bank of the Show Low Creek, where it is parallel to the Show Low Waste Treatment Plant on the west. There are no known environmental contaminants at the project location. However, the nearby waste settling lagoons (40 feet westward from the Show Low Creek) have every sort of contaminant one would expect in such a setting, including high levels of fecal coliform bacteria. Periodic testing of the creek adjacent the lagoons have not shown any migration of those pollutants from the lagoons.

#### **IV. Project Maps and Schematic.**

**Arizona Watershed Map - attached**

**Project Location/Ownership Map(s) - attached**

**Project Schematic - attached**

#### **V. Scope of Work.**

**Task # 1:** Permits, Authorizations, Clearances and Existing Data.

**Task Description:** Grantee shall obtain all permits, authorizations and clearances necessary to proceed with tasks comprehended in Scope of Work. The first step involves the collection of available data that would be useful at different phases of the project: thematic mapping (topography, geology, hydrogeology, land use and vegetation cover), aerial photos, satellite images,

hydrological data (runoff and sediment transportation), meteorological data (rainfall and evaporation) and geotechnical and geological data (ground conditions).

**Task Purpose/Objective:** To comply with all local, state and federal laws and regulations and to acquire adequate site data to enable optimal work product.

**Deliverable Description:** Copies of all approved permits, clearance and authorizations, maps, photos, images and technical data reports.

**Deliverable Due Date:** Prior to any ground disturbing activities.

**Task Cost:** \$48,000

### **Task # 2: Mobilization.**

**Task Description:** Moving into the project site area all equipment, materials and facilities required for the proper performance and completion of the Scope of Work.

**Task Purpose/Objective:** To enable an efficient process of construction, reduce costs, complete the project on time and within established quality standards.

**Deliverable Description:** Mobilization shall include all activities and costs for transportation of personnel, equipment and supplies/materials to the site, establishment other necessary facilities for the Contractor's operations at the site.

**Deliverable Due Date:** Within ten (10) days after acquisition of all necessary permits, clearances, authorizations and reports.

**Task Cost:** \$14,500.00

### **Task # 3: Preliminary site preparation, survey and lay-out.**

**Task Description:** Remove existing chain-link fence from along entire eastern boundary of waste treatment site, including the project site, storing it on-site for later re-erection along a line higher up the berm from its present location. Locate the vegetation clearing limits on the ground as shown by the cut and fill limits on the plans. Remove debris and vegetation from within the clearing limits on the project site. Calculate all grades, elevations, offsets and alignment data necessary for staking and setting items of work. Schedule, coordinate, and provide all construction surveying, staking, measurement and calculations essential to complete and properly control alignment and grade for the entire work. Establish slope and grading survey points, elevations and grades as necessary to control layout and to complete the grade work. Verify all control surveying and staking meets specified tolerances prior to beginning work.

**Task Purpose/Objective:** To ensure that all project improvements are installed to the alignments and grades shown on the plans or as directed in the field.

**Deliverable Description:** A cleared worksite. All work performed in accordance with the plans and specifications and standard Engineering and Surveying practices under the responsible charge of a Professional Engineer or Professional Land Surveyor duly and properly registered in Arizona. Furnish tools, supplies, and stakes suitable for use in gabion and utility survey work. Furnish and install all necessary slope stakes and stakes used for the alignment and grade of all improvements. Furnish and install stakes and hubs of sufficient

length to provide a solid set in the ground with sufficient surface area above ground for necessary legible markings. Furnish calibrated survey instruments and supporting equipment capable of achieving the tolerances set forth in the specifications. The project site will be prepared for grading.

**Deliverable Due Date:** Two weeks from completion of mobilization.

**Task Cost:** \$49,750.00

**Task # 4:** Adjust the grade.

**Task Description:** Prepare the foundation layer for the gabions by grading and compacting the berm slope to create a consistently even surface across the project site in accordance with the survey stakes. Common excavation and fill dirt will be added where needed to create an even slope along the 300 linear feet of the project site. An important advantage of gabions with respect to other construction materials is that they can be directly placed on any type of soil. In spite of that, especially in hydraulic structures, it is preferable to avoid direct contact between the gabions and the natural soil, since water passing through and on the structure can scour the soil. To avoid this, a layer of geotextile shall be placed over the graded natural soil or foundation material. The non-woven geotextile filter fabric shall be 8 oz. Maccaferri Geotextile Mactex. The geotextile will allow the passage of water, but not soil, and it will protect the material adjacent to the gabions from scour. To avoid leaks through holes in the geotextile, the foundation layer will be smooth and free from angular stones.

**Task Purpose/Objective:** To create a level and compact foundation for installation of the gabions.

**Deliverable Description:** An even embankment, as engineered and surveyed, for installation of the gabions, for the 300 linear foot length of the project site, covered with a layer of geotextile fabric, in accordance with specifications provided.

**Deliverable Due Date:** 10 days from completion of survey and staking.

**Task Cost:** \$60,950.00

**Task # 5.** Construction and Installation of Gabion Revetment.

**Task Description:** The scope of work includes the supply, assembly, stone filling, and closing double twisted hexagonal woven wire mesh gabion mattresses. The mattress Gabion is a mattress shaped container manufactured from heavily galvanized wire coated with PVC to form a flexible and effective surface protection to defend against erosion and scouring. The flexible wire mesh will accommodate significant deformation without failure. The base and sides of the mattress gabions are made of a single sheet of wire mesh (main panel). Partition panels (diaphragms) are made of the same wire mesh as the main panel and are attached to the base of the main panel dividing the mattress gabions into 3-foot cells. The lid is formed either by a single sheet or in rolls of a specified length from the same wire as is in the main panel. The gabions shall have a depth of 1.5 feet. The gabions shall be placed on a prepared foundation surface, in accordance with the lines, grades, and dimensions shown and specified within work plan documents. Empty gabion mattresses shall be

assembled individually and placed on the approved surface to the lines and grades as shown or as directed, with the position of all sides level. All gabion mattresses shall be properly positioned horizontally and vertically as shown in the construction drawings. Finished gabion structures shall have no gaps along the perimeter of the contact surfaces between adjoining units. All adjoining empty gabion units shall be connected along the perimeter of their contact surfaces in order to obtain a monolithic structure. All lacing wire terminals shall be securely fastened. All joining shall be made through selvedge-selvedge or selvedge-edge wire connections. Mesh-mesh wire connection is prohibited except in the case where mattresses are offset or stacked and selvedge-mesh or mesh-mesh wire connection would be necessary. As a minimum, a fastener shall be installed at each mesh opening at the location where mesh wire meets selvedge or edge wire. The initial line of gabion mattress units shall be placed on the prepared geotextile layer surface and adjoining empty baskets set to line and grade, and common sides with adjacent units thoroughly laced or fastened. They shall be placed in a manner to remove any kinks or bends in the mesh and to uniform alignment. The mattress units then shall be partially filled to provide anchorage against deformation and displacement during the filling operation. The stone shall be placed in the units as specified or directed by the manufacturer. Deformation and bulging of the gabion units, especially on the wall face, shall be corrected prior to additional stone filling. Care shall be taken, when placing the stone by hand or machine, to assure that the PVC coating on the gabions will not be damaged. All stone on the exposed face shall be hand placed to ensure a neat compact appearance. Gabions shall be uniformly overfilled by about 1-3 inches to account for future structural settlements and for additional layers. Cells shall be filled to a depth not exceeding 1' at a time. The fill layer should never be more than 1' higher than any adjoining cell. Connecting wires shall be installed from the front to back and side to side of the individual cells at each 1' vertical interval for gabions with a depth of 3'. The voids shall be minimized by using well graded stone fill and by hand placement of the facing in order to achieve a dense, compact stone fill. All corners shall be securely connected to the adjoining basket of the same layer before filing the units. The lids of the gabion units shall be tightly secured along all edges in the same manner as described for assembling. Adjacent lids may be securely attached at the same time. The panel edges shall be pulled to be connected using the appropriate closing tools where necessary.

**Task Purpose/Objective:** To shield the project site with a protective paving of secure gabion mattresses, which will prevent future erosion of the berm.

**Deliverable Description:** Product specification data must be submitted to the City Engineer for verification and approval prior to delivery of any material to the project site. All material used for construction for the gabion installation scope of work shall meet or exceed the gabion product specification requirements listed in the project specifications and shall be double twisted hexagonal woven wire mesh gabions, PVC-coated, conforming to American Society for Testing and Materials (ASTM) A975-97 only. No Welded Wire Gabions will be accepted as an equal to the double twisted hexagonal woven wire mesh gabion product specified for this project. The stone to fill the PVC -coated gabion mattresses shall be 4

inches - 8 inches. The ranges of stone size shall be equally graded and shall not be less than 4" in any given dimension and no larger than 8" in any given dimension. After construction of this task, there will be 300 linear feet of filled, secure and connected gabion mattresses covering the slope of the berm from bottom to a height of approximately 15 feet.

**Deliverable Due Date:** 60 days from day of grade preparation.

**Task Cost:** \$84,875.00

**Task # 6:** Clean-up and De-mobilization

**Task Description:** The chain-link fence shall be removed from its temporary storage location and re-installed along a straight line on the berm above the gabion structure. All equipment, tools, excess material and supplies, and any construction-related facilities shall be removed from the work site.

**Task Purpose/Objective:** To complete the project by re-erecting the fence and cleaning up the site of all construction-related equipment and materials.

**Deliverable Description:** A securely-established fence, installed along the berm above the newly-constructed gabion paving, according to plans. A clean site, upon which no construction-related materials, supplies, equipment or facilities remain.

**Deliverable Due Date:** One week after completion of construction.

**Task Cost:** \$5,750.00

### Budget for Show Low Creek Erosion Control Project

Item Description	Unit	Quantity	Unit Price	Total
SITE TOPOGRAPHIC SURVEY	LS	1	\$6,000.00	\$6,000.00
ENVIRONMENTAL DETERMINATION (Including technical supporting documents)	LS	1	\$26,000.00	\$26,000.00
GEOTECHNICAL INVESTIGATION	LS	1	\$22,000.00	\$22,000.00
SITE PREPARATION	LS	1	\$80,000.00	\$80,000.00
REMOVE AND REPLACE FENCING	LS	1	\$7,500.00	\$7,500.00
GABION CONSTRUCTION	Hours	800	\$25.00	\$20,000.00
General Excavation	LS	1	\$15,000.00	\$15,000.00
Structural Excavation	LS	1	\$35,000.00	\$35,000.00
Structural Backfill	TN	100	\$10.00	\$1,000.00
Gabion Rock	CY	325	\$15.00	\$4,875.00
Gabion Mattress Cages	Ea.	150	\$60.00	\$9,000.00
CONTRACTOR MOBILIZATION	LS	1	\$14,500.00	\$14,500.00
CONSTRUCTION SURVEY & LAYOUT	LS	1	\$5,000.00	\$5,000.00
CONSTRUCTION CONTINGENCIES	LS	1	\$9,000.00	\$9,000.00
CONSTRUCTION ADMINISTRATION (5%)	LS	1	\$9,000.00	\$9,000.00

**TOTAL**

**\$263,875.00**

BOOK 130 PAGE 158

STATE OF ARIZONA )  
COUNTY OF NAVAJO ) ss.

I hereby certify that the within instrument was filed for record in Navajo County, State of Arizona No. 4169

Witness my hand and Official Seal.

Indexed	Paged	Blotted

*Eddie R. Probit*  
County Recorder

Book 130 Off. Rec. Page 158

Date: July 26, 1960 at 4:50 P.M.

Request of: W. Dean Nutting

By Deputy

Fee:

# Deed

For the consideration of Ten and No/100(\$10.00)-----Dollars,

and other valuable considerations, I (or we) Sarah Mills Willis, a widow,

do hereby CONVEY unto The City of Show Low, Navajo County, Arizona,  
a Municipal Corporation.

the following described real property situate in Navajo County, Arizona:

Beginning at an iron pipe marking the Southeast corner of Section 17, Township 10 North, Range 22 East, G&SRB&M, thence South 89°58' West 2,588.0 feet to a point; thence North 1,442.0 feet to a point on an East-West fence, which point is the true point of beginning; thence North 89°38' West 345.75 feet along the fence line to a point on the East right-of-way line of a county road; thence North 11°09' East 1,000.70 feet to an iron pipe; thence East 372.23 feet to a point on the West bank of Show Low Creek; thence South 4°29' West 702.44 feet to a point on the West bank of Show Low Creek; thence South 12°59' East 292.75 feet to a point on the East-West fence line; thence North 89°38' West 230.85 feet along the fence line to the true point of beginning, containing ten (10) acres.

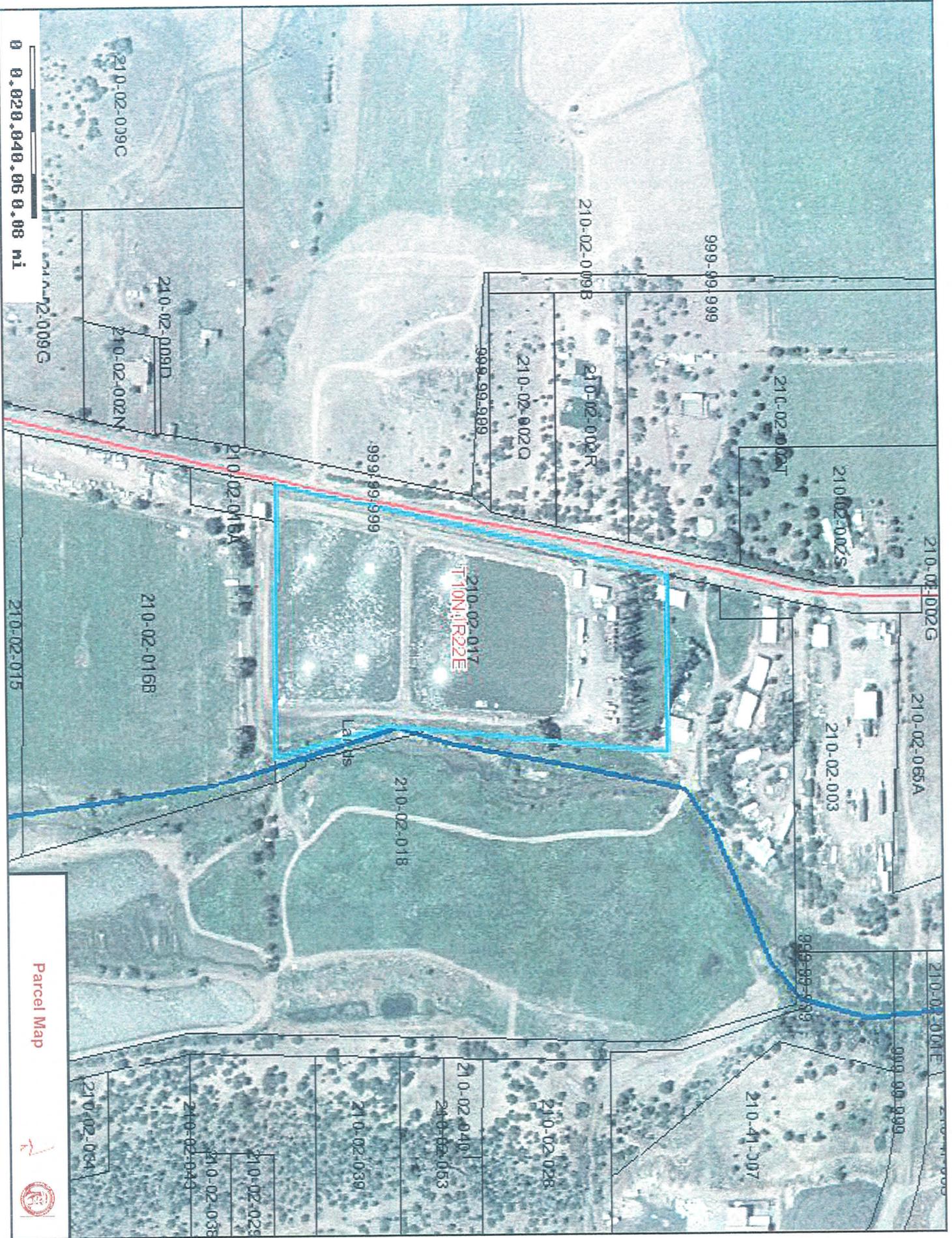
This deed carries no warranties whatsoever. This deed is expressly subject to and grantor reserves all right-of-way easements provided for in that certain judgment of condemnation in the Superior Court of the State of Arizona, and for the County of Navajo, wherein the City of Show Low is plaintiff and Sarah Mills Willis is defendant being Cause No. 8543 and which said judgment was dated April 23, 1959.

Dated this 26th day of July, 1960

*Sarah M. Willis*  
Sarah Mills Willis

STATE OF ARIZONA )  
COUNTY OF NAVAJO )

For Deans Recorder



210-02-009C

210-02-009D

210-02-002N

210-02-009B

999-99-999

210-02-002Q

210-02-002R

210-02-002AT

210-02-002S

210-02-002G

210-02-017  
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210-02-016A

210-02-016B

210-02-015

210-02-065A

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210-41-007

210-02-026

210-02-040

210-02-063

210-02-039

210-02-029

210-02-038

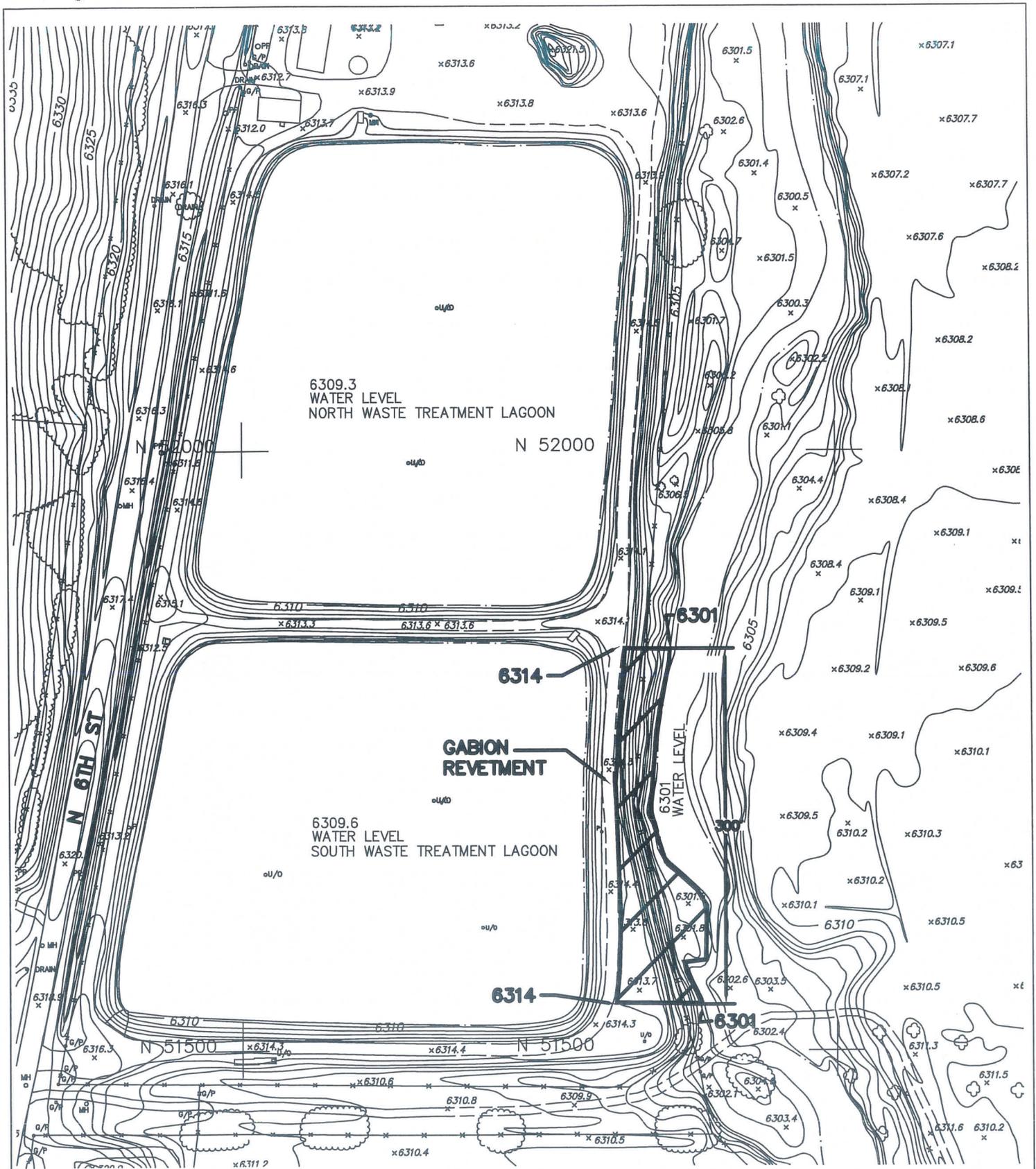
210-02-049

210-02-084

0 0.020 0.040 0.06 0.08 mi

Parcel Map





CITY OF SHOW LOW

CITY OF SHOW LOW  
 ENGINEERING DEPARTMENT  
 550 N. 9th Place  
 Show Low, Arizona 85901  
 Ph. (928) 532-4080  
 Fax (928) 532-4009

EXHIBIT 1  
 SITE MAP

SCALE = NTS

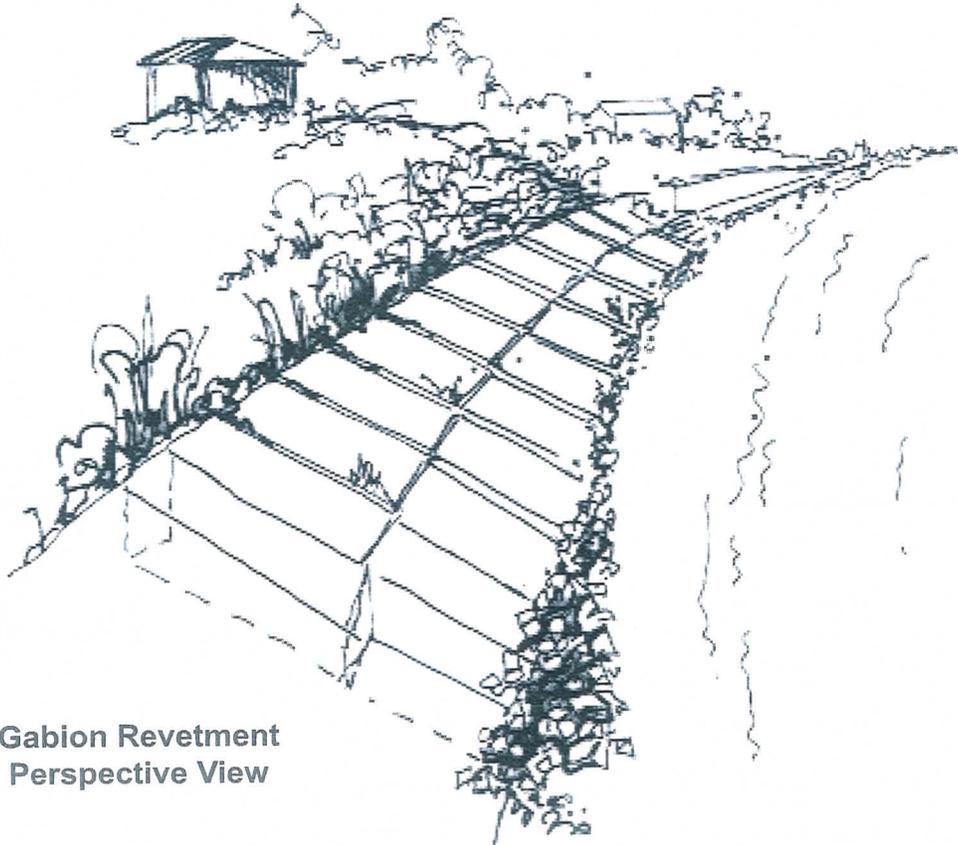
**PRIMARY USE:** Erosion control.

**ADDITIONAL USES:** To reduce sediment in receiving waters.

## GABION REVETMENT

**What is it?** A revetment is a facing placed on a bank or bluff of stone to protect a slope, embankment, or shore structure against erosion by wave action or currents.

**Purpose** To prevent the erosion of banks.



**Gabion Revetment  
Perspective View**

### Limitations

Maintenance may be required to refill baskets whose stones have settled or been lost. Gabions should not be used at all where damage from water-carried debris is likely or where foot traffic over the revetment is expected.

### Materials

Stones, wire baskets.

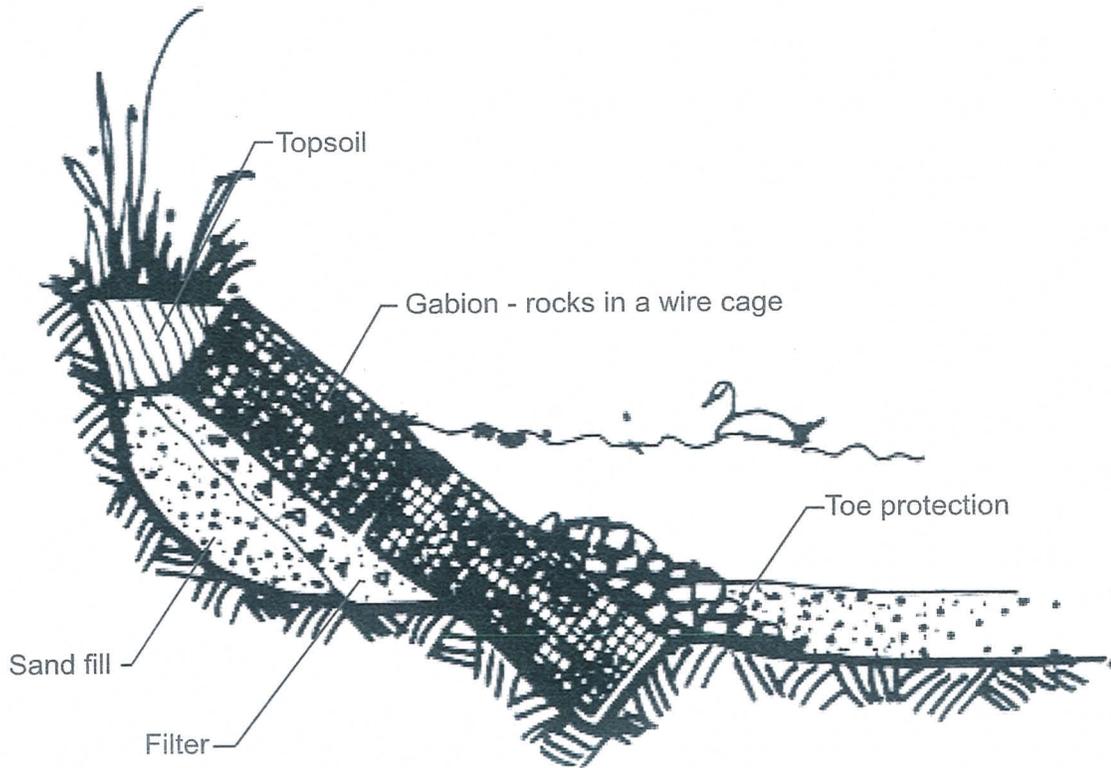
### Installation

The baskets must be solidly filled, or the wires will be abraded by movement of loose stones. The stones must be large enough, usually at least four inches in diameter, to prevent loss of stone through the gabion mesh.

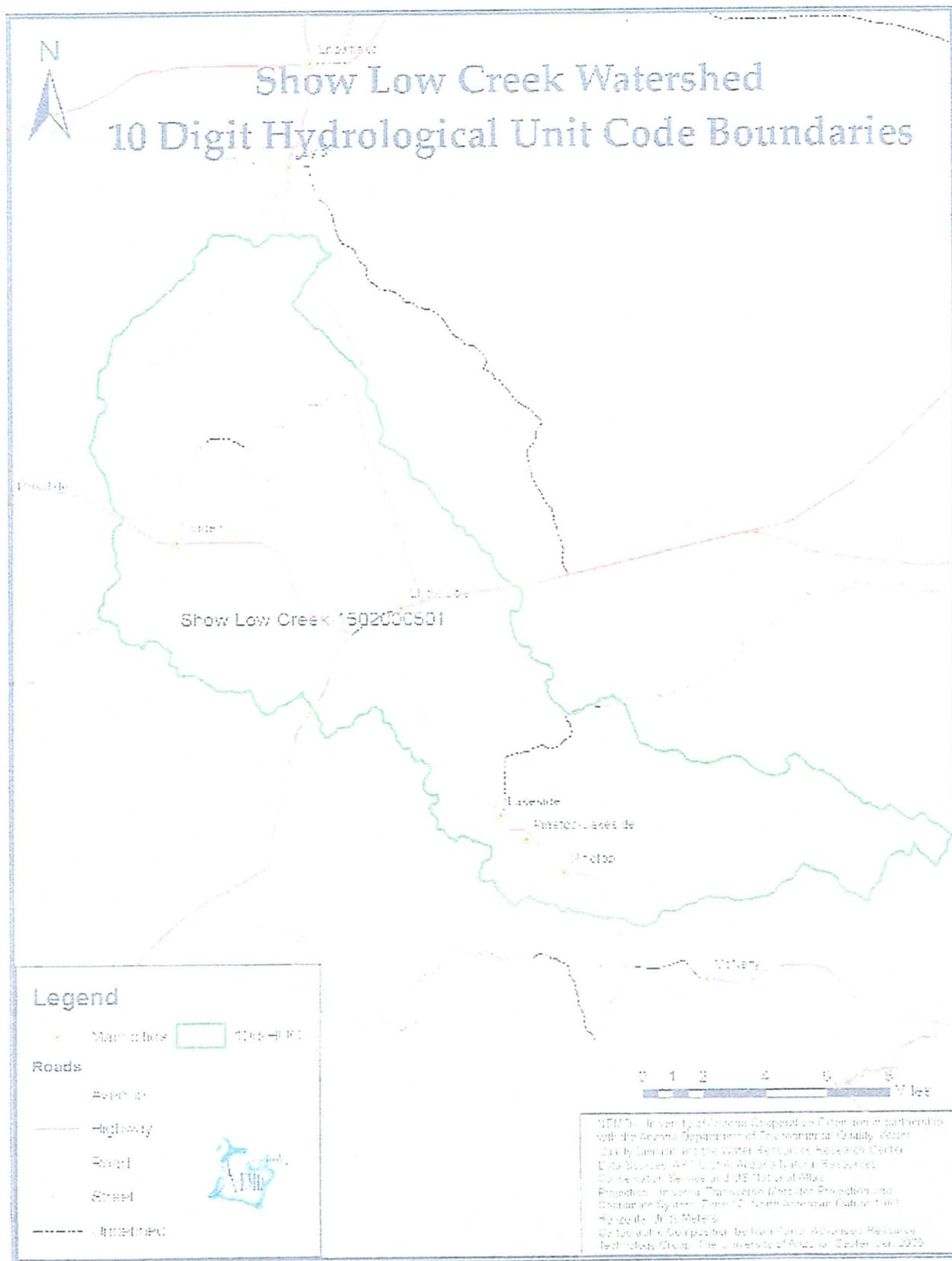
**Source:** Low Cost Shore Protection, Army Corps of Engineers.

# GABION REVETMENT

Additional Drawings:



**Gabion Revetment  
Section View**





**CITY OF SHOW LOW RESOLUTION NO. R2010-35**

**A RESOLUTION OF THE MAYOR AND CITY COUNCIL OF THE CITY OF SHOW LOW, ARIZONA, APPROVING SUBMITTING A GRANT APPLICATION FOR FUNDING FROM THE ARIZONA WATER PROTECTION FUND COMMISSION FOR THE SHOW LOW CREEK EROSION STABILIZATION PROJECT**

**RECITALS:**

**WHEREAS**, the Arizona Water Protection Fund is a competitive state grant program that provides money for maintaining, enhancing, and restoring river and riparian resources throughout Arizona; and

**WHEREAS**, the City of Show Low has identified an eligible capital project that would stabilize the Show Low Creek bank, restoring proper geomorphology and hydrologic conditions in an area near the wastewater treatment plant; and

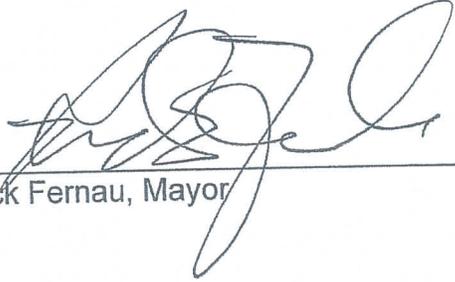
**WHEREAS**, applying for and securing funding from the Arizona Water Protection Fund to complete this project would serve to promote the best interests of the community.

**ENACTMENTS:**

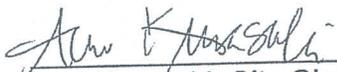
**NOW, THEREFORE, BE IT RESOLVED** that the Mayor and Council of the City of Show Low, Arizona, hereby approve submission of a timely application to the Arizona Water Protection Fund Commission for a grant to protect and restore the Show Low Creek banks near the wastewater treatment plant.

**BE IT FURTHER RESOLVED** that the Mayor is authorized to sign the grant application on behalf of the City of Show Low.

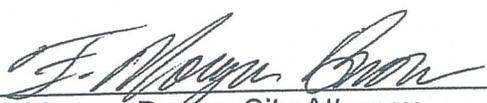
**PASSED AND ADOPTED** this 17th day of August, 2010, by the Mayor and Council of the City of Show Low, Arizona.

  
\_\_\_\_\_  
Rick Fernau, Mayor

ATTEST:

  
\_\_\_\_\_  
Ann Kurasaki, City Clerk

APPROVED AS TO FORM:

  
\_\_\_\_\_  
F. Morgan Brown, City Attorney



# LITTLE COLORADO RIVER PLATEAU RESOURCE CONSERVATION & DEVELOPMENT AREA, INC.

51 West Vista Dr. #4, Holbrook, Arizona 86025 • (928) 524-6063 ext. 5 Fax: (928) 524-6609  
www.littlecolorado.net

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Curtis Winder, Treasurer  
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Steve North, Director  
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Projects Director  
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Springerville Town Council  
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Hopi Tribal Council

### OTHER ORGANIZATIONS

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of Governments  
Navopache Electric  
Northland Pioneer College  
National Bank of Arizona  
Western Moulding  
Salt River Project

August 26, 2010

City of Show Low  
ATTN: Holiday Van Sciver  
550 N. Ninth Place  
Show Low, AZ 85901

**RE: Letter of Support – Arizona Water Protection Fund Application**

To Whom it May Concern:

The Little Colorado River Plateau RC&D is pleased to offer a Letter of Support for the City of Show Low Water Protection Fund Project.

As usual, the City of Show is proactive and leads out in the White Mountain area with a project that combines multiple benefits and meets multiple needs.

The berm being discussed as a potential riparian area will eventually need extensive stabilization. To visualize the concept of benefiting wildlife by providing a riparian refuge is an ideal combination of projects. Human habitation and disturbance on or near a wastewater lagoon is unlikely; yet, native species are benefitted greatly. Further, prevention is almost always less expensive and less invasive than repair.

A creek bank restoration and stabilization by the use of gabions and other measures to ensure that neither flooding nor release of wastewater into the watershed provides multiple benefits.

The Little Colorado River Plateau RC&D rarely sees the vision and forward thinking as this project provides.

The Board and Staff are pleased to offer this Letter of Support.

For the Board;

JR DeSpain  
Vice President and Acting Chair

Looking westward from edge of Show Low Creek at the eroded berm.



Looking northward from edge of Show Low Creek showing erosion of the berm.



Looking southward from the berm up Show Low Creek.



Looking northward from top of berm up Show Low Creek.



A view of portion of project area showing erosion of berm.



Looking southward from top of berm showing closeness of Show Low Creek to berm.



Looking eastward through fence at Show Low Creek showing fence support.



Looking northward from road at top of berm dividing waste treatment lagoons on the left from Show Low Creek on the right.



Looking south at bottom of berm along fence-line and Show Low Creek.



Looking north along fence-line showing erosion at bottom of fence.

