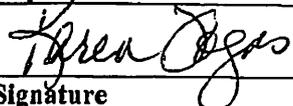


1506

Arizona Water Protection Fund  
Application Cover Page  
FY 2015

<b>Title of Project:</b> Atturbury Wash Riparian Stewardship Project II												
<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 type="checkbox"/> Perennial <input type="checkbox"/> Intermittent <input checked="" 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 checked="" type="checkbox"/> 11-15 years <input type="checkbox"/> 16-20 years										
<b>Applicant Information:</b> Name/Organization: Tucson Audubon Society Address 1: 300 E. University Blvd. Address 2: #120 City: Tucson State: Arizona ZIP Code: 85705 Phone: 520-629-0510 Fax: 520-623-3467 Tax ID No.:		<b>Inside an AMA:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <b>If yes, which AMA:</b> <input type="checkbox"/> Phoenix <input checked="" type="checkbox"/> Tucson <input type="checkbox"/> Prescott <input type="checkbox"/> Pinal <input type="checkbox"/> Santa Cruz										
<b>Contact Person:</b> Andrew Bennett Name: Andrew Bennett Title: Project Manager Phone: (520) 262-1314 Fax: (520) 623-3476 e-mail: abennett@tucsonaudubon.org		<b>Type of Application:</b> <input type="checkbox"/> New <input checked="" type="checkbox"/> Continuation <b>Any Previous AWPF Grants:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <b>If yes, please provide Grant #(s):</b> 00-115, 04-123, 05-132, 08-160										
<b>Arizona Water Protection Fund Grant Amount Requested:</b>  \$ 48,887  If the application is funded, will the Grantee intend to request an advance: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Matching Funds Obtained and Secured:</b> <table border="1"> <thead> <tr> <th>Applicant/Agency/Organization:</th> <th>Amount (\$):</th> </tr> </thead> <tbody> <tr> <td>1. Applicant</td> <td>2,415</td> </tr> <tr> <td>2. Santa Rita High School</td> <td>48,300</td> </tr> <tr> <td>3. Parks &amp; Recreation Dept.</td> <td>15,000</td> </tr> <tr> <td><b>Total:</b></td> <td><b>65,715</b></td> </tr> </tbody> </table>		Applicant/Agency/Organization:	Amount (\$):	1. Applicant	2,415	2. Santa Rita High School	48,300	3. Parks & Recreation Dept.	15,000	<b>Total:</b>	<b>65,715</b>
Applicant/Agency/Organization:	Amount (\$):											
1. Applicant	2,415											
2. Santa Rita High School	48,300											
3. Parks & Recreation Dept.	15,000											
<b>Total:</b>	<b>65,715</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												
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.												
Karen Fogas	Executive Director (520) 209-1801											
<b>Typed Name of Applicant or Applicant's Authorized Representative</b>	<b>Title and Telephone Number</b>											
	5/13/15											
<b>Signature</b>	<b>Date Signed</b>											

## **Executive Summary**

The Atturbury Wash Riparian Stewardship Project, 08-160 WPF (contract expires March 2016) has successfully addressed erosion and sediment transport issues in the reach of Atturbury Wash passing through Lincoln Regional Park in Tucson. Monitoring suggests no significant further erosion is occurring in the project area, and in some instances indicates aggradation of sediment resulting from natural channel design work in the wash. Over 800 plants have been installed with relatively high survival rates (88% as of October, 2014). There have been over 700 visits to the project by bird watchers, grade school and college students, volunteer restoration workers, the Tucson Parks and Recreation Commission, the Tucson mayor and city council members, reporters and other members of the public.

This continuation grant will allow us to do continued public outreach, restoration and monitoring. Building on our public outreach successes, we will expose approximately 500 more people to the project through tours, birding field trips, school field trips and volunteer workshops. We will continue to work with Santa Rita High School, Pima College, University of Arizona and other schools to facilitate field trips to the site. A major goal of continued outreach is to develop a group of dedicated site stewards who can water plants, monitor the site, and report and fix problems as they arise long after Tucson Audubon leaves. Working with adjacent Santa Rita High School and Pima College campuses and teachers dedicated to this project, we will use the site as an outdoor classroom of riparian ecology and restoration. This will foster the creation of a long-term stewardship program at these schools. Our ongoing volunteer workshops, targeted to the local community, will train other people as well in the installation additional rock erosion control structures on the floodplain, the planting a small number of additional native restoration plants, targeted seeding with seeds of native plants, and periodical watering plants.

Additional habitat restoration will be limited and mostly done with the help of volunteers as noted above. We proposed to plant 75 additional native plants using Driwater and periodic hand irrigation, and to spread a small amount of native seed. Tucson Audubon staff will also continue monitoring efforts started in the original grant to provide longer-term data on sediment transport, plant survival and other measures.

Finally, Tucson Audubon will create an Operations and Maintenance Manual for the Tucson Parks and Recreation Department detailing best management practices for riparian areas on city park land, beginning with Atturbury Wash. This manual will detail the maintenance of what has been accomplished already as well as other elements of natural channel design for areas higher in the floodplain and tributary washes that are under Parks Department jurisdiction.

## **Project Overview**

### Description

Atturbury Wash in eastern Tucson is an ephemeral waterway flowing north as a tributary of Pantano Wash. The wash floodplain is largely undeveloped along its approximately 11-mile length. The floodplain's reach in Lincoln Regional Park is rich with native vegetation, yet vegetation has died due to drought and channel down-cutting. The Wash is an important recreational resource for the local community.

### Background

For 20 years, Groves-Lincoln Park Neighborhood Association worked in Lincoln Regional Park to decrease environmental degradation and vandalism, and to increase access for the public. The Association set up a youth employment program that planted scores of trees, created a trail system and built bridges over drainages for the trail.

Tucson Audubon Society's original grant for this site (08-160WPF) began when the Neighborhood Association was no longer able to work at the Wash. Under this grant, we've been conducting restoration, monitoring, and public outreach at Atturbury Wash. Restoration involved planting hundreds of native trees and shrubs and addressing erosion problems along the wash and its floodplain through natural channel design. Monitoring has tracked several factors bearing on the success of the project.

Finally, through public outreach efforts the project has exposed approximately 700 people to the biological and recreational values found in intact, functioning riparian areas. The Parks and Recreation Commission recognized these efforts with a commission award. The mayor, city council members, reporters and many others have visited the site. The success of the project helped generate an \$11,000 "Conserve to Enhance" grant that allowed us to revegetate an accessible part of the park. This has allowed more visitors to be aware of the work we are doing.

### Goals

First, Tucson Audubon would like to ensure successful establishment of the restoration plantings planted during the previous AWPf project through strategic watering informed that is by monitoring. We would also like to restore additional bare, degraded areas using a combination of water harvesting structures, native plants, and native seed.

The lack of long-term monitoring of restoration projects, which could help to improve current management and inform future restoration endeavors, is an oft-cited shortcoming of many restoration projects. To this end, we would like to continue our monitoring efforts in order inform future management.

Also, while we have exposed large numbers of people to the wash, there is not yet a cohesive, local effort to steward the area. Working with the local community, we wish to create a long-term stewardship strategy that will continue when Tucson Audubon must leave the project. We have already worked with teachers at nearby schools to use the site as an outdoor classroom. We will also continue offering volunteer events to the local community. It is our aim that through these renewed partnerships we will build a long-term, autonomous local effort to steward the wash.

We believe no new 404 or floodplain use permits will be necessary because our work in the wash channel is complete with the existing grant. Additional structures will be built only on the floodplain where there are many more areas where localized erosion control can benefit vegetation. Furthermore, these structures will not break enough ground so as to require a floodplain use permit.

### Goals and Objectives

#### **1. Ensure restoration plants successfully establish along the wash floodplain.**

##### *Objectives:*

- a. Plant 75 native trees and shrubs with public involvement to replace those that died during the previous project in degraded areas
- b. Water new and existing plants during dry periods to ensure successful establishment over the long term

#### **2. Increase the sustainability of riparian vegetation along the Atturbury Wash floodplain by addressing issues of negative erosion, poor infiltration, and tributary incision.**

##### *Objectives:*

- a. Monitor and repair and/or modify existing rock stream restoration structures as needed

- c. Install 50 simple media lunas to slow, spread, and sink water on the floodplain (outside of the main wash) with public involvement. Our target would be to involve 150 people in this effort.

**3. Build a long-term stewardship program at Atturbury Wash that includes opportunities for utilizing the site as an outdoor laboratory for water harvesting, ecology, and restoration.**

*Objectives:*

- a. Conduct hands-on, curriculum-tied educational workshops with nearby high school and college students that include on-the-ground work such as building rock restoration structures and planting restoration plants
- b. Hold community restoration workshops targeted to the immediate neighborhood.
- c. Conduct birding field trips at the Wash.
- d. Create an Operations and Maintenance Manual for City of Tucson Parks and Recreation Department and present and share it with senior Parks and Rec staff

**4. Monitor site conditions throughout project to document changes.**

*Objectives:*

- a. Conduct annual geomorphological cross-section monitoring for 3 years
- b. Conduct annual plant growth and survival monitoring for 3 years
- c. Conduct annual vegetation for habitat condition monitoring for 3 years
- d. Conduct seasonal photo monitoring for 3 years
- e. Conduct seasonal avian monitoring for 3 years

**Problems and Causes**

**Problem:** Riparian vegetation along Atturbury Wash has experienced a die-off. Many trees along the inner floodplain have died-back and have lost considerable live biomass. This loss of riparian vegetation meant a reduction in riparian habitat for wildlife species

**Cause:** Channel incision reduced the likelihood and volume of overbank flooding, while surface modifications in the greater watershed accelerated flood velocities and reduced channel moisture storage and natural sediment aggradation.

**Solution:**

The initial solution to lost vegetation was to plant more to replace that which has died off. We have planted over 800 trees and shrubs on parts of the affected floodplain. There are still a number of bare, degraded areas not experiencing plant recruitment that we wish to plant, seed, and treat with media lunas. The ultimate solution is to address erosion problems at the site by slowing and spreading stormwater. We believe we have done this adequately enough in the main wash to eliminate further problems. However, there are many places on the floodplain where more localized stormwater flows could be slowed and spread by media lunas. These are excellent structures to build with volunteers as several can be built in one morning and they are at an appropriate scale for people to learn to make at home. In addition, Tucson Audubon will ensure that the project continues on a trajectory towards improved wildlife habitat conditions for the long-term. We will conduct 3 years of monitoring to inform us as to management adaptations that need to be made and convey those that we cannot accomplish during the grant to the long-term stewards of the site.

**Problem:** Maintenance of urban riparian values requires vigilance and active stewardship. Our project area is subject to stresses from users and negative changes in flow regimes from watershed modifications; it will need a stewardship presence. While Tucson Audubon has exposed many people to the project area, there is not yet a long-term stewardship plan in place, nor is there an organized stewardship presence established.

**Cause:** While the local neighborhood association had such a presence in the past, they have not been able to maintain this presence through the recent economic downturn.

**Solution:** Under this continuation grant, public outreach efforts will be specifically designed to build a long-term stewardship presence. By working with teachers and students at Santa Rita High School, Pima College's East Campus, and other schools we will identify, we will build a corps of young people that can continue to work at the wash in coordination with their schools, neighborhood associations, and the Parks and Recreation Department.

**Project Years of Benefit**

We believe the benefit of this work will last at least 20 years.

**Project Location & Environmental Contaminant  
Information FY 2015**

<b>Project Location Information Eastern side of City of Tucson, Lincoln Regional Parik</b>			
1. County: <u>Pima</u>	2. Section: <u>33</u>	3. Township: <u>14S</u>	4. Range: <u>15E</u>
<p>5. Watershed: <u>Santa Cruz River</u></p> <p>6. 8 or 10 Digit Hydrologic Unit Code (HUC): <u>15050302</u></p> <p>7. Name of USGS Topographic Map where project area is located: <u>TUCSON East, AZ</u></p> <p>8. State Legislative District: <u>10</u> (Information available at: <a href="http://azredistricting.org/districtlocator/">http://azredistricting.org/districtlocator/</a>)</p> <p>9. Land ownership of project area: <u>City of Tucson, Parks &amp; Recreation Dept.</u></p> <p>10. Current land use of project area: <u>Park</u></p> <p>11. Size of project area (in acres): <u>55 DIRECT</u></p> <p>12. Stream Name: <u>Atturbury wash</u></p> <p>13. Length of stream through project area: <u>2,450 ft.</u></p> <p>14. Miles of stream benefited: <u>0.45 miles</u></p> <p>15. Acres of riparian habitat: <u>20 acres</u> will be:</p> <p align="right"> <input type="checkbox"/> Enhanced  <input checked="" type="checkbox"/> Maintained  <input checked="" type="checkbox"/> Restored  <input type="checkbox"/> Created         </p>			
<p>16. General description and/or delineation for the area of impact of the project within the watershed.  <i>Area of impact is a relatively broad, relatively undisturbed floodplain along an ephemeral stream. vegetation is mesquite bosque-type.</i> </p> <p>17. Provide directions to the project site from the nearest city or town. List any special access requirements:            From downtown Tucson go east on Barraza-Aviation Parkway, which becomes Golf Links Road. Pass Davis-Monthan AFB. Turn right (south) on Kolb Road. Turn left (east) on Escalante Road. Go 1.5 miles and at the bottom of a hill turn right at a sign for Lincoln Regional Park and the Atturbury Wash Sanctuary.         </p>			
<b>Environmental Contaminant Location Information</b>			
<p>1. Does your project site contain known environmental contaminants? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants:</p> <p>2. Are there known environmental contaminants in the project vicinity? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants:</p> <p>3. Are you asking for Arizona Water Protection Fund monies to identify whether or not environmental contaminants are present? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>			

## Scope of Work

### Task 1: Permits, Authorizations, Clearances, and Agreements

The Grantee shall obtain all permits, authorizations, clearances and agreements necessary to conduct the work described in this scope, including but not limited to cultural resources clearances, Clean Water Act 404 Permit, City of Tucson WASH Ordinance approval from the Stormwater Advisory Committee, County Floodplain Use Permit, etc.

- Responsible personnel: Andrew Bennett, Project Manager
- Deliverable description: copies of permits, authorizations, clearances, and agreements
- Deliverable Due Date: prior to any ground disturbing activities
- \$1,475.00

### Task 2: Prepare and Submit Plans

- Responsible personnel: Andrew Bennett, Project Manager
- Task Description: Write plans for conducting restoration, monitoring and outreach.
- Task Purpose/Objective: To acquire approval from Arizona Water Protection Fund Commission of the work to be conducted .
- Responsible personnel: Andrew Bennett, Project Manager
- Deliverable description: Written work plans detailing the work to be performed.
- Deliverable Due Date: Work Plans-February 29, 2016
- \$1,129

### Task 3: Restoration

Plant an additional 75 native plants and build water harvesting basins to increase infiltration of stormwater around them. Water new and existing plants. Spread seed of native plants strategically in areas where the need of revegetation is greatest and where germination is most likely. Construct simple rock erosion control and water harvesting structures (media lunas). Monitor and make minor modifications to rock restoration structures as needed.

- Responsible personnel: Andrew Bennett, Project Manager
- Deliverable description: interim progress reports, annual reports, and final report
- Deliverable Due Date: *Interim progress reports*  
June 30, 2016  
June 30, 2017  
June 30, 2018  
*Annual reports*  
December 30, 2016  
December 30, 2017  
*Final report*  
December 30, 2018
- \$15,137

### Task 4: Conduct Site Monitoring

Conduct monitoring for geomorphological changes in the channel, restoration plant growth and survival, vegetation condition, avian diversity and abundance, and overall site condition via repeat photography. Analyze and report results of monitoring.

- Responsible personnel
- Deliverable description: interim progress reports, annual reports, and final report
- Deliverable Due Date: *Interim progress reports*  
June 30, 2016  
June 30, 2017  
June 30, 2018  
*Annual reports*  
December 30, 2016

December 30, 2017  
*Final report*  
December 30, 2018

- \$11,661

**Task 5: Conduct Public Outreach**

Conduct hands-on, curriculum-tied educational workshops with nearby high school and college students that include on-the-ground work such as building rock restoration structures and planting restoration plants, and content focused on riparian restoration, riparian ecology, and water conservation. Hold community restoration workshops targeted to the immediate neighborhood. Conduct birding field trips at the Wash. Write an Operations and Maintenance manual for Tucson Parks and Recreation Department with specific information about this project and general guidelines for other washes/floodplains in parks

- Responsible personnel
- Deliverable description: interim progress reports, annual reports, and final report
- Deliverable Due Date: *Interim progress reports*  
June 30, 2016  
June 30, 2017  
June 30, 2018  
*Annual reports*  
December 30, 2016  
December 30, 2017  
*Final report*  
December 30, 2018

- \$15,123

**Task 6: Prepare and Submit Final Report**

Grantee will prepare and submit a comprehensive final report including a summary of all methods, outcomes, analyses of monitoring data, synthesis of other relevant information, an evaluation of the project's success measured against the objectives, and suggestions for further work in the project area.

- Responsible personnel
- Deliverable description: Final Report
- Deliverable Due Date: *Final report*  
December 30, 2018
- \$4,363

## DETAILED BUDGET BREAKDOWN

### Task 1—Permit, Agreements, etc.

Project Manager(\$22/hr)	\$1,100	
Urban Program Mgr(\$30/hr)	\$150	
Restoration Program Mgr (\$31/hr)	\$155	
Field Supervisor (\$26/hr)	\$0	
<b>Total Direct Labor Costs</b>		\$1,405
<b>Outside Services</b>		
<b>Other Direct Costs</b>		
<b>Capital Outlay &amp; Equip. Costs</b>		
<b>Administrative Costs 5%</b>		\$70
<b>Total for Task</b>		\$1,475

### Task 2--Prepare/submit plans

Project Manager(\$22/hr)	\$770	
Urban Program Mgr(\$30/hr)	\$150	
Restoration Program Mgr (\$31/hr)	\$155	
Field Supervisor (\$26/hr)	\$0	
<b>Total Direct Labor Costs</b>		\$1,075
<b>Outside Services</b>		
<b>Other Direct Costs</b>		
<b>Capital Outlay &amp; Equip. Costs</b>		
<b>Administrative Costs 5%</b>		\$54
<b>Total for Task</b>		\$1,129

### Task 3--Restoration

Project Manager(\$22/hr)	\$4,840	
Urban Program Mgr(\$30/hr)	\$1,800	
Restoration Program Mgr (\$31/hr)	\$310	
Field Supervisor (\$26/hr)	\$2,600	
<b>Total Direct Labor Costs</b>		\$9,550
<b>Outside Services</b>		
Mileage	\$791	
<b>Other Direct Costs</b>		\$791
Rock	\$600	
Mulch	\$400	
Plants	\$1,125	
Seed	\$500	
Supplies for cages	\$550	
Drip irrigation	\$500	
Supplies (gloves, dust masks, 1st aid, etc.)	\$400	

<b>Capital Outlay &amp; Equip. Costs</b>		\$4,075
<b>Administrative Costs 5%</b>		\$721
<b>Total for Task</b>		\$15,137

**Task 4--Monitoring**

Project Manager(\$22/hr)	\$4,950	
Urban Program Mgr(\$30/hr)	\$900	
Restoration Program Mgr (\$31/hr)	\$310	
Field Supervisor (\$26/hr)	\$2,990	
Avian field biologist (\$23.50/hr)	\$564	
<b>Total Direct Labor Costs</b>		\$9,714
<b>Outside Services</b>		
Mileage	\$891	
<b>Other Direct Costs</b>		\$891
Survey equipment rental (level/total station)	\$500	
<b>Capital Outlay &amp; Equip. Costs</b>		\$500
<b>Administrative Costs 5%</b>		\$555
<b>Total for Task</b>		\$11,661

**Task 5--Public Outreach**

Project Manager(\$22/hr)	\$6,160	
Urban Program Mgr(\$30/hr)	\$3,600	
Restoration Program Mgr (\$31/hr)	\$0	
Field Supervisor (\$26/hr)	\$3,380	
<b>Total Direct Labor Costs</b>		\$13,140
<b>Outside Services</b>		
Mileage	\$863	
<b>Other Direct Costs</b>		\$863
Supplies (gloves, dust masks, 1st aid, etc.)	\$400	
<b>Capital Outlay &amp; Equip. Costs</b>		\$400
<b>Administrative Costs 5%</b>		\$720
<b>Total for Task</b>		\$15,123

**Task 6--Final Report**

Project Manager(\$22/hr)	\$2,200	
Urban Program Mgr(\$30/hr)	\$1,200	
Restoration Program Mgr (\$31/hr)	\$0	
Field Supervisor (\$26/hr)	\$0	
<b>Total Direct Labor Costs</b>		\$3,400
<b>Outside Services</b>		
In-house printing/copies	\$600	

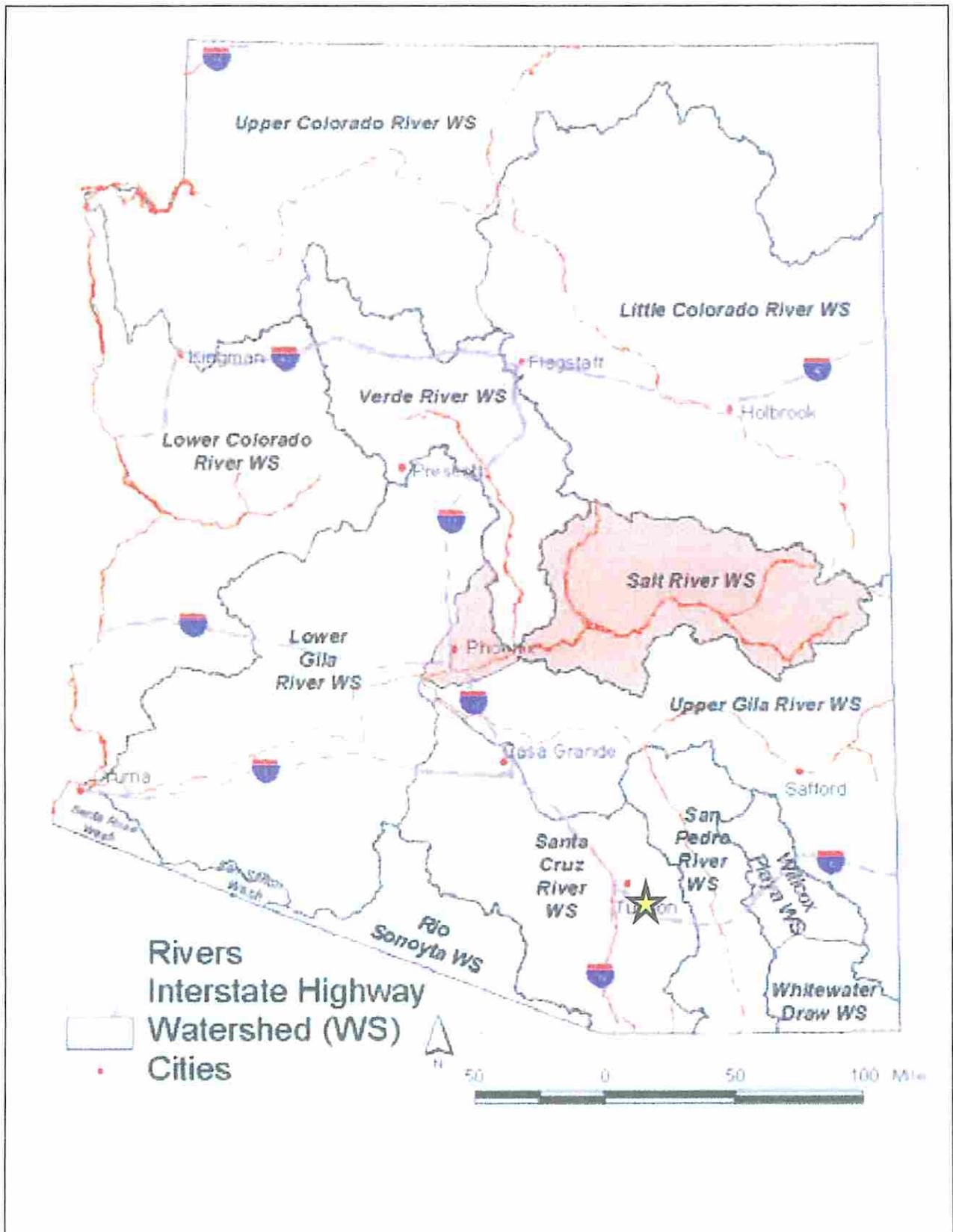
Professional printing/binding	\$75
Office supplies	\$45
Postage	\$35
<b>Other Direct Costs</b>	<b>\$755</b>
<b>Capital Outlay &amp; Equip. Costs</b>	
<b>Administrative Costs 5%</b>	<b>\$208</b>
<b>Total for Task</b>	<b>\$4,363</b>
<b>TOTAL FOR ALL TASKS</b>	<b>\$48,887</b>

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**MATCHING FUNDS BREAKDOWN**

<b>Supporting Fund Source</b>	<b>Matching Funds</b>	<b>In-kind Support</b>
Community volunteer labor: 300 hours @ the AZ minimum wage rate of \$8.05		\$2,415.00
Santa Rita High School student and staff time: 6,000 hours @ the AZ minimum wage rate of \$8.05		\$48,300.00
City of Tucson Park and Recreation Department: Water supplied and staff time donated		\$15,000.00
	<b>Total</b>	<b>\$65,715.00</b>

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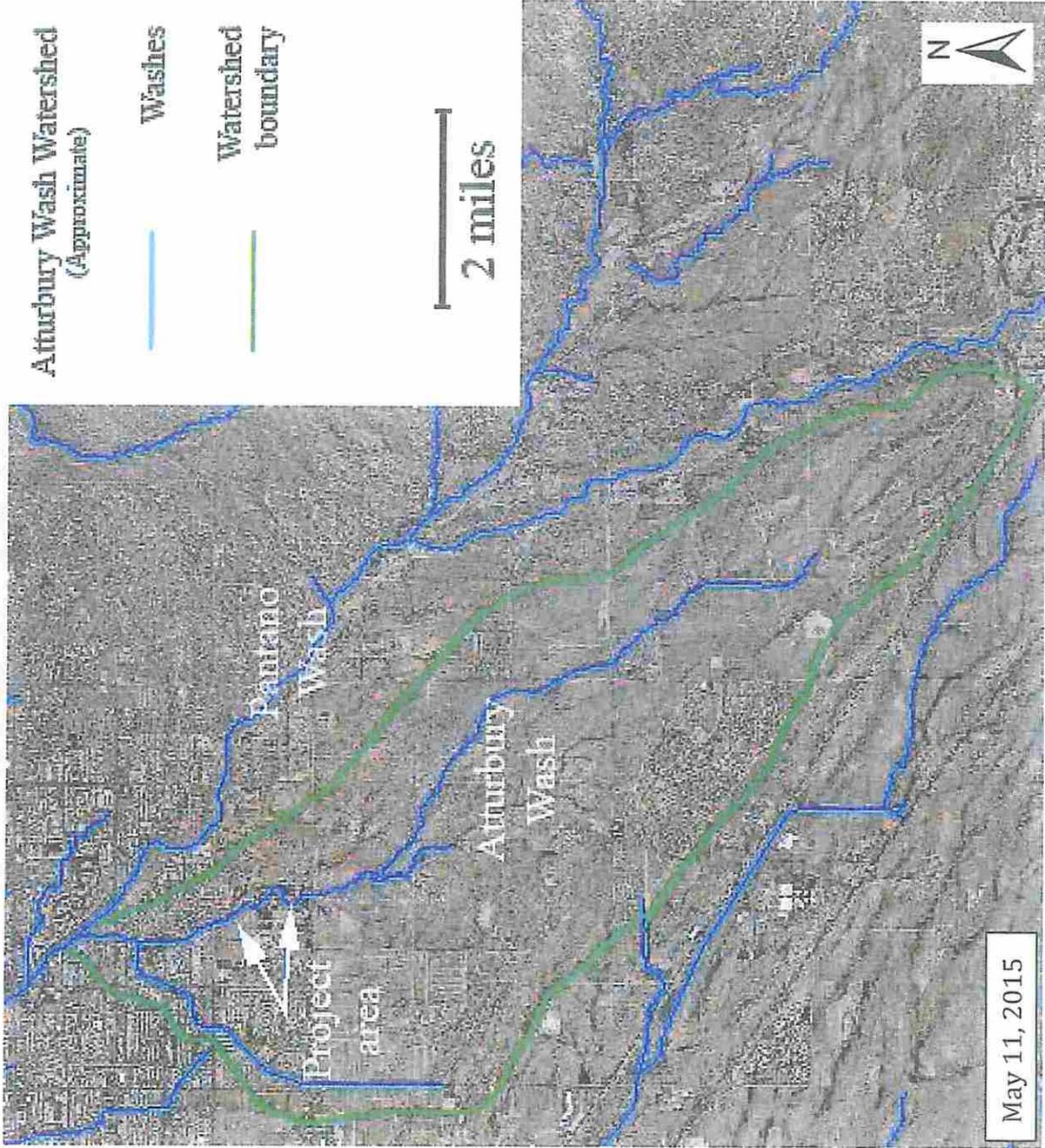
Atturbury Wash Riparian Stewardship Project (project area indicated by star on map)  
 May 11, 2015

Atturbury Wash Watershed  
(Approximate)

Washes

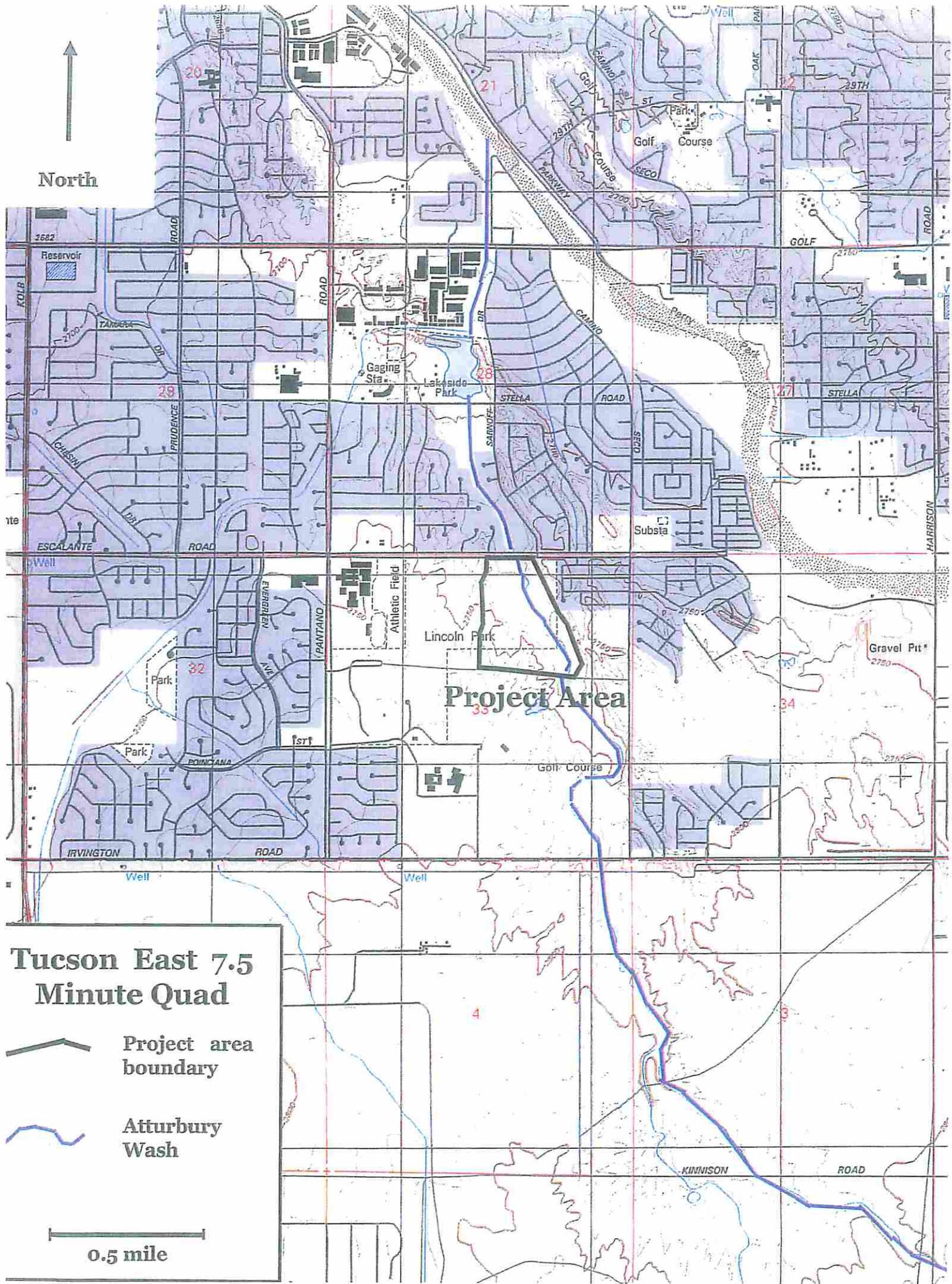
Watershed  
boundary

2 miles



May 11, 2015

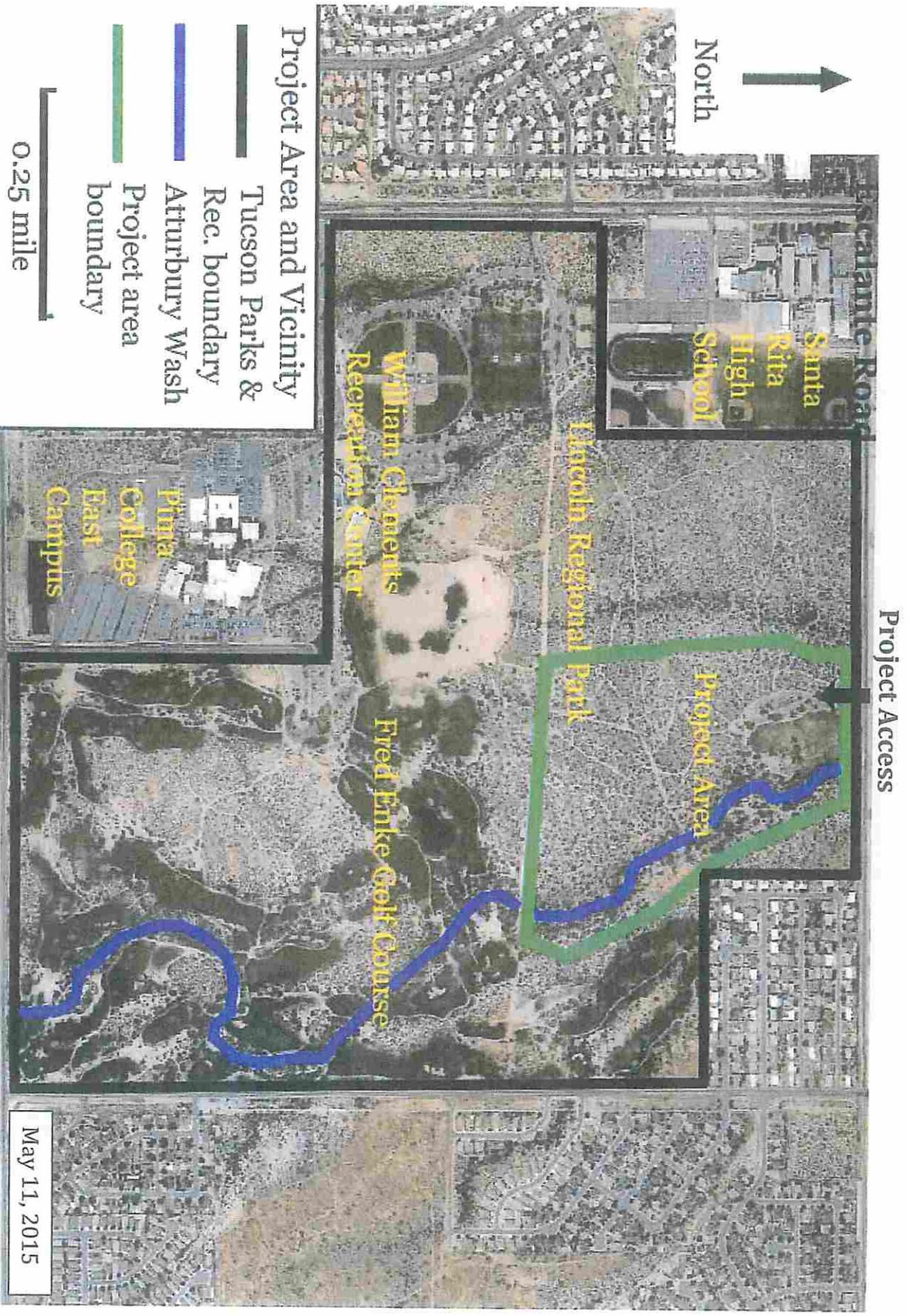
North



### Tucson East 7.5 Minute Quad

-  Project area boundary
-  Atturbury Wash

0.5 mile





# Project Area

- Project area boundary
- Main riparian project area
- Trail closure & erosion control



May 11, 2015

# Atturbury Wash Riparian Stewardship Project II Project Schematic



May 12, 2015



## 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: Atturbury Wash Riparian Stewardship Project II
3. Applicant Name and Address: Tucson Audubon Society, 300 E University Blvd.  
#120, TUCSON, AZ 85705
4. Current Land Owner/Manager(s): City of Tucson Parks & Recreation Dept.
5. Project Location, including Township, Range, Section: TOPO TUCSON EAST, AZ, S33, T14S, R15E
6. Total Project Area in Acres (or total miles if trail): 55
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: Impacts limited to planting 5/15-gallon trees & shrubs & ~~place~~ placing "media Luna" rock structures, which are small erosion control structures made with small rip-rap, one rock deep. Rock is placed into soil no more than a few inches. Impact area of each is 10-15 sq.ft.

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: *most ground surface is undisturbed except for approx. 5 acres of parking and turf park.*
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  UNKNOWN

**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:**

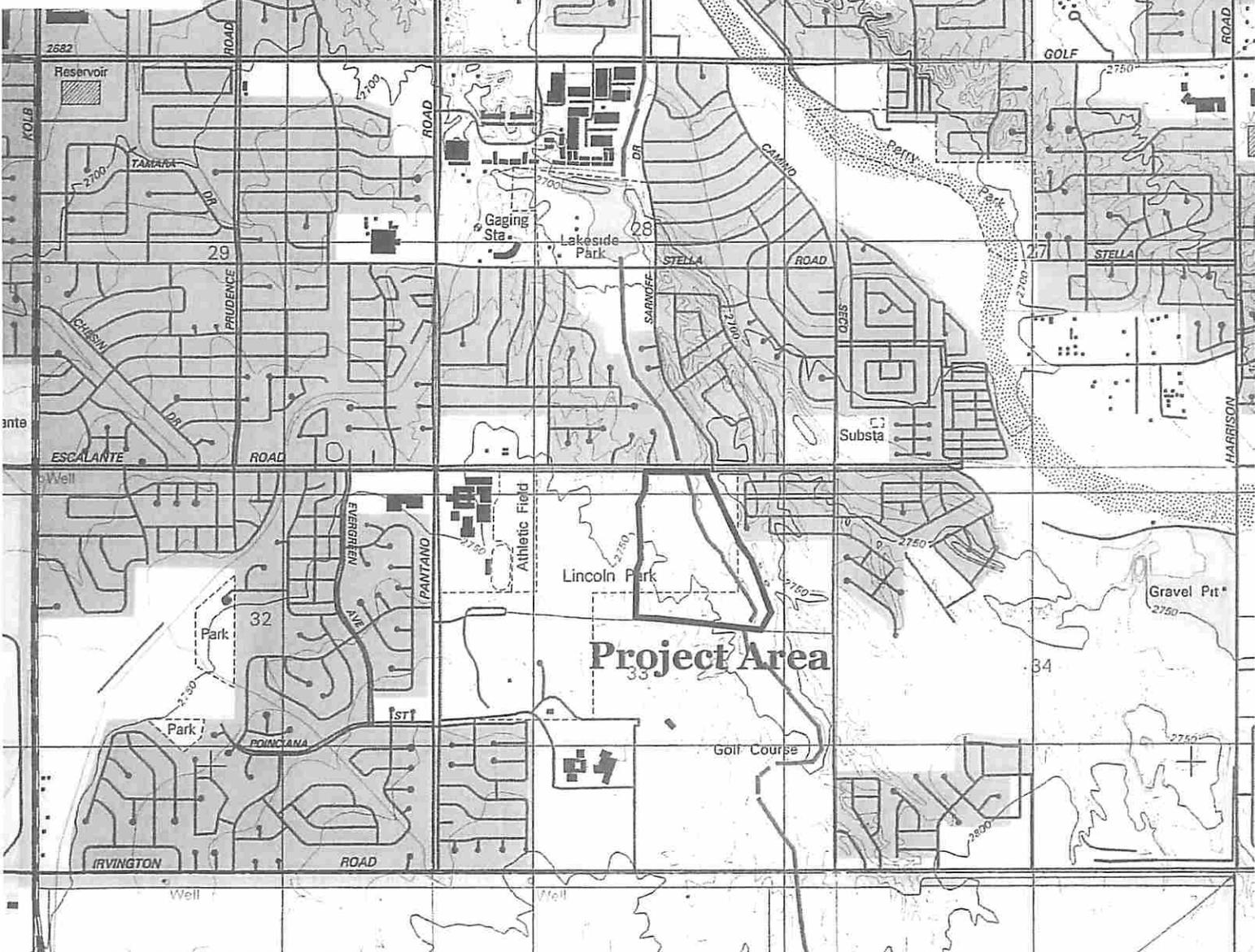
**Please sign on the line below certifying all information provided for this application is accurate to the best of your knowledge.**

*Andrew Bennett*      *1/5/13/15*      Andrew Bennett  
 Applicant Signature      /Date      Applicant Printed Name

<b>FOR SHPO USE ONLY</b>	
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:



North



### Tucson East 7.5 Minute Quad

-  Project area boundary
-  Atturbury Wash

0.5 mile

## **Supplemental Information**

### **Key Personnel Information**

#### **Andy Bennett-Restoration Project Manager**

Andy coordinates the day-to-day operation of restoration, education, and outreach activities for Tucson Audubon's restoration department, where he has worked since 2008. His background in ecological field research, environmental education, volunteer coordination, and project management make him well-equipped for his role as project manager in this project. He holds a BS in Ecology, as well as several professional certifications including Certified WMG Water Harvesting Professional and SLA Stream Restoration Project Designer for Arid Lands Natural Channel Design.

#### **Kendall Kroesen-Urban Program Manager**

Kendall has a Bachelor's degree in anthropology at the University of California, Riverside and a Ph.D. in Cultural Anthropology from the University of California, San Diego. In February 2002, after postdoctoral research positions in Los Angeles and at the Southern Arizona VA Medical Center, Kendall joined the staff of the Tucson Audubon Society. He worked in the habitat restoration and communications programs and then in 2006 became Habitat Restoration Program Manager. Recently his title has changed to Urban Program Manager. In that capacity Kendall now manages an urban-focused sustainability outreach program. He works with municipalities, businesses, homeowners and landscape designers to promote urban landscapes that are more biodiverse, productive, sustainable and friendly to birds. Kendall has extensive experience using native plants to create places where birds can find food, shelter and nesting opportunities, while also enhancing neighborhood appearance.

#### **Rodd Lancaster-Restoration Program Field Supervisor**

Rodd has worked on Tucson Audubon habitat restoration projects since 2002. Rodd is trained in Permaculture and has extensive experience in field implementation of Permaculture and habitat restoration projects. For Tucson Audubon, Rodd coordinates field operations, oversees staff and contractors working at the restoration sites, works with volunteers, assists with monitoring activities, and helps plan field implementation of habitat restoration goals. Specific responsibilities include installation and maintenance of extensive irrigation systems, coordinating the planting and seeding of large project areas, acquisition of field supplies, and operation and maintenance of field equipment and machinery.

#### **Jonathan Horst-Restoration Ecologist**

Jonathan has led Tucson Audubon's restoration program for two and a half years including creating and managing mitigation projects and species-specific habitat restoration projects, producing baseline documentation reports, and urban restoration initiatives. He joined Tucson Audubon after studying population ecology at the University of Arizona. During his 11 years in Tucson he has done field research on Burrowing Owls, Band-tailed Pigeons, and winter-annual plants. He has done niche modeling for the spread of invasive plants in the region and consults with other non-profits on invasive species management. He's currently involved with species-specific restoration projects for the Tumamoc globeberry, Azure Bluebirds, and Lucy's Warblers.

### **Project Site Photographs (with compass direction, description of proposed project features with location in pic indicated)**

#### **Plans**

Work during this project will include 3 years of monitoring composed of repeat photo point monitoring, stream channel cross-sectional surveys, restoration plant growth and survival monitoring, avian diversity and abundance monitoring, and monitoring vegetation density and diversity to measure habitat condition. These monitoring components will be conducted under the existing protocols of 08-160WPF, and monitoring scheduling and any modifications to existing protocol will be documented in the new Work Plan to be completed in 2016; please refer to the existing Monitoring Work Plan for grant 08-160WPF for now.

To revegetate existing degraded areas, this project will also include a small amount of native plant restoration via nursery transplants and direct seeding of restoration structures and target areas. A total of 75 plants and 6 pounds of

seed will be planted. To establish plantings, supplemental watering via drip irrigation and hose watering will be provided in the driest, hottest months of May-September. New plants will also be supplemented with Dri-Water treatments to ensure moisture availability during periods when we do not water at the site. Detailed plans for revegetation will be discussed in the new Work Plan and an overview can be seen in the Project Schematic, with visual detail noted in site photos provided.

Finally, 50 simple rock structures (media lunas) will be constructed to increase microsite moisture in and near restoration areas. The general placement of these can be seen on the Project Schematic and will be further detailed in the new Work Plan.

**Existing Plans, Reports, Info**

Please refer to the existing Site Assessment and Concept Plan, Work Plan, Annual Reports, and other supporting documentation from 08-160WPF.

**Community Support Letters**

**Evidence of Control and Tenure of Land**

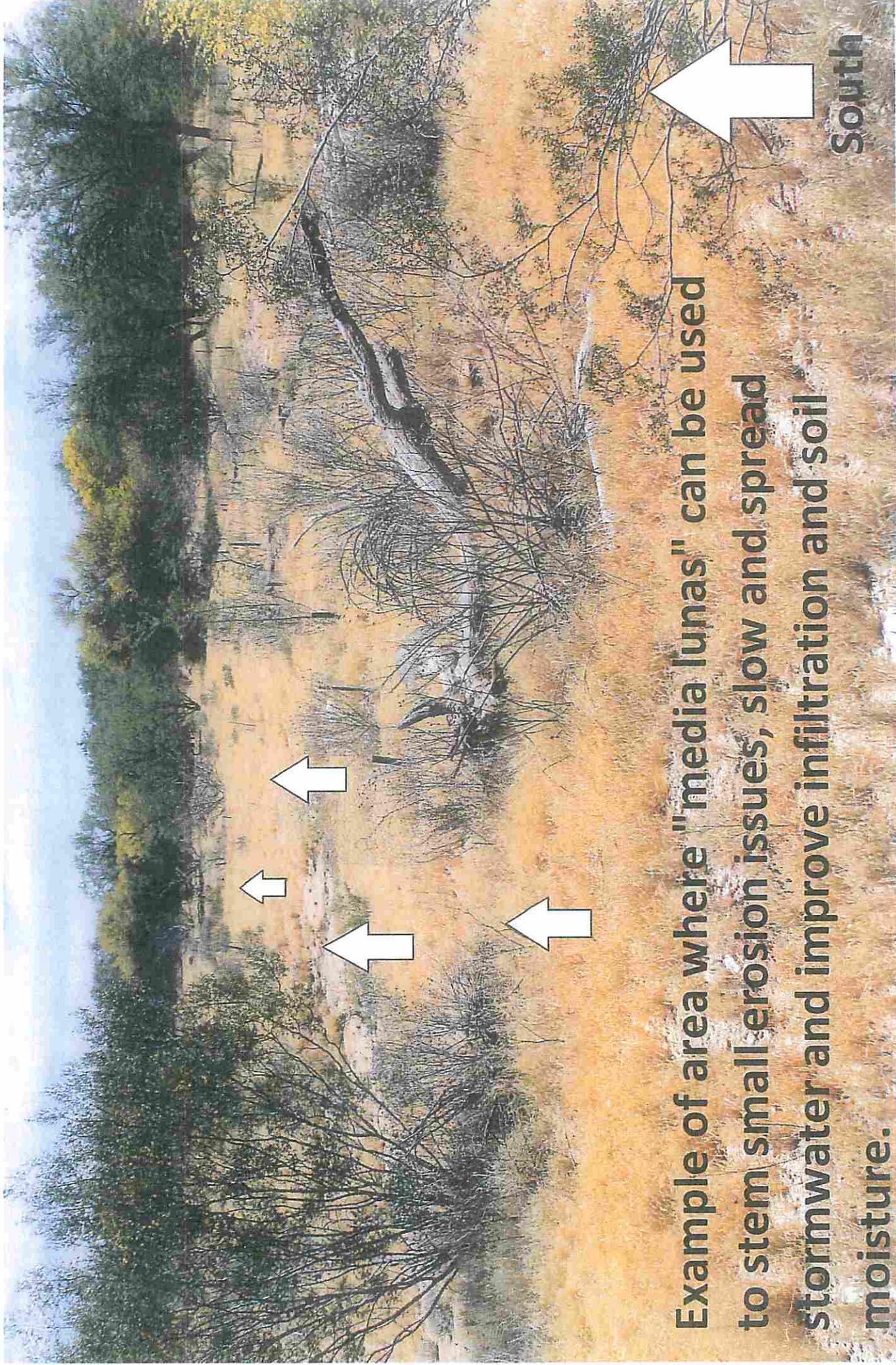
Tucson Audubon will be operating on public City of Tucson Parks and Recreation Department property. Boundaries of Tucson Parks and Recreation land at the project area is in one of the project maps. Our continued access and clearance to conduct restoration, monitoring, and outreach activities on this land is indicated by the Department's letter of support, above.

**Narrative on Obtaining Landowner Permission and Access**

For the earlier AWPF-funded project we have had a right of entry agreement with the city. We will negotiate a renewal of the right of entry agreement for this continuation project. The Parks and Recreation Department's willingness to cooperate is indicated by their letter of support.

**Evidence of Physical and Legal Availability of Water**

Water for plant establishment will be provided by the Tucson City Parks and Recreation Department, as noted in their letter of support above. For the earlier grant we obtained a water use agreement with City of Tucson Parks and Recreation Department and we will negotiate another such agreement with them for this continuation grant.



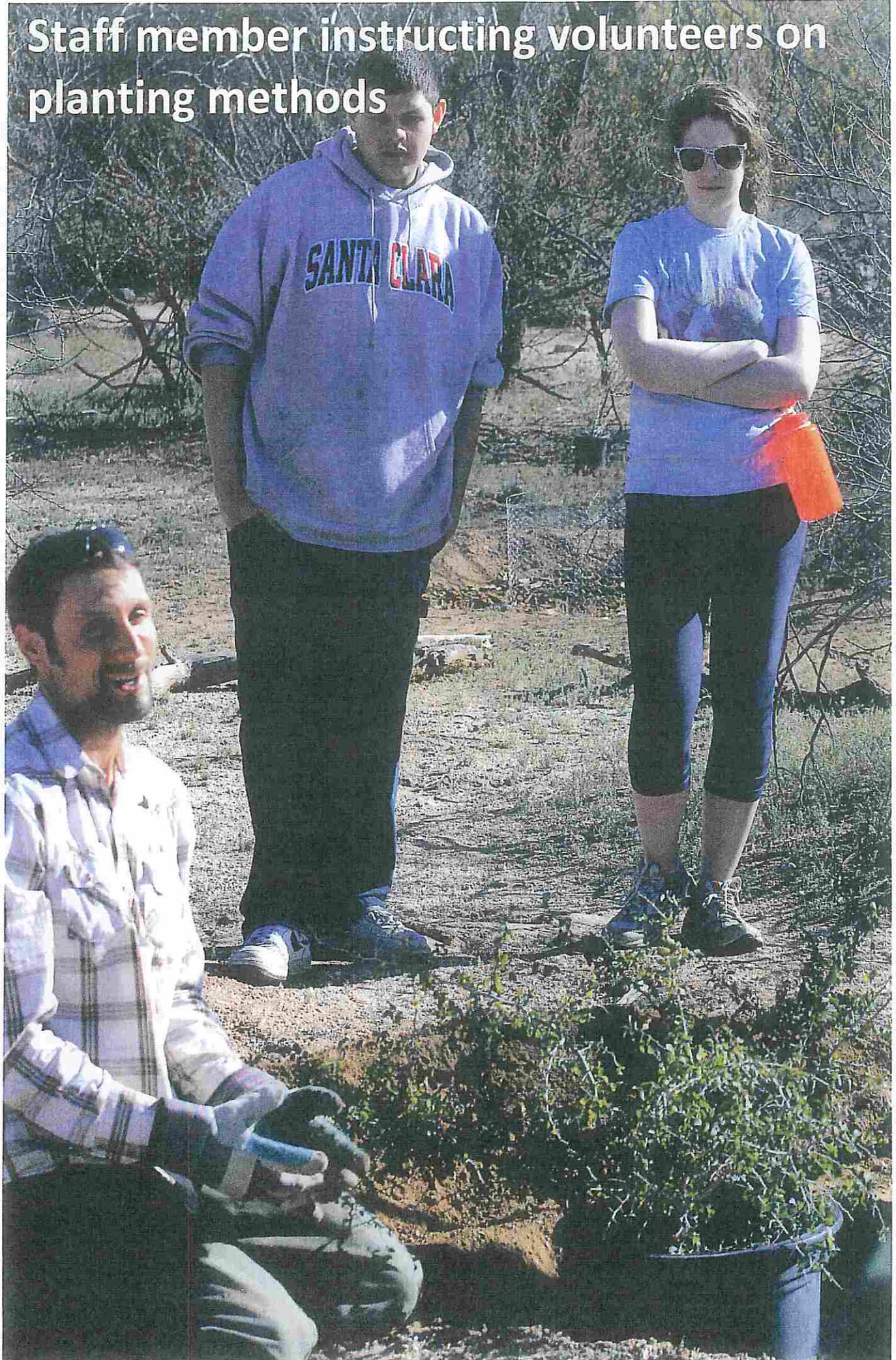
**Example of area where "media lunas" can be used to stem small erosion issues, slow and spread stormwater and improve infiltration and soil moisture.**

South

# Example of "media luna" erosion control structure



# Staff member instructing volunteers on planting methods



SHPO-2007-1785 (76484)

ARIZONA DEPARTMENT OF WATER RESOURCES

ARIZONA WATER PROTECTION FUND

3550 North Central Avenue, Phoenix, Arizona 85012

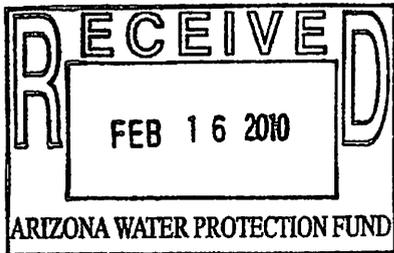
Telephone (602) 771-8528

Fax (602) 771-8681



Janet Napolitano  
Governor

Herbert R. Guenther  
Director



January 26, 2010

RECEIVED

JAN 27 2010

JM 1/29/10  
ARIZONA STATE HISTORIC S.P.

JoAnne Medley  
State Historic Preservation Office  
1300 W. Washington Street  
Phoenix, AZ 85007

**Subject: Arizona Water Protection Fund (AWPF) Grant Number 008-160WPF  
Atturbury Wash Riparian Stewardship Project**

Dear Ms. Medley:

Please find the enclosed document titled "Cultural Resource Survey of Atturbury Wash, Lincoln Regional Park, Tucson, Pima County, Arizona" that has recently been provided to the AWPF by Tucson Audubon Society staff. The referenced archaeological survey was completed by Desert Archaeology, Inc. in accordance with the terms of AWPF Grant Award Contract Number 08-160 which was awarded to the Tucson Audubon Society in Fiscal Year 2008. The survey was also conducted due to information provided by the Tucson Audubon Society indicating that Desert Archaeology staff determined that it did not appear that the AWPF project area had been previously surveyed.

Please advise if the enclosed document complies with SHPO requirements for this project or if SHPO requires additional consultation by the AWPF Grantee. You may contact me by email at [sitighe@azwater.gov](mailto:sitighe@azwater.gov) or by telephone at (602) 771-8531.

Sincerely,

*Stephen Tighe*  
Stephen Tighe  
Project Manager

No Historic Properties Affected  
*JoAnne Medley*  
Arizona State Historic Preservation Officer  
Arizona State Parks Board  
Feb. 10, 2010

*No additional work or consultation needed.*

Enclosure



# Cultural Resources Survey Of Atturbury Wash, Lincoln Regional Park, Tucson, Pima County, Arizona

---

Patricia Cook

Reviewed by

Patricia Castalia  
Desert Archaeology, Inc.  
3975 N. Tucson Boulevard  
Tucson, Arizona 85716

Submitted to

Audubon Society  
300 E. University Blvd.  
Suite 120  
Tucson, Arizona 85715



**Project Report No. 09-111**  
**Desert Archaeology, Inc.**  
**Project No. 09-114**

3975 N. Tucson Blvd., Tucson, AZ 85716 • 16 September 2009

**LIST OF NATIONAL REGISTER-ELIGIBLE PROPERTIES: 0**

**LIST OF INELIGIBLE SITES: 0**

**SUMMARY OF RESULTS:** No evidence of significant cultural remains was found during the Atturbury Wash Survey.

**RECOMMENDATIONS:** No further cultural resources work is recommended for the current project. The proposed park improvements may proceed as planned. Should any previously unidentified cultural materials be encountered during construction, work should be halted in that area and a qualified archaeologist contacted to evaluate the find.

## LIST OF FIGURES

1. Map of the current project area and previously recorded sites on USGS 7.5-minute topographic map Tucson East, AZ BB:13 [NE]..... 7
2. Map of the project area, showing locations of isolated artifacts ..... 17

## LIST OF TABLES

1. Periods, phases, and chronology of the Santa Cruz Valley-Tucson Basin..... 9
2. Previous cultural resource surveys conducted within 1 mile of the project area ..... 15
3. Previously recorded archaeological sites within 1 mile of the project area..... 16



time, specialized adaptations to the arid region distinguished people living in the Southwest from those in other areas. Development of cultural and social conventions also became more regionally specific, and by A.D. 650, groups living in the Tucson Basin can be readily differentiated from those living in other areas of the Southwest. Today, the harsh desert climate no longer isolates Tucson and its inhabitants, but life remains closely tied to the unique resources of the Southwest. The chronology of the Tucson Basin is summarized in Table 1.

Table 1. Periods, phases, and chronology of the Santa Cruz Valley-Tucson Basin.

Periods	Phases	Date Ranges
Historic		
American Statehood		A.D. 1912-present
American Territorial		A.D. 1856-1912
Spanish and Mexican		A.D. 1694-1856
Protohistoric		A.D. 1450-1694
Hohokam Classic	Tucson	A.D. 1300-1450
	Tanque Verde	A.D. 1150-1300
Hohokam Sedentary	Late Rincon	A.D. 1100-1150
	Middle Rincon	A.D. 1000-1100
	Early Rincon	A.D. 950-1000
Hohokam Colonial	Rillito	A.D. 850-950
	Cañada del Oro	A.D. 750-850
Hohokam Pioneer	Snaketown	A.D. 650/700-750
	Tortolita	A.D. 500-650/700
Early Ceramic	Late Agua Caliente	A.D. 350-475
	Early Agua Caliente	A.D. 50-350
Early Agricultural	Late Cienega	400 B.C.-A.D. 50
	Early Cienega	800-400 B.C.
	San Pedro	1200-800 B.C.
	(Unnamed)	2100-1200 B.C.
Archaic	Chiricahua	3500-2100 B.C.
	(Occupation gap?)	6500-3500 B.C.
	Sulphur Springs-Ventana	7500-6500 B.C.
Paleoindian		11,500?-7500 B.C.

### Paleoindian Period (11,500?-7500 B.C.)

Archaeological investigations suggest the Tucson Basin was initially occupied some 13,000 years ago, a time much wetter and cooler than today. The Paleoindian period is characterized by small, mobile groups of hunter-gatherers who briefly occupied temporary campsites as they moved across the countryside in search of food and other resources (Cordell 1997:67). The hunting of large mammals, such as mammoth and bison, was a particular focus of the subsistence economy. A Clovis point characteristic of the Paleoindian period (circa 9500 B.C.) was collected from the Valencia site, located along the Santa Cruz River in the southern Tucson Basin (Doelle 1985:183-184). Another Paleoindian point was found in Rattlesnake Pass, in the northern Tucson Basin (Huckell 1982). These rare finds suggest prehistoric use of the Tucson area probably began at this time. Paleoindian use of the Tucson Basin is supported by archaeological investigations in the nearby San Pedro Valley and elsewhere in southern Arizona, where Clovis points have been discovered in

the diet and increased in importance through time. However, gathered wild plants—such as tansy mustard and amaranth seeds, mesquite seeds and pods, and agave hearts—were also frequently used resources. As in the preceding Archaic period, the hunting of animals such as deer, cottontail rabbits, and jackrabbits, continued to provide an important source of protein.

### **Early Ceramic Period (A.D. 50-500)**

Although ceramic artifacts, including figurines and crude pottery, were first produced in the Tucson Basin during the Early Agricultural period (Heidke and Ferg 2001; Heidke et al. 1998), the widespread use of ceramic containers marks the transition to the Early Ceramic period (Huckell 1993). Undecorated plain ware pottery was widely used in the Tucson Basin by about A.D. 50, marking the start of the early Agua Caliente phase (A.D. 50-350).

Architectural features became more formalized and substantial during the Early Ceramic period, representing a greater investment of effort in construction, and perhaps more permanent settlement. A number of pithouse styles are present, including small, round, and basin-shaped houses, as well as slightly larger subrectangular structures. As during the Early Agricultural period, a class of significantly larger structures may have functioned in a communal or ritual manner.

Reliance on agricultural crops continued to increase, and a wide variety of cultigens—including maize, beans, squash, cotton, and agave—were an integral part of the subsistence economy. Populations grew as farmers expanded their crop production to floodplain land near permanently flowing streams, and it is assumed that canal irrigation systems also expanded. Evidence from archaeological excavations indicates trade in shell, turquoise, obsidian, and other materials intensified and that new trade networks developed.

### **Hohokam Sequence (A.D. 500-1450)**

The Hohokam tradition developed in the deserts of central and southern Arizona sometime around A.D. 500 and is characterized by the introduction of red ware and decorated ceramics: red-on-buff wares in the Phoenix Basin and red-on-brown wares in the Tucson Basin (Doyel 1991; Wallace et al. 1995). Red ware pottery was introduced to the ceramic assemblage during the Tortolita phase (A.D. 500-650/700). The addition of a number of new vessel forms suggests that, by this time, ceramics were utilized for a multitude of purposes.

Through time, Hohokam artisans embellished this pottery with highly distinctive geometric figures and life forms such as birds, humans, and reptiles. The Hohokam diverged from the preceding periods in a number of other important ways: (1) pithouses were clustered into formalized courtyard groups, which, in turn, were organized into larger village segments, each with their own roasting area and cemetery; (2) new burial practices appeared (cremation instead of inhumation) in conjunction with special artifacts associated with death rituals; (3) canal irrigation systems were expanded and, particularly in the Phoenix Basin,

### **Protohistoric Period (A.D. 1450-1694)**

Little is known of the period from A.D. 1450, when the Hohokam disappeared from view, to A.D. 1697, when Father Kino first traveled to the Tucson Basin (Doelle and Wallace 1990). By that time, the Tohono O'odham people were living in the arid desert regions west of the Santa Cruz River, and groups that lived in the San Pedro and Santa Cruz valleys were known as the Sobaipuri (Doelle and Wallace 1990; Masse 1981). Both groups spoke the O'odham language and, according to historic accounts and archaeological investigations, lived in oval jacal surface dwellings rather than pithouses. One of the larger Sobaipuri communities was located at Bac, where the Spanish Jesuits, and later the Franciscans, constructed the mission of San Xavier del Bac (Huckell 1993; Ravesloot 1987). However, due to the paucity of historic documents and archaeological research, little can be said regarding this inadequately understood period.

### **Spanish and Mexican Periods (A.D. 1694-1856)**

Spanish exploration of southern Arizona began at the end of the seventeenth century A.D. Early Spanish explorers in the Southwest noted the presence of Native Americans living in what is now the Tucson area. These groups comprised the largest concentration of population in southern Arizona (Doelle and Wallace 1990). In 1757, Father Bernard Middendorf arrived in the Tucson area, establishing the first local Spanish presence. Fifteen years later, the construction of the San Agustín Mission near a Native American village at the base of A-Mountain was initiated, and by 1773, a church was completed (Dobyns 1976:33).

In 1775, the site for the Presidio of Tucson was selected on the eastern margin of the Santa Cruz River floodplain. In 1776, Spanish soldiers from the older presidio at Tubac moved north to Tucson, and construction of defensive and residential structures began. The Presidio of Tucson was one of several forts built to counter the threat of Apache raiding groups who had entered the region at about the same time as the Spanish (Thiel et al. 1995; Wilcox 1981). Spanish colonists soon arrived to farm the relatively lush banks of the Santa Cruz River, to mine the surrounding hills, and to graze cattle. Many indigenous settlers were attracted to the area by the availability of Spanish products and the relative safety provided by the Presidio. The Spanish and Native American farmers grew corn, wheat, and vegetables, and cultivated fruit orchards, and the San Agustín Mission was known for its impressive gardens (Williams 1986).

In 1821, Mexico gained independence from Spain, and Mexican settlers continued farming, ranching, and mining activities in the Tucson Basin. By 1831, the San Agustín Mission had been abandoned (Elson and Doelle 1987; Hard and Doelle 1978), although settlers continued to seek the protection of the Presidio walls.

### **American Period (1856-Present)**

Through the 1848 settlement of the Mexican-American War and the 1853 Gadsden Purchase, Mexico ceded much of the Greater Southwest to the United States, establishing the

**Table 2.** Previous cultural resources surveys conducted within 1 mile of the project area.

ASM Number	Project Name	Institution	Sponsor
1980-13.ASM	Lincoln Park Estates	Arizona State Museum	Arizona State Museum
1985-109.ASM	Lincoln Park Phase II Survey	Arizona State Museum	Rogers, Gladwin, and Harmony, Inc.
1985-192.ASM	Camino Seco-Irvington Road	Professional Archaeological Services and Technologies	The Estes Company
1987-202.ASM	Pantano Wash Stabilization	Institute for American Research	Pima County
1987-230.ASM	Davis-Monthan AFB Survey & Data Recovery	Statistical Research	US Army Corps of Engineers
1989-107.ASM	Rillito Creek Recharge Project	Bureau of Reclamation, Phoenix Office	Pima County
1989-85.ASM	Pantano Wash Linear Park Survey	Statistical Research	Pima County
1995-327.ASM	Sellarole/Harrison Survey	Desert Archaeology	City of Tucson
1998-47.ASM	Pedestrian Crossing at Pantano Road and Santa Rita High School	Desert Archaeology	City of Tucson
1999-220.ASM	Pedestrian Crossing Survey C	Desert Archaeology	City of Tucson
2000-314.ASM	Kinnison Wash and Pantano Road Survey Project	SWCA	Johnson-Brittain and Associates, Inc.
2000-446.ASM	Stella Road and Sarnoff Drive Survey	SWCA	Sunny Day Investments
2001-141.ASM	Fred Enke Drive Survey	Desert Archaeology	City of Tucson
2001-386.ASM	TUC Cedar Groves 2	Archaeological Research Services	L. Fuller and Company
2001-402.ASM	Pantano: Escalante to Irvington Survey	Desert Archaeology	City of Tucson
2001-665.ASM	Jim's Autobody	Professional Archaeological Services and Technologies	Jeffrey A. Stanley Engineering
2002-151.ASM	Santa Rita High School Telecommunications Project	Environmental Planning Group	ATC Associates, Inc.
2003-1457.ASM	Pantano's Edge	Professional Archaeological Services and Technologies	Monterey Homes
2003-1487.ASM	Santa Rita High School	Archaeological Research Services	CSI
2003-504.ASM	Casita Mia Survey	Desert Archaeology	City of Tucson
2003-908.ASM	Clements Center Phase II Survey	Desert Archaeology	City of Tucson
2004-813.ASM	Pantano Wash	Harris Environmental Group	Pima County
2004-828.ASM	KB Golflinks/Pantano	Tierra Right-of-Way	KB Home
2006-844.ASM	Stone Bluff (Wingate) Class III Survey	WEST	Tucson Right-of-Way
2008-167.ASM	Golf Links And Harrison Road	Harris Environmental Group	City of Tucson
SHPO-2001-2678	TUC Cedar Groves 2 Verizon Wireless	Archaeological Research Services	Federal Communications Commission
SHPO-2002-1033	Bechtel Corporation Site # 958002010, "Santa Rita High School"	Environmental Planning Group	ATC Associates, Inc.
SHPO-2003-1355	Site # PH35207A "Santa Rita High School"; T-Mobile	Archaeological Research Services	Communication Services Inc.
SHPO-2003-1729	Nextel Communications, Site # AZ-400, "Lincoln"	Tierra Right-of-Way	TETRA Tech
SHPO-2003-2073	Clements Center Expansion Project	Desert Archaeology	City of Tucson

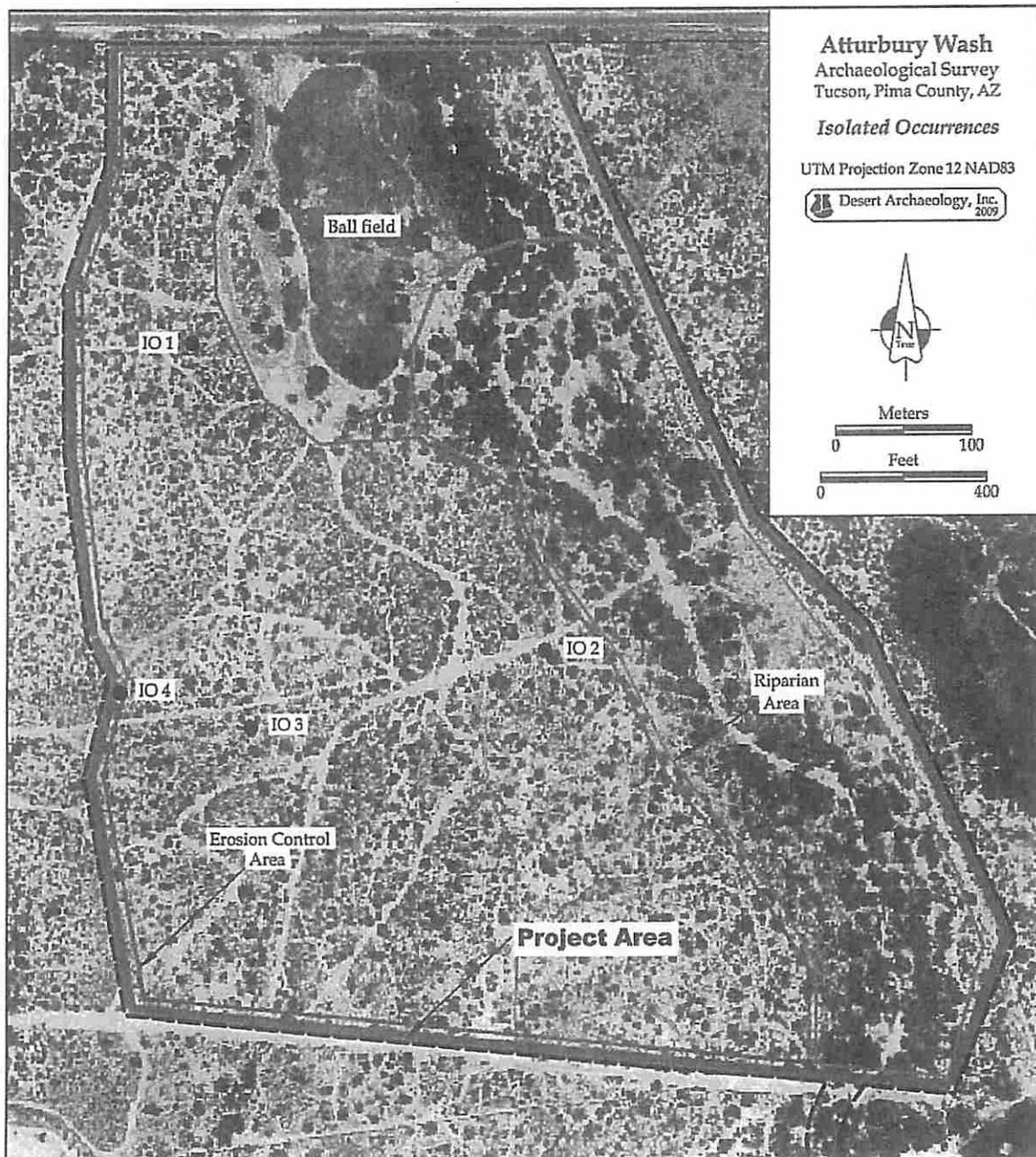


Figure 2. Map of the project area, showing locations of isolated artifacts.

- Douglas, John E., and Douglas B. Craig  
1986 *Investigations of Archaic and Hohokam Sites on the Flying V Ranch, Tucson, Arizona*. Anthropology Series, Archaeological Report No. 13. Pima Community College, Tucson.
- Doyel, David E.  
1991 Hohokam Cultural Evolution in the Phoenix Basin. In *Exploring the Hohokam: Prehistoric Desert Peoples of the American Southwest*, edited by G. J. Gumerman, pp. 231-278. University of New Mexico Press, Albuquerque.
- Elson, Mark D.  
1998 *Expanding the View of Hohokam Platform Mounds: An Ethnographic Perspective*. Anthropological Papers No. 63. University of Arizona Press, Tucson.
- Elson, Mark, and William H. Doelle  
1987 *Archaeological Assessment of the Mission Road Extension: Testing at AZ BB:13:6 (ASM)*. Technical Report No. 87-6. Institute for American Research, Tucson.
- Ezzo, Joseph A., and William L. Deaver  
1998 *Watering the Desert: Late Archaic Farming at the Costello-King Site*. Technical Series No. 68. Statistical Research, Inc., Tucson.
- Fish, Suzanne K., Paul R. Fish, and John H. Madsen (editors)  
1992 *The Marana Community in the Hohokam World*. Anthropological Papers No. 56. University of Arizona Press, Tucson.
- Freeman, Andrea K. L. (editor)  
1998 *Archaeological Investigations at the Wetlands Site, AZ AA:12:90 (ASM)*. Technical Report No. 97-5. Center for Desert Archaeology, Tucson.
- Gabel, Norman E.  
1931 Martinez Hill Ruins: An Example of Prehistoric Culture of the Middle Gila. Unpublished Master's thesis, Department of Anthropology, University of Arizona, Tucson.
- Gregory, David A.  
1987 The Morphology of Platform Mounds and the Structure of Classic Period Hohokam Sites. In *The Hohokam Village: Site Structure and Organization*, edited by D. E. Doyel, pp. 183-210. American Association for the Advancement of Science, Southwestern and Rocky Mountain Division, Glenwood Springs, Colorado.
- Gregory, David A. (editor)  
1999 *Excavations in the Santa Cruz River Floodplain: The Middle Archaic Component at Los Pozos*. Anthropological Papers No. 20. Center for Desert Archaeology, Tucson.
- 2001 *Excavations in the Santa Cruz River Floodplain: The Early Agricultural Period Component at Los Pozos*. Anthropological Papers No. 21. Center for Desert Archaeology, Tucson.

Huckell, Bruce B., and Lisa W. Huckell

- 1984 Excavations at Milagro, a Late Archaic Site in the Eastern Tucson Basin. Ms. on file, Arizona State Museum, University of Arizona, Tucson.

Huckell, Bruce B., Lisa W. Huckell, and Suzanne K. Fish

- 1995 *Investigations at Milagro, a Late Preceramic Site in the Eastern Tucson Basin*. Technical Report No. 94-5. Center for Desert Archaeology, Tucson.

Huntington, Frederick W.

- 1986 *Archaeological Investigations at the West Branch Site: Early and Middle Rincon Occupation in the Southern Tucson Basin*. Anthropological Papers No. 5. Institute for American Research, Tucson.

Mabry, Jonathan B.

- 2008 Chronology. In *Las Capas: Early Irrigation and Sedentism in a Southwestern Floodplain*, edited by J. B. Mabry, pp. 55-76. Anthropological Papers No. 28. Center for Desert Archaeology, Tucson.

Mabry, Jonathan B. (editor)

- 1998 *Archaeological Investigations of Early Village Sites in the Middle Santa Cruz Valley: Analyses and Synthesis*. Anthropological Papers No. 19. Center for Desert Archaeology, Tucson.

Mabry, Jonathan B., James E. Ayres, and Regina L. Chapin-Pyritz

- 1994 *Tucson at the Turn of the Century: The Archaeology of Block 83*. Technical Report No. 92-10. Center for Desert Archaeology, Tucson.

Masse, W. Bruce

- 1981 A Reappraisal of the Protohistoric Sobaipuri Indians of Southeastern Arizona. In *The Protohistoric Period in the American Southwest, A.D. 1450-1700*, edited by D. R. Wilcox and W. B. Masse, pp. 28-56. Anthropological Research Papers No. 29. Arizona State University, Tempe.

Ravesloot, John C. (editor)

- 1987 *The Archaeology of the San Xavier Bridge Site (AZ BB:13:14), Tucson Basin, Southern Arizona*. Archaeological Series No. 171. Arizona State Museum, University of Arizona, Tucson.

Roth, Barbara J.

- 1989 *Late Archaic Settlement and Subsistence in the Tucson Basin*. Ph.D. dissertation, Department of Anthropology, University of Arizona, Tucson. University Microfilms, Ann Arbor, Michigan.

Sonnichsen, C. L.

- 1982 *Tucson: The Life and Times of an American City*. University of Oklahoma Press, Norman.



CITY OF  
TUCSON

PARKS AND RECREATION  
DEPARTMENT

May 13, 2015

Arizona Water Protection Fund Commission  
Arizona Department of Water Resources  
3550 North Central Avenue  
Phoenix, AZ 85712

*Re: Support for Tucson Audubon Society Grant Application to the Arizona Water Protection Fund Commission for work at Atturbury Wash in Lincoln Regional Park*

Dear Sir or Madam:

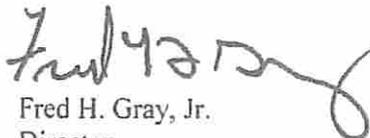
The City of Tucson Parks and Recreation Department is pleased to provide a letter of support for the grant application being submitted by Tucson Audubon Society. Our department now has a long and rewarding relationship with Tucson Audubon in mutual support of habitat restoration, erosion control and public outreach in the natural open space along the Atturbury Wash floodplain. We would like to see these activities continue, including continued monitoring of the success of the work already performed and continued outreach to the public building interest and engagement in issues surrounding the health of wildlife populations in riparian areas such as Atturbury Wash.

Tucson Parks and Recreation Department manages Atturbury Wash as a Bird and Wildlife Sanctuary. The habitat had declined as a result of erosion problems. The original Arizona Water Protection Fund Grant to Tucson Audubon has addressed that problem and planted replacement vegetation. Tucson Audubon's habitat enhancement is in accord with our desire to continue managing this part of the park as a natural area for wildlife and wildlife watching.

We support continuation of these efforts to monitor, in the longer term, the evolution of bird populations, the stabilization of erosion issues and the survival of the vegetation. The Tucson Parks and Recreation Department will support this plan with \$6,000 per year of in-kind labor and irrigation water valued at \$1,500 per year. Our total in-kind contribution would be approximately \$15,000.

This continued collaboration will contribute to the way the City of Tucson manages natural resource parks so that the department can continue to provide riparian habitat and maintain recreational areas for the public.

Sincerely,



Fred H. Gray, Jr.  
Director



Tucson Parks and Recreation  
*A Nationally Accredited Agency*

ADMINISTRATION

900 S. RANDOLPH WAY • TUCSON, AZ 85716  
(520) 791-4225 • FAX (520) 791-4008 • TTY (520) 791-2639  
[www.tucsonaz.gov/parksandrec](http://www.tucsonaz.gov/parksandrec)



CITY OF  
TUCSON

SHIRLEY C. SCOTT  
WARD IV  
COUNCIL MEMBER

May 11, 2015

Arizona Water Protection Fund Commission  
Arizona Department of Water Resources  
3550 North Central Avenue  
Phoenix, AZ 85712

*Re: Support for Tucson Audubon Society grant application to the Arizona Water Protection Fund Commission for work at Atturbury Wash in Lincoln Regional Park*

Dear Sir or Madam:

The Ward IV City Council Office is pleased to provide this letter of support for the continuation grant application being submitted by the Tucson Audubon Society. The project they propose addresses the health of riparian vegetation and wildlife. This is important to the City of Tucson because it manages Atturbury Wash as a Bird and Wildlife Sanctuary. Natural open spaces and wildlife is an important asset for the city because of the recreation opportunities it provides and because of the economic value to our region of wildlife watching activities.

We have been pleased with Tucson Audubon's work to control erosion and to relegate some areas of the wash that experienced decline of vegetation. Their public outreach and engagement of volunteers has been very important during this economic downturn during which the local neighborhood association was not able to maintain its engagement at previous levels.

As a four-term City Council Member I have supported the Atturbury Bird and Animal Sanctuary during my entire tenure. Pending my re-election to this office in November 2015 I will commit that my staff continue to work with the Tucson Audubon Society to accomplish this work.

It is our hope that this continued collaboration will contribute to the way the city manages natural resource parks so that the department can continue to provide riparian habitat and maintain recreational areas for the public.

Sincerely,

Shirley C. Scott

City of Tucson Ward 4 Council Member

8123 E. Poinciana Drive • Tucson, AZ 85730  
Main (520) 791-3199 • Fax (520) 791-4717



# SANTA RITA HIGH SCHOOL

3951 S. Pantano • Tucson, AZ 85730 • Ph. 520-731-7504 • Fax 520-731-7501

Arizona Water Protection Fund Commission  
Arizona Department of Water Resources  
3550 North Central Avenue  
Phoenix, AZ 85712

*Re: Support for Tucson Audubon Society grant application to the Arizona Water Protection Fund Commission for work at Atturbury Wash in Lincoln Regional Park*

Dear Sir or Madam:

We are pleased to provide this letter of support for the continuation grant application being submitted by the Tucson Audubon Society. The project they propose addresses the health of riparian vegetation and wildlife. Natural open spaces and wildlife are an important asset for the city because of the recreation opportunities it provides and because of the economic value to our region of wildlife watching activities.

In addition to the recreational and economic benefits, Santa Rita high School has partnered with the Tucson Audubon society to create an "outdoor classroom" in the park and the wash specifically. Santa Rita High School intends to make the work Tucson Audubon Society is conducting in the park a long term addition to our curriculum in science and a part of our ongoing initiative to improve community partnerships and build a sense of stewardship for the community and its natural resources among our students.

It is our hope that this collaboration will contribute to the way our high school prepares students for the future. The outreach that Tucson Audubon will be capable of through this grant will directly benefit our students in this regard.

Sincerely,

Joshua R. Ruddick  
Science Teacher

Mary Morse  
Asst. Vice Principal  
Curriculum & Instruction

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