

Public High School 6000 E 14th St, Tucson 85711

April 13, 2015

Conserve2Enhance/ C2E % Water Resources Research Center 350 N Campbell Ave Tucson 85719

I have attached our application for the 2015 C2E Grant Cycle. Included in the application are:

- 1. The completed and signed application
- 2. Project budget
- 3. Project timeline
- 4. Project site maps and designs
- 5. Letters of support from
 - TUSD1—Bryant Nodine, Director of Planning
 - Steve Kozachik, Ward 6 Council Member
 - Jan Holder, Executive Director of Sky Island Alliance

Support in writing this grant proposal has been generously provided by Kendall Kroesen, Ann Audrey, and Jan Holder.

Please contact us if you have any questions.

Sincerely,

Dr Shari Popen/Director

Michael Bagesse/ Projects Manager





Applicant Information

Name: Shari Popen and Michael Bagesse

Address: 6000 E 14th St City: Tucson State: AZ Zip: 85711

Phone: 520.382.9210 Email: director@skvislands.org

Project Information

Project Title: Rogers Commons Neighborhood Watershed and Habitat Repair

Project Location: 6000 E14th St

Site Ownership (list landowners affected by the proposed project and include signed letter(s) of support from

property owners): TUSD

For all questions, see C2E Grant Info Packet for more details and explanation!

Section 1: Project Description

1. What is the value of the proposed project at this particular site? What makes this site a priority for funding? (Word limit = 300)

Rogers Commons is the 12-acre site of the former TUSD Rogers Elementary School. The buildings and land were leased long-term to Sky Islands School, and renamed the Rogers Commons to identify a commitment to restore the site and reconnect it to the neighboring areas. The site was vacated by TUSD in 2010 and deteriorated for three years before Sky Islands obtained occupancy. Vacancy and neglect led to a significant loss of habitat and vegetation, increasing erosion and loss of the area as a neighborhood amenity. Rogers Commons borders Sears Park to the north, and three neighborhood associations--Wilshire Heights, Loma Verde, and Colonia del Valle. Sky Islands has adopted Sears Park through Tucson Clean and Beautiful and was instrumental in bringing Disc Golf to the park, helping to increase security in the area. In two years of residence, the school occupancy has been well-received by the surrounding neighbors. Planned outreach to the neighboring residents includes developing community gardens and revegetating the land to prevent erosion, and promoting the understanding that the watershed includes the neighboring streets that act as washes to the storm drains during storms. We propose to capture the rainwater that flows north from the SE corner of the property along the main drive onto E 14th Street and west along the secondary drive out onto Del Valle Ave. To begin restoring habitat on the 12 acres, we will develop and plant three desert-adapted revegetation areas that will be watered long-term by passive water harvesting. Water will be collected by making curb cuts along the two drives to divert running water onto the land, creating berms and basins, contours and swales, to direct, hold, and percolate the water



slowly into the ground. Using principles of permaculture, we propose to take advantage of the rainwater events by keeping more water on site to irrigate the landscape and promote habitat repair.

2. How will the waterway and the adjacent riparian area be improved? (Word limit = 300)

Runoff from the 12-acre Rogers Commons site joins the Alamo Wash at the storm drain on E 14th St. and then runs north into Tanque Verde Creek. By approaching the landscape as a working system connected to washes, and by capturing the rainwater at the top of the watershed before it reaches the road, we will be able to create several rainscape or catchment areas that become more water-efficient, creating rich habitats for birds and plants. Drawing on the principles of xeriscaping and an integrated design, we will select low water use plants, organic mulches to reduce evaporation and keep the soil cool, and earthworks to further direct and slow the running water. Using a 12" annual rainfall as a base, the proposed three catchment areas will conserve a total of 521,042 gallons of rainfall per year that would otherwise drain off the land along the driveways and roadways into the storm drains. Because, with permaculture and xeriscaping, we do not need to add chemicals and fertilizers, water entering the storm drains will be free of those non-source pollutants, improving the health of the Alamo Wash. Likewise, with the runoffs in the driveways significantly reduced, water entering the storm drains will also be freer of the oils and tars that it collects on traffic corridors. The greatest effect of this rainwater harvesting project will be to repair the riparian areas by planting and irrigating native vegetation to maximize the wildlife value and native species diversity. The revegetated areas are all adjacent to neighboring houses and walkways, By creating a food-rich, shaded, and bird-friendly habitat, a critical effect will also be to restore this site as an amenity to the neighborhood.

3. Is the project site physically connected to a designated Pima County urban wash or riparian area? Describe the connection and potential impact of the site to the surrounding area. (Word limit = 300)

Yes, the water runoff from the Rogers Commons project site connects directly to the Alamo Wash at the E 14th St./ S. Alamo Ave. storm drain, then runs north and connects with Tanque Verde Creek. The integrated design of this project allows us to think about how the landbase of the Rogers watershed and the Alamo Wash are linked, and how the health of one contributes directly to the health of the other downstream. The solution to the problem of erosion, and the runoff heading into the roadways and storm drain is to capture the water at the top end of the watershed and use it to create a riparian landscape. By solving the problem of stormwater runoff we can also create a solution to the degradation of the landscape at Rogers Commons and help turn the land into a local amenity, rich with wildlife diversity. Sky Islands' educational program integrates environmental issues and designs into the curriculum. We have developed good outreach to the neighbors and include them as stakeholders in our landscape projects. In 2014 Sky Islands worked with Living Streets Alliance to produce a walkability assessment report of the neighborhoods, including Sears Park. Neighbors, as stakeholders, participated equally with Sky Islands' students in the audit and by walking the routes. For the purposes of the C2E grant proposal, the key issues identified in the walkability study included the absence of shade trees and

Revised 2/3/2015 4



native landscaping. Associated with pedestrian comfort and attractiveness, the majority of audited street segments had no shade or canopy cover, and minimal vegetation, significantly reducing the walkability. Del Valle, along the west border of Rogers Commons, was littered with debris as a result of runoff from school property. By including the neighborhoods and adjacent roadways in the solution to runoff and non-source pollutants, we can enhance the habitat in the wider residential area.

4. Tucson C2E is working to improve Tucson's quality of life, enhance ecosystems and increase biodiversity. What actions or outcomes do you anticipate this project will have on the surrounding ecosystem in support of the overall C2E program goals? (Mark all that apply.)

⊠Adding new native habitat	
⊠Controlling erosion	
⊠Controlling storm water runoff	
Decreasing energy bills	
⊠Enhancing existing habitat	
□ Enhancing neighborhood aesthetics	Reducing sewer & septic inputs
Growing food	Other: reduce storm drain pollution

Comments: This is a multi-faceted project to protect the urban ecosystem and watershed surrounding Sky Islands school. By linking isolated restoration projects together in stages over time, using native and desert-adapted plants, active and passive water harvesting, the repair to the habitat in the broader ecosystem becomes more significant. The quality and diversity of plant and animal life--as well as the quality of residential life--will be greatly enhanced as Rogers Commons is revegetated and wildlife returns. Planting low and mid-level species as well as trees will provide shade, replenish the soil with nutrients, mitigate runoff and erosion, and provide natural nesting habitat for diverse species of birds.

"When you build a thing, you cannot merely build that thing in isolation, but must repair the world around it, and within it, so that the larger world at that one place becomes more coherent, and more whole; and the thing which you make takes its place in the web of nature, as you make it." —Christopher Alexander



Section 2: Water Resources

5. Describe water conservation practices that will be implemented during the construction of the project and after the work is complete. If supplemental water is needed for the project, what type(s) of water will be used, where will it come from and how will it be delivered? (Word limit = 400)

Sky Islands school, as a former TUSD school site, has inherited an irrigation system linked to City water. Built in 1955, we are not bound by the City Water Ordinance adopted by Mayor and Council in 2008. However, we are acutely conscious that the use of City potable water to irrigate is not a long-term solution for a sustainable restoration of the landscape. We use permaculture principles of passive water harvesting, creating berms and basins whenever we plant. Local arborists have provided us with clean, organic mulch that we use around the base of the plants to help conserve water. We will add gutters and cisterns as we get better established on site to actively catch and conserve water use. During the construction of the project we will need to drip irrigate to establish new plantings. That initial irrigation will come directly from the faucet taps on the building and be delivered by hoses to the vegetation. Early plantings will focus on low water use plants and will follow the desert-adapted principles of xeriscaping. Berms and basins will be established prior to any planting, as will curb cuts and ditches to divert water off the driveways and onto the landscape. Because the curb cuts will not take place on city streets but on school property they will not require a city permit. We are actively seeking to implement the curbs cuts on the main driveways to take advantage of the August monsoon rains. By diverting those rains onto the lands around the drives we can begin to irrigate the landscape in those areas. Before making the curb cuts, we will seek the advice of Ann Audrey and/or Brad Lancaster for site locations and numbers of cuts. This project is part of a larger plan to re-engineer the 12-acre landscape as a waterconservation demonstration site. The work that this project addresses is expected to take a good year to complete--it encompasses three of the corners of the property and will rely on student work as well as neighborhood involvement.

Section 3: Community Investment

6. Describe the organizational support for this project. Include a bulleted list of individuals and organizations with each partner's role and contribution to the project identified (e.g. matching funds, project design, volunteer hours, etc.). (Word limit = 300)

Sky Islands has long benefited from the good will of community members and organizations. For this project we enlist the help of the following:

- 1. Trees for Tucson/ Katie Gannon has promised to provide the trees. In 2014 Sky Islands planted 30 shade trees that were provided by Trees for Tucson, and with Katie Gannon's help, students learned how to plant trees. Every one of those trees continues to survive.
- 2. Kendall Kroesen/ Audubon Society will act as a consultant over a 10 hour period to help design the habitat.

 Ann Audrey has also agreed to participate in designing the water harvesting systems.
- 3. Jason Tankersley/ Fairfax Companies donated a backhoe and operator to create the basins and berms for the 2014 tree planting and we can reach out to him again for a backhoe.



- 4. Tim Johnson and Daniel Bradshaw at The Planning Center have already donated the design for the master plan for Rogers Commons. They will also work with us to add curb cuts and diversions to the master plan on the driveways.
- 5. Stakeholder help will also be provided by neighbors from the three surrounding neighborhood associations and by members of the Tucson Disc Golf Association. Both sent members to help develop the landscaping on the east side of the school by the main entrance. We enjoy good relations with each group.
- 6. Ward 6 Office/ Steve Kozachik and TUSD have both signed on to support this project, as has B.J. Cordova at Tucson Clean and Beautiful.
- 7. Sky Island Alliance will provide oversight with selection and placement of the native plants; Jan Holder, Executive Director has promised an in-kind match of 24 hours@ \$71.00 per hour = \$1,704.00.
- 8. Sources for trees and plants will be--Trees for Tucson, Desert Survivors Nursery, and Native Seeds/SEARCH.
- 9. Parents and students, as well as Sky Islands' staff, will be involved at every step of this project, donating time and resources and on-going stewardship.
- 7. Create an outreach plan for the project that includes volunteer needs, C2E recruitment and project promotion. (Word limit = 300)

Sky Islands school was named in part for the bioregion, but also in part because the school itself is envisioned as a series of islands made up of stakeholders, local organizations, and places visited. Each extension to the larger community helps create the learning environment and unique educational program. Rogers Commons was named to honor Anne Rogers, for whom the TUSD school was named, but also because we envision the school as part of the larger commons that includes the surrounding neighborhoods and park, and the ecosystem that we share in common. That ecosystem includes the watershed and natural habitats that we are trying to conserve and enhance. We will recruit volunteers beyond the school through the Sky Islands' website, by our links to neighborhood association websites, and by calling on our network of school graduates. The C2E project will be promoted on our website initially and through progress reports and photos as we develop the steps of the project. The larger 12-acre plan for the Rogers Commons includes adding interpretive signage as each area is developed, as well as providing an overall map of the proposed development by stages. Sky Islands plans to create a course for Fall semester in which students will take a concentrated look at watersheds, and their importance in maintaining the health and the rich diversity of wildlife in the ecosystem. We will look for ways to link the Living Streets Alliance Walkability Assessment to the surrounding neighborhoods as part of the future of this project, proposing curb cuts along Del Valle and S Alamo Avenue to mitigate runoff and divert water onto areas of roadside vegetation, as Dunbar/Spring neighborhood has successfully accomplished.



8. What is the plan for maintaining the site after C2E funding has ended (who, what, when, and how)? If adding plant material, how long do you plan to use supplemental water? (Word limit = 300)

The C2E grant is part of a larger comprehensive site plan to restore the ecology surrounding Sky Islands school, including the watershed. Michael Bagesse is the full-time site manager and will oversee the work connected to the C2E project. He holds a certificate from the Sonoran Permaculture Guild, has worked at B and B Cactus, and has over 10 years experience designing and building desert gardens and natural habitats. He works with students at the beginning and intermediate permaculture levels, and with students planted a demonstration orchard of 12 fruit trees on campus, as well as developed a pollinator garden with students that was supported by a Tucson Clean and Beautiful mini-grant. Currently Michael and several students are designing and planting a cactus garden, supported by a grant with the Tucson Cactus and Succulent Society, and making plans to plant milkweed as part of the Monarch Watch program. The above projects are provided to demonstrate that we have a strong investment in the restoration and conservation of this property and in our connections to the community. Our students know the importance of the work they do with the plants and know to use water wisely and carefully. We will have to use drip irrigation during times of the year when runoff or active water harvesting is not available. But over time our plan is to wean the vegetation off of drip irrigation. Additionally, as the plantings will follow the pinciples of xeriscape, they will be desert-adapted and low water use trees and plants, and seed balls. Sky Islands is in this for the long term at this site.

Section 4: Project Site Map and Design Diagram

- 9. The site map and/or design diagram can be submitted as one or more graphics. These graphics can be hand drawn or created with computer software (see previous application examples). We strongly recommend you seek professional consultation with an earthworks or similar company to help with this process and ensure your design best fits your project site. This map/design must include:
 - Identification of the major crossroads and project boundaries (including property ownership)
 - Proximity to adjacent wash(es) and/or riparian area(s), including distance (information can be found at: <u>http://maps.tucsonaz.gov/stormwater/</u> or <u>http://gis.pima.gov/maps/mapguide/</u>)
 - Site accessibility information (public access points and project visibility)
 - Site plan design diagram that clearly identifies primary proposed features (e.g. vegetation, earthworks, curb cuts, etc.)



Section 5: Project Budget Template

10. Complete the budget template below within this document or in the downloadable Excel file. For more instructions, refer to the Grant Info Packet. New in 2015: A 50% match will be required for all grants. Volunteer hours and in-kind services and tools can be counted toward match.

Name of fiscal agent: Dr Shari Popen Email: director@skyislands.org Phone: 520-382-9210

ltem Description	Description	C2E Cost	Match
Direct Environmental Benefits			
Water Supplies (conveyance, irrigation systems, etc.)	Hoses, drip systems, water donated by school	\$700	\$500
Professional staff time for design & implementation	WMG, Sky Island Alliance, K. Kroesen, Ann Audrey	\$1000	\$1704
Contractors/labor to do project work	Contractorsfor 16 Curb cuts/ 2 driveways @ 8 each	\$3200	
Site materials (hardscape & structures)	Gravel, landscape rock/riprap for swales, berms	\$1000	
Volunteer Time (valued at @\$22.52/hr; only use for match)	100 hours (does not include Sky Islands' students)		\$2252
Plants (estimate types(s) and quantity)	50 trees/ shrubsmixed Sonoran desert natives		
	40 5 gallon @ \$15 ea	\$600	
	20 15 gallon @ \$35 ea	\$700	
	Total	\$	Ş
Ancillary Project Needs (not to exceed 20% of total budget)			
Tools	School shovels, rakes, caliche bar		\$500
Donated hand tools (valued at \$1/hr; only use for match)			
Permits			
Job and skills training/stipends, etc.			
	Total	\$	\$
Outreach/Education			
Workshop/tour supplies			\$200
Workday supplies			\$400
	Total	\$7200	\$5656
	Project Total	\$12,856	\$
	Is match at least 50% of budget request?	yes	



Section 6: Project Planning Timeline Template

outreach events and maintenance tasks within the scope of this project. A thorough timeline reflects a well-planned project and will be important to 11. Beginning and final tasks are included below. Please elaborate as necessary and include planning and reporting tasks, on-the-ground work, the success of the overall project timeline and goals.

	2015	91	20	2016	Date Completed
Tasks	July-Sept	Oct-Dec	Jan- March	April - June	
Finalize project design & have approved by C2E					
Water harvesting / planting design approved by TUSD	\boxtimes				
Basic site preparation back-hoe to create swales, berms, ditches					
Curb cuts to divert monsoon rains	\boxtimes				
Quarterly report		\boxtimes			
Install rock at swales, berms, drainage ditches		\boxtimes			
Install drip irrigation to prepare for planting		\boxtimes			
Quarterly report			\boxtimes		
Begin plantingstudents/ staff, community workdays					
Mulch plants and trees			\boxtimes		
Irrigate new plantsdrip and by hand			\boxtimes		
Quarterly report				\boxtimes	
Continue irrigating					
Measure and record plant growth; increase in species diversity					
Add new plants as needed					
Final Report submitted					



Section 7: C2E Agreement

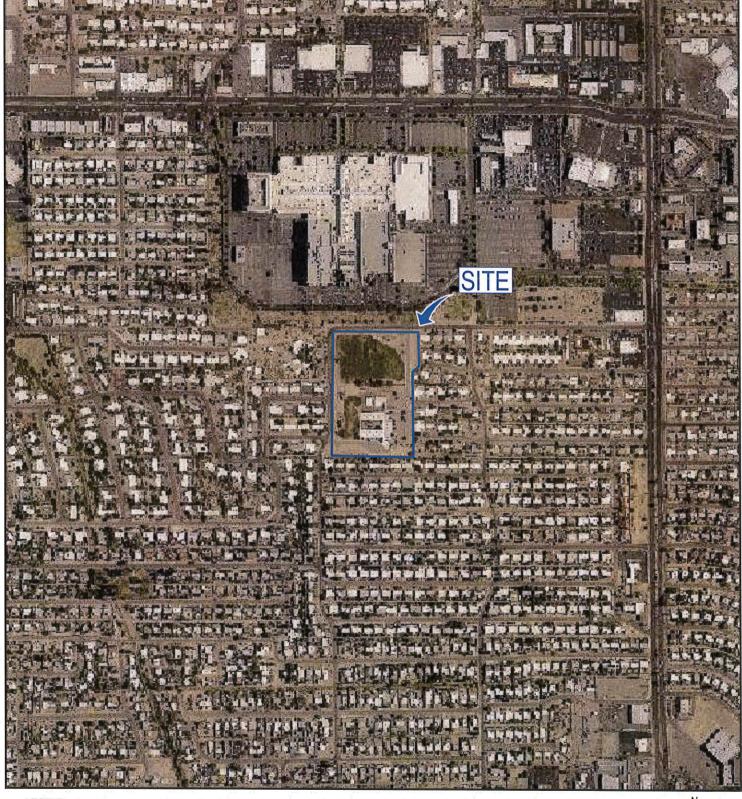
If your project is awarded funding, your group agrees to carry out the following tasks...

- 1. Complete the proposed project within the time period laid out in the Application Timeline and Project Description.
- 2. Assist C2E with creating and installing an interpretive project sign at the project site; funds for this sign will be provided by Tucson C2E and should not be included in your grant budget.
- 3. Submit quarterly reports and follow reimbursement procedures as outlined by C2E.
- 4. Provide site photo updates from a consistent photo point monitoring location.
- 5. Submit a final reimbursement, site maintenance plan and annual report once all work is completed.

Make your application package available for public review.

Signature

4/13/1C



LEGEND

APPROXIMATE SITE BOUNDARY



Project Mngr:	HPS	Project No.	N/A
Drawn By:	JCW	Scale:	NONE
Checked By:	ВМВ	File No.	N/A
Approved By:	ВМВ	Date:	05-2014

Pre	acan
Consulting Enginee	ers and Scientists
355 SOUTH FUCLID SHITE 107	TUCSON ARIZONA 85719

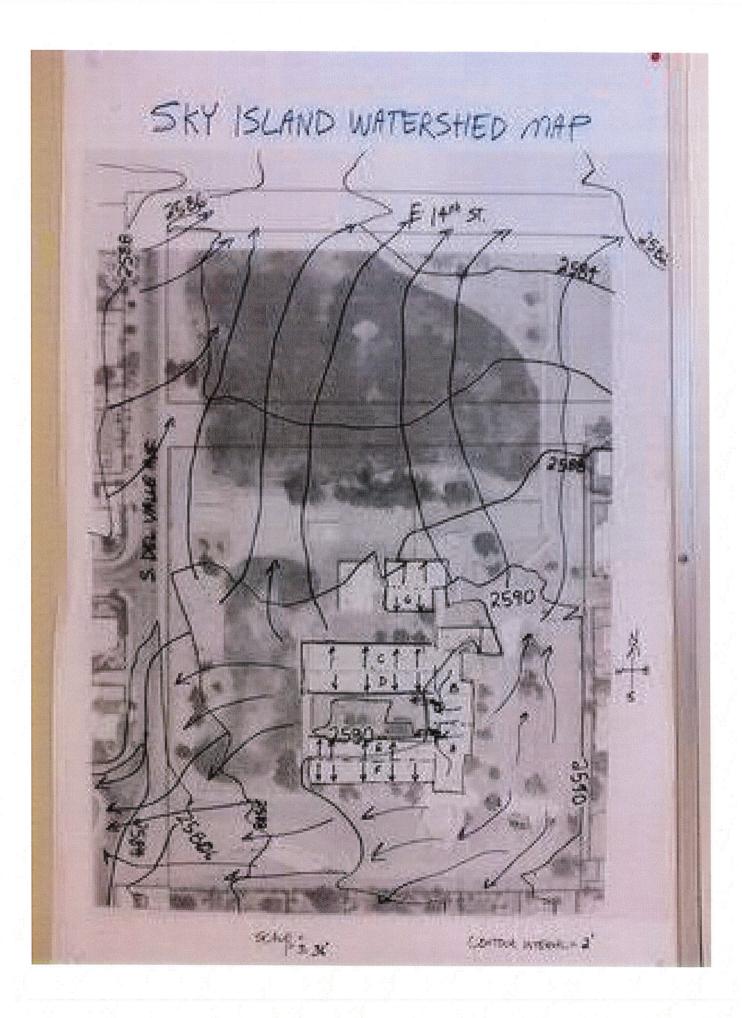
FAX. (520) 792-2539

PH. (520) 770-1789

	2012 AERIAL PHOTOGRAPH	
	SKY ISLAND SCHOOL 6000 EAST 14 TH STREET	
TUCSON		ARIZONA

12

EXHIBIT

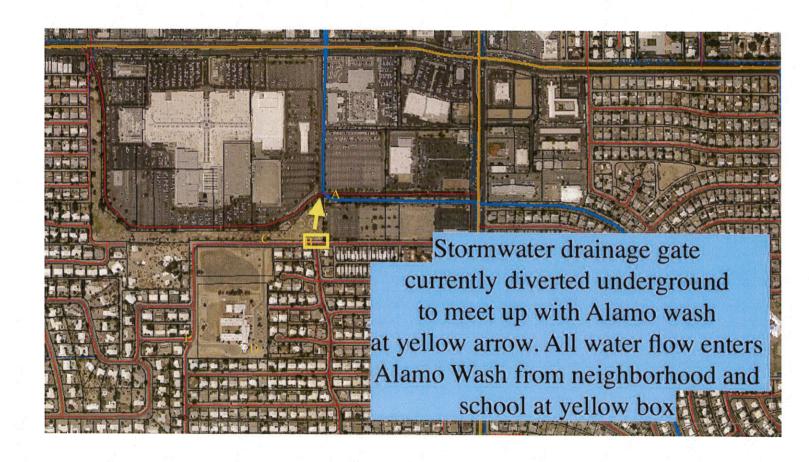


View is to the NE E 14th St gate from the main school entrance



View is to the SE corner from the main school entrance





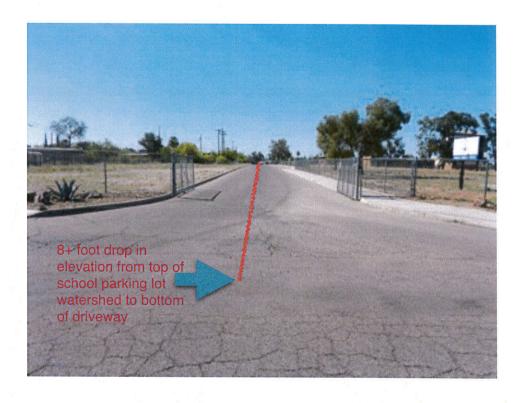
A. Alamo Wash looking east. Wash is diverted underground and connects with Alamo Ave. storm water drain. Wash is underneath Park Place Mall until just north of Broadway Blvd.



B. Looking from school drive entrance east on 14th St. toward Alamo Ave. storm water drain. All storm water runoff from entire neighborhood and school enters Alamo Wash from this point.



C. Looking at school drive entrance north on 14th St. Note runoff from school, damage to road and lack of vegetation or erosion control.

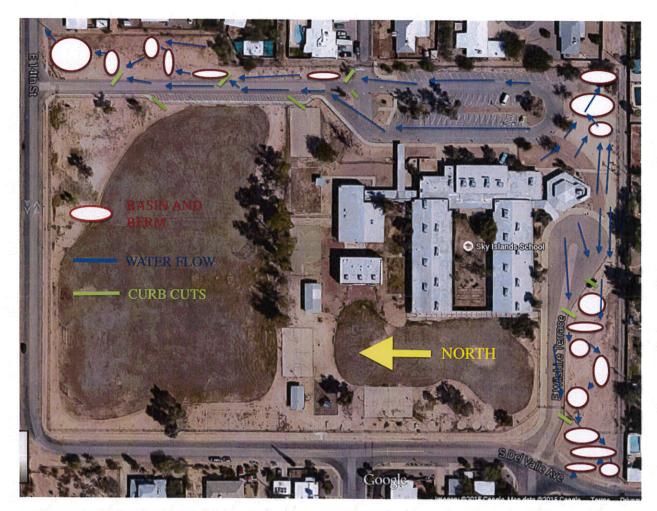


D. View is to the SE corner from the main school entrance. This represents the highest point of the school watershed and runoff point.

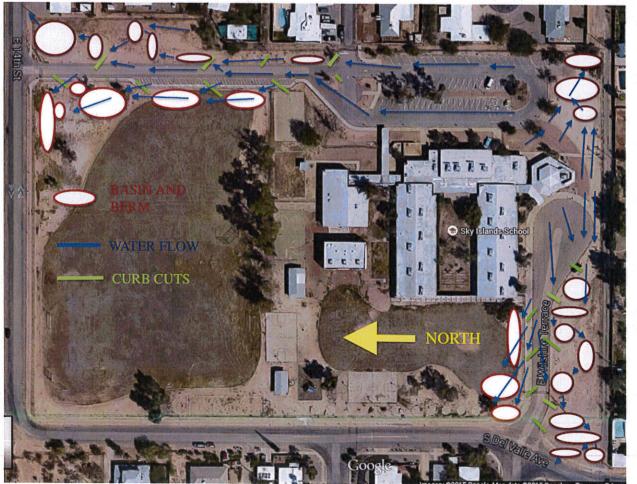


E. View is east from school's western boundary S. Del Valle Ave., looking east toward SW corner paved entrance to school. Please note runoff storm water and damage to road as well as lack of vegetation.





with 9 cuts



with 16 cuts

TUCSON UNIFIED SCHOOL DISTRICT



Planning and Student Assignment 606 South Plumer Avenue Tucson, Arizona 85719 (520) 225-4949 (520) 225-4939 (fax)

April 9, 2015 Conserve2Enhance c/o Water Resources Research Center 350 N Campbell Ave Tucson, AZ 85719

To: Members of the C2E Advisory Board

Tucson Unified School District no. 1 is in support of the Sky Islands proposal to expand their program at their current location. We have reviewed the proposed conceptual expansion plan and are in general agreement with the improvements as shown on the plan. We are pleased with the benefits that their program brings to their students as well as to the local community. Sky Islands has been a positive addition to the local community and the surrounding neighborhoods. We believe awarding the C2E grant will further enhance their program and bring additional environmental benefits to the community.

Sincerely,

Bryant Nodine, AICP

TUSD Acting Director of Planning and Student Assignment



CITY OF **TUCSON** STEVE KOZACHIK COUNCIL MEMBER

April 1, 2015

Conserve2Enhance c/o Water Resources Research Center 350 N Campbell Ave Tucson, AZ 85719

To: Members of the C2E Advisory Board

My support of the Sky Islands vision began during the school's relocation into midtown several years ago. Director Shari Popen and her staff hit the ground running by building relationships both in the surrounding neighborhoods and with the wider eco-conscious community that we're blessed with in Tucson. It is with that background that I'm pleased to write this letter encouraging you to award C2E Grant funding for Sky Islands' proposed project.

Sky Islands has a demonstrable commitment to preservation, conservation and ecological restoration. The school was recognized by the Southern Arizona Environmental Management Society, Tucson Clean & Beautiful (TCB), and the Arizona Native Plant Society with a \$500 mini-grant last year. The funding was used to teach the principles of permaculture to the student population via significant landscape enhancements to the Sky Islands school grounds. Visit their site and you can see the fruit of that work today. Further, Sky Islands' commitment to teaching a respect for our environment is exemplified in its school-wide 'planting day.' The entire school joined in a day of landscaping the school grounds. That work will benefit from the proposed C2E Grant.

In anticipation of this grant application, Sky Islands has completed a Living Streets Alliance (LSA) walkability study. The findings of that study called out the need for increased vegetation and water conservation throughout the neighborhood. The Audubon Society is also partnering with Sky Islands in this work. It is anticipated that the water harvested through this project will not only mitigate the impact of stormwater on neighborhood streets but, by improving the habitat on school grounds, make the site eligible to become a part of the Tucson Bird Count project. From a City perspective, birding is a tourism draw. This C2E Grant will therefore impact the wider economy of the region.

Your selection committee will be hard-pressed to find an application that checks so many important boxes. Those include the education of our youth in important environmental issues, building and strengthening relationships with groups such as Tucson Audubon, TCB, LSA, and area neighborhoods. The 'in the ground' positive impact of the project will benefit the region for years to come. For all of those reasons, I urge you to give strong consideration to the Sky Islands C2E Grant Juzarlu D application. It's exactly what the funds are intended to support.

Sincerely, Steve Kozachik

Ward 6 Council Member



April 8, 2015

Dear Members of the C2E Advisory Board,

I'm pleased to write this letter of support for Sky Islands School for C2E grant funding. Sky Islands School has made a valuable contribution to the local neighborhood and the larger community through its enhancement of the landscape on their school ground, which had deteriorated and become a draw for criminal activity and a serious eyesore after the previous TUSD school was closed.

Sky Islands School's focus on environmental education with their students, their commitment to conservation and ecological restoration, as well as their commendable efforts to improve the school grounds to benefit the community, make this an ideal candidate for this grant funding.

Sky Island Alliance agrees to provide an in-kind match to assist in plant selection, planting techniques and maintenance requirements planning. In addition Sky Island Alliance will assist the school in identifying additional grant opportunities to continue this important work.

I urge you to fund Sky Islands' School's grant application. It is exactly what C2E funding is intended to support.

Sincerely,

Jan Holder

Executive Director

Sky Island Alliance 300 E. University Blvd., Suite 270

Tucson, Arizona 85705