Rincon del Diablo Municipal Water District's El Norte Parkway Recycled Water System Expansion and Mixed Meter Retrofit Program (Recycled Water System Expansion)

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EXECUTIVE SUMMARY

Date
January 17, 2017

Applicant
Rincon del Diablo Municipal Water District
1920 North Iris Lane
Escondido, CA
San Diego County

Project Summary
Rincon del Diablo Municipal Water District proposes to extend its recycled water delivery system across a major thoroughfare, to an area encompassing several disadvantaged communities, in order to offset potable water use and reduce water costs to these two large multifamily sites. Funding for this recycled water system expansion will offset potable water used for landscape irrigation of common areas and parks, and will result in a significant, sustainable water savings of 50 acre feet per year (AF/yr). Of the two sites identified in this program, both are master-metered (one meter serving both landscape irrigation and all other potable water uses) and will require the separation of the irrigation systems from the potable water delivery systems. Funds from this grant will be used to extend the recycled water pipeline, install dedicated landscape irrigation meters at each site, and to retrofit the landscaped areas to meet the California Department of Environmental Health's recycled water standards and specifications. This particular project meets the FOA goals by offsetting potable water use to recycled water use, thereby increasing flexibility and improved water management in order to build better resilience to drought.

Project Timing
The project will take two years for completion. The project will commence upon award, generally October 1, 2017, and will conclude by September 30, 2019.

Project Location
The project is not located on a Federal Facility

BACKGROUND DATA

Rincon del Diablo Municipal Water District (Rincon Water) is a special district located approximately 25 miles north of San Diego in north San Diego County, California and provides water and fire protection service within specific boundaries. Rincon Water's boundary lines encompass various city and county communities that receive services provided by the District or neighboring agencies. The Rincon Water's customers are located within the cities of Escondido, San Marcos, and San Diego, and the unincorporated area of San Diego County. Although Rincon Water's parent district encompasses approximately 27,000 acres (42 square miles), potable and recycled water are served through its two improvement districts, ID1 and IDA, which total 9,155 acres. Figure 1 is a map showing the regional proximity of Rincon Water and Figure 2 is a map showing Rincon Water's service area.

Figure 1 – Regional Proximity Map

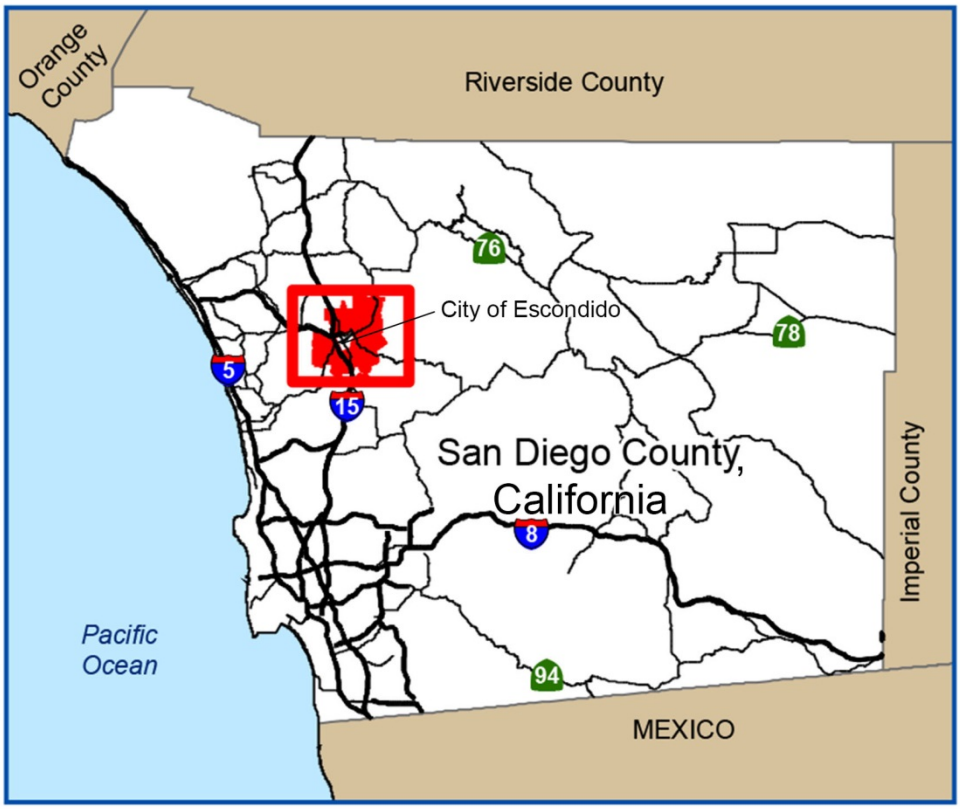
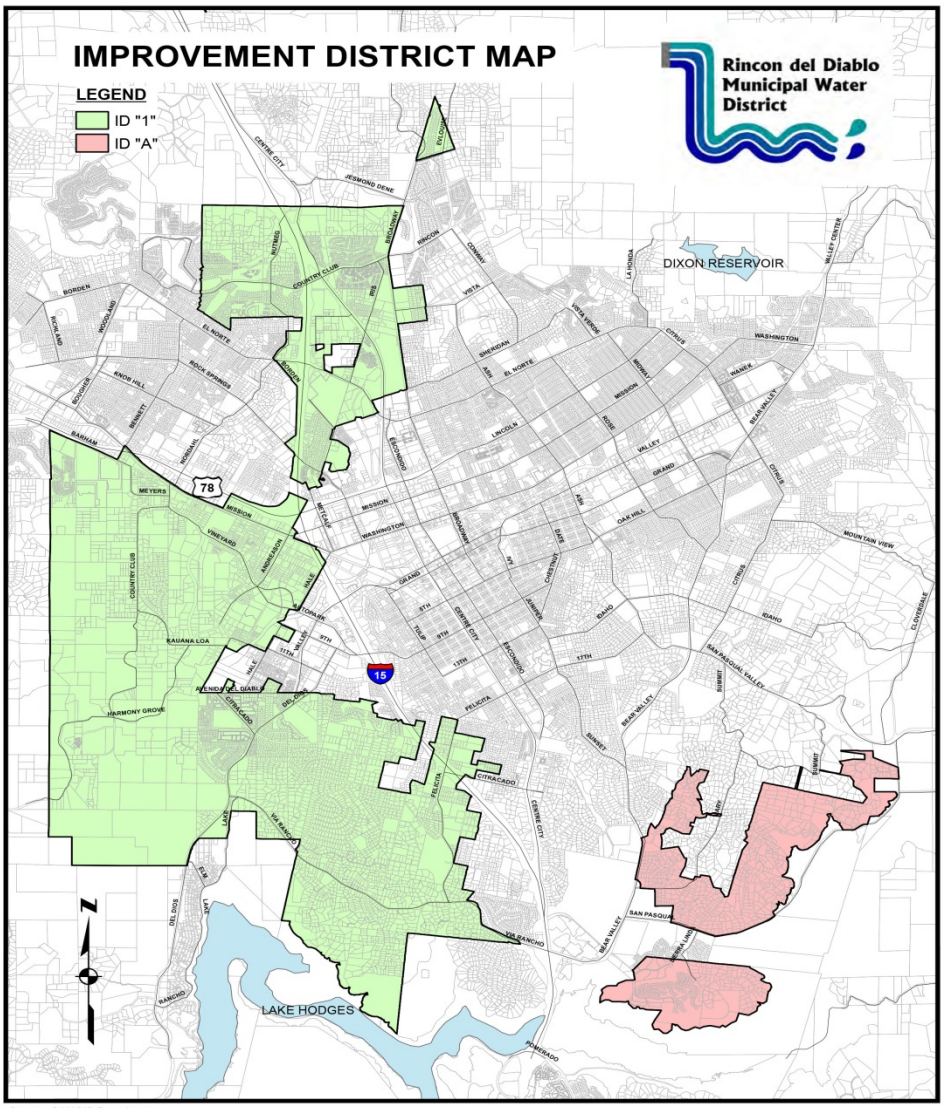


Figure 2 – Rincon Water's Service Area



Source: SANGIS Base layers

The prosed project consists of two large multifamily sites comprising just over 76 acres with 17.5 acres of irrigated common area. Located adjacent to one another, both are entirely within Rincon Water's ID 1 service area, and are shown in Figure 3.

Figure 3 – Project Map

Organized and incorporated in 1954, pursuant to Section 71000 of the California Water Code per the Municipal Water District Act of 1911, Rincon Water annexed into the San Diego County Water Authority (SDCWA) and the Metropolitan Water District of Southern California (MWD) in order to purchase and distribute imported Colorado River water within its service area. Currently, potable water is purchased from San Diego County Water Authority and recycled water from the City of Escondido's Hale Avenue Resource Recovery Facility (HARRF). In fiscal year 2015, Rincon Water served a population of approximately 30,000 people through almost 8,000 single family, multi-family, commercial, landscape irrigation, agricultural irrigation and recycled water connections. Figure 4 provides a breakdown of the connection types and water demands for fiscal year 2015 as well as demand projections for 2020 and 2025.

Figure 4 – Connections and Demand Summary

Connections and Demand Summary				
User Type	**# of Connections 2015**	**Water Demand 2015 (A/F)**	**Water Demand Projection 2020 (A/F)**	**Water Demand Projection 2025 (A/F)**
Single Family	6,847	3,460	4,320	4,962
Multi-Family	86	572	714	751
Commercial	798	1,067	1,333	1,402
Landscape Irrigation	134	409	510	100
Agriculture Irrigation	19	49	61	64
Potable Water Loss	-	189	236	247
Potable Subtotal	7,884	5,744	7,173	7,527
Recycled	75	3,138	3,100	4,000
Total	**7,959**	**8,882**	**10,273**	**11,527**

The drought that occurred from 1987 to 1992 motivated coordinated planning for future drought situations. Both MWD and SDCWA developed drought management plans to fairly and adequately deliver water to their member agencies. Today, both wholesalers and Rincon Water work together and independently in order to increase supply reliability planning. Examples of these efforts include the SDCWA's investments in carryover storage as well as construction of the Claude "Bud" Lewis Carlsbad Desalination Plant. If Metropolitan, SDCWA, and District supplies are developed as planned, along with compliance of the Water Conservation Bill of 2009, no shortfalls are anticipated within the District's service area in a normal year through 2040. As part of preparation of its 2015 UWMP, SDCWA confirmed the District's demands, and in turn, Metropolitan has confirmed SDCWA demands. Metropolitan's demands are shown to adequately cover the demands for all for the San Diego region. This particular project is included in Rincon Water's Master Plan and is part of its planned recycled water expansion should funding become available. Figure 5 shows Rincon Water's normal year supply and demand comparison.

Figure 5 – Normal Year Supply and Demand Comparison

Totals	2020	2025	2030	2035	2040
Supply Totals	10,818 AF	12,009 AF	12,229 AF	12,219 AF	12,188 AF
Demand Totals	10,818 AF	12,009 AF	12,229 AF	12,219 AF	12,188 AF
Difference	0	0	0	0	0

Currently, Rincon Water's potable water delivery system has ten closed reservoirs with a total storage capacity of 79 acre feet. This potable water system consists of 119 miles of 8" or larger water mains and four pump stations. Peak production is approximately 10 million gallons daily with an average daily production of 6.5 million gallons. Recycled water is delivered directly

from the City of Escondido into Rincon Water's recycled water distribution system. This recycled water system consists of 6.7 miles of 8" or larger water mains and two pump stations. There are 74 recycled water customer connections for non-potable uses such as landscape irrigation, fire protection, and industrial cooling towers.

Rincon Water has not had any prior direct relationships with the Bureau of Reclamation (Bureau), but has regionally benefited from previous projects between the Bureau and the SDCWA.

PROJECT DESCRIPTION

Overview

The Recycled Water System Expansion Program includes conversion of two sites from inefficient potable water irrigation to reclaimed water irrigation. The two sites include the Rancho Escondido Mobile Home Park and Morningside Terrace Apartments, located in disadvantaged communities. Each conversion will require design, environmental/ permitting/ plan check, and construction/ implementation as described further below:

Design

Each site targeted for conversion is currently irrigated with potable water using antiquated irrigation systems. The Recycled Water System Expansion Program proposes to prepare design plans for the infrastructure required to serve these sites and for conversion of these sites to recycled water. Designs will be prepared by licensed civil engineers for off-site improvements and licensed landscape architects for onsite improvements and will be signed and stamped and include all elements to comply with City of Escondido, County of San Diego, and State of California standards. Off-site improvements include connection to an existing 6" RW line owned and operated by the City of Escondido. The existing line runs on the North side of El Norte Parkway, and the two proposed sites are located on the South side. Each site will require a 6" lateral to be extended across El Norte Parkway, approximately 80 linear feet each. El Norte Parkway is a major arterial corridor and contains many existing utilities that will need to be contended with during installation of the proposed laterals. Due to heavy traffic flows, traffic control during construction will be a major consideration. On-site improvements include approximately 5500 linear feet of new 2" PVC irrigation supply line, recycled water meters, backflow prevention devices, new efficient irrigation and landscaping.

Environmental/ Permitting/ Plan Check

An NOE or IS/MND/ND is anticipated to be prepared and filed for all off-site improvements. Off-site and on-site improvements are anticipated to require permitting and plan check through the City of Escondido and the San Diego County Department of Environmental Health (DEH). The Recycled Water System Expansion Program proposes to provide permitting and plan check assistance for each site, including submission of a civil and landscaping plans, environmental documentation, landscape document package, coordination with the DEH, application for a discretionary permit, and coordination with the City of

Escondido to facilitate approval of the landscaping. The landscaping documentation package is anticipated to include a soil management report, planting and irrigation plans, a water efficient landscape worksheet, a grading plan, and an irrigation schedule.

Construction/ Implementation

The Recycled Water System Expansion Program proposes to provide contract administration, construction management, and construction services for off-site and on-site improvements. Contract documents will be assembled such that they are consistent with the public contract code, and will adequately facilitate a public bidding process. Eligible contractors will be pre-qualified using industry standards focusing on recycled retrofit requirements. Upon award of construction, a qualified labor compliance consultant will be utilized to monitor contractor's compliance with all state and federal labor regulations. Third party inspection services will be utilized throughout all stages of construction using personnel whom are knowledgeable and experienced in recycled water retrofit projects. These efforts will ensure that the water infrastructure is constructed in accordance with the approved design and that sites are properly converted from potable to recycled water irrigation. This task includes provision of all required items by the City of Escondido for final completion, which is anticipated to include a certificate of completion, final as-built plans, and a landscaping and irrigation system maintenance section.

Community Outreach

The Recycled Water System Expansion Program proposes to provide outreach to over 9,000 residents in the Rincon Service Area through mailers and presentations to highlight the importance of water conservation and water conservation efforts in the District, community, and state.

The anticipated project benefits include (1) increased RW distribution of 50 acre feet annually, which directly offsets 50 acre feet annually in imported potable water (2) reduction in flows to the San Elijo Ocean Outfall, (3) decreased over-irrigation and the associated urban-runoff, which will provide water quality benefits to the Escondido Creek, a 303(d) listed body of water, (4) community outreach to over 9,000 residents in the Rincon service area, and (5) reduction in customer utility costs.

EVALUATION CRITERIA

Criterion A – Quantifiable Water Savings

The water savings generated by extending Rincon Water's recycled water system and converting the common area landscapes of both the Rancho Escondido HOA and the Morningview Terrace Apartment Complex to recycled water would create an offset or potable water savings of 50 acre feet per year.

The estimation for each site was determined using multiple steps. The first step required: a) assessing the irrigated common area square footage by aerial photo measurement; b)

determining the number of habitational units within each site utilizing customer billing data; and, c) assessing past water use history for each site, also using historical customer billing data from calendar years 2010 to 2016.

The second step was to plug in the findings from the first step into a water budget model in order to develop a site specific water budget. The water budget model uses the Maximum Applied Water Allowance (MAWA) formula of ETo X .55 (ET Adjustment factor) X .62 (conversion factor) X irrigated square footage / 1,000 (gallons per water unit). Although this formula has not been updated to meet revisions to the Department of Water Resource's *Model Water Efficient Landscape Ordinance*, the age and inefficiencies of the irrigation systems at both sites were more accurately represented by this older MAWA formula. Conservative values also inputted into the water budget model included: a) historical evapotranspiration data from California Irrigation Management Information Systems Station 153 – Escondido; b) a water use per capita estimation of 70 gallons per person per day (Rincon Water's average daily water use average prior to drought conditions); and, c) an occupancy rate of 2.1 people per apartment complex and 1.5 people per mobile coach unit (Rincon Water's estimation). The resulting budgets were overlaid onto historical water use data to ensure that past water use was fairly representative of projected demands. Each site was then assigned a percentage to define, of the historical mixed water use, how much was likely used for indoor use and how much was likely used for landscape irrigation. As conservative values were used in the water budget portion of the estimation process, Rincon Water anticipates a greater savings of potable water than 50 acre feet per year.

Since historical water use data used represented varying dry and wet years, step 3 involved determining an annual water use average for each site. Data from 2010 to 2016 was then averaged for each site. This value was then multiplied by the percentage determined to be representative for common area landscape irrigation. The Morningside Terrace Apartments will realize a 15 acre feet per year offset from potable to recycled water, while the Escondido Rancho HOA will offset an additional 35 acre feet. Both resulting water budgets and site summaries are included with this application as Attachment 2.

Each site is currently connected to one or more mixed water use meters. Since each site will be connected to Rincon Water's recycled water system, new dedicated landscape recycled water meters will be installed. The water from these meters will be for recycled water landscape irrigation only. Cumulative meter readings from these meters will allow for a direct quantifiable accounting of the amount of water offset by this project. The project proposes to use the latest technology to further overall efficiency and operations.

Criterion B – Water Sustainability Benefits Expected to Result from the Project

The Recycled Water System Expansion Program does not commit conserved water to instreams flows with the purpose of benefiting federally listed threatened or endangered species, designated critical habitat or other fish and wildlife benefits. It will, however, result in

a quantifiable offset of 50 acre feet per year of potable water used for nonessential uses to recycled water. This offset then adds to the potable water supplies portfolio, helping to alleviate water shortages, both locally and regionally.

Criterion C.2 – Increasing Energy Efficiency in Water Management

According to the Environmental Protection Agency, Region 9, the State Water Project is the largest single user of energy in California, requiring 5 billion kWh per year to pump water supplies 2000 feet over the Tehachapi Mountains and into Southern California and about 500 to 1,500 kilowatt hours are required to collect and treat this water prior to delivery (EPA, 2017). Additionally, surface water supplies delivered to urban areas in the southern coastal areas of California are estimated to use 4,138 kilowatts per acre foot (Dale, Fujita, O'Hagan,& Hanemann, 2008) from the point of diversion. This all-inclusive estimation includes the cost of water treatment and transportation.

Using the calculations reported by Dale et al, the avoided annual energy savings from the Recycled Water System Expansion Program is estimated to be: 4,138 X 50 acre feet, or 206,900 kilowatt hours per year.

Criterion D – Addressing Adaptation Strategies in a WaterSMART Basin Study

A significant amount of Rincon Water's potable water supplies originate from the Colorado River Basin, and as such, is a participating stakeholder within the basin through its membership with the SDCWA and MWD. The Study for the Colorado River Basin commenced in January 2010 and concluded in December, 2012, and reported in general, the most significant concern for the basin is supply and demand imbalances. The Executive Summary for the Study indicates that investments in water conservation, reuse, and augmentation projects will improve water supply reliability and sustainability of the Colorado River basin (USBR, 2012). Furthermore, Individual Options found in the Final Report indicate that this particular project is classified within a high-level grouping as a project that will reduce demands on the basin and is classified within portfolio B, which supports low risk strategies with long-term high reliability (USBR, 2013).

This proposed project will reduce potable water demands by directly offsetting potable water use to recycled water. And, as a member of the SDCWA, this project will further collaboration among Basin Study partners by helping the SDCWA to meet its conservation goals.

Criterion E – Expediting Future On-Farm Irrigation Improvements

The Recycled Water System Expansion Program does not address Criterion E.

Criterion F.1 – Project Planning

The Recycled Water System Expansion Program is supported by Rincon Water's 2013 Water Master Plan which identifies potable water offsets to recycled water as a source of new local water supplies, which can only be achieved through the expansion of its recycled water

system. Additionally, Rincon Water's Operating and Capital Budget for fiscal year 2016-17, adopted by Rincon Water's Board of Directors, also identifies recycled water expansion as priority projects. Grant funding has been identified as a means to meet this objective. Rincon Water also maintains Ordinance 14-120.1, *An Ordinance of the Rincon del Diablo Municipal Water District Finding the Necessity For and Adopting a Drought Response Plan*. Within this Ordinance, Section III-K mandates that recycled water will be used to offset nonessential potable water use when available.

Criterion F.2 – Support and Collaboration

The Recycled Water System Expansion Program is supported locally by the City of Escondido, Rincon Water's recycled water supplier, and regionally by the SDCWA, Rincon Water's wholesaler. Letters of support are included with this application as Attachment 3. Additionally the sites selected for this project are also supportive of Rincon Water's expansion visions for recycled water due to the nature of its drought resiliency, flat rate structure, and the reduced rates for recycled water and monthly meter fees.

Given that customers within the Colorado River basin frequently experience tension over reduced water supplies, drought, and mandated water use restrictions, local demands for recycled water for irrigation purposes have increased significantly. As such, two additional sites located adjacent to this project, are also good candidates for future recycled water conversions. With the expansion of the recycled water pipeline, these additional sites will be closer in proximity to the recycled water infrastructure and are future conversions to recycled water.

Criterion F.3 – Performance Measures

The following activities will be conducted to quantify the actual benefits of this program:

- The project potable water savings will be monitored and measured using monthly recycled water meter readings.
- Reductions in potable water use will be also confirmed and measured using monthly potable water meters no longer serving landscape irrigation.
- Site audits will be conducted at each location on an annual basis within each multifamily site to measure and maintain irrigation system efficiency.

Criterion G – Additional Non-federal Funding

The matching share of funding for this project will come from Rincon Water's Capital Project funds in the amount of $359,124.88. Rincon is not federally funded and is classified as a California special district. Non federal funding for this project is 55% of the total project budget.

Criterion H – Connection to Reclamation Project Activities

Rincon Water receives its water from the SDCWA's Pipelines 1 & 2 off the first aqueduct which was designed by the Bureau in the 1950's and is known as the "*San Diego Project*". As such,

the project does receive potable water connected to a Bureau project however the Recycled Water System Expansion Program is not located on Bureau land or facilities. The San Diego Project report recognizes that water supplies and water demands conflicts are, and will continue to be, a tension well into the future. Rincon Water's project looks to facilitate potable water savings, which is a key component for the future in San Diego County (Autobee, n.d.).

ENVIRONMENTAL AND CULTURAL RESOURCS COMPLIANCE

The existing offsite recycled water infrastructure that will serve these two sites was constructed by the City of Escondido in 1999. This area is within the Rincon Water's service area, therefore agreements have been established between the City and Rincon Water to allow service connections for potential users to be installed by the Rincon Water. The two sites to be retrofitted were built in the mid 1980's and have been serviced by the Rincon Water since their inception.

The limits of disturbance for the proposed retrofits will be limited to existing Public Right of Way and pre disturbed private landscape areas. The most significant excavation will take place in the installation of the service laterals that will supply each site. This task requires crossing a major 4 lane road, El Norte Parkway. The excavation will consist of a 3ft wide trench, 8ft in depth spanning the length of the intersection, approximately 100 linear feet. Both sites equate to approximately 200 cubic yards of soil that will be excavated and replaced.

It is important to note the area of disturbance is a public road which has been disturbed previously on many occasions to install the existing infrastructure. The soil that will be disturbed for this project has been disturbed previously, with this project not impacting any virgin ground. The onsite retrofit portion soil disturbance will similarly be limited to roadways and landscapes which have been previously disturbed.

Environmental impacts will be within acceptable limits which are governed and policed by agencies such as EPA, CARB, and the Regional Water Quality Control Board. Rincon Water is well versed in the rules and regulations pertaining to the varying environmental agencies that will be involved and have included necessary costs and resources in our proposal. No adverse permanent impacts to the environmental community will result from this project. Typical temporary impacts may take place during construction activities, which will be maintained and controlled well within the allowable limits.

The area of work is heavily trafficked, urban density, therefore no animal habitats are expected and are highly unlikely. Although a lined creek flows through the Rancho Escondido HOA site, construction activities will not take place within or near this area. As part of the project design stage, Rincon Water will follow all CEQA requirements which involve thorough evaluation for potential impacts to critical habitats and endangered species. If those are determined to be in place, appropriate mitigation measures will be taken, but none are expected at this time. The CEQA process will also evaluate potential for presence of historical Indian burial sites or other critical artifacts. Since the area of disturbance will not affect any virgin soils, the potential of such findings are highly unlikely and would have been mitigated during previous projects.

The onsite retrofit portion of the project includes modernizing the existing irrigation system, upgrading sprinkler heads, controllers, etc. Re-vegetation of landscape areas will need to take place and vegetation used will be industry standard products not containing noxious weeds or non-native species. Components such as canals, flumes and other large infrastructure will not be impacted as a result of this project.

LETTER OF SUPPORT

As previously mentioned, letters of support from the City of Escondido and the SDCWA have been included in this application as Attachment 3.

REQUIRED PERMITS OR APPROVALS

The only significant permits required by this project are those mandated by DEH for the use of recycled water at these specific sites. The process for obtaining these permits requires the submission of site designs that adequately address the standards for recycled water irrigation systems. Once the site designs, site construction, and shut down testing have been approved, a permit is issued by DEH, which allows recycled water service to begin.

OFFICAL RESOLUTION(S)

Due to timing constraints, an official resolution from Rincon Water's Board of Directors will follow within 30 days from the submission of this application.

PROJECT BUDGET

Funding Plan and Letters of Commitment

The non-Federal share of the project costs will be obtained from Rincon Water's Capital Improvement Project Budget, therefore letters of commitment from additional sources are not required. Rincon Water's cost share commitments will be monetary contributions. Funds from the Capital Improvement Project Budget are derived from rates, fees, charges, property tax revenues, interest revenues, and other miscellaneous revenue sources.

There are no costs that will be incurred prior to the anticipated Project start date should Rincon Water receive this grant award. Funding sources for the Recycled Water System Expansion Program are shown below in Figure 6.

Figure 6 – Funding Sources

FUNDING SOURCES	AMOUNT
Non Federal Entities	
1. Rincon del Diablo Municipal Water District	$359,124.88
2.	
3.	
Non Federal Subtotal	$359,124.88
Other Federal Entities	
1. None	$ 0.00
2.	
3.	
Other Federal Subtotal	$ 0.00
REQUESTED RECLAMATION FUNDING	$300,000.00

Budget Proposal

The budget proposed for the Recycled Water System Expansion Program is provided in Figure 7 below.

Figure 7 – Proposed Budget

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	$/Unit	Quantity		
Salary and Wages				
Engineer	$54.46	384	Per hour	$20,912.64
Public Services Information Officer	$43.20	204	Per hour	$8,812.80
Senior Water Technician	$34.08	24	Per hour	817.92
Fringe Benefits – Full Time Employees				
Engineer	$43.56	384	Per hour	$16,727.04
Public Services Information Officer	$34.56	204	Per hour	$7,050.24
Senior Water Service Technician	$27.26	24	Per hour	654.24
Travel				
Trip 1				$0
Equipment				
Item A				$0
Supplies and Materials				
Item A				$0
Contractual/Construction				
A – Service Lateral Connection – Site 1	$217,200	1	site	$93,500
B – Service Lateral Connection – Site 2	$155,200	1	site	$102,500
C - Engineering Consultant	$100,000	1	job	$100,000
D – Inspection Services	$50,000	1	job	$50,000
E – On Site Retrofit – Site 1	$32,500	1	site	$156,200
F – On Site Retrofit – Site 2	$22,250	1	site	$74,950
D – Department of Health Shutdown Permit & Test – Site 1	$18,000	1	site	$18,000
E – Department of Health Shutdown Permit & Test – Site 2	$9,000	1	site	$9,000
Other				
Other				$0

TOTAL DIRECT COSTS				$659,124.88
Indirect Costs				
Type of Rate				$0
TOTAL ESTIMATED PROJECT COSTS				$659,124.88

Budget Narrative

Salaries and wages shown in the prosed budget in Figure 7 are for Rincon Water key personnel as follows:

- Engineer – Nick Lyuber, Senior Engineer: District engineering direct costs include those for managing consultant tasks that include design, permit approval, construction, on site retrofits, and project closing. The budget hours are estimated at 4 hours per week for the project duration of two years
- Public Services Information Officer – Julia Escamilla: Public Service Information Officer costs include public outreach such as one workshop at each site and press releases at 22 hours per site. 160 hours were projected for grant administration and project coordination.
- Senior Water Service Technician – Fred Stauffer, Senior Water Service Technican, Recycled Water and Backflow Specialist: Project hours were estimated at 12 hours per site for preparing and conducting shut down tests at each site in order to obtain the permits required from the Department of Health.

Fringe Benefits for each key employee include Rincon Water's contributions to employee retirement, health insurance, vision insurance, dental insurance, and life insurance. Fringe benefits vary by salary and are shown in the prosed budget.

Contractual Costs are presented in the proposed budget categorized by the scope of each task. Rincon Water policy requires that all projects costing $25,000 or more are put out to bid per its public works contract code. As such the contactor budget is estimated using past, similar types of projects and current industry rates for like installations. Should this project receive funding, actual costs will reflect the outcome of the open bid process. The breakdown of estimated costs are as follows:

Contractor A:	**Service Lateral Connection – Site 1, Rancho Escondido ($93,500)**
$ 5,000	Mobilization/demobilization
$75,000	Connection to existing City of Escondido Recycled Water Main line on north side of El Norte Parkway, install 100 linear feet of 6" PVC service lateral to the south side of El Norte Parkway, and associated permitting, traffic control, and environmental provisions
$ 3,500	Install 6" service meter

$10,000	Install 6” potable water backflow prevention device on the existing potable service
Contractor B:	**Service Lateral Connection – Site 2, Morningview Terrace ($102,500)**
$ 5,000	Mobilization/demobilization
$75,000	Connection to existing City of Escondido Recycled Water Main line on north side of El Norte Parkway, install 100 linear feet of 6” PVC service lateral to the south side of El Norte Parkway, and associated permitting, traffic control, and environmental provisions
$ 9,000	Install 9 – 1½” service meters @ $1,000/each
$13,500	Install 9 – 2” potable backflow prevention devices@ $1,5000/each
Contractor C:	**Engineering Consultant ($100,000)**
$100,000	Design of offsite and onsite retro fit tasks, CEQA reporting and implementation, engineering services during construction, and assist with project closeout.
Contractor D:	**Inspection Services ($50,000)**
$50,000	Civil and mechanical inspections during construction, geotechnical investigation services, and general quality assurance per the design plans and specifications.
Contractor E:	**Onsite Retrofit, Site 1 – Rancho Escondido HOA ($156,200)**
$90,000	Install 2” recycled water main line within community, 4,500 lineal feet @ $20/feet
$20,000	Remove and reconnect existing irrigation lines to the new recycled main line.
$33,700	Install shutoff valves at each residence, $100 @ 337 residences.
$4,000	Install cross connection test stations, 5 @ $800 / each
$1,000	Install 1” QCV Valve, 5 @ $200/each
$2,500	Install recycled water sprinkler spray heads, 500 @ $5/ each
$5,000	Install recycled water signage, tags, and labels
Contractor F:	**Onsite Retrofit, Site 1 – Morningview Terrace HOA ($74,950)**
$20,000	Install 2” recycled water main line within community, 1,000 lineal feet @ $20/feet
$10,000	Remove and reconnect existing irrigation lines to the new recycled main line.
$32,700	Install shutoff valves at each residence, $100 @ 327 residences.
$ 7,200	Install cross connection test stations, 9 @ $800 / each
$ 1,800	Install 1” QCV Valve, 9 @ $200/each
$ 750	Install recycled water sprinkler spray heads, 150 @ $5/ each

$ 2,500	Install recycled water signage, tags, and labels

Contractor G:	**Department of Health - Site 1 ($18,000)**
$10,000	Permit Process
$ 8,000	Cross connection Testing

Contractor H:	**Department of Health - Site 2 ($9,000)**
$ 5,000	Permit Process
$ 4,000	Cross connection Testing

UNIQUE ENTITY IDENTIFIER AND SYSTEM FOR AWARD MANAGEMENT

Rincon Water is aware of the Unique Entity Identifier and System for Award Management requirement and is currently in the process of registration. The SAM registration will be initiated and completed within 30 days of this grant application submission.

REFERENCES

Autobee, Robert (n.d.). San Diego Project. Retrieved on January 5, 2017 from https://www.usbr.gov/projects/pdf.php?id=185

Dale, L., Fujita, S., O'Hagan, J. & Hanneman, W. (2008). The Interaction of Water and Energy in California. Retrieved on January 16, 2017, from http://www.circleofblue.org/wp-content/uploads/2010/08/The-interaction-of-energy-and-water-in-California.pdf.

Environmental Protection Agency (EPA). (2017). Water-Energy Connection. Retrieved on January 16, 2017, from www3.epa.gov/region9/waterinfrastructure/waterenergy.html.

U.S. Department of the Interior, Bureau of Reclamation (Bureau). 2012. Colorado River Basin Water Supply and Demand Study. Retrieved on January 4, 2017 from https://www.usbr.gov/watersmart/bsp/docs/finalreport/ColoradoRiver/CRBS_Executive_Summary_FINAL.pdf.

U.S. Department of the Interior, Bureau of Reclamation (Bureau). 2013. Colorado River Basin Water Supply and Demand Study – Public WEbinar. Retrieved on January 4, 2017 from https://www.usbr.gov/lc/region/programs/crbstudy/WebinarJan2013.pdf

Sites Summary

Morningside Terrace Apartments

Account Number	User Code	# Units	Parcel #	Meter Size	SO		Total Prpty Sq '	NonVeg Sq'	Common Landsp Sq '	Resident Landsp Sq'	Savings per year
16-6000-02	M	36	22620310	2	5279		929,112	639,335	289,777	n/a	15 AF
16-6020-02	M	36	22620310	2	5280						
16-6040-02	M	36	22620310	1.5	5281						
16-6060-02	M	36	22620310	1.5	5282						
16-6080-02	B	37	22620310	2	5283						
16-6100-02	M	36	22620307	1.5	5284						
16-6120-02	M	37	22620310	2	5285						
16-6140-02	M	36	22621103	2	5286						
16-6160-02	M	36	22621103	2	5287	326					

Notes: Would require separation of landscape from mixed meter use.

Rancho Escondido HOA	User Code	# Units	Parcel #	Meter Size	SO	Total Prpty Sq '	NonVeg Sq'	Common Landsp Sq '	Resident Landsp Sq'	
94-0500-01	T	338	22639008	6	1039	2,389,892	1,500,894	460,972	428,026	35 AF

Notes: Would require separation of landscape from mixed meter use.

Total Savings **50 AF**

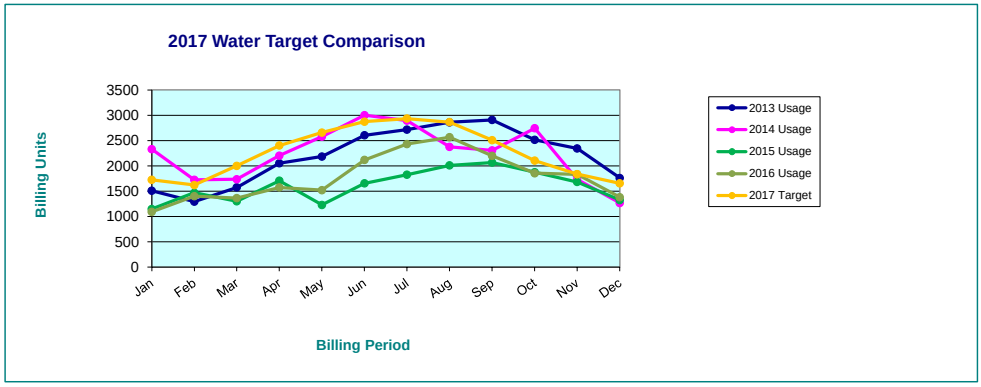
Rincon del Diablo Municipal Water District
1920 North Iris Lane, Escondido, CA 92026-1399 (760) 745-5522 www.rinconwater.org

2017 Residential Water Target

Name:	Rancho Escondido	**Phone Number:**	
Account Number(s):	9405001	**Meter Number(s):**	7362721
# of Residents:	500		
Property Square Footage:	2,389,892	**Acreage:**	54.9
Residenital Landscape Sq':	428,026		
Common Area Sq':	460,972		

	A	B	C	D	E
Month	**ET Monthly Average** (inches)	**70 gpcd Target**	**Residenital Landscape** (Billing Units)	**Common Area Target** (Billing Units)	**Total Monthly Target** (Billing Units)
January	2.81	930	150	646	1725
February	2.76	840	147	634	1621
March	3.78	930	202	868	2000
April	5.31	900	283	1220	2403
May	6.1	930	325	1401	2657
June	6.97	900	372	1601	2873
July	7.08	930	378	1627	2934
August	6.83	930	364	1569	2863
September	5.67	900	302	1303	2505
October	4.15	930	221	953	2105
November	3.31	900	177	760	1837
December	2.56	930	137	588	1655
Total	**57.33**	**10950**	**3058**	**13171**	**27179**

27179



** CIMIS Station = 153 (San Pasqual Valley)

***One billing unit = 1,000 Gallons

Column A is evapotranspiration

Column B is based on the average of 70 gallons of water per person per day for personal use

Column C is based on: ETo inches X .8 (ET adjustment factor) X .62 (conversion factor) X sq. ft. /1,000 (gallons per unit)

	2009 Usage	2010 Usage	2011 Usage	2012 Usage	2013 Usage	2014 Usage	2015 Usage	2016 Usage	2017 Target
Jan	1415	2038	1390	1418	1508	2329	1148	1092	1725
Feb	1255	576	1301	1404	1295	1726	1469	1402	1621
Mar	2053	1394	1184	1265	1576	1736	1299	1362	2000
Apr	1972	1462	1460	1379	2051	2202	1708	1574	2403
May	2360	1648	1546	1245	2185	2577	1229	1521	2657
Jun	2267	2068	2085	2199	2605	3001	1656	2117	2873
Jul	2788	2232	3385	2560	2714	2892	1825	2430	2934
Aug	2787	1645	2087	2472	2859	2375	2010	2566	2863
Sep	2638	3544	2814	2402	2905	2304	2067	2199	2505
Oct	2745	2575	2429	3015	2513	2743	1874	1855	2105
Nov	1822	1521	1206	2572	2342	1729	1682	1833	1837
Dec	1896	1458	929	1334	1760	1267	1326	1381	1655
Total	25997	22161	21816	23265	26313	26881	19293	21332	27179

Avg Use	Indoor Use	Res Landscap	Common Lands
1542			
1304			
1484			
2026			
1789			
2250			
2603			
2708			
2609			
2469			
1838			
1626			
24247	X 49%		11396 Units --> 35 AF/YR

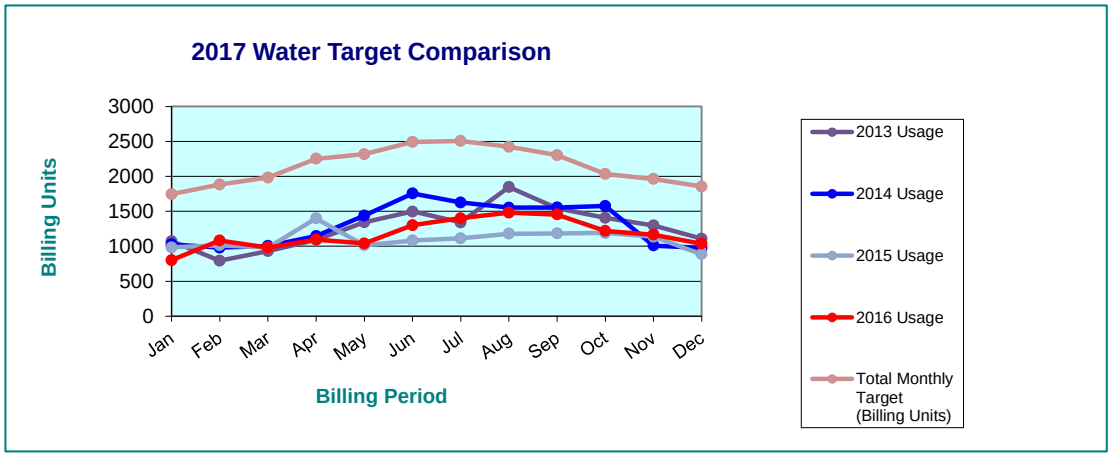
Rincon del Diablo Municipal Water District
1920 North Iris Lane, Escondido, CA 92026-1399 (760) 745-5522 www.rinconwater.org

2017 Residential Water Target

Name: Morningside Terrace Apartments
Account Number(s): Various
Phone Number:
Meter Number(s):

# of Residents: 684.6 (2.1 people/home)
# of Homes 326
Residenital Landscape Sq': 0
Common Area Sq': 289,777
Acreage: 21.3

	A	B	C	D	E
Month	**ET Monthly Average** (inches)	**70 gpcd Target**	**Residenital Landscape** (Billing Units)	**Common Area Target** (Billing Units)	**Total Monthly Target** (Billing Units)
January	2.81	1342	0	406	1748
February	2.76	1486	0	399	1884
March	3.78	1438	0	546	1984
April	5.31	1486	0	767	2252
May	6.1	1438	0	881	2319
June	6.97	1486	0	1007	2492
July	7.08	1486	0	1023	2508
August	6.83	1438	0	986	2424
September	5.67	1486	0	819	2304
October	4.15	1438	0	599	2037
November	3.31	1486	0	478	1964
December	2.56	1486	0	370	1855
Total	**57.33**	**17492**	**0**	**8280**	**25771**



** CIMIS Station = 153 (San Pasqual Valley)
***One billing unit = 1,000 Gallons

Column A is evapotranspiration
Column B is based on the average of 70 gallons of water per person per day for personal use
Column C is based on: ETo inches X .8 (ET adjustment factor) X .62 (conversion factor) X sq. ft. /1,000 (gallons per unit)

Cumulative Monthly Usage

	2010 Usage	2011 Usage	2012 Usage	2013 Usage	2014 Usage	2015 Usage	2016 Usage
Jan	1087	1019	1090	1073	1029	985	802
Feb	839	881	995	793	982	1015	1083
Mar	1019	884	916	931	1006	982	981
Apr	1010	1152	1082	1092	1145	1400	1098
May	951	1234	1022	1343	1438	1015	1040
Jun	1378	1389	1410	1497	1755	1081	1303
Jul	1530	2097	1514	1342	1627	1113	1401
Aug	1667	1407	1364	1847	1552	1180	1483
Sep	1571	1811	1537	1545	1554	1184	1455
Oct	1639	1311	1234	1406	1576	1190	1220
Nov	925	776	1260	1298	1011	1135	1166
Dec	1032	651	962	1108	977	887	1038
Total	**14648**	**14612**	**14386**	**15275**	**15652**	**13167**	**14070**

	Total Use	32% Landscape	68% Indoor Use	Total
2007	15700	5024	10676	15700
2008	16566	5301	11265	16566
2009	15489	4956	10533	15489
2010	14648	4687	9961	14648
2011	14612	4676	9936	14612
2012	14386	4604	9782	14386
2013	15275	4888	10387	15275
2014	15652	5009	10643	15652
2015	13167	4213	8954	13167
2016	14070	4502	9568	14070
Total		47861		

	Average Landscape Use	
2007	5024	
2008	5301	
2009	4956	
2010	4687	
2011	4676	
2012	4604	
2013	4888	
2014	5009	
2015	4213	
2016	4502	
	47861	
Avg	4786	15 AF

2007	16-6000-02	16-6020-02	16-6040-02	16-6060-02	16-6080-02	16-6100-02	16-6120-02	16-6140-02	16-6160-02	Total
Jan	41	36	33	55	49	49	57	47	76	443
Feb	122	154	106	195	124	142	292	198	220	1553
Mar										
Apr	159	287	142	319	199	192	528	388	281	2495
May										
Jun	143	289	123	332	170	171	518	488	237	2471
Jul										
Aug	148	430	139	506	196	212	764	662	261	3318
Sep										
Oct	131	387	129	465	187	240	636	526	232	2933
Nov										
Dec	122	254	147	284	243	217	480	456	284	2487
Total	866	1837	819	2156	1168	1223	3275	2765	1591	15700
										15700

2008	16-6000-02	16-6020-02	16-6040-02	16-6060-02	16-6080-02	16-6100-02	16-6120-02	16-6140-02	16-6160-02	
Jan										
Feb	122	153	127	178	213	189	244	222	233	1681
Mar										
Apr	148	314	154	147	224	231	568	570	290	2646
May										
Jun	116	372	107	699	152	180	647	555	214	3042
Jul										
Aug	116	459	120	573	173	197	830	680	235	3383
Sep										
Oct	131	405	120	403	157	206	876	860	260	3418
Nov										
Dec	137	237	112	284	150	214	660	466	136	2396
Total	770	1940	740	2284	1069	1217	3825	3353	1368	16566
										16566

2009	16-6000-02	16-6020-02	16-6040-02	16-6060-02	16-6080-02	16-6100-02	16-6120-02	16-6140-02	16-6160-02	Total
Jan										
Feb	125	187	108	205	161	226	364	376	281	2033
Mar										
Apr	117	240	102	331	177	217	597	539	210	2530
May										
Jun	101	318	75	345	150	198	859	501	243	2790
Jul										
Aug	142	453	103	460	186	259	923	497	201	3224
Sep										
Oct	139	386	92	378	147	207	740	461	230	2780
Nov										
Dec	116	236	85	275	109	188	575	326	222	2132
Total	740	1820	565	1994	930	1295	4058	2700	1387	15489
										15489

2010	16-6000-02	16-6020-02	16-6040-02	16-6060-02	16-6080-02	16-6100-02	16-6120-02	16-6140-02	16-6160-02	Total
Jan	91	114	65	114	73	143	203	115	169	1087
Feb	76	71	57	93	56	105	155	90	136	839
Mar	91	74	73	101	75	121	202	116	166	1019
Apr	69	138	60	138	62	95	211	133	104	1010
May	59	111	59	130	58	98	213	141	82	951
Jun	71	130	62	241	64	113	365	241	91	1378
Jul	82	178	57	233	66	111	434	283	86	1530
Aug	78	201	56	226	68	132	455	316	135	1667
Sep	78	177	66	242	64	119	393	301	131	1571
Oct	78	202	76	231	86	138	455	275	98	1639
Nov	74	87	62	105	80	123	224	82	88	925
Dec	81	88	69	112	90	127	257	113	95	1032
Total	928	1571	762	1966	842	1425	3567	2206	1381	14648
										14648

2011	16-6000-02	16-6020-02	16-6040-02	16-6060-02	16-6080-02	16-6100-02	16-6120-02	16-6140-02	16-6160-02	Total
Jan	103	79	87	104	96	129	188	116	117	1019
Feb	83	73	68	99	89	105	109	154	101	881
Mar	86	86	58	89	86	104	143	134	98	884
Apr	97	121	82	135	114	145	177	173	108	1152
May	70	183	68	164	89	97	255	215	93	1234
Jun	83	176	73	201	95	95	324	234	108	1389
Jul	111	271	107	294	133	128	555	342	156	2097
Aug	69	217	64	168	72	80	357	278	102	1407
Sep	95	210	110	268	99	106	460	331	132	1811
Oct	90	153	76	161	100	117	326	171	117	1311
Nov	56	77	48	89	68	78	193	92	75	776
Dec	54	59	47	76	28	64	171	84	68	651
Total	997	1705	888	1848	1069	1248	3258	2324	1275	14612
										14612

2012	16-6000-02	16-6020-02	16-6040-02	16-6060-02	16-6080-02	16-6100-02	16-6120-02	16-6140-02	16-6160-02	Total
Jan	79	102	74	133	128	98	259	107	110	1090
Feb	71	107	64	134	96	93	207	120	103	995
Mar	68	98	61	110	90	90	184	127	88	916
Apr	86	100	68	153	100	103	225	150	97	1082
May	79	90	97	138	81	91	170	161	115	1022
Jun	77	227	78	253	98	99	291	186	101	1410
Jul	73	189	70	237	99	89	390	248	119	1514
Aug	68	199	70	219	80	85	338	206	99	1364
Sep	73	210	80	254	99	103	374	230	114	1537
Oct	67	178	67	176	86	79	303	194	84	1234
Nov	79	174	74	193	104	99	248	165	124	1260
Dec	62	144	57	160	86	80	164	132	77	962
Total	882	1818	860	2160	1147	1109	3153	2026	1231	14386
										14386

2013	16-6000-02	16-6020-02	16-6040-02	16-6060-02	16-6080-02	16-6100-02	16-6120-02	16-6140-02	16-6160-02	Total
Jan	73	148	80	160	109	103	153	139	108	1073
Feb	70	84	64	116	112	88	92	72	95	793
Mar	64	134	61	115	117	82	145	120	93	931
Apr	76	154	79	171	95	98	184	135	100	1092
May	69	242	79	221	79	83	322	159	89	1343
Jun	66	236	70	226	71	81	313	336	98	1497
Jul	78	215	99	110	96	107	368	193	76	1342
Aug	68	212	88	461	113	106	389	299	111	1847
Sep	70	248	100	269	100	120	288	258	92	1545
Oct	70	221	105	185	90	115	346	195	79	1406
Nov	67	191	118	153	93	117	306	151	102	1298
Dec	64	147	68	145	92	111	292	99	90	1108
Total	835	2232	1011	2332	1167	1211	3198	2156	1133	15275
										15275

2014	16-6000-02	16-6020-02	16-6040-02	16-6060-02	16-6080-02	16-6100-02	16-6120-02	16-6140-02	16-6160-02	Total
Jan	73	185	74	181	99	130	68	123	96	1029
Feb	60	153	68	147	82	105	156	101	110	982
Mar	73	152	70	138	80	106	172	114	101	1006
Apr	70	162	74	182	93	108	213	148	95	1145
May	73	270	93	317	92	107	298	91	97	1438
Jun	73	298	82	283	83	110	380	346	100	1755
Jul	61	264	73	272	88	97	356	326	90	1627
Aug	77	234	77	241	87	104	402	231	99	1552
Sep	71	206	79	231	92	80	482	215	98	1554
Oct	75	219	74	240	102	95	453	208	110	1576

Nov	58	134	87	105	79	97	219	137	95	1011
Dec	61	104	87	99	84	156	178	114	94	977
Total	825	2381	938	2436	1061	1295	3377	2154	1185	15652
										15652

2015	16-6000-02	16-6020-02	16-6040-02	16-6060-02	16-6080-02	16-6100-02	16-6120-02	16-6140-02	16-6160-02	Total
Jan	83	99	87	137	81	93	188	110	107	985
Feb	70	123	75	131	90	98	214	112	102	1015
Mar	66	118	75	127	91	83	201	105	116	982
Apr	68	215	72	208	81	78	362	209	107	1400
May	70	130	93	158	87	69	202	123	83	1015
Jun	86	141	92	154	97	94	230	87	100	1081
Jul	65	188	69	163	78	70	274	120	86	1113
Aug	72	202	71	182	81	72	232	175	93	1180
Sep	58	201	77	192	84	77	249	158	88	1184
Oct	58	184	70	183	82	75	308	140	90	1190
Nov	73	167	74	176	84	81	259	138	83	1135
Dec	64	107	67	140	81	80	153	114	81	887
Total	833	1875	922	1951	1017	970	2872	1591	1136	13167
										13167

2016	16-6000-02	16-6020-02	16-6040-02	16-6060-02	16-6080-02	16-6100-02	16-6120-02	16-6140-02	16-6160-02	Total
Jan	60	114	79	97	88	80	105	93	86	802
Feb	70	152	78	107	94	85	239	166	92	1083
Mar	63	124	68	112	96	83	212	133	90	981
Apr	71	173	64	141	109	94	226	149	71	1098
May	59	173	77	143	96	91	214	117	70	1040
Jun	72	162	78	187	108	118	293	201	84	1303
Jul	67	208	78	200	111	125	305	218	89	1401
Aug	71	214	82	274	108	106	352	188	88	1483
Sep	73	184	88	236	92	96	404	194	88	1455
Oct	63	163	78	178	92	93	341	129	83	1220
Nov	60	110	74	194	83	112	324	123	86	1166
Dec	57	136	125	131	95	115	189	98	92	1038
Total	786	1913	969	2000	1172	1198	3204	1809	1019	14070
										14070

ESCONDIDO
City of Choice

January 17, 2017

Greg Thomas, General Manager
Rincon del Diablo Municipal Water District
1920 North Iris Lane
Escondido, CA 92026

Dear Mr. Thomas:

I write to you in support of the Rincon del Diablo Municipal Water District's (Rincon Water) application for the Bureau of Reclamation's *WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Year 2017.*

Your agency's application to secure funding to convert two large multi-family common landscaped area sites to recycled water for irrigation will help both the City of Escondido's Utilities Department (Utilities) and Rincon Water in our joint efforts to increase the use of recycled water in lieu of potable water.

Bureau of Reclamation funding for Rincon Water's proposed recycled water conversions will allow us to work more closely to conserve potable water in our region. Therefore, I support your efforts to secure funding to use recycled water for irrigation at more sites in your service area.

Sincerely,

Christopher W. McKinney
Director of Utilities

San Diego County Water Authority
4677 Overland Avenue • San Diego, California 92123-1233
(858) 522-6600 FAX (858) 522-6568 www.sdcwa.org

January 17, 2017

Greg Thomas, General Manager
Rincon del Diablo Municipal Water District
1920 North Iris Lane
Escondido, CA 92026

Dear Mr. Thomas:

The San Diego County Water Authority (Water Authority) strongly supports Rincon del Diablo Municipal Water District's (Rincon Water) application to obtain Bureau of Reclamation's WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Year 2017 to secure funding to utilize recycled water for irrigation at more sites in their service area.

As the water wholesaler for the San Diego County region, the Water Authority works closely with state and federal policy makers, local water agencies, and businesses to promote the efficient use of water. The Water Authority and its member agencies aggressively support the development of a more drought-resilient mix of water resource projects within our service area. The development of local recycled water supplies is part of the Water Authority's water supply diversification strategy.

Rincon Water's application to secure funding to convert two large multi-family common landscaped area sites to recycled water for irrigation will help both the City of Escondido's Utilities Department (Utilities) and Rincon Water in a joint effort to increase the use of recycled water in lieu of potable water.

Thank you for your consideration of this important funding request. If you have any questions regarding this matter, please contact Goldy Herbon, Senior Water Resources Specialist, at (858) 522-6767.

Sincerely,

Robert Yamada
Director of Water Resources
via email: gthomas@rinconwater.org