AGENDA
SAN ELIJO JOINT POWERS AUTHORITY
MONDAY NOVEMBER 13, 2017 AT 9:00 AM
SAN ELIJO WATER RECLAMATION FACILITY – CONFERENCE ROOM
2695 MANCHESTER AVENUE
CARDIFF BY THE SEA, CALIFORNIA

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1. CALL TO ORDER

2. ROLL CALL

3. PLEDGE OF ALLEGIANCE

4. ORAL COMMUNICATIONS (NON-ACTION ITEM)

5. PRESENTATION OF AWARDS

   None

6. * **CONSENT CALENDAR**

7. * APPROVAL OF MINUTES FOR OCTOBER 9, 2017 MEETING

8. * APPROVAL FOR PAYMENT OF WARRANTS AND MONTHLY INVESTMENT REPORTS

9. * SAN ELIJO WATER RECLAMATION FACILITY TREATED EFFLUENT FLOWS – MONTHLY REPORT

10. * SAN ELIJO JOINT POWERS AUTHORITY RECYCLED WATER PROGRAM – MONTHLY REPORT

11. * AWARD OF ENGINEERING SERVICES FOR ARC FLASH AND PROTECTION COORDINATION STUDY

12. * AWARD OF ENGINEERING SERVICES FOR SCADA UPGRADES PROJECT

13. * ITEMS REMOVED FROM CONSENT CALENDAR

Items on the Consent Calendar are routine matters and there will be no discussion unless an item is removed from the Consent Calendar. Items removed by a "Request to Speak" form from the public will be handled immediately following adoption of the Consent Calendar. Items removed by a Board Member will be handled as directed by the Board.

REGULAR AGENDA

14. AUTHORIZE THE GENERAL MANAGER TO EXECUTE A COST SHARING AGREEMENT WITH SAN DIEGUITO WATER DISTRICT, SANTA FE IRRIGATION DISTRICT, LEUCADIA WASTEWATER DISTRICT, AND OLIVENHAIN MUNICIPAL WATER DISTRICT FOR THE DEVELOPMENT OF A REGIONAL RECYCLED WATER EXPANSION PLAN

    1. Authorize the General Manager to execute the Cost Sharing Agreement with San Dieguito Water District, Santa Fe Irrigation District, Leucadia Wastewater District, and Olivenhain Municipal Water District to jointly fund the development of a Regional Recycled Water Expansion Plan;

    2. Authorize the General Manager to Cost Share in an amount not to exceed $71,882 for the SEJPA; and

    3. Discuss and take action as appropriate.

    Staff Reference: General Manager

15. BUILDING PROGRAM AND COMMUNITY BIKE PATH UPDATE

    No action required. This memorandum is submitted for information only.

    Staff Reference: General Manager

16. GENERAL MANAGER'S REPORT

    Informational report by the General Manager on items not requiring Board action.

17. GENERAL COUNSEL'S REPORT

    Informational report by the General Counsel on items not requiring Board action.

18. BOARD MEMBER COMMENTS

    This item is placed on the agenda to allow individual Board Members to briefly convey information to the Board or public, or to request staff to place a matter on a future agenda and/or report back on any matter. There is no discussion or action taken on comments by Board Members.

19. CLOSED SESSION

    Pursuant to Government Code Section 54957: Employee Performance Evaluation. Title: General Manager

    A closed session may be held at any time during this meeting of the San Elijo Joint Powers Authority for the purposes of discussing potential or pending litigation or other appropriate matters pursuant to the "Ralph M. Brown Act".

20. ADJOURNMENT

    The next regularly scheduled San Elijo Joint Powers Authority Board Meeting will be Monday, December 11, 2017 at 9:00 a.m.

NOTICE:

The San Elijo Joint Powers Authority's open and public meetings meet the protections and prohibitions contained in Section 202 of the Americans With Disabilities Act of 1990 (42 U.S.C Section 12132), and the federal rules and regulations adopted in implementation thereof. Any person with a disability who requires a modification or accommodation, including auxiliary aids or services, in order to participate in a public meeting of the SEJPA Board of Directors may request such modification or accommodation from Michael T. Thornton, General Manager, (760) 753-6203 ext. 72.

The agenda package and materials related to an agenda item submitted after the packet's distribution to the Board is available for public review in the lobby of the SEJPA Administrative Office during normal business hours. Agendas and minutes are available at www.sejpa.org. The SEJPA Board meetings are held on the second Monday of the month, except August.

AFFIDAVIT OF POSTING

I, Michael T. Thornton, Secretary of the San Elijo Joint Powers Authority, hereby certify that I posted, or have caused to be posted, a copy of the foregoing agenda in the following locations:

San Elijo Water Reclamation Facility, 2695 Manchester Avenue, Cardiff, California
City of Encinitas, 505 South Vulcan Avenue, Encinitas, California
City of Solana Beach, 635 South Highway 101, Solana Beach, California

The notice was posted at least 72 hours prior to the meeting, in accordance with Government Code Section 54954.2(a).

Date: November 8, 2017

Michael T. Thornton, P.E.
Secretary / General Manager

SAN ELIJO JOINT POWERS AUTHORITY
MINUTES OF THE BOARD MEETING
HELD ON OCTOBER 9, 2017
AT THE
SAN ELIJO WATER RECLAMATION FACILITY

Ginger Marshall, Chair — Tasha Boerner Horvath, Vice Chair

A meeting of the Board of Directors of the San Elijo Joint Powers Authority (SEJPA) was held Monday, October 9, 2017, at 9:00 a.m., at the San Elijo Water Reclamation Facility at 2695 Manchester Avenue, Cardiff by the Sea, California.

1. CALL TO ORDER

Chair Marshall called the meeting to order at 9:00 a.m.

2. ROLL CALL

Directors Present:	Ginger Marshall Tasha Boerner Horvath David Zito Joe Mosca
Directors Absent:	None
Others Present:	
General Manager	Michael Thornton
Director of Operations	Chris Trees
Director of Finance & Administration	Paul Kinkel
Associate Engineer	Mike Konicke
Administrative Assistant/Board Clerk	Jennifer Basco
SEJPA Counsel:	
Procopio, Cory, Hargreaves & Savitch	Adriana Ochoa
City of Solana Beach:	
City Manager	Greg Wade
Director of Engineering/Public Works	Mohammad “Mo” Sammak
City of Encinitas:	
Public Works Management Analyst	Bill Wilson
Santa Fe Irrigation District	
General Manager	Michael J. Bardin
The Pun Group	Ken Pun Coley Delaney

3. PLEDGE OF ALLEGIANCE

Chair Marshall led the Pledge of Allegiance.

4. ORAL COMMUNICATIONS

Michael J. Bardin, General Manager of Santa Fe Irrigation District, addressed the Board of Directors regarding partnerships for alternative water supply projects.

5. PRESENTATION OF AWARDS

None

6. CONSENT CALENDAR

Moved by Board Member Zito and seconded by Vice Chair Boerner Horvath to approve the Consent Calendar.

Agenda Item No. 7	Approval of Minutes for the September 11, 2017 Meeting
Agenda Item No. 9	San Elijo Water Reclamation Facility Treated Effluent Flows – Monthly Report
Agenda Item No. 10	San Elijo Joint Powers Authority Recycled Water Program – Monthly Report
Agenda Item No. 11	Award Tree and Miscellaneous Landscape Maintenance Services for the San Elijo Water Reclamation Facility
Agenda Item No. 12	Award of Contract for Professional Videography Services

Motion carried with the following vote of approval:

AYES:	Marshall, Boerner Horvath, Zito, Mosca
NOES	None
ABSENT:	None
ABSTAIN:	None

Agenda Item No. 8	Approval for Payment of Warrants and Monthly Investment Report

Motion carried with the following vote of approval:

AYES:	Marshall, Boerner Horvath, Zito
NOES:	None
ABSENT:	None
ABSTAIN:	Mosca

13. ITEMS REMOVED FROM CONSENT CALENDAR

None

14. FISCAL YEAR 2016-17 FINANCIAL AUDIT ACCEPTANCE

Paul Kinkel, Director of Finance and Administration presented the Fiscal Year 2016-17 Audit to the Board of Directors. Mr. Kinkel introduced Ken Pun from The Pun Group to give an overview of the audit findings. Mr. Pun provided his firm's opinion that the financial statements are presented fairly, in all material aspects, and are prepared in accordance with generally accepted accounting principles (GAAP) and the Government Accounting Standards Board (GASB). In addition, Mr. Pun stated that the financial statement disclosures are neutral, consistent, and clear, there were no difficulties or disagreements with staff or management, and there were no corrected or uncorrected misstatements. Mr. Pun briefly outlined his audit approach to the Board of Directors, explained GASB 68 issues, reviewed the financials and statement of cash flows, and then answered Board Member questions.

Moved by Board Member Mosca and seconded by Vice Chair Boerner Horvath to:

1. Accept and file the Fiscal Year 2016-17 Audited Financial Statements for the San Elijo Joint Powers Authority; and

2. Accept and file the Fiscal Year 2016-17 SAS Letter.

Motion carried with the following vote of approval:

AYES: Marshall, Boerner Horvath, Zito, Mosca
NOES: None
ABSENT: None
ABSTAIN: None

15. SAN ELIJO JOINT POWERS AUTHORITY END OF YEAR REVIEW OF THE FISCAL YEAR 2016-17 OPERATING AND DEBT SERVICE EXPENSES

Paul Kinkel, Director of Finance and Administration provided a financial review for Fiscal Year 2016-17. Overall, the SEJPA was below budget by $500,897 or 8.4% for all programs excluding Del Mar Services. Wastewater Treatment, Pump Stations, Ocean Outfall, and Storm Water programs were under budget by $254,639 or 5.7%. The Reclaimed Water expenditures were $246,258 or 16.4% under budget. SEJPA also proactively paid $140,000 to the CalPERS unfunded actuarial liability (UAL).

No action required. This memorandum was submitted for information only.

16. CONSIDERATION OF APPROVAL OF RESOLUTION 2018-02, ENTITLED "RESOLUTION OF THE BOARD OF DIRECTORS OF THE SAN ELIJO JOINT POWERS AUTHORITY ADOPTING SALARY AND BENEFITS FOR FISCAL YEAR 2016-17, 2017-18, AND 2018-19"

General Manager Thornton stated that SEJPA employees are currently operating under a 3-year labor agreement (Resolution No. 2016-10), which is scheduled to expire June 30, 2019. Subsequent to the Board approving Resolution No. 2016-10, OSHA published a memorandum interpreting new anti-retaliation provisions; incentive and disciplinary programs were addressed. OSHA recommended incentive programs that reward employee participation in safety program activities and evaluation, completion of employee training, and identification of hazards via safety walkthroughs versus using incentive programs that penalizes workers or that could be interpreted as penalizing workers for reporting work-related injuries or illness. In April 2017, the Board of Directors authorized the General Manager to review and modify the safety incentive program to be in agreement with OSHA's guidelines and requirements. The General Manager stated that the SEJPA's Safety Advisory Committee has developed an incentive program that is cost neutral, designed to maintain and improve SEJPA's culture of safety, and comply with OSHA's requirements. Resolution 2018-02 achieves the intent of revising the SEJPA's safety incentive program for compliance with OSHA requirements, and provides clarity to terms and conditions of employment.

Moved by Board Member Zito and seconded by Board Member Mosca to:

1. Adopt Resolution 2018-02, Resolution Adopting the San Elijo Joint Powers Authority Salary and Benefits for Fiscal Years 2016-17, 2017-18, and 2018-19.

Motion carried with the following vote of approval:

AYES: Marshall, Boerner Horvath, Zito, Mosca
NOES: None
ABSENT: None
ABSTAIN: None

17. EMERGENCY REPAIR – SCREENINGS WASHER COMPACTOR

Chris Trees, Director of Operations, informed the Board of Directors that the equipment that washes and dewaters waste materials that enter the facility ("washer compactor"), experienced major mechanical issues that rendered the system inoperable. Staff made every effort to repair the system but parts were not available. Mr. Trees stated the washer compactor was slated for replacement as part of the Preliminary Treatment Upgrade project currently in progress, but the unit specified for the project will not be available for approximately 9 months. Staff promptly evaluated multiple emergency replacement options and determined that a rental solution is the best course of action. The SEJPA executed a Rental Agreement with Duperon. The rental cost is expected to be less than $50,000. Adequate funding is available for this emergency expenditure within the Fiscal Year 2017-18 Operation and Maintenance Budget, Wastewater Program Contingency Fund.

No action required. This memorandum was submitted for information only.

18. GENERAL MANAGER'S REPORT

General Manager Thornton gave an update on the status of the City of Del Mar's wastewater service. Construction of wastewater conveyance infrastructure is complete and operational but automation is still in progress. Ground water infiltration is resulting in high TDS concentrations in the City of Del Mar's wastewater. High TDS is detrimental to the biological treatment process and impacts the quality of SEJPA's recycled water. The City of Del Mar has retained a consultant to engineer a solution.

Next, Mr. Thornton informed the Board of Directors that a joint Potable Reuse Study between five districts is currently in discussions. The General Manager will present this proposal for consideration at the next Board meeting.

19. GENERAL COUNSEL'S REPORT

Adriana Ochoa informed the Board of Directors that the Supreme Court granted review of *Plantier v. Ramona Municipal Water District*. The decision will address the need to protest before challenging a rate structure under Proposition 218.

20. BOARD MEMBER COMMENTS

None

21. CLOSED SESSION

The Board of Directors adjourned to closed session at 10:24 a.m., pursuant to Government Code Section 54957: Employee Performance Evaluation. Title: General Manager.

The Board of Directors came out of closed session at 10:30 a.m., with no reportable action.

22. ADJOURNMENT

The meeting adjourned at 10:31 a.m. The next Board of Directors meeting will be held on November 13, 2017.

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager

SAN ELIJO JOINT POWERS AUTHORITY
PAYMENT OF WARRANTS
18-11
For the Months of September and October 2017

Warrant #	Vendor Name	G/L Account	Warrant Description	Amount
34869	Aflac	EE Deduction Benefits	Aflac - October	643.60
34870	Ag Tech, LLC	Services - Biosolids Hauling	September	12,624.26
34871	Aquatic Bioassay	Services - Laboratory	Toxicity testing	999.00
34872	Arizona Instrument	Services - Maintenance	H2S analyzer	180.32
34873	ASCE Membership	Dues & Memberships	Membership	295.00
34874	AT&T	Utilities - Telephone	Alarm service - October	398.48
34875	Atlas Pumping Service Inc.	Services - Grease & Scum	Grease and scum pumping	1,303.88
34876	Automation Direct	Repair Parts Expense	Cabinent enclosure and subpanel	878.00
34877	AVIA Partners, Inc.	Services - Medical	Employee's medical service	314.91
34878	BankCard Center	Supplies - Safety	Tools, security, meeting, and parts	716.66
34879	Barracuda Networks, Inc.	Utilities - Internet	Network back-up	50.00
34880	B.J.'s Rental Store	Equipment Rental/Lease	Lift boom	778.62
34881	Black & Veatch	Services - Management	Land outfall replacement project	57,170.57
34882	Brenntag Pacific, Inc.	Supplies - Chemicals	Sodium Hydroxide	2,742.47
34883	Calpers	Accrued Liabilities	UAL payment	140,000.00
34884	Chevron & Texaco Business Card	Fuel	Fuel - September and October	593.28
34885	Coast Waste Management, Inc.	Services - Grit & Screenings	Roll-off and service charge	2,050.65
34886	Complete Office	Supplies - Office	Office supplies	102.45
34887	Corodata	Rent	Record storage - September	82.40
34888	Duperon	Equipment Rental/Lease	Sales tax	1,937.50
34889	EATON Corporation	Services - Maintenance	Sales tax	193.75
34890	EDCO Waste & Recycling Service	Utilities - Trash	September	241.71
34891	Encina Wastewater Authority	Service - EWA Support	Resource sharing - HR and safety	2,607.73
34892	City of Encinitas	Service - IT Support	Admin network - October	2,625.00
34893	Evantec Lab Supply	Supplies - Lab	Laboratory supplies	884.48
34894	Flo-Systems, Inc.	Repair Parts Expense	Cone housing and liner	3,147.90
34895	Forte of San Diego	Services - Janitorial	August	1,000.00
34896	Global Capacity	Utilities - Internet	T-1 service - November	296.03
34897	Grainger, Inc.	Repair Parts Expense; Safety	Meter pump; safety signs	650.89
34898	Hach Company	Supplies - Lab	Nitrate and ammonia standard solution	216.95
34899	Home Depot Credit Services	Minor Equip - Shop & Field	Tools	1,359.41
34900	Kemira Water Solutions, Inc.	Supplies - Chemicals	Ferric Chloride	3,937.51
34901	Kennedy/Jenks Consultants	Services - Engineering	Land ocean outfall	12,418.56
34902	The Lawton Group	Services - Intern Program	Weeks worked - 07/31/17 - 10/01/17	3,564.47
34903	Mallory Safety & Supply	Supplies - Safety	Parts for eyewash station	3,359.67
34904	Marine Taxonomic Services, Ltd.	Services - Contractors	Offshore water sampling	434.00
34905	McMaster-Carr Supply Co.	Supplies - Shop & Field; Safety	Plumbing parts; safety signs and labels	582.97
34906	Metro Fire & Safety	Services - Maintenance	Sprinklers annual inspection	295.00
34907	Micro Motion, Inc.	Repair Parts Expense	Magnetic flow meter sensor and transmitter	3,433.93
34908	The NELAC Institute	Supplies - Lab	Laboratory quality manual	75.00
34909	Olin Corp - Chlor Alkali	Supplies - Chemicals	Sodium Hypochlorite	2,885.56
34910	Olivenhain Municipal Water District	Rent	Pipeline repayment - September	8,095.50
34911	P.E.R.S.	Medical Insurance - PERS	Health - October	21,317.28
34912	Public Employees - Retirement	Retirement Plan - PERS	Adjustment	173.09
34913	Public Employees - Retirement	Retirement Plan - PERS	Retirement - 09/23/17 - 10/06/17	12,174.50
34914	Preferred Benefit Insurance	Dental/Vision	Vision - October	301.50
34915	ProBuild Company, LLC	Supplies - Shop & Field	Supplies, repairs, and tools	202.43
34916	Procopio Cory Hargreaves	Services - Legal	General; labor & employment	4,282.50
34917	Rusty Wallis, Inc.	Services - Maintenance	Water softener, salt bags, and tanks	137.33
34918	San Dieguito Water District	Utilities - Water	Recycled water	860.91
34919	Santa Fe Irrigation District	Utilities - Water	Recycled water	1,344.12
34920	Santa Fe Irrigation District	SFID Distribution Pipeline	Pipeline purchase payment - September	1,363.50
34921	San Dieguito Water District	Utilities - Water	Recycled water	1,689.13
34922	San Dieguito Water District	Utilities - Water	Recycled water	7,187.61
34923	Smart & Final	Supplies - Office	Kitchen supplies	154.32
34924	Southland Manufacturing, Inc.	Supplies - Shop & Field	Fiber roll	306.01
34925	Statewide Stripes, Inc.	Services - Maintenance	Parking lot and bike lane striping	999.95
34926	Sun Life Financial	Life Insurance/Disability	Life and disability insurance - October	1,529.50
34927	Test America	Services - Laboratory	Testing water samples	249.00
34928	Trussell Technologies, Inc.	Services - Engineering	Process engineering	12,805.00

SAN ELIJO JOINT POWERS AUTHORITY
PAYMENT OF WARRANTS
18-11
For the Months of September and October 2017

Warrant #	Vendor Name	G/L Account	Warrant Description	Amount
34929	Unifirst Corporation	Services - Uniforms	Uniform service	536.90
34930	Underground Service Alert/SC	Services - Alarm	Dig alert - September	155.20
34931	Vantagepoint Transfer Agents	EE Deduction Benefits	ICMA - 457 and loans	6,786.39
34932	Vantagepoint Transfer Agents	ICMA Retirement	ICMA - 401a	3,133.40
34933	Vaughn Irrigation Services, Inc.	Repair Parts Expense	Irrigation service	256.45
34934	Advanced Air & Vacuum	Services - Maintenance	Service for rotary screw	1,241.43
34935	AT&T	Utilities - Telephone	Phone service - 09/13/17 - 10/12/17	388.56
34936	Atlas Pumping Service Inc.	Services - Grease & Scum	Grease and scum pumping	554.88
34937	Automation Direct	Repair Parts Expense	ProSense digital panel meter	65.00
34938	Barracuda Networks, Inc.	Utilities - Internet	Network back-up	50.00
34939	Black & Veatch	Services - Management	Land Outfall replacement	59,931.61
34940	Boot World, Inc.	Uniforms - Boots	Safety boots	174.49
34941	Brenntag Pacific, Inc.	Supplies - Chemicals	Citric Acid and Sodium Hydroxide	3,848.46
34942	Carollo Engineers	Services - Engineering	Secondary clarifier hydraulic modeling	7,323.85
34943	County Burner Machinery Corp	Services - Maintenance	Service boiler	450.58
34944	Chevron & Texaco Business Card	Fuel	Fuel - October	265.95
34945	CWEA Membership	Dues & Memberships	Memberships	625.00
34946	D&H Water Systems	Services - Maintenance	Service for Micro 2000	4,728.56
34947	DMV	Services - Other	Safety records 09/01/17 - 09/30/17	2.00
34948	Dudek & Associates	Services - Professional	Preliminary treatment upgrades; Headworks design	26,286.90
34949	J.R. Filanc Construction Co.	Services - Contractors	Land Outfall replacement	1,027,350.85
34950	Forte of San Diego	Services - Janitorial	Supplies and service	1,537.82
34951	Grainger, Inc.	Supplies - Shop & Field	Label tape cartridges, electrical gloves	385.35
34952	Harbor Freight Tools	Minor Equip - Shop & Field	Dolly, chain hoist, and cutting band saw	1,120.77
34953	Harrington Industrial Plastics	Repair Parts Expense	Seal top	603.57
34954	Kennedy/Jenks Consultants	Services - Engineering	Land Ocean Outfall - Final design	10,017.50
34955	The Lawton Group	Services - Temp	Week worked - 10/02/17 - 10/08/17	439.56
34956	McMaster-Carr Supply Co.	Repair Parts Expense; Supplies	Plumbing parts, pump, blade, cables, pulley	2,747.85
34957	MetLife - Group Benefits	Dental/Vision	Dental - November	1,826.65
34958	The NELAC Institute	Supplies - Lab	Manual template	115.00
34959	NeWest Construction	Services - Contractors	Preliminary treatment project	64,799.50
34960	Olin Corp - Chlor Alkali	Supplies - Chemicals	Sodium Hypochlorite	2,879.74
34961	OneSource Distributors, Inc.	Repair Parts Expense	Circuit fuse block, adaptor, controller, side jumper	4,084.29
34962	Pacific Green Landscape	Services - Landscape	October	2,625.00
34963	P.E.R.S.	Medical Insurance - PERS	Health - November	20,715.76
34964	Public Employees- Retirement	Retirement Plan - PERS	Retirement - 10/07/17 - 10/20/17	12,105.00
34965	Polydyne Inc.	Supplies - Chemicals	Clarifloc WE-007	11,399.95
34966	Process Pump Sale's, Inc.	Repair Parts Expense	Seal kit and stator	1,083.84
34967	Pumping Solutions, Inc.	Repair Parts Expense	Air operated diaphragm pump	1,492.89
34968	The Pun Group LLP	Services - Accounting	Audit - Final billing	18,500.00
34969	ReadyRefresh	Supplies - Office	Kitchen and lab supplies	245.05
34970	Right-Of-Way Engineering	Services - Engineering	Outfall track monitoring	2,304.00
34971	Rockwell Solutions	Repair Parts Expense	Backplate, o-ring, and upper cutters	2,620.41
34972	Roesling Nakamura Terada Architects	Services - Professional	Building Improvement Program	15,711.00
34973	Safetyline, Inc.	Supplies - Safety	Orange and yellow mesh vest	273.75
34974	San Dieguito Trophy	Board Expense	Name plate	17.24
34975	San Diego Gas & Electric	Utilities - Gas & Electric	Gas and electric - 09/05/17 - 10/04/17	63,546.69
34976	Board of Equalization	Accrued Sales Tax Payable	3rd Qtr 2017 sales tax	820.00
34977	Sun Life Financial	Life Insurance/Disability	Life and disability insurance - November	1,565.84
34978	SWRCB - ELAP Fees	Licenses	Laboratory certification	851.00
34979	Television 101	Services - Professional	Photography services	300.00
34980	Technology Integration Group	Services - Maintenance	Copier service	90.68
34981	Christopher A. Trees	Subsistence - Meals	Meeting	32.54
34982	Unifirst Corporation	Services - Uniforms	Uniform service	317.75
34983	UPS	Postage/Shipping	Parts	110.55
34984	Valley Chain & Gear, Inc.	Capital Outlay	Gearmotor, AC drive, and jaw coupling spider	6,740.21
34985	Vantagepoint Transfer Agents	EE Deduction Benefits	ICMA - 457	6,525.79
34986	Vantagepoint Transfer Agents	ICMA Retirement	ICMA - 401a	3,122.15
34987	Verizon Wireless	Utilities - Telephone	09/11/17 - 10/10/17	281.32
34988	Verizon Wireless	Utilities - Telephone	Cell phone service - 09/08/17 - 10/07/17	753.74

SAN ELIJO JOINT POWERS AUTHORITY
PAYMENT OF WARRANTS
18-11
For the Months of September and October 2017

Warrant #	Vendor Name	G/L Account	Warrant Description	Amount
34989	WageWorks	Payroll Processing Fees	Admin and compliance fee - September	123.50
	San Elijo Payroll Account	Payroll	Payroll - 10/13/2017	64,115.35
	San Elijo Payroll Account	Payroll	Payroll - 10/27/2017	73,166.52
				$1,889,517.33

SAN ELIJO JOINT POWERS AUTHORITY

PAYMENT OF WARRANTS SUMMARY

For the Months of September and October 2017
As of November 1, 2017

PAYMENT OF WARRANTS $ 1,889,517.33
Reference Number 18-11

I hereby certify that the demands listed and covered by warrants are correct and just to the best of my knowledge, and that the money is available in the proper funds to pay these demands. The cash flows of the SEJPA, including the Member Agency commitment in their operating budgets to support the operations of the SEJPA, are expected to be adequate to meet the SEJPA's obligations over the next six months. I also certify that the SEJPA's investment portfolio complies with the SEJPA's investment policy.

Paul F. Kinkel
Director of Finance & Administration

STATEMENT OF FUNDS AVAILABLE FOR PAYMENT OF WARRANTS
AND INVESTMENT INFORMATION
As of November 1, 2017

FUNDS ON DEPOSIT WITH	AMOUNT
LOCAL AGENCY INVESTMENT FUND *(SEPTEMBER 2017 YIELD 1.111%)*	
RESTRICTED SRF RESERVE	$ 630,000.00
UNRESTRICTED DEPOSITS	$ 9,377,936.71
CALIFORNIA BANK AND TRUST *(SEPTEMBER 2017 YIELD 0.01%)*	
REGULAR CHECKING	$ 399,808.59
PAYROLL CHECKING	$ 5,000.00
UNION BANK - TRUSTEE (BOND FUNDS)	
BLACKROCK *(SEPTEMBER 2017 YIELD 0.90%)*	$ 1,632,853.94
LAIF *(SEPTEMBER 2017 YIELD 1.111%)*	$ 22,115,000.00
TOTAL RESOURCES	$ 34,160,599.24

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AGENDA ITEM NO. 9

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

November 13, 2017

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: General Manager

SUBJECT: SAN ELIJO WATER RECLAMATION FACILITY TREATED EFFLUENT FLOWS – MONTHLY REPORT

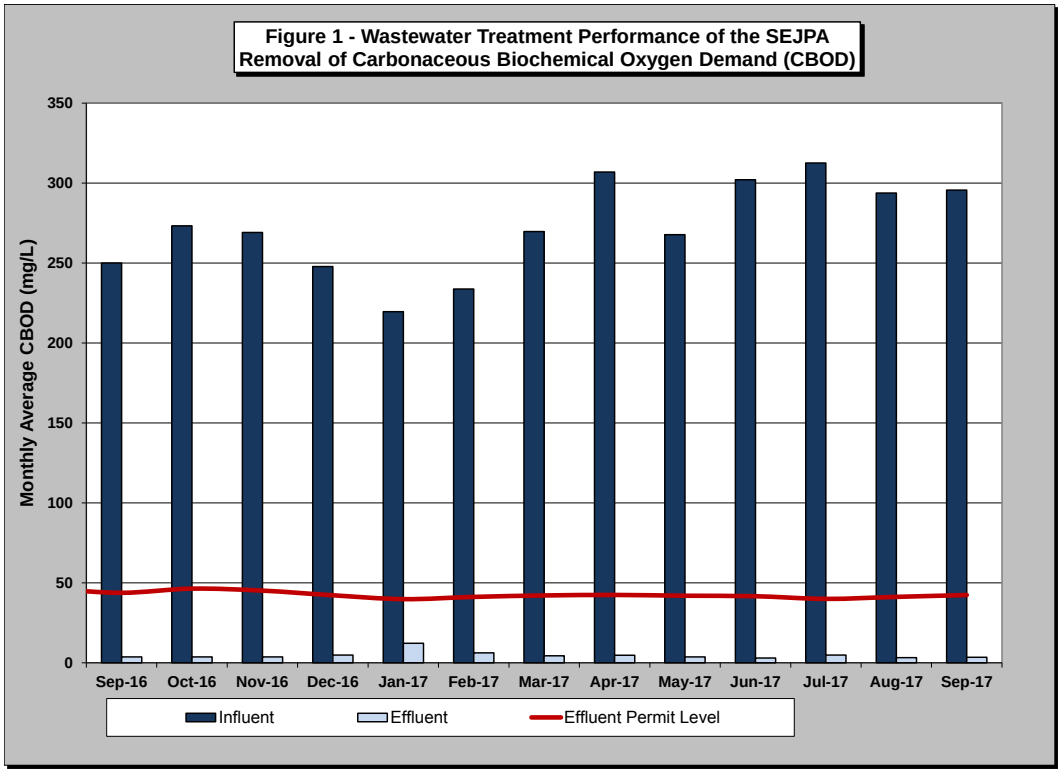
RECOMMENDATION

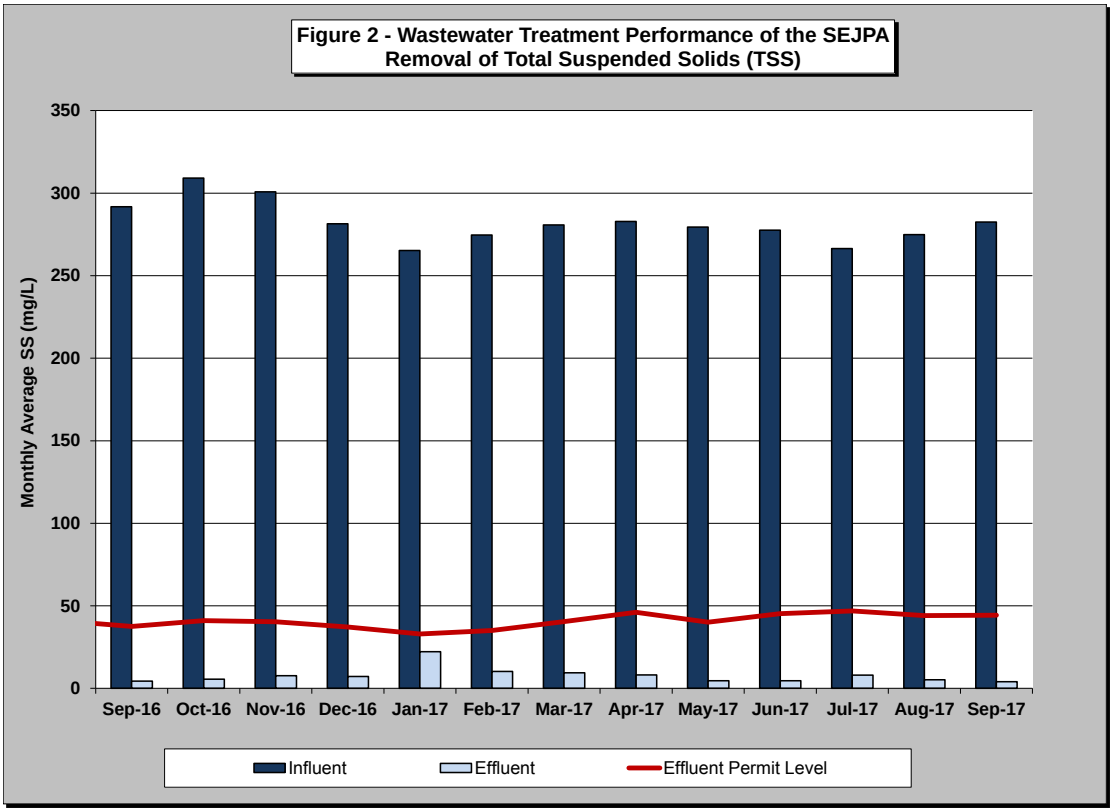
No action required. This memorandum is submitted for information only.

DISCUSSION

Monthly Treatment Plant Performance and Evaluation

Wastewater treatment for the San Elijo Joint Powers Authority (SEJPA) met all National Pollutant Discharge Elimination System (NPDES) ocean effluent limitation requirements for the month of September 2017. The primary indicators of treatment performance include the removal of Carbonaceous Biochemical Oxygen Demand (CBOD) and Total Suspended Solids (TSS). The SEJPA is required to remove a minimum of 85 percent of the CBOD and TSS from the wastewater. Treatment levels for CBOD and TSS were 98.8 and 98.6 percent removal, respectively, (as shown in Figure 1 and Figure 2).





Member Agency Flows

Presented below are the influent and effluent flows for the month of September. Average daily influent flows were recorded for each Member Agency. Total effluent flow was calculated for the San Elijo Water Reclamation Facility. January 2017 was the first month that the City of Del Mar pumped flow to SEJPA. However, due to the treatment process upset and high influent flows associated with the January rain events, the flow was diverted back to San Diego JPA Metro. Currently, the City of Del Mar is in the process of eliminating high salinity infiltration that is occurring at a few manholes near the beach. High salinity wastewater can negatively impact the biological treatment and water recycling process. Upon the completion of these repairs, the SEJPA will begin receiving wastewater flows from Del Mar.

	September	
	Influent (mgd)	**Effluent (mgd)***
Cardiff Sanitary Division	1.264	0.866
City of Solana Beach	1.006	0.689
Rancho Santa Fe SID	0.130	0.089
City of Del Mar	0.000	0.000
Total San Elijo WRF Flow	**2.400**	**1.644**

* Effluent is calculated by subtracting the recycled water production from the influent wastewater.

Table 1 (below) presents the historical average, maximum, and unit influent and effluent flow rates per month for each of the Member Agencies during the past 5 years. It also presents the number of connected Equivalent Dwelling Units (EDUs) for each of the Member Agencies during this same time period.

TABLE 1 - SAN ELIJO WATER RECLAMATION FACILITY MONTHLY REPORT - FLOWS AND EDUS

	AVERAGE DAILY INFLUENT FLOW RATE (MGD)					AVERAGE DAILY EFFLUENT FLOW RATE (MGD)					CONNECTED EDUs					AVERAGE UNIT INFLUENT FLOW RATE (GAL/EDU/DAY)				
MONTH	CSD	RSF CSD	SB	DM	TOTAL PLANT	CSD	RSF CSD	SB	DM	TOTAL PLANT	CSD EDUS	RSF CSD EDUS	SB EDUS	DM	TOTAL EDUS	CSD	RSF	SB	DM	TOTAL PLANT
Aug-12	1.383	0.128	1.291		2.802	0.473	0.044	0.441		0.958	8,290	490	7,728		16,508	167	261	167		170
Sep-12	1.349	0.142	1.220		2.711	0.544	0.058	0.492		1.094	8,291	490	7,728		16,509	163	290	158		164
Oct-12	1.327	0.123	1.203		2.653	0.678	0.063	0.615		1.356	8,294	490	7,728		16,512	160	251	156		161
Nov-12	1.343	0.128	1.181		2.652	0.862	0.082	0.758		1.702	8,299	490	7,728		16,517	162	261	153		161
Dec-12	1.383	0.141	1.197		2.721	1.261	0.129	1.091		2.481	8,300	490	7,728		16,518	167	288	155		165
Jan-13	1.357	0.145	1.215		2.717	1.155	0.124	1.034		2.313	8,300	490	7,728		16,518	163	296	157		164
Feb-13	1.349	0.138	1.201		2.688	1.048	0.108	0.933		2.089	8,301	490	7,728		16,519	163	282	155		163
Mar-13	1.402	0.154	1.235		2.791	0.905	0.100	0.797		1.802	8,302	493	7,728		16,521	169	314	160		169
Apr-13	1.297	0.124	1.237		2.658	0.531	0.051	0.506		1.088	8,304	493	7,728		16,523	156	253	160		161
May-13	1.339	0.126	1.185		2.650	0.376	0.036	0.333		0.745	8,304	493	7,728		16,525	161	256	153		160
Jun-13	1.341	0.126	1.190		2.657	0.269	0.025	0.239		0.533	8,307	493	7,728		16,528	161	256	154		161
Jul-13	1.366	0.144	1.269		2.779	0.482	0.050	0.448		0.980	8,309	493	7,728		16,530	164	292	164		168
Aug-13	1.342	0.168	1.258		2.768	0.380	0.048	0.356		0.784	8,311	494	7,728		16,533	161	340	163		167
Sep-13	1.343	0.117	1.193		2.653	0.403	0.036	0.358		0.797	8,311	494	7,728		16,533	162	237	154		160
Oct-13	1.319	0.132	1.184		2.635	0.629	0.063	0.565		1.257	8,314	494	7,728		16,536	159	267	153		159
Nov-13	1.348	0.133	1.194		2.675	0.932	0.092	0.826		1.850	8,315	494	7,728		16,537	162	270	155		162
Dec-13	1.341	0.134	1.191		2.666	1.030	0.103	0.915		2.048	8,316	494	7,728		16,538	161	272	154		161
Jan-14	1.322	0.135	1.194		2.651	0.851	0.087	0.768		1.706	8,318	495	7,728		16,541	159	273	155		160
Feb-14	1.314	0.127	1.172		2.613	0.954	0.093	0.851		1.898	8,323	495	7,728		16,546	158	257	152		158
Mar-14	1.339	0.134	1.185		2.658	0.858	0.086	0.760		1.704	8,324	496	7,728		16,548	161	270	153		161
Apr-14	1.326	0.128	1.128		2.582	0.449	0.043	0.382		0.874	8,328	498	7,728		16,554	159	257	146		156
May-14	1.353	0.124	1.127		2.604	0.159	0.015	0.132		0.306	8,333	498	7,728		16,559	162	249	146		157
Jun-14	1.341	0.126	1.188		2.655	0.207	0.020	0.183		0.410	8,333	498	7,728		16,559	161	253	154		160
Jul-14	1.271	0.130	1.307		2.708	0.232	0.024	0.239		0.495	8,338	499	7,728		16,565	152	261	169		163
Aug-14	1.228	0.130	1.298		2.656	0.227	0.024	0.239		0.490	8,345	500	7,728		16,573	147	260	168		160
Sep-14	1.215	0.113	1.232		2.560	0.211	0.019	0.214		0.444	8,351	500	7,728		16,579	145	226	159		154
Oct-14	1.204	0.114	1.198		2.516	0.394	0.038	0.392		0.824	8,353	500	7,728		16,581	144	228	155		152
Nov-14	1.237	0.118	1.198		2.553	0.667	0.063	0.646		1.376	8,354	502	7,728		16,584	148	235	155		154
Dec-14	1.323	0.147	1.229		2.699	1.163	0.129	1.081		2.373	8,355	502	7,728		16,585	158	293	159		163
Jan-15	1.253	0.130	1.232		2.615	0.984	0.102	0.967		2.053	8,359	503	7,977		16,838	150	259	154		155
Feb-15	1.229	0.132	1.228		2.589	0.757	0.081	0.757		1.595	8,361	504	7,977		16,841	147	262	154		154
Mar-15	1.269	0.135	1.231		2.635	0.583	0.062	0.566		1.211	8,365	504	7,977		16,846	152	268	154		156
Apr-15	1.183	0.124	1.196		2.503	0.350	0.036	0.354		0.740	8,366	504	7,977		16,847	141	246	150		149
May-15	1.209	0.117	1.149		2.475	0.545	0.053	0.518		1.116	8,367	505	7,977		16,848	144	232	144		147
Jun-15	1.287	0.113	1.052		2.452	0.362	0.032	0.296		0.690	8,369	506	7,977		16,852	154	224	132		146
Jul-15	1.282	0.110	1.176		2.568	0.392	0.034	0.359		0.785	8,370	510	8,003		16,883	153	216	147		152
Aug-15	1.264	0.095	1.087		2.446	0.315	0.023	0.271		0.609	8,371	510	8,003		16,884	151	186	136		145
Sep-15	1.256	0.105	1.001		2.362	0.457	0.038	0.364		0.859	8,372	511	8,003		16,885	150	206	125		140
Oct-15	1.243	0.106	1.002		2.351	0.681	0.058	0.549		1.288	8,373	511	8,003		16,886	148	208	125		139
Nov-15	1.250	0.100	0.994		2.344	0.792	0.063	0.630		1.485	8,376	511	8,003		16,889	149	196	124		139
Dec-15	1.266	0.107	1.016		2.389	0.971	0.082	0.780		1.833	8,377	511	8,003		16,891	151	210	127		141
Jan-16	1.342	0.131	1.037		2.510	1.189	0.116	0.918		2.223	8,380	511	8,003		16,894	160	257	130		149
Feb-16	1.245	0.112	1.008		2.365	0.780	0.070	0.631		1.481	8,383	512	8,003		16,897	149	219	126		140
Mar-16	1.267	0.116	1.023		2.406	0.763	0.070	0.616		1.449	8,388	512	8,003		16,903	151	227	128		142
Apr-16	1.240	0.102	0.990		2.332	0.675	0.055	0.539		1.269	8,389	512	8,003		16,904	148	199	124		138
May-16	1.238	0.117	1.002		2.357	0.505	0.048	0.409		0.962	8,389	512	8,003		16,904	148	229	125		139
Jun-16	1.205	0.111	1.055		2.371	0.362	0.033	0.317		0.712	8,390	514	8,003		16,907	144	216	132		140
Jul-16	1.336	0.105	1.008		2.449	0.586	0.046	0.442		1.074	8,392	514	8,020		16,926	159	204	126		145
Aug-16	1.317	0.107	1.007		2.431	0.647	0.053	0.495		1.195	8,393	516	8,020		16,929	157	207	126		144
Sep-16	1.311	0.110	0.975		2.396	0.601	0.050	0.447		1.098	8,394	516	8,020		16,930	156	213	122		142
Oct-16	1.289	0.108	0.962		2.359	0.521	0.043	0.389		0.953	8,397	517	8,020		16,933	154	209	120		139
Nov-16	1.323	0.113	0.932		2.368	0.730	0.062	0.514		1.306	8,403	517	8,020		16,940	157	219	116		140
Dec-16	1.419	0.150	0.998		2.567	1.179	0.125	0.829		2.133	8,406	549	8,020		16,975	169	273	124		151
Jan-17	1.572	0.197	1.125	0.047	2.941	1.489	0.186	1.066	0.045	2.786	8,409	549	8,020	1,716	18,694	187	359	140	142	157
Feb-17	1.361	0.211	1.240	0.000	2.812	1.236	0.192	1.126	0.000	2.554	8,409	549	8,020	1,716	18,694	162	384	155	0	166
Mar-17	1.215	0.170	1.261	0.000	2.646	0.856	0.120	0.889	0.000	1.865	8,413	550	8,020	1,716	18,698	144	309	157	0	156
Apr-17	1.077	0.139	1.190	0.000	2.406	0.841	0.108	0.929	0.000	1.878	8,414	551	8,020	1,716	18,700	128	252	148	0	142
May-17	1.082	0.136	1.184	0.000	2.402	0.842	0.106	0.922	0.000	1.870	8,416	551	8,049	1,716	18,732	129	247	147	0	141
Jun-17	1.241	0.134	1.032	0.000	2.407	0.980	0.106	0.815	0.000	1.901	8,420	551	8,049	1,716	18,737	147	243	128	0	141
Jul-17	1.267	0.130	1.083	0.000	2.480	0.802	0.082	0.685	0.000	1.569	8,421	551	8,061	1,716	18,749	150	236	134	0	146
Aug-17	1.262	0.139	1.051	0.000	2.452	0.852	0.094	0.709	0.000	1.655	8,423	553	8,061	1,716	18,753	150	251	130	0	144
Sep-17	1.264	0.130	1.006	0.000	2.400	0.866	0.089	0.689	0.000	1.644	8,427	555	8,061	1,716	18,759	150	234	125	0	141

CSD: Cardiff Sanitary Division

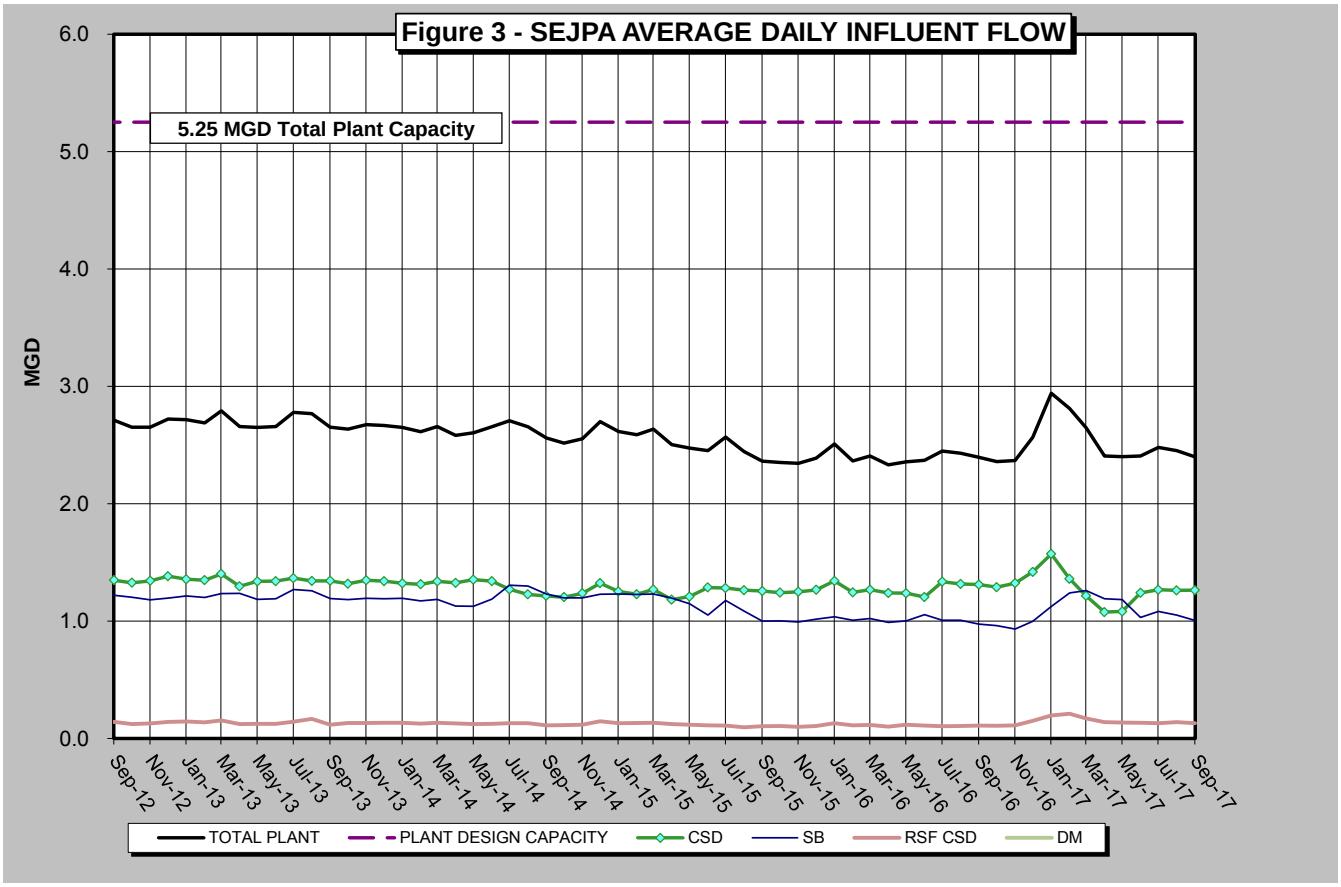
RSF CSD: Ranch Santa Fe Community Service District

SB: Solana Beach

EDU: Equivalent Dwelling Unit

ASSUMPTIONS: SB Connected EDUs includes 300 EDUs for the City of San Diego

Figure 3 (below) presents the 5-year historical average daily flows per month for each Member Agency. This is to provide a historical overview of the average treated flow by each agency. Also shown in Figure 3 is the total wastewater treatment capacity of the plant, 5.25 mgd, of which each Member Agency has the right to 2.2 mgd, Rancho Santa Fe Community Service District leases 0.25 mgd, and the City of Del Mar leases 0.60 mgd.



City of Escondido Flows

The average and peak flow rate for the month of September 2017 from the City of Escondido's Hale Avenue Resource Recovery Facility, which discharges through the San Elijo Ocean Outfall, is reported below.

	Flow (mgd)
Escondido (Average flow rate)	9.1
Escondido (Peak flow rate)	18.1

Connected Equivalent Dwelling Units

The City of Solana Beach updated the connected EDUs number that is reported to the SEJPA in July 2017. The City of Encinitas and Rancho Santa Fe CSD report their connected EDUs every month. The City of Del Mar reported their connected EDUs in March 2017; however, flows have been diverted to the San Diego Metro JPA due to high salinity which is planned to be resolved by the end of 2017. The number of EDUs connected for each of the Member Agencies is as follows:

	Connected (EDU)
Cardiff Sanitary Division	8,427
Rancho Santa Fe SID	555
City of Solana Beach	7,724
San Diego (to Solana Beach)	337
City of Del Mar	1,716
Total EDUs to System	**18,759**

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager

*

AGENDA ITEM NO. 10

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

November 13, 2017

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: General Manager

SUBJECT: SAN ELIJO WATER RECLAMATION PROGRAM – MONTHLY REPORT

RECOMMENDATION

No action required. This memorandum is submitted for information only.

DISCUSSION

Recycled Water Production

For the month of September 2017, recycled water demand was 180.62 acre-feet (AF), which was met using 180.61 AF of recycled water and 0.01 AF of supplementation with potable water.

Figure 1 (attached) provides monthly demands for recycled water since deliveries began in September 2000. Figure 2 (attached) provides a graphical view of annual recycled water demand spanning the last seventeen (17) fiscal years. Figure 3 (attached) shows the monthly recycled water demand for each September since the program began.

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager

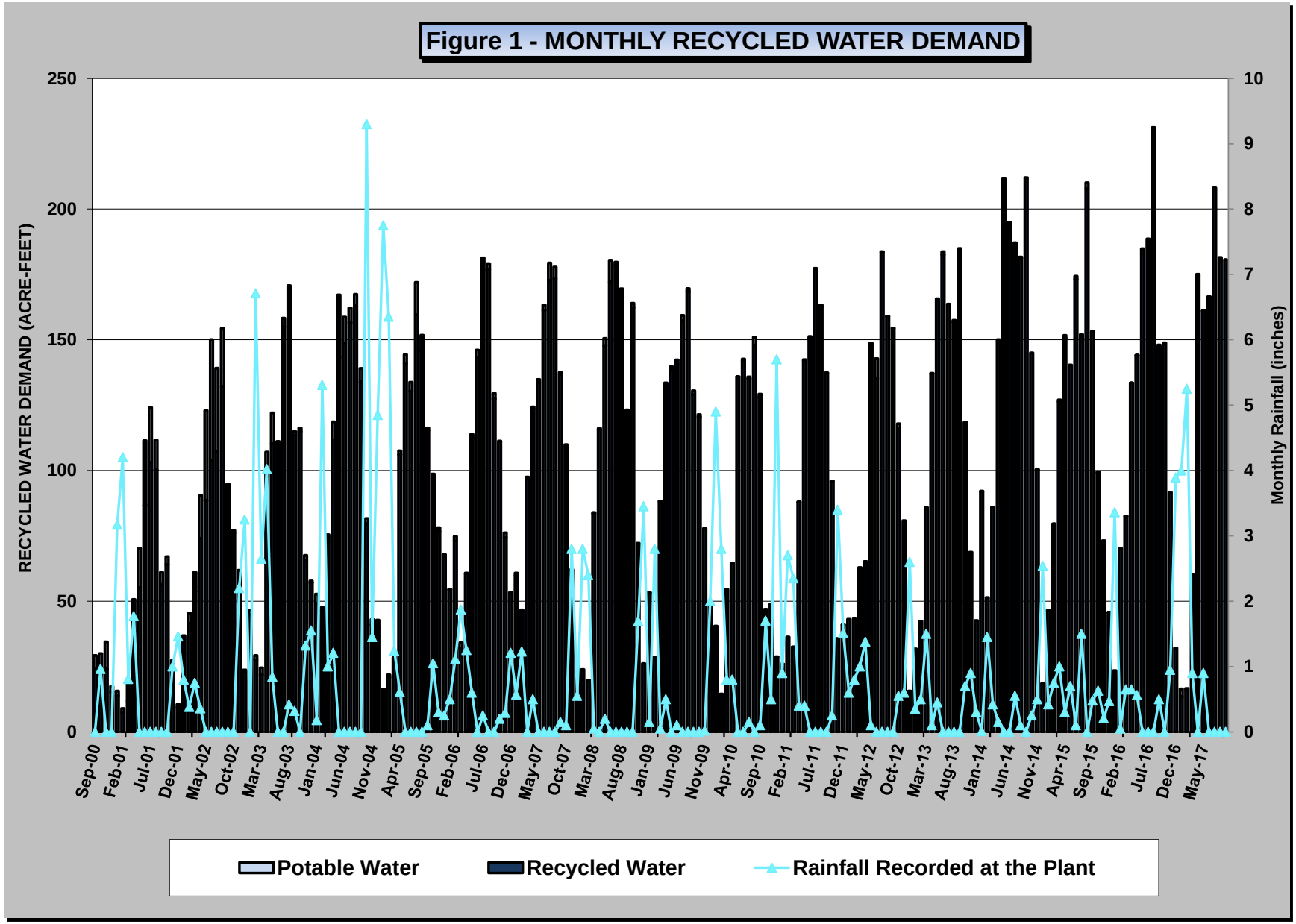


Figure 1 - MONTHLY RECYCLED WATER DEMAND
RECYCLED WATER DEMAND (ACRE-FEET)
Monthly Rainfall (inches)
250
200
150
100
50
0
10
9
8
7
6
5
4
3
2
1
0
Sep-00
Feb-01
Jul-01
Dec-01
May-02
Oct-02
Mar-03
Aug-03
Jan-04
Jun-04
Nov-04
Apr-05
Sep-05
Feb-06
Jul-06
Dec-06
May-07
Oct-07
Mar-08
Aug-08
Jan-09
Jun-09
Nov-09
Apr-10
Sep-10
Feb-11
Jul-11
Dec-11
May-12
Oct-12
Mar-13
Aug-13
Jan-14
Jun-14
Nov-14
Apr-15
Sep-15
Feb-16
Jul-16
Dec-16
May-17
Potable Water
Recycled Water
Rainfall Recorded at the Plant

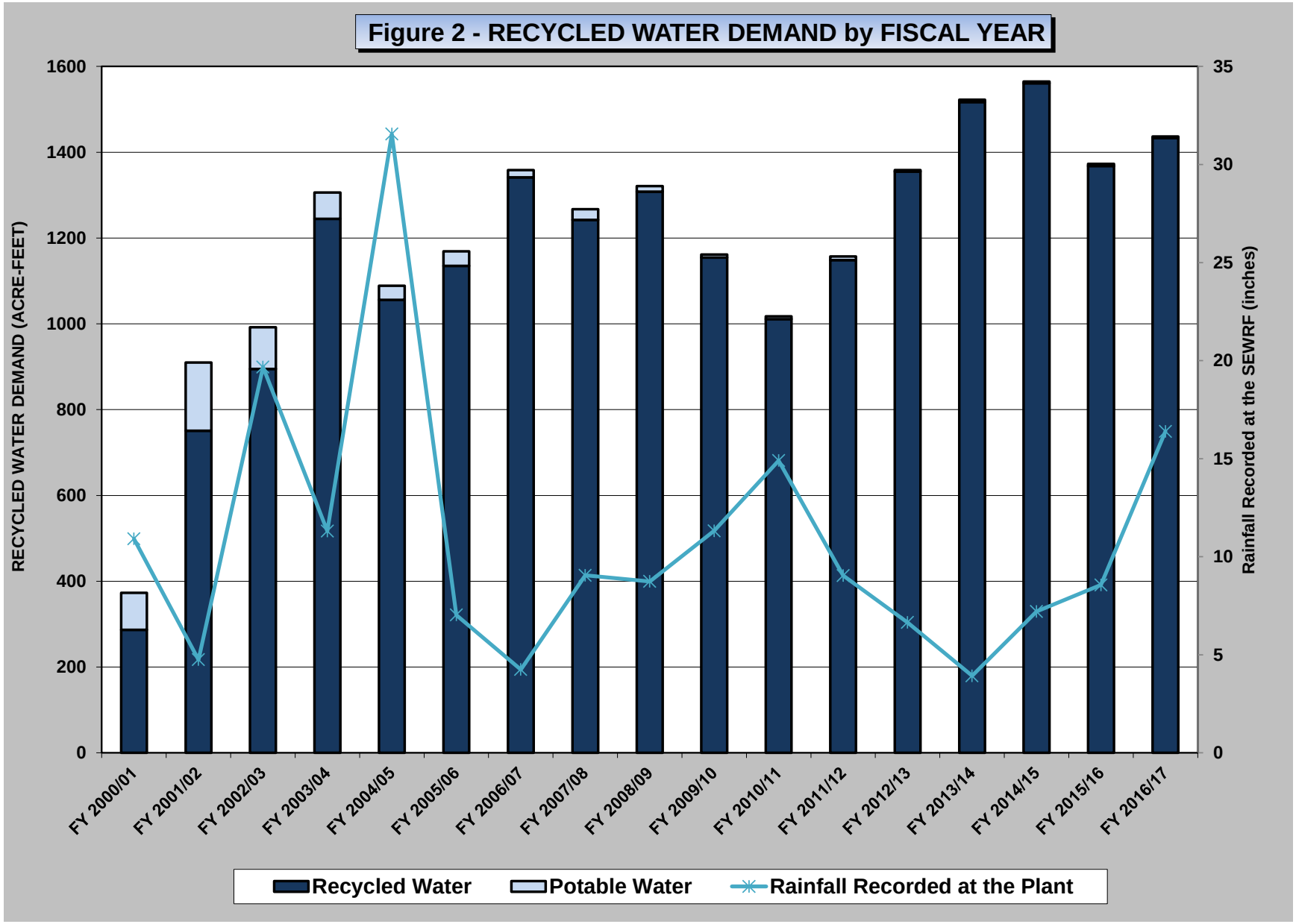


Figure 2 - RECYCLED WATER DEMAND by FISCAL YEAR
RECYCLED WATER DEMAND (ACRE-FEET)
Rainfall Recorded at the SEWRF (inches)
1600
1400
1200
1000
800
600
400
200
0
35
30
25
20
15
10
5
0
FY 2000/01
FY 2001/02
FY 2002/03
FY 2003/04
FY 2004/05
FY 2005/06
FY 2006/07
FY 2007/08
FY 2008/09
FY 2009/10
FY 2010/11
FY 2011/12
FY 2012/13
FY 2013/14
FY 2014/15
FY 2015/16
FY 2016/17
Recycled Water
Potable Water
Rainfall Recorded at the Plant

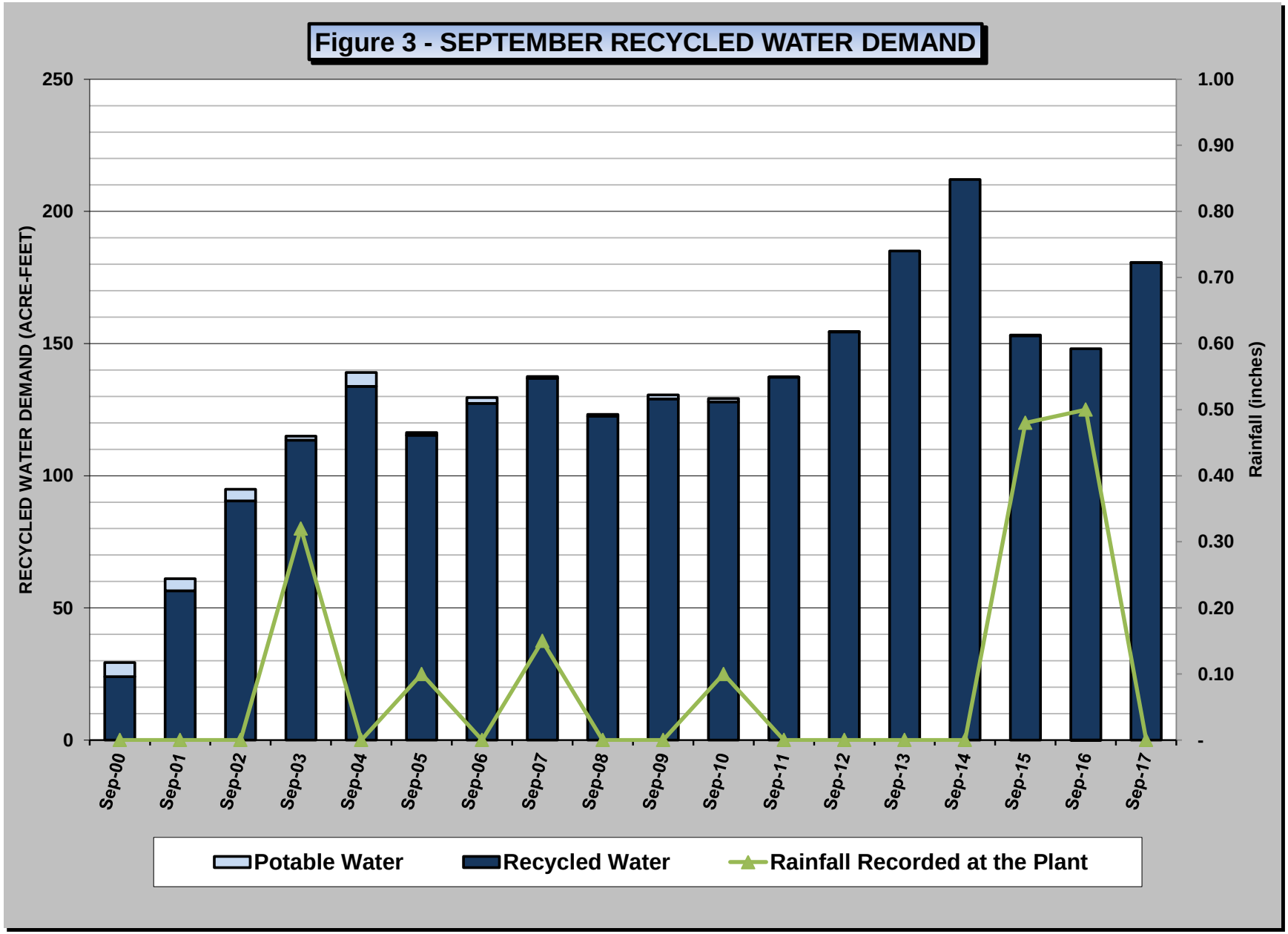


Figure 3 - SEPTEMBER RECYCLED WATER DEMAND
RECYCLED WATER DEMAND (ACRE-FEET)
250
200
150
100
50
0
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
-
Rainfall (inches)
Sep-00
Sep-01
Sep-02
Sep-03
Sep-04
Sep-05
Sep-06
Sep-07
Sep-08
Sep-09
Sep-10
Sep-11
Sep-12
Sep-13
Sep-14
Sep-15
Sep-16
Sep-17
Potable Water
Recycled Water
Rainfall Recorded at the Plant

*

AGENDA ITEM NO. 11

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

November 13, 2017

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: General Manager

SUBJECT: AWARD OF ENGINEERING SERVICES FOR ARC FLASH AND PROTECTION COORDINATION STUDY

RECOMMENDATION

It is recommended that the Board of Directors:

1. Authorize the General Manager to execute an Engineering Agreement with Carollo Engineers for the Arc Flash and Protection Coordination Study for an amount not to exceed $98,087;

2. Discuss and take action as appropriate.

BACKGROUND

The San Elijo Joint Powers Authority (SEJPA) owns and operates the San Elijo Water Reclamation Facility (SEWRF), which includes 5.25 million gallons per day (mgd) wastewater treatment and 3.02 mgd water reclamation facility. The electrical equipment required to operate the facility is regulated by the Occupational Safety and Health Administration (OSHA) and National Fire Protection Association (NFPA) 70E requirements. The goal of NFPA 70E electrical standards is to reduce worker exposure to shock, electrocution, arc flash, and arc blast while they are working in close proximity to energized or potentially energized electrical conductors or circuit parts. The most recent standard, published in 2015, expands many of the electrical safety, training, and maintenance requirements introduced in 2012.

Section 130.5 of NFPA 70E requires an arc flash hazard analysis to be updated every 5 years or whenever there is a major modification or renovation to the electrical system. The last arc flash analysis for the entire system was completed in 2012; an update is now required.

DISCUSSION

The SEJPA staff requested proposals from qualified engineering firms to complete an arc flash study and protection coordination study for electrical equipment and assets owned by SEJPA. The purpose of this analysis is to remove or mitigate known hazards, arc flash labeling, provide safe work zones and Personal Protective Equipment (PPE) in compliance

with NFPA 70 E and current OSHA requirements. The intent is to supplement and enhance the SEJPA's existing electrical safety program, provide additional safety measures for staff and contractors, and confirm compliance with regulatory agencies and industry best practices. Six firms submitted proposals; two of which did not comply with the requirements of the request for proposals. The proposal that provided the best combination of qualifications, project understanding, and value based approach was submitted by Carollo Engineers (attached).

The Carollo proposal listed experience with arc flash studies, protective device coordination, hazard analysis, field investigations, arc flash labeling, training, and safety programs for numerous municipal clients. The proposed project team is locally based in San Diego, CA, exhibits strong experience in electrical system studies utilizing recent modeling software and modern technology. This experience will streamline the process and quickly create an updated system model that can be used to predict fault current contributions and local arc flash hazard. The proposed team provides an excellent value in their project approach to efficiently complete this effort. They have a proven track record of successful project delivery on past projects including the R.E. Badger Water Filtration Plant Electrical Distribution & Substation Improvements and the City of Barstow Electrical System Study.

FINANCIAL IMPACT

The cost for completing the proposed engineering services is $98,087. The project will be funded by the FY 2017-2018 operating budget which includes a total of $182,400 for "Services-Engineering."

It is therefore recommended that the Board of Directors:

1. Authorize the General Manager to execute an Engineering Agreement with Carollo Engineers for the Arc Flash and Protection Coordination Study for an amount not to exceed $98,087;

2. Discuss and take action as appropriate.

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager

Attachment 1: Carollo Engineers – Arc Flash and Protection Coordination Study, August 2017

ATTACHMENT 1

SAN ELIJO
JOINT POWERS AUTHORITY

Arc Flash and Protection Coordination Study

Ref: AFPCS-2017

PROPOSAL | AUGUST 2017

carollo
Engineers...Working Wonders With Water®

carollo
Engineers...Working Wonders With Water®

5355 Mira Sorrento Place, Suite 270 • San Diego, California 92121
P. 858.505.1020 F.858.505.1015

August 17, 2017

Mr. Casey Larsen
SCADA Manager
San Elijo Joint Powers Authority
2695 Manchester Avenue
Cardiff-by-the-Sea, CA 92007

Subject: Proposal for the Arc Flash and Protection Coordination Study, Ref No. AFPCS-2017

Dear Mr. Larsen and Members of the Selection Committee:

Thank you for the opportunity to submit a proposal for this critical project. Carollo Engineers, Inc., has assembled a team of highly specialized individuals who are uniquely qualified to deliver this project for the San Elijo Joint Powers Authority (SEJPA). Among our project team are engineers from Carollo who have spent their careers analyzing and designing complex electrical power systems at wastewater treatment facilities.

Selecting our team presents the SEJPA with the following key benefits:

- **Confidence with Carollo Results.** We have a proven track record of successful electrical system studies for wastewater systems for multiple large agencies. SEJPA can count on Carollo's experience, attention to detail, and quality management to deliver a project that is on schedule and accurate.
- **Exceptional Senior Quality Management (QM)**. The theoretical and practical arc flash experience of Monte Richard (QM) will ensure that fault current and arc flash calculations, as well as the overall electrical system study, are completed in accordance with all applicable arc flash code and regulations. We not only understand the current code, we are actively participating in developing the future arc flash standards.
- **Innovative Solutions.** Our team not only understands the codes and issues of arc flash, we also understand the operation of your water reclamation system and how to identity opportunities to minimize capital cost investment while meeting all codes and regulations.
- **Experienced Project Manager.** Our project manager, Jeff Weishaar, will leverage his extensive water reclamation experience to facilitate technical decision-making that is in the SEJPA's best interests in terms of long-term safety, operation, and maintenance of your facility. Jeff will serve as the point of contact for all correspondence related to this project.
- **Continued Commitment to SEJPA.** Carollo is dedicated to expanding our commitment to provide exceptional service to SEJPA for the long haul. We plan to provide the same unparalleled services to the SEJPA that we have provided to SEJPA on the ongoing On Call Services contract and the recent Facility Master Plan.

We understand the critical importance of the San Elijo Water Reclamation Facility Arc Flash and Protection Coordination Study to your staff's safety and facility's reliability and we look forward to the opportunity to collaborate with you on this project.

Sincerely,

CAROLLO ENGINEERS, INC.

Jeff Weishaar, P.E.
Project Manager

Jeff Thornbury, P.E.
Vice President

Identification of Responder

FIRM QUALIFICATIONS

Carollo is a multidisciplinary engineering firm with more than eight decades of experience including all aspects of engineering for water and wastewater facilities. Carollo's Electrical, Programming, Instrumentation, and Control (EPIC) group has designed high-, medium-, and low-voltage power distribution systems, including switchgear, transformers, motor control centers, stand-by power generation facilities, electrical reliability upgrades, and replacement of obsolete electrical equipment and materials. With six offices in Southern California, we are well equipped to provide local resources and local knowledge to the San Elijo Joint Powers Authority (SEJPA) and your project.

Carollo has 12 offices in California; six offices are located in Southern California.

CORPORATE AND LOCAL OFFICES

Carollo Engineers, Inc. is a Delaware Corporation established in October 1933.

Corporate Office

2700 Ygnacio Valley Road,
Suite 300
Walnut Creek, CA 94598
Ph: 925-932-1710
Fax: 925-930-0208

Local Office

5355 Mira Sorrento Place,
Suite 270
San Diego, California 92121
P. 858-505-1020
F. 858-505-1015

Point of Contact

Jeff Thornbury, Client Service Manager
5355 Mira Sorrento Place, Suite 270
San Diego, California 92121
Ph: 858-505-1020

Unlike the majority of our competitors, Carollo only provides water and wastewater engineering services. We recruit nationwide and hire technical staff with extensive background and training specific to this field. For that reason, the quality and professional standing of our core group of water and wastewater professionals equals or exceeds that provided by some of the largest engineering firms in the country.

Carollo at a Glance

- **Established in 1933; 42 offices in 17 states.**
- **Completed more than 25,000 projects during our 84 years in business.**
- **Carollo has successfully completed hundreds of arc-flash hazard studies tailored to the specific needs and operational constraints of water and wastewater treatment facilities.**

Information Required in the RFP

RFP Requirement	Location
Consultant's name, corporate and local office, phone/fax nos.	Identification of Responder
Past and ongoing projects, client references, team members' role	Experience and Technical Competence
Team organization, team members' background, experience, availability, and location	Project Organization and Key Personnel
Approach to project, project coordination, and schedule	Project Approach
Total project budget, fees, and staff-hours	Fee Estimate

Experience and Technical Competence

FIRM PROFILE

Carollo Engineers, Inc., is an environmental engineering firm specializing in the planning, design, and construction of water and wastewater facilities. Carollo's reputation is based on client service and a continual commitment to quality. We currently maintain 42 offices in 17 states, including twelve offices in California.

During our 84-year history, we have successfully completed more than 25,000 projects for public and private sector clients. Carollo has been ranked nationally in the top 40 electrical engineering firms by *Electrical Construction and Maintenance* magazine for the last 6 years. More importantly, we have completed over 100 arc flash hazard analysis projects in the last five years alone.

Carollo is truly an engineering consulting firm—we have no vested interest in equipment sales like manufacturer's of electrical equipment who also provide electrical studies. As we are not "tied" to any equipment or manufacturer, our sole interest is to provide solutions that are in the best interest of SEJPA.

Arc Flash Expertise

Carollo's EPIC group consists of more than 100 engineers and technicians, making this group one of the largest in the water and wastewater industry. With respect to electrical arc flash, conformance with recently established laws and codes, including NFPA 70, NFPA 70E, and IEEE 1584, has become an important and challenging issue as utilities strive to comply and protect their operation and maintenance personnel from electrical hazards in the workplace.

Carollo's electrical expertise helps our clients sort through the mercurial arc flash laws and codes to take the necessary action to protect their personnel and achieve compliance with current laws and codes in the most cost-effective and operationally integrated approach possible.

Carollo has been conducting electrical system studies exclusively for water and wastewater facilities for over 40 years, including short circuit studies, protective device and coordination studies, and, since its introduction to our industry, arc flash studies. We not only understand the codes and standards dictating the studies we perform, we understand the unique situations encountered in wastewater processes. Our team understands the operation, maintenance, and criticality of your facility. This knowledge enables us to better analyze the existing condition of your electrical distribution system in relation to the critical nature of the processes being served.

Carollo has a long history of providing quality electric system services to our clients. A summary table of selected project experience with particular relevance to the arc flash studies required for the SEJPA is provided on the following page. We pride ourselves on the continuing relationships that we have developed with our clients. In addition to the table, we are highlighting three similar projects, which have been completed locally in California. The projects highlight our team's experience performing electrical system studies, arc flash hazard modeling, and arc flash training. We encourage you to contact our references to verify our responsiveness and quality of service on these representative projects.

Relevant Arc Flash Study Experience

Client	Short Circuit Study	Protective Device Coordination	Arc Flash Hazard Analysis	Arc Flash Label Installation	No. of Facilities in Study	Arc Flash Training	Safety Program	Field Investigations
Fountain Hills Sanitation District, AZ	●	●	●	●	35	●		●
City of Yuma, AZ	●	●	●	●	3	●		●
Arizona Public Service Company, AZ	●	●	●	●	1			●
City of Chandler, AZ	●	●	●	●	3	●		●
City of Santa Barbara, CA	●	●	●	●	1	●	●	●
South Valley Water Reclamation District, UT	●	●	●	●	1	●	●	●
City of Riverside Public Utilities Department, CA	●	●	●	●	7			●
City of Los Angeles Department of Water and Power, CA	●	●	●	●	88	●		●
City of Oxnard, CA	●	●	●	●	6			●
Santa Fe Irrigation District, CA	●	●	●	●	3			●
City of Oceanside, CA	●	●	●	●	1			●
Santa Clara Valley Water District, CA	●	●	●	●	39			●
Orange County Sanitation District, CA	●	●	●	●	2	●		●
Eastern Municipal Water District, CA	●	●	●	●	2			●
City of South San Francisco, CA	●	●	●	●	1			●
City of Roseville, CA	●	●	●	●	2	●		●
City Barstow, CA	●	●	●	●	1	●		●
Monterey Regional Water Pollution Control Agency, CA	●	●	●		1	●		●
City of Fort Collins, CO	●	●	●	●	4	●	●	●
City of Aurora, CO	●	●	●	●	36	●	●	●
Denver Water, CO	●	●	●	●	1	●	●	●
City of Thornton, CO	●	●	●	●	2	●		●
South Island Public Service District, SC	●	●	●		13			●
North Texas Municipal Water District, TX	●	●	●	●	1	●		●
Snyderville Basin Water Reclamation District, UT	●	●	●	●	2			●

WASTEWATER TREATMENT PLANT ELECTRICAL SYSTEM STUDY

CITY OF BARSTOW, CALIFORNIA

SIMILAR PROJECT EXPERIENCE

In 2012, Carollo conducted an Electrical System Study at the City's 4.5 million gallon per (mgd) day wastewater treatment plant. Carollo's scope included fault current analysis, protective device coordination, arc flash incident energy calculations, and arc flash label development and installation (label installation was performed by a sub, Bergelectric). In 2016, the City completed construction of the Wastewater Treatment Plant Improvements Phase 1 Project, which substantially modified the existing plant electrical system. In 2017, Carollo was engaged to provide a comprehensive update to the 2012 Electrical System Study, and provide new arc flash hazard labels reflecting the arc flash incident energy levels associated with the modified plant electrical system.

CONTACT INFORMATION:

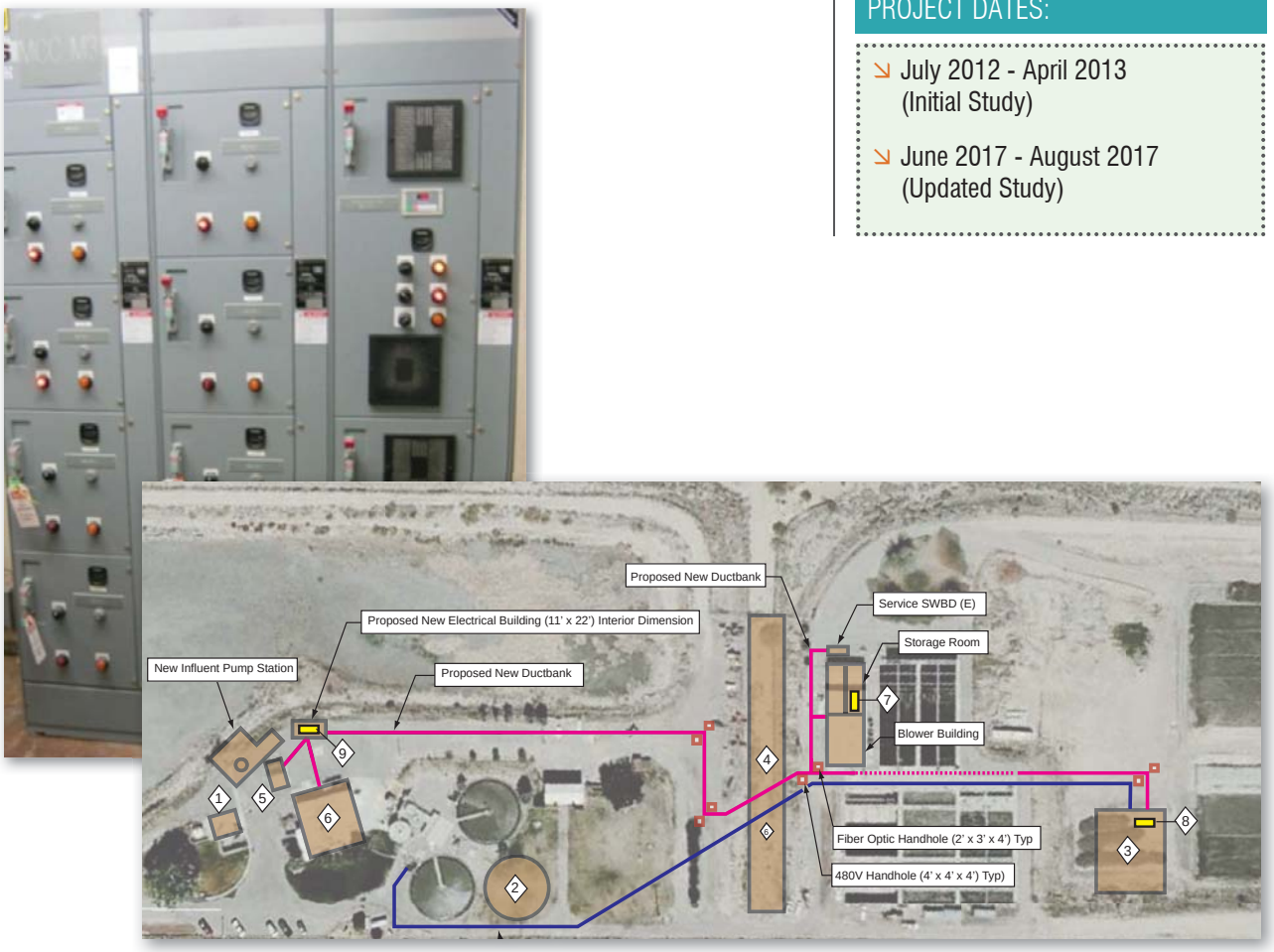
- Mr. Kody Tompkins, Chief Plant Operator | 760.252.2538

TEAM MEMBER INVOLVEMENT:

- Jeff Weishaar (Project Manager)
- Troy Hedlund (Lead Electrical Engineer)
- Kevin Wolff (Electrical Engineer)

PROJECT DATES:

- July 2012 - April 2013 (Initial Study)
- June 2017 - August 2017 (Updated Study)



R.E. BADGER WATER FILTRATION PLANT ELECTRICAL DISTRIBUTION & SUBSTATION IMPROVEMENTS (J-1351)

SANTA FE IRRIGATION DISTRICT/SAN DIEGUITO WATER DISTRICT, RANCHO SANTA FE, CALIFORNIA

SIMILAR PROJECT EXPERIENCE

As part of a facilities master planning effort, Carollo performed a preliminary Electrical System Study for the 40 mgd R.E. Badger Water Filtration Plant. The primary objectives of the preliminary Electrical System Study were to assess the condition of the plant's existing electrical service entrance and power distribution system, estimate arc flash incident energy levels, and define the scope of the Electrical Distribution & Substation Improvements (J-1351) Project, which was subsequently designed by Carollo. As part of our engineering services during construction scope of work for the J-1351 project, Carollo provided a complete Electrical System Study, comprised of fault current analysis, protective device coordination, and arc flash incident energy calculations for the new plant electrical system, as well as printing and installation of arc flash hazard labels. Specifically, the plant electrical system is comprised of a 12kV SDG&E underground service, 12kV metering & main breaker switchgear, 4.16kV distribution switchgear that interconnects (2) hydroelectric power generators, several 480V motor control centers, a 500kW, 480V standby diesel engine generator, and several low voltage panelboards. Carollo was also responsible for all coordination with SDG&E required to identify and implement the new medium voltage protection relay settings in accordance with SDG&E's Rule 21 Generation Interconnection requirements.

CONTACT INFORMATION:

- Ms. Marissa Potter, Project Manager | 858.756.2424

TEAM MEMBER INVOLVEMENT:

- Jeff Thornbury (Principal-In-Charge)
- Troy Hedlund (Project Manager, Lead Electrical Engineer)
- Monte Richard (Technical Advisor)

PROJECT DATES:

- November 2010 - March 2012 (Planning Phase)
- January 2013 - October 2014 (Design Phase)
- October 2014 - April 2017 (Construction Phase)

CHARLES A. MEYER DESALINATION PLANT REACTIVATION

CITY OF SANTA BARBARA, CALIFORNIA

SIMILAR PROJECT EXPERIENCE

As part of design-build project activities, Carollo performed an Electrical System Study for the 11 mgd El Estero Wastewater Treatment Plant. The primary objective of the Electrical System Study was to create a detailed comprehensive software model of the plant's existing electrical system, assess the condition of the service entrance and power distribution system, estimate arc flash incident energy levels, and coordinate with the Design-Build Contractor to produce an accurate model of the El Estero Wastewater Treatment Plant and Charles A. Meyer Desalination Facility (common electrical service/ system). As part of our scope of work for the project, Carollo provided a complete Electrical System Study, comprised of fault current analysis, protective device coordination, and arc flash incident energy calculations, for the wastewater plant electrical system, as well as printing of arc flash hazard labels. Carollo also provided arc flash training services for the wastewater plant staff in the form of two 2-day sessions. Continuing Education Unit (CEU) credits were provided for all City employees who attended as desired. Specifically, the plant electrical system is comprised of a 12kV Southern California Edison (SCE) underground service via a nearby SCE owned substation (66 kV primary metering), 12kV main switchgear to distribute power to both facilities, 4.16kV distribution switchgear that powers the wastewater plant loads, several 480V switchgear, several 480V motor control centers, a 2000kW, 4.16kV standby diesel engine generator, a 900 kW, 480V standby diesel engine generator, a 600kW, 480V cogeneration engine generator, and several low voltage panelboards. Carollo was responsible for coordination with Design-Build Contractor's Electrical Subcontractor and wastewater plant staff to complete all field investigations and arc flash label installation required. Carollo assisted with coordination between SCE and Design-Build Contractor to identify, review, and implement the new medium voltage protection relay settings in accordance with SCE's Electric Service Requirements.

CONTACT INFORMATION:

- Linda Sumansky, Principal Engineer | 805.564.5361

TEAM MEMBER INVOLVEMENT:

- Troy Hedlund (Lead Electrical Engineer)
- Monte Richard (Technical Advisor)

PROJECT DATES:

- May 2014 - March 2015 (Planning and Predesign Phase)
- April 2015 - Present (Design-Build Phase)

Project Organization and Key Personnel

The Right TEAM to Get the Job Done

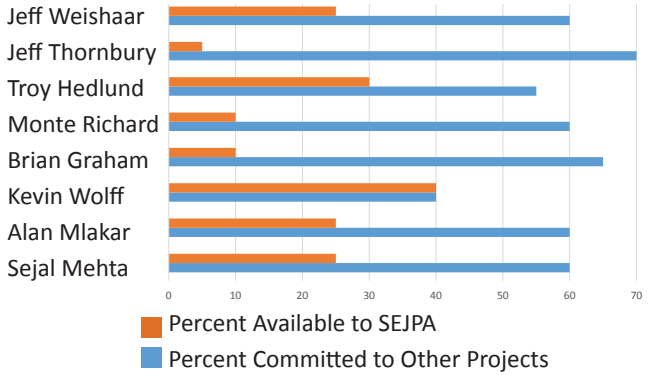
Our proposed project team brings experienced professionals and a proven approach to field work and training, giving you confidence in the quality and thoroughness that Carollo will provide for the SEJPA Arc Flash and Protection Coordination Study.

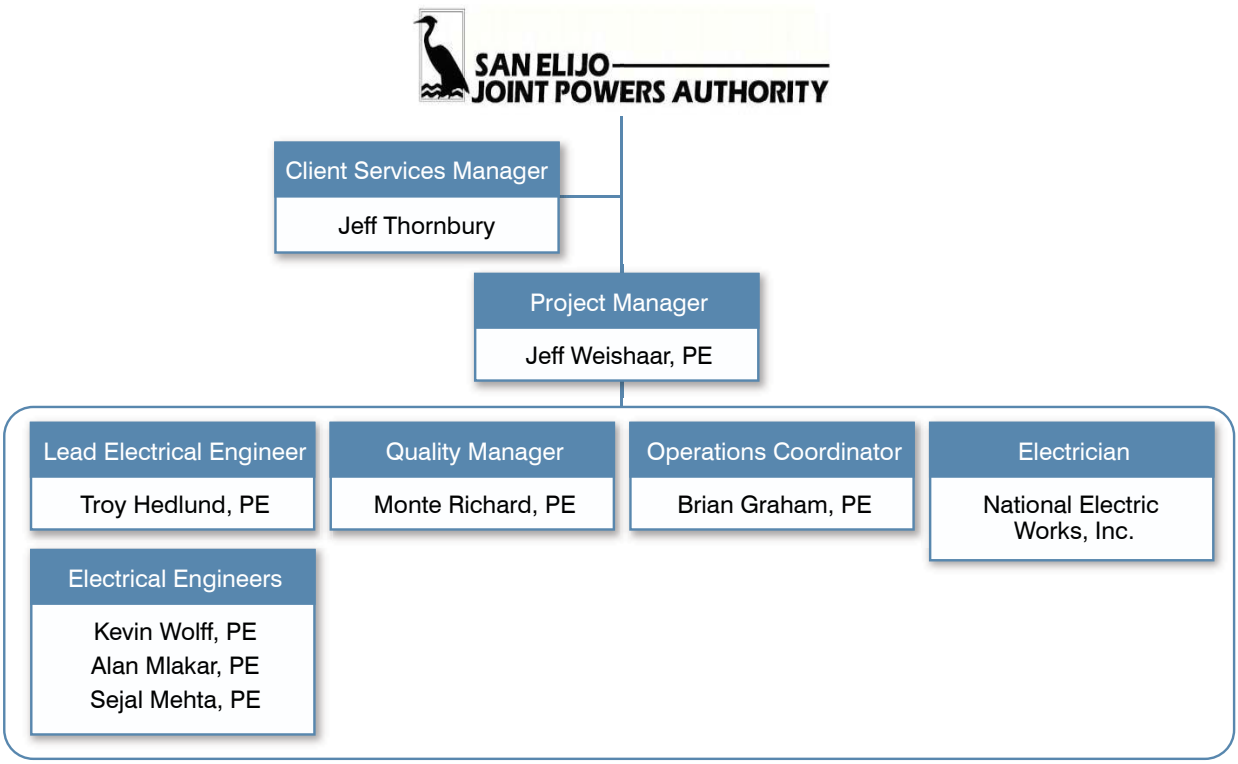
Carollo provides a full-range of services related to the water and wastewater industry. With approximately 100 engineers and technicians dedicated to water system electrical work, or approximately 12 percent of the firm, our world-class EPIC group is one of the largest in the industry.

Our project team is presented in the organization chart below.

The success of a project stems directly from the capabilities and dedication of the individuals assigned to the project. Each member of our project team brings a wealth of knowledge in their respective disciplines, as well as unparalleled local experience executing work for SEJPA. Each were carefully selected because of their specific in-depth understanding of the complexities associated with both operations and arc flash hazards in order to achieve compliance with current laws and codes. In addition to the team's technical expertise, each individual has worked together on similar projects creating a cohesive collaboration of academic and practical experience resulting in a significant benefit to the overall project and to SEJPA. Brief highlights for each team member are presented in this section. Detailed resumes are included in the Appendix.

Our Team is Available for Your Project



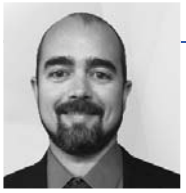


Jeff Thornbury

Client Services Manager

Office Location: San Diego

Jeff will serve as the Client Services Manager and a resource to Jeff Weishaar to help facilitate the workshops, as well as making sure that the proper resources and quality management protocol are applied. **He has led various California and SEJPA projects for over 32 years** and has a proven working relationship with our proposed design team.



Jeff Weishaar P.E.

Project Manager

Office Location: San Diego

As a senior wastewater treatment planning and design engineer based in San Diego, Jeff brings intimate knowledge of your facility as project manager for the the **SEWRF 2015 Facility Plan**. Jeff's local project portfolio includes key roles with the cities of Oceanside, Escondido, and Vista, as well as the Encina Wastewater Authority covering all phases of wastewater design for rehabilitation, upgrade, and expansion projects.

Jeff will be responsible for managing the completion of tasks, coordinating the activities of team members and electrical subcontractor, and overseeing the quality and timeliness of project deliverables. He will serve as the City's primary contact for this project.

Troy Hedlund, P.E.

Lead Electrical Engineer

Office Location: San Diego

Troy Hedlund is a principal electrical, instrumentation, and controls (E/I&C) engineer with 15 years of extensive experience in E/I&C in water, wastewater, and renewable energy projects, including solar photovoltaic and cogeneration projects. Troy has served as project manager and/or lead electrical engineer on several arc flash projects, some involving over 40 separate facilities. He will be responsible for MOP planning, safety planning, coordinating data collection, production of the electrical system study, and training.

Monte Richard, P.E.

Quality Manager

Office Location: Denver-Littleton

Monte brings 14 years experience in electrical and control system engineering and design. His focus is in electrical distribution systems, process control, and industrial instrumentation for water and wastewater facilities. He has served as either lead electrical engineer, project manager, or quality manager on dozens of arc flash projects, many of those alongside Troy. He will be responsible for reviewing the MOP, draft study, and final study.

Brian Graham, P.E.

Operations Coordinator

Office Location: San Diego

Brian is an environmental engineer with 30 years of experience encompassing advanced water and wastewater treatment, wastewater process modeling, biological nutrient removal, membrane treatment of wastewater, biosolids management, master planning, and computer simulation. Brian will leverage his extensive knowledge of the SEJPA Water Reclamation Facility to lead in the coordination of the field investigations with operations staff and our project team.

Electrical Engineers

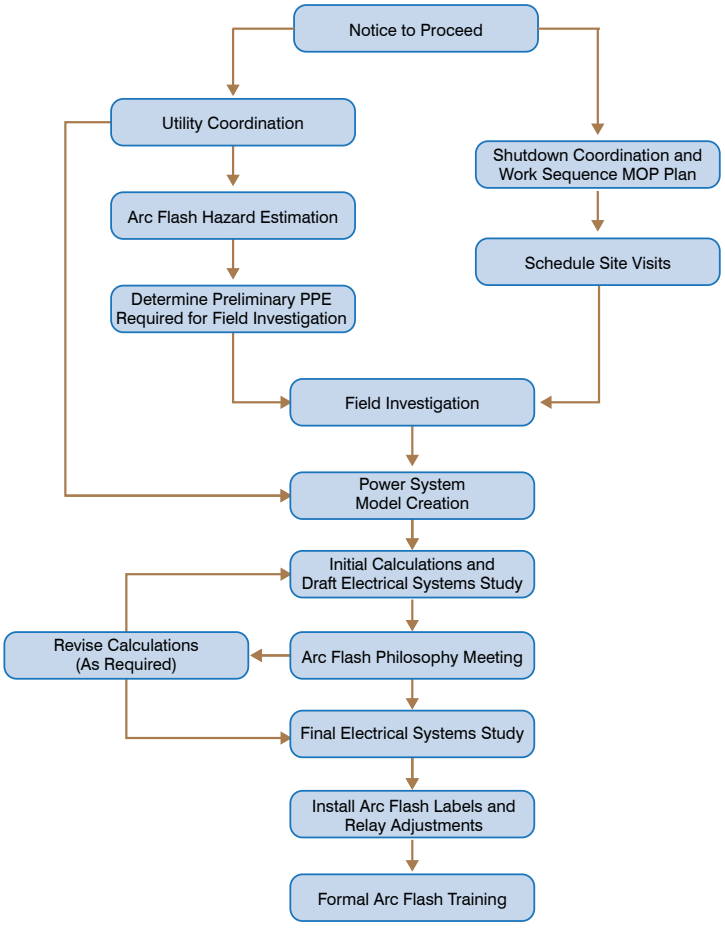
Kevin Wolff, PE, Alan Mlakar, PE, and Sejal Mehta, PE

Kevin, Alan, and Sejal will be working in coordination with Troy, performing data collection, system modeling, fault current analysis, protective device coordination, and arc flash analysis. Each have experience performing electrical system modeling using SKM.

Project Approach

Based on our 84-year history of providing water solutions, combined with our experience in conducting electrical system studies for numerous water utilities, Carollo has developed a proven approach that expedites safely-conducted field investigation, accurate power system software model development, optimization of protective device coordination, and arc flash hazard mitigation. The success of this approach is highly dependent on establishing a collaborative approach between SEJPA and Carollo to assure that the end product is consistent with SEJPA's operational and electrical safety philosophies. The flow chart below is a visual representation of this unique approach. A detailed description of each of the tasks comprising our approach is provided on the following pages.

Project Approach Flowchart



PHASE I
Preliminary Coordination and Training

Electric Utility Coordination

Relative to fault current and arc flash incident energy calculations, the energy contribution from the electric utility is one of the most influential inputs to the calculation. As such, the accuracy of the calculations is highly dependent on the data provided by the electric utility. Furthermore, incorrect assumptions about this data can greatly affect the outcome of the arc flash study. It can just as easily be over-conservative in the application of personnel protective equipment (PPE) (which can be cumbersome for O&M personnel and create unnecessary hazards) or not require enough PPE and put personnel in danger. For these reasons, coordination with the electric utility is a critical first step in the completion of the overall arc flash study.

Immediately after Notice-to-Proceed, Carollo will begin the process of electric utility coordination with San Diego Gas and Electric (SDG&E) to obtain the following information for each of the facilities included in the study:

- Minimum, normal, and maximum operating service voltage levels.
- Minimum and maximum three-phase short circuit MVA and X/R ratio.
- Line-to-ground short circuit MVA and X/R ratio at the point of connection.
- Electric utility upstream protective device information.

If necessary, Carollo will arrange and conduct meetings with SDG&E representatives to expedite this data collection effort.

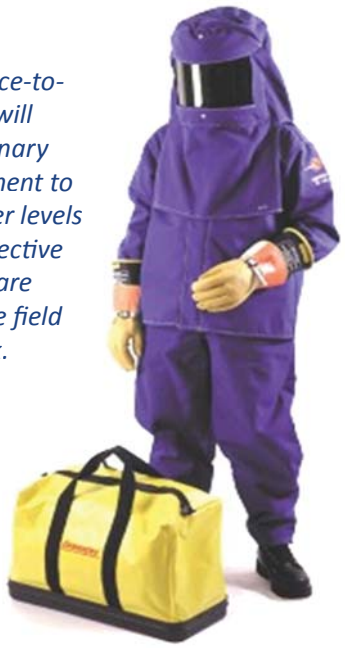
Facility Shutdown Coordination and Work Sequence Creation

Facility shutdown coordination will be evaluated with SEJPA's operations staff to set a final schedule for the field investigation to occur. Where possible, Carollo will work with operations staff in attempts to lead field investigation during routine maintenance and facility downtime, so as to minimize the impact on SEJPA. Where portions of the facility cannot be de-energized during field investigation, we will collect data with full protection suitable for the expected incident energy from our Preliminary Facility Arc flash Assessment.

Preliminary Facility Arc Flash Assessment

The current version of NFPA 70E Table 130.7(C)(15) offers some guidance for performing certain tasks without having an arc flash study performed. This table applies to systems that meet certain available fault current and tripping time requirements. Our preliminary facility arc flash assessment will consist of verifying the suitability of these tables for each piece of equipment. Where the tables cannot be used, we will estimate the incident energy using our preliminary models and equations. This risk assessment is extremely important to assure that data collection is performed in a safe manner.

Shortly after Notice-to-Proceed, Carollo will develop a preliminary Arc Flash Assessment to ensure that proper levels of personnel protective equipment (PPE) are utilized during the field investigation task.



Field Investigation and Power System Modeling

After the successful completion of the preliminary arc flash assessment, we will begin field investigation of the existing facilities. National Electric Works, Inc. will assist Carollo in gathering the field data needed to create the software model for the power system. Specifically, National Electric Works will be responsible for de-energizing electrical equipment, testing to verify de-energization, opening electrical panels, inspecting and photographing internal elements of the electrical equipment, and restoring equipment to an energized state.

In addition to National Electric Works' field investigation personnel, Carollo's electrical engineers will be present to ensure accuracy and completeness of data collected. It is assumed that SEJPA staff will accompany our team to provide access as required throughout the facility. Based on the Preliminary Facility Arc flash Assessment developed prior to the field investigations, all individuals present during field investigations will be required to adhere to SEJPA's electrical safety procedures and the estimated arc flash hazard levels. Carollo and National Electric Works will provide the necessary PPE for the members of our team conducting field investigation.

Although the primary objective of the field investigation is to gather the equipment data needed to create the software models of the power system, we will also use our field time as an opportunity to correspond with SEJPA's O&M personnel to document any operational and maintenance concerns or problems that should be addressed for each piece of equipment. Additionally, we will use these opportunities to evaluate the facilities to provide recommendations and pricing for improvements that may be made to equipment, the electrical working areas, or redundancy and reliability of the electrical distribution system at the facility.

"The Carollo team's expertise and workmanship allowed them to work through and solve a critical problem when a breaker handle was discovered to be broken and would not close. The process needed to be brought back online and their quick and calm response to the problem allowed for plant operations to begin shortly after the problem arose."

—Mr. Ward Seibel,
Wastewater Treatment Superintendent, City of Yuma

Model Construction

We will use the information gathered during the utility coordination effort and the data collected during the field investigation to create a software model of the power system.

Carollo has extensive experience modeling with SKM PTW software. The distribution model will be built using the most recent version of SKM PTW. The final deliverable associated with the software models of the power system will be the actual software data files. These files will allow SEJPA or SEJPA's consultants to perform future arc flash calculations in response to electrical system changes, **without needing to recreate the entire database.**

Initial Calculations and Draft Electrical Systems Study

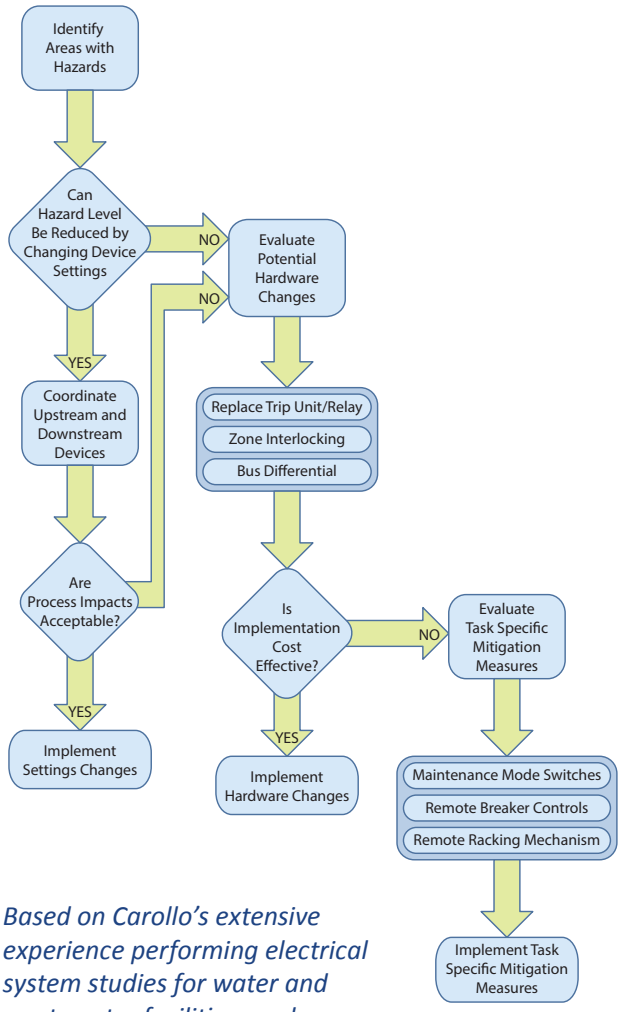
After all pertinent field data is collected and power system models are created, initial fault current, protective device coordination, and arc flash calculations can be performed.

The initial fault current and arc flash results will be based on the field data gathered during the investigative phase. This study will serve as a basis for comparing proposed changes to the systems and alternate protection settings developed by Carollo.

Each load in the distribution system will be individually modeled to determine fault current contributions and local arc flash hazard. While IEEE standards allow multiple motor loads below 50 horsepower to be grouped, Carollo's approach has always been to model every 480 volt load individually. This not only provides the most accurate representation of your system **but creates more complete documentation for future projects and asset management.**

As required, the study will model multiple configurations that represent possible operating scenarios for the facility. Input from SEJPA is critical to determine operational scenarios and resulting arc flash hazard. These scenarios are very important to determine minimum and maximum fault current contributions, as incident energy can be worst case at either minimum or maximum fault current conditions.

Any areas of concern for underrated equipment, unsafe settings, electrical code issues, equipment with installation or condition issues, equipment that has reached end of useful lifecycle, etc. will be reported to SEJPA immediately along with recommended actions.



Based on Carollo's extensive experience performing electrical system studies for water and wastewater facilities, we have developed a proven Arc Flash Program workflow that expedites the process of achieving an optimal balance between protective device coordination and arc flash safety. This is critical to reliable facility operation, and arc flash incident energy mitigation, which is critical to personnel safety.

Short Circuit Analysis

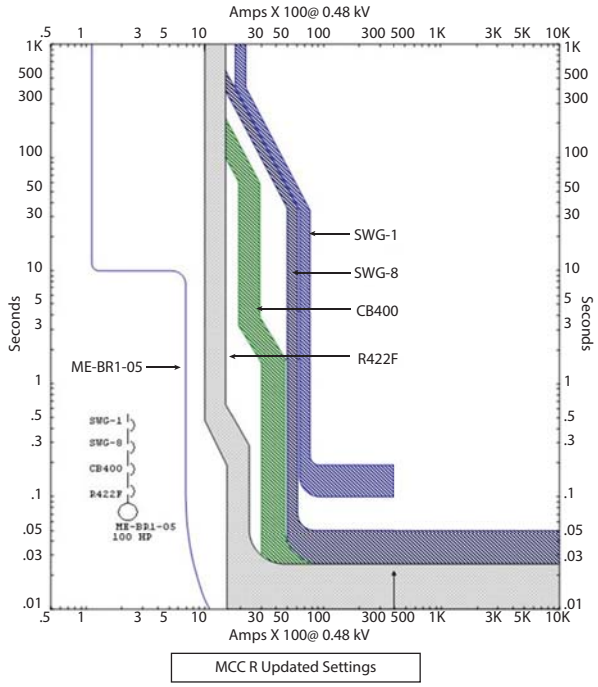
The short circuit study results will include:

- A tabulated list of short circuit ratings for all equipment collected from the field with the calculated, worst-case short circuit current for each bus.
- 3-phase bolted fault, line-to-line fault, line-to-ground fault, and double line-to-ground fault.
- Short-circuit ½-cycle momentary symmetrical and asymmetrical root mean-square (RMS).
- 1½- and 4-cycle, interrupting symmetrical RMS.
- 30-cycle steady state short circuit current values at each piece of equipment in the distribution system.

Coordination and Protection

The study will include a set of time-current curves with an analysis of any and all coordination issues. Coordination will be performed by Carollo in accordance with IEEE Standard 242, and other applicable codes, standards, and guidelines. Small, low-voltage distribution systems will be examined to determine if their nonadjustable protective devices create a dangerous or unreliable situation. Coordination issues and our recommendations will be tabulated in a report and presented for SEJPA's review.

The time-current curves will include the electric utility protective device immediately upstream of service transformer when available, and continue, down to and including, the smallest adjustable or fixed trip circuit breaker in the distribution system or the main breaker in lighting panels.



Arc flash Analysis

The arc flash study will utilize the results of the short circuit and protective device coordination studies, with settings determined during the field investigation, to calculate preliminary arc flash results. Specific information in the study will include:

- Arc fault magnitude.
- Duration of arc.
- Device clearing time.
- Arc flash boundary.
- Working distance.
- Incident energy.
- Shock hazard boundaries.
- PPE requirements.

Draft Electrical Systems Study

The draft Electrical Systems Study will summarize the results of the initial fault current, protective device coordination, and arc flash studies, identify any insufficient equipment ratings or other concerns related to the operation or condition of equipment, and provide recommendation action list along with estimated cost to resolve. The initial arc flash incident energy results will be based on the existing settings for protective devices obtained during field investigation. Recommendations for adjustments to protective device settings will be discussed as part of the Arc Flash Philosophy meeting.

In addition to the initial fault current, protective device coordination, and arc flash studies, we will also provide a comprehensive equipment assessment and safety analysis of the facilities. **As our field investigation requires us to directly retrieve data from each piece of equipment, we are already in a position to photograph and document the condition of existing equipment.** A review will be performed with our senior staff to evaluate the expected service life, operational safety concerns of aging equipment, and make recommendations to SEJPA that can be utilized to populate potential Capital Improvement Projects.

The Draft Electrical Systems Study will be reviewed and analyzed by **Troy Hedlund,** as well as **Monte Richard**, prior to being submitted to SEJPA.

Using the power system software, time current curves (TCCs) will be generated for each protection device in the system. The TCCs are used to determine the level of coordination and will be used to identify potential modifications to protection settings to reduce arc flash incident energy levels.

Draft Report Presentation and Arc Flash Philosophy Meeting

Shortly after submitting the Draft Electrical Systems Study, we will conduct a presentation with SEJPA staff to review the contents of the study. As part of the presentation, Carollo will provide a brief overview of how to understand time-current curves, arc flash, and short circuit results, as well as equipment protection philosophy and relay/breaker settings. Carollo's objective is to make sure that all SEJPA staff reviewing the draft study and participating in the project have a fundamental understanding of the technical issues that affect the results and implementation of the study. From past experience, this effort has proven instrumental in facilitating the participation, contribution, and buy-in of SEJPA staff.

As part of the Draft Electrical Systems Study presentation, Carollo will conduct an Arc Flash Philosophy review, in which SEJPA and Carollo will work together to agree upon protective device setting adjustments to maximize safety and reliability. The team will provide practical recommendations to achieve SEJPA's safety goals within the parameters of arc flash standards and will evaluate areas of concern by looking at each of the arc flash results on a case-by-case basis. Carollo's team will encourage participation from SEJPA staff in this and all discussions. This is an important collaborative process with the SEJPA to develop practical solutions that meet operational needs and reduce arc flash incident energy levels. As a result, **SEJPA will receive experienced, unbiased advice on how best to reduce arc flash incident energy levels, while also maintaining the reliability of the process and electrical equipment.**

Compile Final Electrical Systems Study

Carollo will incorporate the philosophies from the Arc flash Philosophy discussion into the coordination study and provide time-current curves indicating proposed coordination. Updated time-current curves will demonstrate the protection philosophies and settings to mitigate arc flash exposure, as discussed in the Arc flash Philosophy meeting. A discussion about remaining arc flash and coordination issues will be included with possible mitigation options that the SEJPA may want to consider for future work or upgrades.

A settings table (see below) will be developed to summarize all settings for each protective device for the SEJPA's records. The table will include the device identification, type, style, rating, functions, and all settings for each device at every piece of equipment. These settings tables provide a consolidated asset management resource for SEJPA to adjust their protection equipment in the field and verify settings in the future.

As part of the Final Electrical Systems Study, Carollo will provide revised arc flash bus detail sheets, an arc flash evaluation summary spreadsheet, and an arc flash report summarizing the arc flash study, including conclusions and mitigation recommendations. The final study will also include the original calculations of the short circuit study. Report files will be provided to the SEJPA in Microsoft Word and .pdf, one-lines in .pdf and .dxf format, and the arc flash model will be provided to the SEJPA for future edits and updates.

The Final Electrical Systems Study will be reviewed, analyzed, and stamped by Troy Hedlund, prior to being submitted to SEJPA.

LVCB ID	Manufacturer	Model	Size/ Frame	Amps	Model	Sensor/ Frame	Rating Plug	Pickup Setting	Trip (Amps)	Curve	Pickup Setting	Trip (Amps)	Band	I^xt	Pickup	Trip (Amps)
52-1	Square-D	NW40H3	4000	4000	MICROLOGIC 6.0	4000		0.78	3120	0.5	2.5	7800	0.1	OUT		
52-11	Square-D	NW32H3	3200	3200	MICROLOGIC 6.0	2500		1	2500	0.5	1.5	3750	0.1	OUT	2	5000
52-21	Square-D	NW16H3	1600	1600	MICROLOGIC 6.0	1000		1	1000	0.5	2	2000	0	OUT	2	2000
52-22	Square-D	NW16H3	1600	1600	MICROLOGIC 6.0	1000		1	1000	8	4	4000	0.1	OUT	4	4000
52-23	Square-D	NW08H3	800	800	MICROLOGIC 6.0	800		1	800	24	8	6400	0	OUT	6	4800
52-111	Square-D	MX	800	800	MICROLOGIC Std-MX	800	800	1	800	2	2	1600	0.1	IN	3	2400
52-112	Square-D	MX	800	800	MICROLOGIC Std-MX	800	800	1	800	2	2	1600	0.1	IN	3	2400
52-113	Square-D	MX	800	800	MICROLOGIC Std-MX	800	800	1	800	2	2	1600	0.1	IN	3	2400
52-12-9	Square-D	LX	600	600	MICROLOGIC Std-LX	250	250	1	250	14	8	2000	0.1	IN	6	1500
52-12-10	Square-D	LXI	600	600	MICROLOGIC Std-LX	250	200	0.75	150	2	2	400	0.1	IN	7	1400

The settings table provides a consolidated resource for verification that all protective devices settings are properly set in the field.

PHASE II
Arc flash Labeling

Based on the results of the arc flash calculations, Carollo will provide and install vinyl arc flash labels in accordance with SEJPA's standard format in the following locations:

- Each 480V panel board and disconnect.
- Each 208/240V panel board.
- Each motor control center section.
- Each switchgear section.
- Each medium voltage switch section.

PHASE III
Formal Arc flash Training

Carollo will provide arc flash training services for the SEJPA led by our engineers and arc flash training staff. Our proposed training program is unique in the industry. Carollo's team will work with plant operators and maintenance personnel to provide a customized, hands-on training program specifically designed for SEJPA facilities and staff. Once the study is complete, we will conduct a final training session tailored to the actual discovered hazards. Carollo will tailor the training materials to describe actual safety issues and recommended procedural considerations for the Water Reclamation Facility, not hypothetical conditions at arbitrary industrial plants. A PPE overview will be provided and integrated with a discussion of actual plant hazards. Carollo will deliver hard and electronic copies of the training manuals. Continuing Education Units (CEUs) and certificates of completion will be provided for attendees.

> "The arc flash studies and training provided by Carollo for City of Yuma's operation and maintenance staff has allowed for the City's staff to understand the dangers associated with arc flash and provided them the necessary information to have the proper PPE when they are near or working on electrical equipment."
>
> —Mr. Jeremy McCall,
> *Utilities Division Manager*
> *City of Yuma*

Consultant Fee Estimate

The proposed cost for this project (presented on the following page) is based upon the level of effort to complete the work and the 2017 Carollo Fee Schedule.

WORK ELEMENT	Lead Project Professional	Project Professional	Assistant Professional	Document Processing/ Clerical	Total Labor Hours	Total Labor Cost	Project Equipment Communication Expense (PECE) Per DL Hour	Electrician (National Electric Works)	Other Direct Costs	Total Cost
Billing Rate	*$215*	*$195*	*$155*	*$100*			*$11.70*			
Data Collection (RFP Part 2 Subtask 5 and 6)										
Data Collection and SDG&E Coordination	20	40	48	0	108	$19,540.00	$1,263.60	$8,120.00	$120.00	$29,043.60
Subtotal	*20*	*40*	*48*	*0*	*108*	*$19,540.00*	*$1,263.60*	*$8,120.00*	*$120.00*	*$29,043.60*
System Modeling (RFP Part 2 Subtask 7)										
Prepare Electrical System Computer Model	4	12	32	0	48	$8,160.00	$561.60	$-	$-	$8,721.60
Subtotal	*4*	*12*	*32*	*0*	*48*	*$8,160.00*	*$561.60*	*$-*	*$-*	*$8,721.60*
Short Circuit, Protective Device Coordination, and Arc Flash Hazard Study (RFP Part 2 Subtasks 8, 9, 10)										
Short Circuit and Equipment Verification Study	0	8	24	0	32	$5,280.00	$374.40	$-	$-	$5,654.40
Protective Device Coordination Study	0	8	24	0	32	$5,280.00	$374.40	$-	$-	$5,654.40
Arc Flash Hazard Study	0	8	16	0	24	$4,040.00	$280.80	$-	$-	$4,320.80
Subtotal	*0*	*24*	*64*	*0*	*88*	*$14,600.00*	*$1,029.60*	*$-*	*$-*	*$15,629.60*
Reporting and Analysis Summary (RFP Part 2 Subtask 11.1 through 11.10)										
Prepare Draft Report and Recommendations	16	16	32	8	72	$12,320.00	$842.40	$-	$-	$13,162.40
Draft Review Meeting and Arc Flash Philosophy Meeting	8	4	12	0	24	$4,360.00	$280.80	$-	$120.00	$4,760.80
Subtotal	*24*	*20*	*44*	*8*	*96*	*$16,680.00*	*$1,123.20*	*$-*	*$120.00*	*$17,923.20*
Final Report (RFP Part 2 Subtasks 11.11, 11.12)										
Prepare Final Report	4	12	20	6	42	$6,900.00	$491.40	$-	$70.00	$7,461.40
Subtotal	*2*	*4*	*32*	*8*	*46*	*$6,970.00*	*$538.20*	*$-*	*$530.00*	*$7,461.40*
Task 5 - Arc Flash Label Production and Application (RFP Part 2 Subtask 10.5, 6.8.1, 6.8.2)										
Arc Flash Label Production	0	0	8	8	16	$2,040.00	$187.20	$-	$130.00	$2,357.20
Arc Flash Label Application and Relay Setting	2	4	24	0	30	$4,930.00	$351.00	$1,600.00	$400.00	$7,281.00
Subtotal	*24*	*4*	*4*	*3*	*35*	*$6,860.00*	*$409.50*	*$1,600.00*	*$2,400.00*	*$9,638.20*
Electrical Safety Training (RFP Part 2 Subtask 12)										
NFPA 70E Handbook (15)	0	0	0	0	0	$-	$-	$-	$2,400.00	$2,400.00
Electrical Safety Training	24	4	4	3	35	$6,860.00	$409.50	$-	$-	$7,269.50
Subtotal	*24*	*4*	*4*	*3*	*35*	*$6,860.00*	*$409.50*	*$-*	*$2,400.00*	*$9,669.50*
TOTAL ALL TASKS (RFP Part 2)	**78**	**116**	**244**	**25**	**463**	**$79,710.00**	**$5,417.10**	**$9,720.00**	**$3,240.00**	**$98,087.10**

Appendix

CONTRACT COMMENTS

In accordance with the requirements of SEJPA'S Request for Proposals, Carollo Engineers has reviewed the Sample Agreement and is prepared to sign if our proposal is accepted by SEJPA. However, during negotiations, we would like SEJPA to take the following suggested additions/clarifications under consideration.

Contract Comments:

- ***New Section 3.4.9:***

"3.4.9 In providing opinions of cost, financial analyses, economic feasibility projections, and schedules for potential projects, CONSULTANT has no control over cost or price of labor and material; unknown or latent conditions of existing equipment or structures that may affect operation and maintenance costs; competitive bidding procedures and market conditions; time or quality of performance of third parties; quality, type, management, or direction of operating personnel; and other economic and operational factors that may materially affect the ultimate project cost or schedule. Therefore, CONSULTANT makes no warranty that AUTHORITY's actual project costs, financial aspects, economic feasibility, or schedules will not vary from the CONSULTANT's opinions, analyses, projections, or estimates."

- ***Section 4.1.1 (c), (vii):***

In the 3rd line, replace "material modification" with "reduction in coverage."

- ***Section 5.5:***

Starting at the end of the 2nd line, replace "as a result of" with ", in accordance with Section 5.1."

- ***New Sections 5.8 and 5.9:***

"5.8 In the event the subject action alleges negligence on the part of CONSULTANT and/or AUTHORITY, or any third party not under contract with CONSULTANT, CONSULTANT's obligations regarding AUTHORITY's defense under this section includes only the reimbursement of AUTHORITY's reasonable defense costs incurred to the extent of CONSULTANT's negligence as expressly determined by a final judgment, arbitration, award, order, settlement, or other final resolution.

5.9 CONSULTANT shall not be responsible for warranties, guarantees, fitness for a particular purpose, breach of fiduciary duty, loss of anticipated profits or for economic, incidental or consequential damages to AUTHORITY or any third party arising out of breach of contract, termination, or for any other reason whatsoever. Additionally, CONSULTANT shall not be responsible for acts and decisions of third parties, including governmental agencies, other than CONSULTANT's subconsultants, that impact project completion and/or success."

TEAM MEMBER RESUMES

Resumes for our team members are presented herein. We will not substitute team members without SEJPA's prior approval.

Jeffrey A. Weishaar

Education

MS Environmental Engineering, University of Missouri, Rolla, 2006

BS Civil Engineering, University of Missouri, Rolla, 2004

Licenses

Civil Engineer, California

Professional Affiliations

American Society of Civil Engineers

Water Environment Federation

Mr. Weishaar, a civil and environmental engineer with Carollo Engineers, has worked on various wastewater projects including elements of analysis, design, and construction. His experience includes:

Relevant Experience

- Project engineer for the City of Barstow, California. Wastewater Treatment Plant Improvements Phase 1 Project. This project covered multiple subtasks including condition assessment of the wastewater treatment plant, project development and ranking, process modeling, preliminary design and final design. Phase 1 project also included an Electrical System Study that included included fault current analysis, protective device coordination, arc flash incident energy calculations, and arc flash label development and installation. The Phase 2 construction project will include upgrades to the primary clarifiers and aerobic digesters as well as a new influent pump station, a new electrical control building and additional SCADA, electrical, and instrumentation upgrades.

- Project engineer for the Regional Treatment Plant Headworks Upgrade for the South Orange County Wastewater Authority, California. The project involved production of drawings and contract documents for replacement of the headworks building roof; rehabilitation of the existing mechanical bar screens; installation of new conveyors, screenings dewatering equipment, level measurement equipment in the existing channels for bar screen controls, and gas analyzers; channel concrete repair; odor control; and electrical and instrumentation modifications and upgrades. Roof replacement also incorporated a temporary odor control system with focus on the contractor's responsibility in capturing odors. He provided construction management services, submittal review, and responses to contractor requests for information.

- Project engineer for the Coastal Treatment Plant Return Activated Sludge Flow Control Analysis for the South Orange County Wastewater Authority, California. The plant operates two sets of aeration basins, with different depths and no automatic control for adjusting the flow split and flow rate of return activated sludge (RAS). The analysis evaluated methods of improving the existing RAS system. The project also included recommendations for six improvement projects with various degrees of cost and difficulty. The client approved three of these for design.

- Project engineer for the Coastal Treatment Plant Return Activated Sludge (RAS) System and Headworks Upgrades for the South Orange County Wastewater Authority, California. Preliminary design included identification of reliable rotary drum screen manufacturers for raw wastewater screening including customer surveys, site visits, cost estimating, and detailed review of manufacturer specifications. Plans and specifications were prepared for replacement of the existing drum screens, replacement of the headworks influent forcemain knife gate valves, and other minor modifications to the headworks building. The plans and specifications also included design improvements to the return activated sludge system as previously identified in the RAS Flow Control Analysis. He provided construction management services, submittal review, and responses to contractor requests for information.

- Project engineer for the Coastal Treatment Plant Aeration Blower Capacity Analysis for the South Orange County Wastewater Authority, California. The plant operates two sets of aeration basins with different depths, air demands, and blower discharge pressures. The study involved analysis of the existing blowers, plant flows, aeration basin loading, and dissolved oxygen levels to determine the air demands for the various configurations of aeration basin operation. Blower upgrade alternatives were developed and analyzed for life-cycle costs based on capital and annual costs for power and cooling water consumption. Installation of

turbine blowers was recommended to allow better control of air delivery to the aeration basins.

- Project engineer for the El Estero Wastewater Treatment Plant Screening Evaluation for the City of Santa Barbara, California. The project evaluated screening technologies to replace the existing grinder and auger system at the influent pump station facility. Over a dozen screens were evaluated to fit into a high-flow, low-head loss environment with limited installation requirements. Use of multi-rake climbers screens, over 20 feet in height, was recommended to remove debris from the incoming flow. The recommendations came after extensive evaluations including interviews of existing facilities that have the screens in service.

- Project engineer for the Water Reclamation Plant Headworks Upgrades for the City of San Clemente, California. The design included drawings and contract documents for concrete repair and relining of the headworks influent channels and grit basins and replacement of mechanical bar screens. Relining of channels required design of a temporary bypass facility, including manual bar screens and odor control, with focus on the contractor's responsibility to maintain and operate the facility. He provided construction management services, submittal review, and responses to contractor requests for information.

- Staff engineer for the Aeration Header Replacement for the Montecito Sanitary District, California. The project involved evaluating and replacing the existing aeration header pipeline for the activated sludge process with stainless steel pipe and fittings to reduce corrosion. Drawings, bid documents, and specifications were prepared, submitted, and are currently being reviewed for approval.

- Staff engineer for the Wastewater Treatment Plant Upgrade for the City of Santa Maria, California. Detailed cost estimates were updated for the addition and replacement of multiple processes within the treatment plant. Construction of a new digester and trickling filter were estimated along with replacement of the existing sludge drying beds. An estimate for new percolation ponds was developed including size and location of the ponds and grading of the existing land.

- Project manager for the Water Reclamation Plant Expansion for the City of San Clemente, California. The preliminary and final design project will increase plant recycled water production capacity from 2.2 to 4.4 mgd. Preliminary design responsibilities included process evaluation of disinfection processes and flow balancing to evaluate on-site storage of secondary effluent prior to tertiary treatment. Final design responsibilities included civil and yard piping, mechanical and process design for drawing production, specification preparation, and cost estimating.

- Project engineer for the San Luis Rey Water Reclamation Plant for the City of Oceanside, California. The preliminary and final design project will increase plant recycled water production capacity from less than 0.5 to 1.5 mgd and includes master planning to an ultimate capacity of 7.5 mgd. Specific responsibilities included process evaluation and life-cycle cost analysis for tertiary and disinfection processes during preliminary design. Final design responsibilities included civil work, yard piping, mechanical and process design for drawing production, specification preparation, and cost estimating.

- Project manager for the Coastal Treatment Plant Export Sludge Equalization Basin Design-Build Project for the South Orange County Wastewater Authority, California. The project included preliminary design of a sludge holding tank, export pumping station, and electrical building for storage and pumping of the Coastal Plant’s preimary and thickened sludges. the sludges are pumped approximately 4 miles to a nearby facility for processing. Preparation of the design-build procurement package included development of plans and specifications to a 60-percent completion level, preparation of the design-build agreement, agreement forms, and the request for proposals. Bids were received and evaluated from multiple design-build teams. Carollo is currently operating as the Owner’s representative in overseeing the final design and construction and providing inspection services.

Jeff R. Thornbury

Education

BS Civil Engineering, University of Arkansas, 1983

Licenses

Civil Engineer, Arizona

Professional Affiliations

American Society of Civil Engineers

National Society of Professional Engineers

Mr. Thornbury's 28 years of civil engineering and environmental experience allows him to anticipate challenges that arise during the course of any project. His commitment to providing cost-effective solutions by taking on a proactive role in projects will result in the completion of projects on time and within budget. He encourages an open line of communication between the client and project manager in order to create innovative solutions to challenges.

His experience ranges from water and wastewater engineering design, permitting, water resources and stormwater management, facility design, water and wastewater process, to construction design build. He has been project manager and principal in charge throughout the southwestern United States on more than 120 environmental management projects, 150 wastewater and civil/environmental projects, and 80 hazardous and solid waste management projects.

In addition to the work Jeff has done for the SEJPA, he has served as principal-in-charge or project director for numerous projects including:

Relevant Experience

• Principal-in-charge for the R.E. Badger Water Filtration Plant Electrical Distribution & Substation Improvements (J-1351) for the Santa Fe Irrigation District/San Dieguito Water District, Rancho Santa Fe, California. Led the electrical team who performed a preliminary Electrical System Study for the 40 mgd R.E. Badger Water Filtration Plant. The primary objectives of the preliminary Electrical System Study were to assess the condition of the plant's existing electrical service entrance and power distribution system, estimate arc flash incident energy levels, and define the scope of the Electrical Distribution & Substation Improvements (J-1351) Project.

• Principal-in-charge for the Design of North City Pure Water Facility for the City of San Diego, California. This design-build project includes ozone, biologically activated carbon (BAC) filters, microfiltration (MF), reverse osmosis (RO), and ultraviolet (UV) advanced oxidation process (AOP) for California's first potable reuse project for reservoir water augmentation.

• Principal-in-charge for the Joint Facilities Master Plan, Project J-501, for the Santa Fe Irrigation Water District, California. The project included protective device coordination and fault current and arc-flash studies for the Cielo Pump Station, the San Dieguito Pump Station, and the R.E. Badger Water Filtration Plant.

• Principal-in-charge for the Irvine Ranch Water District, California, Rattlesnake Reservoir Chlorine Gas System Replacement. Carollo is providing engineering services to replace the existing chlorine gas system with a bulk sodium hypochlorite system. Developed and evaluated alternative layouts for the new sodium hypochlorite storage and feed system, including three initial layouts for tank and pumping configurations.

• Project director for the Encina Wastewater Authority, California, preliminary and final design of the Secondary Aeration Basin Rehabilitation project at the Encina Water Pollution Control Facility. This project adds anaerobic selectors to the activated sludge process to improve secondary sludge settling for a capacity of 40.5 mgd. Baffle walls and mixers are added to the existing aeration basins to create anaerobic zones. The project also includes rehabilitation of the basins influent channels and washdown water system, gate replacement, and addition of a new standby RAS pump. Aeration basin covers are modified to provide improved access and safety provisions. Carollo's WASAC process was evaluated to identify potential energy and chemical savings and overall feasibility.

• Principal-in-charge for the RP-4 Pump Station Design project for the Inland

Empire Utilities Agency, California. The project consisted of upgrading an existing pump station by adding three 300-hp vertical turbine pumps and constructing a new booster pump station with five 300-hp horizontal split case pumps and approximately 800 feet of 36- and 48-inch diameter discharge pipeline.

- Principal-in-charge for the Rincon del Diablo Municipal Water District, California, Rockhoff Pump Station Replacement. This project consisted of the replacement of a pump station building and station modification to replace vertical turbine pump units with centrifugal skid-mounted pumps.

- Principal-in-charge for the Otay Water District, California, 870-2 Pump Station Replacement. Carollo designed a pump station facility that feeds two separate pressure zones one of which serves as a recirculation line for a 37 MG reservoir. An extensive cost analysis of life cycle costs and system reliability was performed looking at gas vs. electric drive pumps. Site constraints required special attention to keep all facilities within the property limits yet also plan for a future build-out phase that would double the facility's pumping capacity and accommodate future transmission mains crossing the site.

- Principal-in-charge for the Miramar Pump Station Condition Assessment project for the San Diego County Water Authority, California. The project included condition assessment and renewal decision analysis for the pump station.

- Client services manager for the Carlsbad Desalination Conveyance Pipeline and Flow Control Facility for the San Diego County Water Authority, California.

- Principal-in-charge for the Comprehensive Integrated Facilities Master Plan for the Padre Dam Municipal Water District, California. The District manages a potable water system that includes 22 primary pressure zones, 28 water storage reservoirs at 26 sites, 16 booster pumping stations, two imported water connections, and 18 pressure regulating stations. This Facility Plan update included water, wastewater, and recycled water master plans to obtain accurate and usable documents that can guide the District with budgeting and implementation of capital improvement projects.

- Project director for the Wastewater Treatment and Stormwater Investigation and Design for United Airlines at San Francisco International Airport, California. The project included planning, investigations, design, and construction efforts related to stormwater collection, detention, and treatment at the San Francisco International Airport Aircraft Maintenance Facilities. The study area totaled 300 acres, covering onsite and offsite airport properties.

- Principal-in-charge for the 450/680 Recycled Water Reservoir and Pump Station for the Otay Water District, San Diego, California. The project included planning, design, and construction support services for a 12 million gallon recycled water steel reservoir, a 17-mgd pump station, 3,300 linear feet of CMLC pipelines, valve and meter vaults, yard piping, and access.

- Project director for the Reynolds Desalination Facility Expansion for the Sweetwater Authority, San Diego, California. The project included engineering design, construction management, permitting, and an environmental management (EIR) contract for the Authority's groundwater desalination facility.

- Principal-in-charge for construction management of the $300 million Alvarado Water Treatment Plant Expansion for the City of San Diego, California.

- Project director for the environmental management (EIR) and engineering design contracts for the San Vicente Pipeline Project for the San Diego County Water Authority, California. The project included a 3-year contract supporting the $150 million project.

- Program director for the As-Needed Storm Water Planning and Research for Caltrans. This $12 million planning and research task order contract related to stormwater planning and research for the California Department of Transportation.

- Principal-in-charge for an As-Needed Contract for the County of San Diego, California. This three-year, $5 million job order contract involved planning, engineering design, and construction of water, stormwater, wastewater, and operational facilities.

Troy Hedlund

Education

MBA Business Administration, University of Colorado, 2008

BS Electrical Engineering, Colorado School of Mines, 2002

Licenses

Professional Engineer, Colorado

Electrical Engineer, California

Professional Affiliations

Institute of Electrical and Electronics Engineers (IEEE)

International Society of Automation (ISA)

Mr. Hedlund joined Carollo Engineers in 2002 and has experience as a project manager and as an electrical and instrumentation engineer in the design of water and wastewater treatment plants, large-scale solar photovoltaic systems, and cogeneration facilities. Recent project experience includes:

Relevant Experience

- Lead electrical and instrumentation engineer for the WWTP Electrical System Study for the City of Barstow, California. The study included fault current analysis, protective device coordination, arc flash incident energy calculations, and arc flash label development and installation. After construction of the Wastewater Treatment Plant Improvements Phase 1 Project was completed, the team provided new arc flash hazard labels reflecting the arc flash incident energy levels associated with the modified plant electrical system.

- Project manager for the R.E. Badger Water Filtration Plant Electrical Distribution & Substation Improvements (J-1351) for the Santa Fe Irrigation District/San Dieguito Water District, Rancho Santa Fe, California. Performed a preliminary Electrical System Study for the 40 mgd R.E. Badger Water Filtration Plant. The primary objectives of the preliminary Electrical System Study were to assess the condition of the plant's existing electrical service entrance and power distribution system, estimate arc flash incident energy levels, and define the scope of the Electrical Distribution & Substation Improvements (J-1351) Project.

- Lead electrical and instrumentation engineer for the Charles A. Meyer Desalination Plant Reactivation, City of Santa Barbara, California. Performed an Electrical System Study for the 11 mgd El Estero Wastewater Treatment Plant. The primary objective of the Electrical System Study was to create a detailed comprehensive software model of the plant's existing electrical system, assess the condition of the service entrance and power distribution system, estimate arc flash incident energy levels, and coordinate with the Design-Build Contractor to produce an accurate model of the El Estero Wastewater Treatment Plant and Charles A. Meyer Desalination Facility (common electrical service/system).

- Lead electrical and instrumentation engineer for the San Clemente Water Reclamation Plant Recycled Water System Expansion Project, San Clemente, California. The project included the replacement of the electrical distribution and process control systems associated with the existing water reclamation facilities. In addition to serving the existing facilities, the new electrical distribution and process control systems also serve new facilities designed to increase the plant capacity from 2.2 mgd to 4.4 mgd. The plant treats secondary effluent from an adjacent wastewater treatment plant for distribution as reclaimed water.

- Project manager and lead electrical and instrumentation engineer for the City of San Diego Public Utilities District, California, Pump Stations 1 and 2 Electrical Upgrades Project. The project consisted of replacement of medium- and low-voltage electrical equipment, including 4.16-kV switchgear and motor starters, 480-V switchgear, diesel engine generators, and motor control centers at two of San Diego's most critical raw sewage pump stations, and reconfiguring the facility control systems to monitor and control the new electrical equipment. In addition to the electrical and control system upgrades, the project also included the design of a new electrical building.

- Lead electrical and instrumentation design engineer for the El Estero Wastewater Treatment Plant Influent Screen Improvements Project for the City of Santa Barbara, California. The project included the design of new influent bar screens, a screenings conveyor, and washer/compactor units and the design of electrical, instrumentation, and controls required to accommodate the new equipment installed with the project.

Troy Hedlund

- Electrical design engineer for the Sunset View Mobile Home Park Lift Station for Owen Engineering, Englewood, Colorado. The project consisted of the design of a new sewage lift system, which included a duplex lift pump system, a utility service entrance, and a standby generator.

- Lead instrumentation and controls design engineer for the Baker Water Treatment Plant for the Irvine Ranch Water District, Irvine, California. The project included the design of a complete SCADA and process control system and instrumentation associated with a new 28-mgd surface water membrane filtration plant. Unit processes comprising the plant include a 1,350-hp remote raw water pump station, an 1,800-hp membrane feed pump station and forebay complex, a pressurized membrane filtration system consisting of 14 individual membrane racks and associated membrane clean-in-place chemical systems, ultraviolet disinfection, and a 1,500-hp product water pump station. The project also included the design of membrane system waste/solids handling consisting of chemically enhanced flocculation and sedimentation. The plant SCADA and process control system consists of distributed Modicon Quantum and M340 PLCs connected to dual fiber-optic communication networks which isolate PLC-to-SCADA and PLC-to-PLC messaging, as well as network interfaces with vendor-provided control systems for the membrane and ultraviolet disinfection systems.

- Lead electrical and instrumentation design engineer for the Cater Water Treatment Plant Chain and Flight Replacement Project for the City of Santa Barbara, California. The project included replacement of the existing chain and flight system and design of the modifications to existing plant power and control systems required to accommodate the new chain and flight equipment.

- Lead electrical and instrumentation design engineer for the Cater Water Treatment Plant Advanced Treatment Project for the City of Santa Barbara, California. The project included installation of ozone, dewatering, and various new chemical storage and feed facilities and design of a new electrical service and the integration of the new facilities into the existing plant SCADA/PLC network.

- Lead instrumentation and controls engineer for the development of design/build contract documents for the Irvine Ranch Water District, California, Wells 21 and 22 Reverse Osmosis Treatment Plant. The project included development of 30-percent design documents in accordance with the Irvine Ranch Water District, including technical instrumentation specifications and the facility control system architecture.

- Project manager for the Henry C. Garnett Water Purification Plant Service Entrance Upgrade Project for the Kern County Water Agency Improvement District No. 4, Bakersfield, California. The project included the design of a 115-kV substation consisting of two 14-MVA substation transformers, and a 4.16-kV power distribution system consisting of remote controlled 4.16-kV switchgear, two 2.0-MW standby diesel engine generators, connection of a 1.0-MW solar PV system, and extensive coordination with PG&E for interconnection of the onsite generation sources.

- Lead electrical, instrumentation, and control design engineer for the 52-mgd Henry C. Garnett Water Purification Plant Expansion for the Kern County Water Agency Improvement District No. 4, Bakersfield, California. The project included the design of new electrical distribution, controls, and fiber-optic SCADA/PLC systems for the plant expansion. The design of the plant expansion consisted of new facilities such as a raw water pump station, flocculation and sedimentation processes, mixed-media filtration with automatic backwash, and extensive chemical storage and feed.

- Electrical, instrumentation, and control design engineer for the Palmdale Water Treatment Plant Improvements Project for the Palmdale Water District, California. The project included the design of a new sludge removal system, a 480-V switchgear, a 1,000-kW standby engine generator, extensive modifications to the existing plant 480-V electrical distribution system, site electrical, a new rotating screen on the plant influent water line, site lighting design, and a complete replacement of the existing instrumentation and control system and fiber-optic SCADA/PLC communication networks.

Monte Richard

Education

MS Electrical Engineering, Colorado School of Mines, 2009

BS Electrical Engineering, Colorado School of Mines, 2003

Licenses

Professional Engineer, Arizona, California, Colorado, Florida, Oregon, Washington, Illinois

Professional Affiliations

Institute of Electrical and Electronic Engineers

Illuminating Engineering Society of North America

Mr. Richard brings more than 14 years of experience in electrical and control system engineering and design. His focus is in electrical distribution systems, process control, and industrial instrumentation for water and wastewater facilities and infrastructure. He works on a company wide basis with plant operations and managers to test, start-up, optimize and troubleshoot water and wastewater treatment plants. His experience includes:

Electrical Safety and Arc Flash Studies

- Technical advisor for the R.E. Badger Water Filtration Plant Electrical Distribution & Substation Improvements (J-1351) for the Santa Fe Irrigation District/San Dieguito Water District, Rancho Santa Fe, California. Performed a preliminary Electrical System Study for the 40 mgd R.E. Badger Water Filtration Plant. The primary objectives of the preliminary Electrical System Study were to assess the condition of the plant's existing electrical service entrance and power distribution system, estimate arc flash incident energy levels, and define the scope of the Electrical Distribution & Substation Improvements (J-1351) Project.

- Technical Advisor for the Charles A. Meyer Desalination Plant Reactivation, City of Santa Barbara, California. Performed an Electrical System Study for the 11 mgd El Estero Wastewater Treatment Plant. The primary objective of the Electrical System Study was to create a detailed comprehensive software model of the plant's existing electrical system, assess the condition of the service entrance and power distribution system, estimate arc flash incident energy levels, and coordinate with the Design-Build Contractor to produce an accurate model of the El Estero Wastewater Treatment Plant and Charles A. Meyer Desalination Facility (common electrical service/system).

- Lead electrical engineer for data collection, short circuit studies, protective device coordination, and arc flash hazard analysis for the City of Thornton, Colorado, Wes Brown Water Treatment Facility. Carollo worked with the City of Thornton to establish a detailed method of procedure for conducting the electrical system studies. In addition to the electrical system studies, condition assessment reports on all major equipment investigated during the field verification were performed. Upgrade projects were recommended and cost estimates were provided for integration into the Capital Improvements Project planning document. Arc flash labeling and NFPA 70E safety training was provided to staff upon completion of the electrical system studies.

- Project manager and lead electrical engineer for the City of Aurora, Colorado, arc flash studies for over 30 facilities. The project includes field investigations to create fault current studies, protective device and coordination studies, Arc Flash and NFPA 70E training, and arc flash studies for each of the City's water and wastewater treatment plants, as well as all City distribution facilities including source of supply facilities, lift stations, and pump stations. The facilities range from single pump installations up to eight 800-hp medium-voltage pumps. In addition to the electrical system studies, condition assessment reports on all major equipment investigated during the field verification were performed. Upgrade projects were recommended and cost estimates were provided for integration into the Capital Improvements Project planning document. Arc flash labeling and NFPA 70E safety training was provided to staff upon completion of the electrical system studies.

- Instructor for the Arc Flash and Electrical Safety training for the City of Santa Barbara, California, Cater Water Treatment Plant staff. He conducted two 8-hour training sessions in accordance with NFPA 70E, Electrical Safety in the Workplace. Attendees of the course were presented with Continuing Education Units (CEUs) for their attendance and participation.

- Lead electrical engineer for data collection, short circuit studies, protective device coordination, and arc flash hazard

analysis for the Aqueduct Water Filtration Plant owned by Los Angeles Department of Water and Power (LADWP), California. The facility is a 625-mgd water filtration facility. Carollo and LADWP have established a tailored approach to conducting the electrical system studies that meets the stringent standards, schedule, and requirements of LADWP. In addition to the electrical system studies, condition assessment reports on all major equipment investigated during the field verification were performed. Upgrade projects were recommended and cost estimates were provided for integration into the Capital Improvements Project planning document.

- Lead electrical engineer for the Los Angeles Department of Water and Power, California, arc flash studies for various facilities. The project is ongoing and includes the full field investigation as well as load study, shock hazard analysis, arc flash hazard analysis, and protective device coordination studies for various LADWP pumping stations.

- Lead electrical engineer for the City of Aurora, Colorado, arc flash studies for over 30 facilities. The project includes field investigations to create fault current studies, protective device and coordination studies, and arc flash studies for each of the City's water and wastewater treatment plants, as well as all City distribution facilities including source of supply facilities, lift stations, and pump stations. The facilities range from single pump installations up to eight 800-hp medium-voltage pumps. In addition to the electrical system studies, condition assessment reports on all major equipment investigated during the field verification were performed. Upgrade projects were recommended and cost estimates were provided for integration into the Capital Improvements Project planning document.

- Project manager and lead engineer for an electrical system study for the City of Fort Collins, Colorado, Mulberry and Drake Water Reclamation Facilities and LaPorte Water Treatment Facility. The project included a field investigation as well as a load study, shock hazard analysis, arc flash hazard analysis, and protective device coordination studies. Several workshops were held with the client in order to establish a standard electrical safety philosophy. A document management plan was provided to assist the client in keeping the documents current as required by applicable codes and standards. Provided arc flash training to staff upon completion of the studies.

- Lead electrical engineer for the City of San Diego, California, Influent Pump Stations No. 1 and No. 2 electrical system studies. This design-build project included coordinating with contractors during field investigation of both facilities. Electrical system studies were developed for each facility including the, arc flash study, fault current study, and protective device study.

- Electrical and design engineer for the Santa Fe Irrigation District, California, Joint Facilities Master Plan and Arc Flash Analysis. The project consisted of conducting protective device coordination, fault current studies, and arc flash studies for three of the District's facilities, including the Cielo Pump Station, San Dieguito Pump Station, and the R.E. Badger Water Filtration Plant. Recommendations were provided to improve the arc flash safety along with cost estimates for the associated projects.

- Performed a quality management check on the electrical system study for the City of Santa Barbara, California, Water Treatment Facility.

- Performed a quality management check on the electrical system study for the City of Boulder, Colorado, Wastewater Treatment Facility.

- Performed a quality management check on the electrical system study for the City of Prescott, Arizona, Airport Water Reclamation Facility.

- Electrical and instrumentation engineer for the City of San Clemente, California, Water Reclamation Plant Recycled Water System Expansion project. The project included the replacement of the electrical distribution and process control systems associated with the existing water reclamation facilities. In addition to serving the existing facilities, the new electrical distribution and process control systems also serve new facilities designed to increase the plant capacity from 2.2 mgd to 4.4 mgd.

- Lead control and instrumentation engineer for the City of Fresno, California. Responsible for providing SCADA planning and standards for the City's greenfield Southeast Surface Water Treatment Facility. The project included several I&C workshops to develop design and programming standards for the control and instrumentation system. Design included radio communications with a new offsite interconnection diversion structure and metering vault.

Brian Graham

Education

Bachelor of Science in Engineering (Environmental Engineering), University of Florida, Gainesville, Florida, 1986

Design and Optimization of WWTP Clarifiers, University of Florida, 1995

Design of Advanced Wastewater Treatment Systems for Nitrogen and Phosphorous Control, University of Florida, 1994

Biological Nitrogen and Phosphorus Removal: The Florida Experience III, University of Florida, 1993

Biological Nitrogen and Phosphorus Removal: The Florida Experience II, University of Florida, 1989

Licenses

Civil Engineer, 65413, California

Professional Engineer, Florida, Arizona, Texas, Arizona

Wastewater Operator Class III, California

Mr. Graham is an environmental engineer with 30 years of experience encompassing advanced water and wastewater treatment, wastewater process modeling, biological nutrient removal, reverse osmosis (RO) water treatment, biosolids management, master planning and computer simulation. He has been involved in numerous RO and advanced water and wastewater treatment projects throughout the United States. For Suez (previously known as United Water, Inc.) he completed a three-year assignment as Engineering Manager and Process Engineer for the 42 mgd West Basin Water Recycling Plant in El Segundo, California. Mr. Graham served as Suez' Senior Director of Operations for the West Division and as Director of Technical Assistance for Suez nationwide assisting with operation, engineering, process troubleshooting and due diligence activities.

Relevant Experience

- Process engineer for the Orange County Sanitation District Interim Strategic Plan for Update, California. Provided technical assistance to the update team in the areas of secondary treatment, nitrification, and disinfection. Provided process evaluation and treatment expertise to the 1998 Strategic Plan team.

- Process engineer for the DuPage County Public Works (DuPage) Wastewater Master Plan. This update provides a roadmap for DuPage's wastewater capital improvement program (CIP). The scope of the Plan is focused on identifying projects for DuPage's 12 mgd capacity Woodridge-Greene Valley (WGV) Water Reclamation Facility and 10 mgd capacity Knollwood Water Reclamation Facility.

- Project manager for the Ina Road Water Pollution Control Facility (WPCF) Treatment Plant Process Change and Expansion, Pima County, Arizona. Served as the project manager for the completion of the design of the process change and expansion project. This project included the design of the process upgrade and expansion from 25 mgd to 37.5 mgd. In addition, a new 50-mgd headworks expansion, primary clarifiers, Modified Ludzack-Ettinger (MLE) process for the nitrogen removal, and secondary clarification were added. An expansion to the engine generator power building, dissolved air floatation (DAF) thickener modifications, and a complete instrumentation and control system for the plant were other key parts of this $75 million facility.

- Task manager for the International Boundary and Water Commission (IBWC) Pilot Testing and Media Evaluation for Wastewater Treatment Plant, Arizona. Organized and directed the sand filter pilot testing and media evaluation for the Nogales, Arizona International wastewater treatment plant. The evaluation and testing included the inspection and evaluation of the existing automatic backwash filters, selection of media for pilot testing, interpretation of test results and recommendation of physical and operational modifications to the existing filters and additional filtration facilities.

- Senior process engineer/technical advisor for the IBWC Wastewater Facilities Plan, Ambos Nogales, USA/Mexico. This facilities plan addressed transboundary water quality issues such as wastewater collection and treatment, water reuse, and aquifer recharge with reclaimed effluent.

- Project director for the City of Jacksonville Arlington East Wastewater Treatment Plant Expansion, Jacksonville, Florida. Directed wastewater treatment plant expansion from 10 to 20 mgd. Responsibilities encompassed the overall process design for nitrification including preliminary treatment, aeration, and secondary clarification, as well as final design (plans and specifications). The design of this facility included full nitrification with provisions for future denitrification through the inclusion of a first anoxic basin or denitrifying filters.

- Project engineer for the City of Atlanta Water Reclamation Facility Upgrade Process Evaluation, Georgia. Served as one of the engineers responsible for the process evaluation and selection of the upgrade for the upgrade of the city's 100-mgd R.M. Clayton water reclamation facility (WRF) from secondary treatment to advanced treatment for phosphorus removal. Prepared process calculations and assisted in the writing of the preliminary design report.

- Project engineer for Onondaga County Wastewater Treatment Plant Evaluation, New York. Evaluated a proposal to convert the county's Metro treatment facility into an 85-mgd (400 mgd during wet weather flow) CASS™ continuous fill, intermittent discharge sequencing batch reactor (SBR). The evaluation also included analysis of an innovative dual sand filtration system to achieve total effluent phosphorus concentrations of less than 0.02 mg/L.

- Project engineer for the 70-mgd Big Blue River Wastewater Treatment Plant Process Evaluation, Kansas City, Missouri. This evaluation consists of determining the actual capacity of the combined treatment process, which includes primary clarification and secondary treatment via trickling filters. Additionally, solids handling facilities were evaluated to determine their capacity and the impact the side streams are having on the liquid treatment process.

- Project engineer for the City of Orlando Wastewater Treatment Plant Process Evaluation, Florida. One of the engineers responsible for the process evaluation during the preliminary engineering required to re-rate the city's Iron Bridge Phase II and III five-stage Bardenpho treatment plants from 24 mgd to 30 mgd (average annual daily flow).

- Engineer of record for the Central Regional (Gifford) Wastewater Treatment Plant Expansion Project, Indian River County, Florida. This work included the process evaluation and selection, preliminary design report preparation, and preparation of plans and specifications.

- Project engineer for the Borough of Ephrata Process Calculations and Design, Pennsylvania. Prepared the process calculations for the technology evaluation and conceptual design report. These evaluations included cold weather nitrogen control using diffused aeration, oxidation ditch technology, and SBRs. Additionally wrote the process design section of the design engineer's report for the borough.

- Project engineer for the City of Savannah Wastewater Treatment Plant Process Calculations, Georgia. Prepared the process calculations included in the design development report for submittal to the state of Georgia EPD for a 2.0-mgd, five-stage Bardenpho WWTP to meet effluent limits of 5 mg/l CBOD5, 5 mg/l TSS, 3 mg/l total nitrogen (TN), and 1 mg/l total phosphorus (TP).

- Project manager for United Water Florida Inc. Wastewater Treatment Plant Preliminary Design, Florida. Managed the Holly Oaks WWTP preliminary design report, which includes an evaluation of advanced biological nutrient removal alternatives including cyclical nitrogen removal, A2/O, and SBRs.

- Project manager for the Indian River County Wastewater Treatment Plant Process Design, Florida. Managed and designed the 2.0-mgd Modified Ludzack-Ettinger (MLE) South County WWTP involving process selection and design, hydraulic profile analysis, site layout, and site planning, as well as responsibility for production of the detailed drawings and specifications.

- Project engineer for the Indian River County Wastewater Treatment Plant Process Evaluation, Florida. As part of the western effluent disposal system design, evaluated the county's West Regional WWTP and assisted the county in incorporating an anoxic zone (Modified Ludzack-Ettinger process) into the WWTP to reduce the level of nitrates in the final effluent.

- Project engineer for Lee County Treated Water Reuse System Design, Florida. Designed a pressure filter treatment system and the pumping/transmission system required to reuse 1.7 mgd of treated reclaimed wastewater effluent for golf course irrigation for Lee County, Florida. Responsibilities included preliminary engineering, detailed design, plans, specifications, permitting, and shop drawing review.

Kevin Wolff

Education

BS Electrical Engineering, University of Missouri-Columbia, 2007

Licenses

Professional Engineer, Colorado

Mr. Wolff joined Carollo in 2014, and has since acquired much experience in electrical and instrumentation design for both water and wastewater treatment facilities. He is also frequently involved in performing short circuit studies, protective device coordination, and arc flash studies for water and wastewater facilities. He has in-depth knowledge of a variety of software packages including ETAP, SKM, AmpCalc, Caterpillar SpecSizer, and Cummins GenSize. Common tasks with automated sequences include conduit schedules, voltage drop worksheets, and load studies. Project experience includes:

Wastewater

• Electrical engineer for the City of Longmont, Colorado, Ammonia Treatment, and Biosolids Dewatering Improvements Project. This $30 million progressive design-build project included expansion of secondary treatment capacity and incorporation of side stream treatment to meet more stringent daily effluent ammonia limits. The project also included design and construction of a new centrifuge dewatering facility, including centrate handling and storage. Responsibilities included one-line diagrams, modifications to the existing electrical system, and standby power generation studies.

• Lead electrical engineer for the Town of Marana, Arizona, Water Reclamation Facility Expansion Project. Project included updating the influent pump station and adding a headworks facility, aeration basins, RAS/WAS pump station, and dewatering facility. Design included one-line diagrams, equipment elevations, conduit routing, and lighting design.

• Electrical and instrumentation design for the Little Blue Valley Sewer District Atherton Facility in Jackson County, MO. The project included the addition of a fine screen in the existing headworks facility.

Water

• Electrical engineer for Denver Water, Colorado, Northwater Treatment Plant. This greenfield project involves electrical, instrumentation and controls, security, and communications preliminary design for the new advanced water filtration facility. The plant will initially treat 10-150 mgd with expansion capabilities of up to 250 mgd. The design includes integration of new technologies and design approaches to streamline future design projects for Denver Water, and has accommodation for future unit processes such as ozonation, ultraviolet (UV) disinfection, and granular activated carbon (GAC) absorption. Responsibilities included analyzing electrical equipment design options for various design flow rates.

• Electrical and instrumentation design for Chino Basin Desalter Authority, California, Chino I Water Treatment Plant (WTP). Project consisted of adding a reverse osmosis train and a sulfuric acid pump system to an existing facility. Design included evaluating the existing equipment and modifying the system to accommodate the new equipment.

• Lead electrical engineer for an $80-million 7-MGD advanced water purification plant in Valencia, California that includes microfiltration (MF), reverse osmosis (RO), and high efficiency reverse osmosis (HERO), which is used to minimize the brine volume to only 43,000 GPD. Responsible for the design development, utility coordination, detailed design and cost estimation. The electrical service is 16.34 KV that is connected to a 27 KV rated switchgear with utility metering. The plant is fed by two 2500 KVA 16.34 to 480 V transformers that each feed a 3200 A main breaker.

• Electrical design for modifications at the Robert A. Weese Water Filtration Plant in Oceanside, California. Upgrades included a new electrical building and pump station, and replacement of existing electrical equipment.

Mining

• Electrical engineer for the Asarco Grupo Mexico Hayden Operations 3rd Stage Pump Station in Hayden, Arizona. Project involves the construction of a pump station to support the tailings from the Ray copper mine. Design included one-line diagrams, overhead power conductor routing, cable tray routing, and coordination amongst several consulting firms.

Electrical System Studies

• Electrical engineer for the City of Oklahoma City, short circuit studies, protective device coordination, and arc flash studies for the water and wastewater treatment facilities. Study included four wastewater treatment plants, three water treatment plants, one pump station, thirteen booster pump stations, and sixty lift stations. Tasks included field investigations, system modeling, calculations and analysis, written reports, and arc flash label production and application. Equipment assessments were also conducted for each facility and recommendations for replacement were made to the City.

• Lead electrical engineer for the City of Barstow, California, wastewater treatment plant electrical study update. The project included a field investigation to create a fault current study, protective device coordination study, and arc flash study for the facility. Responsibilities included guiding a younger engineer with field investigations, system modeling, and study calculations and analysis.

• Lead electrical engineer for an electrical system study for the City of Martinez, California, water treatment plant. The project included short circuit studies, protective device coordination studies, and arc flash studies for the plant. Responsibilities included system modeling, calculations and analysis, a written report, and arc flash label production.

• Electrical engineer for the City of Aurora, Colorado, Prairie Waters pump stations. The project included field investigations to create fault current studies, protective device coordination studies, and arc flash studies for each of the pump stations. Responsibilities included field investigations, system modeling, calculations and analysis, written reports, and arc flash label production and application.

• Electrical engineer for the City of Fort Collins, Colorado, electrical system study including short circuit, protective device coordination and arc flash studies for the Drake Water Reclamation Facility and the LaPorte Water Treatment Facility. Tasks included system modeling, calculations and analysis, written reports, and arc flash label production.

• Electrical engineer for an arc flash study update for South Valley Water Reclamation Facility in West Jordan, Utah. Project scope included 12.47kV gear, a 4.16kV system, 5 substations, and an extensive low voltage distribution system. Tasks included data collection, updating the system model, calculations, and a written report.

• Performed electrical system studies including short circuit, protective device coordination and arc flash studies for Manatee County, Florida. Study included three water treatment facilities and three pumping stations. Tasks included system modeling, all required calculations, written report, and arc flash label production.

Alan W. Mlakar

Education

BS Electrical Engineering, California Polytechnic Institute, 2009

Licenses

Electrical Engineer, California

Professional Affiliations

Institute of Electrical and Electronics Engineers

Mr. Mlakar has more than six years of experience in the water/wastewater industry including electrical system studies, short circuit analysis, coordination, load flow, arc-flash, SCADA integration, reviewing submittals, and designing power and controls systems. Recent project experience includes:

- Electrical engineer for the P1-123 Trunk Line Odor Control project engineering services during construction for the Orange County Sanitation District, California. The project included replacing existing Scrubbers 9 and 10 with new biotowers (bioscrubbers) to increase treatment capacity from 19,000 to 38,000 cubic feet per minute (cfm). Due to limited space at the site, the work was sequenced with a bypass to a second-stage bioscrubber that would remain, allowing the new bioscrubber to occupy the same space as the existing.

- Electrical engineer for the Edward C. Little Water Recycling Facility CIP Waste Discharge Project for the West Basin Municipal Water District, California. The project included the addition of a neutralization tank to neutralize the pH of the water before it is discharged to the sewer. He provided electrical and instrumentation design to extend the existing power/control systems to support new additions to the plant. His project responsibilities included performing electrical design including one lines, process and instrumentation diagrams, panel schedules, specifications, and conduit schedules.

- Electrical engineer for a short circuit study, coordination study, and arc flash study for the City of Sacramento Department of Utilities, California. His project responsibilities included performing the studies using SKM Power Tools® Software for 34 different sewage lift pump station sites. All pump station models were created in SKM Power Tools® Software.

- Electrical engineer for performing a short circuit study, coordination study, and arc flash study using ETAP software for a booster station electrical system for the City of Riverside, California.

- Electrical engineer for the Laguna Sanitation District, California. The project included expansion of the existing headworks facility. His project responsibilities included providing instrumentation design to extend the existing power/control systems to support new additions to the plant.

- Electrical engineer for the Irvine Ranch Water District, California. The project included replacing the existing chlorine gas disinfection system with sodium hypochlorite metering pumps. He provided electrical design to extend the existing power/control systems to support these new additions to the plant.

- Electrical engineer for the Irvine Ranch Water District, California. The project included replacing existing chlorine gas disinfection system with sodium hypochlorite metering pumps. His project responsibilities included providing electrical design to extend the existing power/control systems to support these new additions to the plant.

- Electrical engineer for the Water Resource Recovery Facility Improvements Phase 1A project for Carson City, Nevada. The project involved process upgrades for the existing headworks, primary sludge pump station, secondary clarifiers, a return activated sludge (RAS)/waste activated sludge (WAS) pump station, digesters, dewatering, and effluent facilities, as well as addition of two new bioreactors. Due to the increased plant loads, one of the two existing electrical utility services will be upgraded to serve a new service-entrance switchboard needed to support the new bioreactor facility. In addition, new standby generators (800kW and 2250kW) will be added to back up the plant's two electrical utility services. His project responsibilities included construction services support including review of submittals, shop drawing review, issuing design clarifications, and responding to requests for information (RFIs).

- Electrical engineer for the OCSD Plant P1-123 Trunk Line Odor Control Project for the Orange County Sanitation District, California. His project responsibilities included reviewing electrical and instrumentation submittals.

- Electrical engineer for San Luis Obispo County, California. The project involved a Greenfield wastewater treatment plant that included headworks, oxidation ditches, secondary clarifiers, tertiary filters, and ultraviolet disinfection. His project responsibilities included reviewing electrical and instrumentation submittals for the Los Osos Water Recycling Facility.

- Electrical engineer for performing a short circuit study, coordination study, and arc flash study using ETAP software for a group of administration buildings and a cogeneration facility for Orange County, California.

- Electrical engineer for performing a short circuit study, coordination study, and arc flash study using ETAP software for several pump stations and hydroelectric facilities for Calleguas, California.

- System Integrator for the Irvine Ranch Water District, California. The project involved expanding the Michelson Plant. He provided programming in Wonderware, troubleshooting, loop checks, and bench testing.

Sejal K. Mehta

Education

MS Electrical Engineering, University of Colorado, Denver, 2012

BT Electrical and Electronic Engineering, Jawaharlal Negru Technological University Hyderabad, 2010

Licenses

Electrical Engineer, California

Professional Affiliations

Institute of Electrical and Electronics Engineers

IEEE Power and Energy Society

Ms. Mehta has five years of electrical and instrumentation engineering experience including short circuit, coordination, load flow, arc-flash, lighting, and lightning protection studies. She has performed grounding analysis, soil resistivity tests and created and tested relay settings for several other projects ranging from low-voltage to high-voltage systems. Her projects have included:

Recent Experience

- Lead electrical engineer for the Electrical Studies of Department of Utilities for the City of Sacramento Department of Utilities, California. Project responsibilities included performing a short circuit study, coordination of study and arc flash studies for the 34 different sewage lift pump station sites. All the pump station models were created in SKM Power Tools Software and the power system studies were performed.

- Lead electrical engineer for the Arc Flash Mitigation for the Dry Creek and Pleasant Grove Wastewater treatment plant for the City of Roseville, California. The project scope included mitigating the arc flash hazard for the Dry Creek Plant to enhance personnel safety and easy maintenance of equipment. The arc flash analysis was performed using SKM Power Tools Software.

- Electrical engineer for the Electrical Arc Flash NFPA 820 Evaluation project for Central Marin Sanitary District 5 of Marin County, California. The project scope included to perform coordination study and reduce arc flash levels for the plant. The studies are performed using SKM Power Tools Software.

- Electrical engineer for the R.E. Badger Water Filtration Plant Electrical Distribution and Substation Improvements for the Santa Fe Irrigation District, Rancho Santa Fe, California. The project scope included performing a short circuit study analysis of the new system added to an existing system. The new system includes the replacement of aging electrical service and distribution equipment serving the plant. The short circuit study was performed using ETAP Power system study software.

- Electrical engineer for the Well Automation and Rehabilitation Project for the Mesa Water District, Costa Mesa, California The scope of the project was to retrofit facilities of Mesa Water's five clear wells and supporting site facilities. Her responsibilities included performing electrical design including one lines, panel schedules, specifications, and a conduit schedule of all the wells.

- Electrical engineer for the CSD Plant 1-124 Primary Treatment Upgrades project for the Orange County Sanitation District, California. Her responsibilities included review of electrical and instrumentation submittals.

- Electrical engineer for the Los Osos Water Recycling Facility Engineering Support during Construction for San Luis Obispo County, California. The project involved a Greenfield wastewater treatment plant that included headworks, oxidation ditches, secondary clarifiers, tertiary filters, and ultraviolet disinfection. Her project responsibilities included review of electrical and instrumentation submittals.

- Electrical engineer for the Wastewater Treatment plant Nitrification Facility Miscellaneous Improvement for the City of Las Vegas, Nevada. Her project responsibilities included the replacement of the variable frequency drives, heavy sludge scum pump replacement, and addition of emergency stops.

- Electrical engineer for the Pump Station Condition Assessment PLC and VFD Replacement for the City of Vista, California. Her project responsibilities included the variable frequency drive (VFD) and programmable logic controller (PLC) replacement design of three lift stations including one-line diagrams, panel elevations, and VFD schematics.

Previous Experience

- Lead electrical engineer for Exxon Mobil in Chad, Africa. Performed a coordination study for a distribution system to increase reliability. Proposed relay setting changes for Micom Relays such that the existing fuse saving scheme was disabled.

- Electrical engineer for the Big Rivers Electric Corporation, Meade and Bryan Road 161 kV Substation in Evansville, Kentucky. The project scope included replacing old ABB relays with the new Schweitzer line relays. Substation design included one-line, three-lines, DC schematics, wiring diagrams. Developing relay coordination and relay settings.

- Electrical engineer for Vectren Energy Delivery, Evansville, Indiana. Performed load flow study and power system analysis for impact on the distribution system caused by the addition of a 560kW generator at a wastewater treatment plant. Analysis was performed using ETAP power system software. Project included voltage drop analysis and short circuit study analysis and addition of transformer no load tap changer to lower the voltage drop.

- Electrical engineer for the Buffalo Dunes Wind Farm 345kV-34.5kV Substation, Garden City, Kansas. Project responsibilities included substation design that consisted of developing one-line, three-lines, DC schematics, wiring diagrams, relay settings. Additionally, provided relay testing and commissioning of the substation.

- Electrical engineer for the Black Eagle Dam Hydroelectric Power Plant, Great Falls, Montana. Created control schematics and wiring diagrams for switchgear, GSU, relay panels. Also performed field start-up services.

- Electrical engineer for the Vectren Energy Delivery-69kV:13.8kV Substation, Kentucky. Created an electrical design including one-lines, three line diagrams, DC schematics, and developed relay settings.

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AGENDA ITEM NO. 12

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

November 13, 2017

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: General Manager

SUBJECT: AWARD OF ENGINEERING SERVICES FOR SCADA UPGRADES PROJECT

RECOMMENDATION

It is recommended that the Board of Directors:

1. Authorize the General Manager to execute an Engineering Agreement with Carollo Engineers to provide engineering services for the SCADA Upgrades project for an amount not to exceed $71,229; and

2. Discuss and take action as appropriate.

BACKGROUND

San Elijo Joint Powers Authority (SEJPA) uses a Supervisory Control and Data Acquisition (SCADA) system to monitor and operate recycled water and wastewater infrastructure. The SCADA system is comprised of computer hardware and software, which communicate by fiber optics, private cellular network, or wireless radio link to convey information, alarms, and operational direction. The system allows staff to monitor facility operations and process performance in real-time, either onsite or remotely. Treatment Operators utilize SCADA to adjust pump speeds; open and close valves; monitor flows, tank levels, and pump discharge pressures; and observe water quality measurements 24 hours a day. The SCADA system provides for reliable and efficient operation of treatment and conveyance systems.

SEJPA's 2015 Facility Plan identified SCADA's aging hardware and software in the main control room as a risk to the system, both due its age and susceptibility to cyber threats. Working with the City of Encinitas' IT Department and third party consultants, a list of SCADA Upgrade projects to provide improvements to the security, redundancy, and operational functionality of the existing system has been developed. The projects include upgrades to the hardware, software, security, and programming of the existing SCADA system.

DISCUSSION

During discussions with Carollo on the scope and fee of the Arc Flash project, their additional area of expertise in SCADA system coordination and design was discussed. In order to take

advantage of procurement efficiencies and Carollo's familiarity with the SCADA system from their work on the 2015 Facility Plan, Staff has negotiated an additional task with Carollo to provide engineering services for the SCADA Upgrades project. This task will prepare plans and specifications that will be advertised for procurement of the SCADA Upgrades project. The Carollo proposal also provides support during bidding of the project and engineering services during construction.

FINANCIAL IMPACT

The cost for completing the proposed engineering services is $71,229. The project will be funded by the 2017 Clean Water Bond which includes a total of $1.08 million for SCADA Upgrades. This is the first task associated with the SCADA Upgrades project and represents 6.6% of the project budget.

It is therefore recommended that the Board of Directors:

1. Authorize the General Manager to execute an Engineering Agreement with Carollo Engineers to provide engineering services for the SCADA Upgrades project for an amount not to exceed $71,229; and

2. Discuss and take action as appropriate.

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager

Attachment 1: Carollo Engineers – SCADA Upgrades Project, Engineering Services During Design and Construction

ATTACHMENT 1

San Elijo Joint Powers Authority (SEJPA)

Carollo Engineers, Inc. (CONSULTANT)

SEJPA SCADA Upgrades (PROJECT)

Engineering Services during Design and Construction

CONSULTANT's Scope of Work

SCOPE OF WORK

Introduction:

SEJPA has developed a preliminary list of SCADA upgrade projects to provide improvements to the security, redundancy, and operational functionality of the existing SCADA system. The projects include upgrades to the hardware, software, security, and programming of the existing SCADA system. The SCADA upgrade projects include:

- New server rack with redundant SCADA servers, historian server, Uninterruptable Power Supply, KVM, Network Attached Storage, and associated rack components.
- Upgrade existing SCADA software from Wonderware InTouch to Wonderware System Platform and add Wonderware Historian. Provide configuration and testing of the Wonderware server application and communications drivers on the new servers. Configure SCADA application for Domain-based user authentication for all control actions initiated from within the application.
- Install VMWare ESXi 6 software on new host SCADA servers. Provide configuration and testing of the virtualized environment.
- Install existing WIN911 alarm notification software on new virtualized environment. Provide configuration and testing of existing alarm notification software.
- Provide and configure virtual machine to serve as the Domain Controller for operator security authentication.
- Upgrade the two operations workstation to Wyse Thin Client terminals, each with a 27" monitor, keyboard and mouse. Configure each for Remote Desktop Connection (RDC) into the SCADA servers.
- Upgrade the six additional Windows XP-based view nodes throughout the facility with Wyse Thin Client terminals, each with a 27" monitor, keyboard and mouse. Configure each for Remote Desktop Connection (RDC) into the SCADA servers. The six areas with existing view nodes include; Digester, Solids, Recycled Water, AWT, Blower Control, and FEB Control.
- Provide the programming, configuration, and testing for the replacement of six remote workstations with new Remote Terminal Units (RTU).
    - Provide removal of the existing remote workstations as well as the onsite retrofit of the OITs.
    - Provide factory and field operation and performance testing, calibration, startup and integration/migration with existing SCADA network at each site.
    - Provide all documentations, record drawings, equipment data, testing, certification, warranties, O&M, and training.
    - Provide spare parts, special tools, and maintenance products.
    - Provide three portable tablet terminals for full virtual access to the SCADA system for remote use in the field.
    - Provide 1 year of SCADA system maintenance warranty and support.
- Provide licenses for Windows Server 2012 R2 as required to transition to Thin Clients.

- Provide and implement system hardening procedures for cyber security including:
    - Secure the host computers, firewalls, and VPN appliances in a locked computer rack.
    - Documentation of installed equipment for tracking including defined responsibilities for new equipment.
    - Develop procedures and apply controls to the use of all removable media such as USB ports and CD/DVD drives.
    - Disable auto-run at the BIOS & operating system levels, where possible.
    - Update all computer firmware, secure the configurations, enable security logging, and track all remote access to the system.
    - Install all approved patches for the operating system and software packages.
    - Disable unnecessary operating system services to minimize known vulnerabilities.
    - Limit the use of administrator rights to the extent necessary on all operating systems.
    - Configure operating system security through a virtualized Domain controller.
    - Change all default passwords on all hardware and software to strong, managed passwords, where possible.
    - Configure auto-logout within all SCADA application software. Upon logout the node will become view only.
    - Configure auto-lockout after three failed login attempts on all operating systems, where possible.
    - Clock synchronization on all devices by utilization of a network time server so timestamps within the various event and security logs are synchronized, where possible.
    - Enable security logging on all equipment that is provided and restrict access to configuration settings and security settings, where possible.
    - Follow strict internal change management policies and procedures to ensure that any changes to hardware or software are documented to ensure that the control system is protected against improper modification prior to and during commissioning.
    - Implement secure backup procedures to ensure that SEJPA can recover their system completely should there be a security breach.
    - Configure the network with distinctly different security zones, using routing equipment and a new IP address scheme introduced into the network architecture, to protect and isolate the components in each zone from a compromised component in any of the other zones.

The CONSULTANT will take this preliminary list and develop a set of documents for bid by a qualified integrations contractor. The CONSULTANT will provide bid documents, assistance with integrator prequalification, services during bidding, and engineering services during construction for the SEJPA SCADA Upgrades project. The scope is described below.

Task 100 - Project Management

100.01 Project Management and Kickoff Meeting

The CONSULTANT will submit monthly progress reports with each invoice to substantiate the progress of work to date, including potential out-of-scope items. This information will be utilized to determine if any changes are required in the management of the project.

CONSULTANT will oversee project efforts, monitor progress and budget expended, and ascertain proper execution of the project in accordance with the project scope, schedule, and budget.

The CONSULTANT will conduct one (1), two (2) hour Project Kickoff and Goal Setting Meeting at the SEJPA's facility. The meeting will include up to three (3) representatives from the CONSULTANT. The purpose of the Project Kickoff Meeting will be to review the overall project goals, critical success factors, scope of work, schedule, lines of communication, and individual expectations.

Deliverables:

- Monthly Project Progress Report
- Kickoff Meeting Minutes

Task 200 - Preliminary Design

200.01 Field Investigation and Data Collection

The CONSULTANT shall conduct one (1) site investigation, lasting up to six (6) hours including up to three (3) representatives from the CONSULTANT. CONSULTANT will coordinate the investigation dates with the appropriate SEJPA representative. During the site investigation, SEJPA representatives will be needed to provide access to the facilities and equipment in question. No shut downs are required for the site visit.

Assumptions:

- The field investigation will take place on the same day as the Kickoff meeting. All six (6) remote sites will be visited.
- SEJPA will provide representatives who can provide access throughout the facility.
- SEJPA will provide all available Record Drawings and supporting documentation.
- SEJPA will provide all available studies, reports, panel drawings, radio path studies, etc. performed by third party integrators.

200.02 Integrator Pre-Qualification Request for Qualifications (RFQ)

The CONSULTANT will assist the SEJPA in the preparation of a Request for Qualifications (RFQ) for the pre-qualification of the Integration Contractor to be utilized during construction. CONSULTANT shall provide the technical language that will be the basis for qualification of the Integration Contractor.

During the solicitation period for the RFQ, the CONSULTANT will respond to integrator questions. Responses will be conveyed via SEJPA issued addendum. The CONSULTANT will assist in meeting with potential integrators at a pre-solicitation conference with site tour and providing an understanding of the project requirements. The SEJPA will prepare and distribute pre-solicitation meeting minutes and agenda.

Assumptions:

- SEJPA will assemble and solicit request for the RFQ.
- The budget is based on an estimated four bidder questions at an average of two hours each.

Deliverables:

- SOQ technical requirement write-up for incorporation into overall SEJPA SOQ.
- Written responses to submitted solicitation questions in the form of email to the SEJPA.

Task 300 - Draft Design and Bid Documents

300.01 Draft Design Submittal and Review Meeting

The CONSULTANT will prepare Draft Design Documents for SEJPA's review. The Draft Design Documents will include design drawings, technical specifications, and a construction cost estimate.

The CONSULTANT shall conduct a two (2) hour submittal review meeting after the submittal of the Draft Design Submittal. The submittal review meeting shall consist of drawing, specification, sequencing, and construction cost estimate review.

Assumptions:

- SEJPA will provide appropriate staff at the draft design review meeting to make critical decisions concerning the modifications to the SCADA system and the construction sequencing required to complete the modifications.
- Scope does not include any physical radio survey
- Assumes existing PLC and PLC code will be utilized
- Assumes existing HMI and HMI screens will be utilized where applicable.

Deliverables:

- Electronic set of Draft Design Documents
- Draft Design Engineering Construction Cost Estimate
- Draft Design Review Meeting Minutes

300.02 Bid Documents

The CONSULTANT will prepare stamped and signed Documents for bid along with a final engineering construction cost estimate.

Assumptions:

- Bid documents will include site overview drawings, area specific plan drawings where required, network block diagrams, SCADA server rack elevation, typical RTU panel elevations, radio system performance specification, and supporting technical specifications.

- SEJPA will provide the completed front end and Division 01 specifications for incorporation into the bid documents.
- Building department submittal and subsequent review meetings will not be required.

Deliverables:

- Electronic set of full and half sized Bid Documents

Task 400 - Bid Phase Services

400.01 Bid Services

The CONSULTANT will respond to bidder questions. Responses will be conveyed via SEJPA issued addendum.

The CONSULTANT will assist in meeting with potential bidders at a pre-bid conference with site tour and providing an understanding of the project requirements. SEJPA will prepare and distribute pre-bid meeting minutes and agenda.

Assumptions:

- The budget is based on an estimated five (5) bidder questions at an average of two (2) hours each.
- SEJPA will be responsible for bid advertising and contract award.

Deliverables:

- Written responses to submitted bidder questions in the form of email to SEJPA for integration into addendum.

Task 500 - Engineering Services during Construction

500.01 Shop Drawing Submittal Review

The CONSULTANT shall receive, log, review, comment on, and return shop drawings, submittals, and samples provided by the CONTRACTOR. The purpose of reviewing submittals by the CONSULTANT is to determine if the equipment and materials proposed by the CONTRACTOR will meet the design intent of the Project and the requirements stipulated in the Contract documents.

Assumptions:

- It is estimated that approximately sixteen (16) submittals and equipment operations and maintenance manuals will be submitted by the CONTRACTOR. It is estimated that approximately 50% of the submittals will require re-submittal. The scope and budget assumes two (2) hours review time for sixteen (16) submittals and one (1) hour review time for eight (8) re-submittals.

Deliverables

- Written responses to CONTRACTOR submittals.

500.02 Request for Information, Change Orders, and Work Change Directives

In the event changes to the Contract Documents are required, the CONSULTANT will assist SEJPA in review of Request for Information (RFI), Change Order Requests (COR), and preparation of Change Order (CO). CONSULTANT, at the request of SEJPA will either review the COR prepared by SEJPA, or when COR requires redesign, prepare detailed CO specifications, drawings, and/or sketches.

The CONSULTANT will assist with Work Change Directives (WCD) for which a change order is not issued. WCD shall be checked for general compliance with the intent of the design.

Deliverables

- Written responses to CONTRACTOR RFI
- Written responses to CONTRACTOR COR
- Written review of SEJPA WCD
- Written review of SEJPA CO

Assumptions:

- The budget is based on an estimated eight (8) RFI/COR/WCD/CO at an average of four (4) hours each.

500.03 Attendance at Meetings/Site Inspections

The CONSULTANT will participate in select project meetings as required in order to keep abreast of construction activities and be involved in questions which may arise concerning construction progress.

The CONSULTANT will conduct site inspections to review the construction progress, assess general conformance with the Contract Documents, and discuss relevant construction issues. Dedicated inspections will be conducted as stated in the assumptions.

Assumptions:

- CONSULTANT shall participate as requested at weekly construction progress meetings to facilitate resolution of design issues. The budget is based on participation at fourteen (14) construction progress meetings over phone/WebEx at approximately one hour each.
- CONSULTANT will visit the site for benchmark site inspections as required. The budget is based on the following site inspections at approximately three (3) hours per visit, including summary memorandum to document the site inspection. Site inspections include:
    - Remote Facility RTU Inspection: Quantity One (1)
    - Waste Reclamation Facility Inspection: Quantity One (1)
    - Preliminary Punch List Inspection: Quantity One (1)
    - Final Punch List Inspection: Quantity One (1)

Deliverables

- Site inspection summary memorandum

500.04 Record Documents and Project Close Out

The CONSULTANT will prepare Record Contract Drawings to incorporate modifications of Drawings resulting from change orders, observed site conditions, and CONTRACTOR's record of construction.

Assumptions:

- CONSULTANT will incorporate CONTRACTOR's field markups at the end of construction and translate into Record Contract Drawings
- The Scope of Services and budget assumes approximately twenty-two (16) drawings that will need to be modified at one half (0.5) hour of CADD time per drawing, and one half (0.5) hour of engineering time per drawing.

Deliverables:

- The electronic files of all construction record documents (Microstation and PDF format)

Additional Items Not Included:

- Printing or reproduction
- Attendance at construction meetings and site inspections other than those specifically listed in this proposal
- Advertisement of the project and distribution of bid documents to potential bidders.
- Work effort for other items not specifically listed in this proposal

COMPENSATION

Total compensation for the scope of work stated above totals $71,229.00. A breakdown of the fee is presented in the following table:

	LABOR HOURS					PROJECT COSTS			
	Lead Project Professional	Project Professional	Assistant Professional	Document Processing/Clerical	Total Labor Hours	Total Labor Cost	Project Equipment Communication Expense (PECE)	Other Direct Costs	TOTAL COST
Billing Rate	*$ 215.00*	*$ 195.00*	*$ 155.00*	*$ 100.00*			*$ 11.70*		
Task 100 - Project Management	12	8	8	0	28	$ 5,380.00	$ 327.60	$ -	$ 5,707.60
100.01 Project Management and Kickoff Meeting	12	8	8	0	28	$ 5,380.00	$ 327.60		$ 5,707.60
Task 200 - Preliminary Design	10	12	16	0	38	$ 6,970.00	$ 444.60	$ -	$ 7,414.60
200.01 Field Investigation and Data Collection	8	8	8	0	24	$ 4,520.00	$ 280.80	$ -	$ 4,800.80
200.02 Integrator Pre-Qualification Statement of Qualifications (SOQ)	2	4	8	0	14	$ 2,450.00	$ 163.80	$ -	$ 2,613.80
Task 300 - Draft Design and Bid Documents	18	46	120	12	196	$ 32,640.00	$ 2,293.20	$ -	$ 34,933.20
300.01 Draft Design Submittal and Review Meeting	8	36	88	8	140	$ 23,180.00	$ 1,638.00	$ -	$ 24,818.00
300.02 Bid Documents	10	10	32	4	56	$ 9,460.00	$ 655.20	$ -	$ 10,115.20
Task 400 Bid Phase Services	1	2	8	0	11	$ 1,845.00	$ 128.70	$ -	$ 1,973.70
400.01 Bid Services	1	2	8	0	11	$ 1,845.00	$ 128.70		$ 1,973.70
Task 500 - Engineering Services during Construction	6	32	78	2	118	$ 19,820.00	$ 1,380.60	$ -	$ 21,200.60
500.01 Shop Drawing Submittal Review	4	14	24	0	42	$ 7,310.00	$ 491.40		$ 7,801.40
500.02 Request for Information, Change Orders, and Work Change Directives	2	8	22	0	32	$ 5,400.00	$ 374.40		$ 5,774.40
500.03 Attendance at Meetings/Site Inspections	0	8	20	0	28	$ 4,660.00	$ 327.60		$ 4,987.60
500.04 Record Documents and Project Close Out	0	2	12	2	16	$ 2,450.00	$ 187.20		$ 2,637.20
TOTAL ALL TASKS	**47**	**100**	**230**	**14**	**391**	**$ 66,655.00**	**$ 4,574.70**	**$ -**	**$71,229.00**

Table 1 - CONSULTANT's Schedule of Cost for SEJPA SCADA Upgrades

DESIGN SCHEDULE

CONSULTANT shall commence work immediately following formal Notice to Proceed (NTP) from SEJPA. CONSULTANT has reviewed the project with SEJPA and agrees that the following schedule is a reasonable timeframe within which to accomplish the design work:

Milestone	**Duration in Weeks**	**Weeks after NTP**
Project Kickoff Meeting/Project Management Plan	0	1
Field Investigation and Data Collection	0	1
Integrator Pre-Qualification SOQ	4	5
Draft Design Submittal	9	10
Draft Design Review Meeting	0	12
Bid Documents	6	18

The schedule for engineering services during construction will be coordinated with the awarded Contractor's construction schedule.

AGENDA ITEM NO. 14

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

November 13, 2017

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: General Manager

SUBJECT: AUTHORIZE THE GENERAL MANAGER TO EXECUTE A COST SHARING AGREEMENT WITH SAN DIEGUITO WATER DISTRICT, SANTA FE IRRIGATION DISTRICT, LEUCADIA WASTEWATER DISTRICT, AND OLIVENHAIN MUNICIPAL WATER DISTRICT FOR THE DEVELOPMENT OF A REGIONAL RECYCLED WATER EXPANSION PLAN

RECOMMENDATION

It is recommended that the Board of Directors:

1. Authorize the General Manager to execute the Cost Sharing Agreement with San Dieguito Water District, Santa Fe Irrigation District, Leucadia Wastewater District, and Olivenhain Municipal Water District to jointly fund the development of a Regional Recycled Water Expansion Plan;

2. Authorize the General Manager to Cost Share in an amount not to exceed $71,882 for the SEJPA; and

3. Discuss and take action as appropriate.

BACKGROUND

Due to droughts and other events that strain and limit California's existing water supplies, water agencies are examining options that go beyond current conventional water supplies to create long-term reliable and sustainable water systems. In 2016, the San Elijo Joint Powers Authority (SEJPA) partnered with the San Dieguito Water District (SDWD) and Santa Fe Irrigation District (SFID) to prepare a Potable Reuse Feasibility Study (Study). The Study evaluated the feasibility of a future potable reuse project, including potential opportunities and challenges associated with the project. The primary conclusion of the feasibility study was that a potable reuse project utilizing surface water augmentation at San Dieguito Reservoir appeared feasible and cost effective.

The Study also identified several project constraints or challenges associated with developing a potable reuse project. Two very significant project constraints that were identified and that require further assessment include:

Wastewater supply: additional wastewater flows need to be identified to provide adequate source water to meet the ultimate project potable reuse goals.

Modification of San Dieguito Reservoir operation: To maximize the benefit of San Dieguito Reservoir for potable reuse, modifications of the current reservoir operation will be required.

Since the completion of the Study, other potential non-potable regional recycled water projects have been proposed and studied. These projects include providing non-potable recycled water to the Rancho Santa Fe and Bridges golf courses, as well as serving other large water users in the area. The recycled water facility plan prepared by the North San Diego Water Reuse Coalition included a derivative of this project, which would first provide recycled water to the golf courses and then advance to a potable reuse project in a phased approach. This project, which has been submitted to the U.S. Bureau of Reclamation for grant funding consideration, is projected to supply up to 1,000 acre-feet annually (AFY) in the early years of the project and then develop to approximately 3,000 – 4,000 AFY at the ultimate potable reuse design. The list of project partners includes Olivenhain Municipal Water District (OMWD), Leucadia Wastewater District (LWWD), SFID, SDWD, and SEJPA.

DISCUSSION

The development of locally produced water to complement and diversify current water supplies has value to the region. The project partners (SEJPA, SDWD, SFID, OMWD, and LWWD) are interested in defining a recommended project, and evaluating the opportunities and constraints.

The proposed next step in developing a regional project is to evaluate the identified constraints, which includes wastewater supply, San Dieguito reservoir operations, capital and operational cost estimates, and assessing institutional requirements, as well as conducting a comparative analysis of the potable and non-potable reuse projects.

It is proposed that the SFID serve as the lead agency and retain the consultant for this work. SFID has engaged Woodard & Curran, now parent company to RMC Water and Environment, which has unparalleled familiarity with the coalition and the project (Attachment 1 - Scope of Work and Fee). SEJPA staff will provide support in the development of the technical reports. Ultimately, staff expects this Regional Recycled Water Expansion Plan to provide clarity on the best options for the next major expansion to the SEJPA's Recycled Water Program.

FINANCIAL IMPACT

The total proposed cost for the Regional Recycled Water Expansion Plan is $287,529. It is proposed that SFID, SDWD, and SEJPA each share 25.0% of the total costs, or $71,882 each. It is proposed that OMWD share 18.8%, or $53,934, and LWWD share 6.0% or $17,948. The cost sharing is based on the estimated work required for each agency. SEJPA's project cost is $71,882 (Attachment 2 includes the Cost Sharing Agreement for consultant's expenses). Funding for this study is available in the Recycled Water FY2017-18 Budget.

It is therefore recommended that the Board of Directors:

1. Authorize the General Manager to execute the Cost Sharing Agreement with San Dieguito Water District, Santa Fe Irrigation District, Leucadia Wastewater District, and Olivenhain Municipal Water District to jointly fund the development of a Regional Recycled Water Expansion Plan;

2. Authorize the General Manager to Cost Share in an amount not to exceed $71,882 for the SEJPA; and

3. Discuss and take action as appropriate.

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager

Attachment 1: Scope of Work and Fee Proposal
Attachment 2: Cost Sharing Agreement

ATTACHMENT 1

SCOPE of SERVICES
RECYCLED WATER EXPANSION PLAN DEVELOPMENT
September 29, 2017

BACKGROUND

In 2016, Santa Fe Irrigation District (SFID), along with San Dieguito Water District (SDWD) and San Elijo Joint Powers Authority (SEPJA), completed a Potable Reuse Feasibility Study (PRFS) which concluded that augmentation of the San Dieguito Reservoir (SDR) with advanced treated recycled water was a viable and cost-effective strategy to provide a local, drought-proof supply of potable water. The 2016 study presented two possible surface water augmentation (SWA) projects using advanced treated water from the San Elijo Water Reclamation Facility (SEWRF): a near-term project producing 1,120 AFY and an ultimate project producing 4,480 acre-feet/year (AFY).

In addition, in 2011 SFID completed the Eastern Service Area Recycled Water Facilities Plan. The purpose of this Facilities Plan was to build upon prior studies to define the most viable non-potable recycled water (NPR) project for expansion into the SFID Eastern Service Area. The most viable project was identified based upon relative cost per acre foot, available supply volume and quality, institutional requirements, and the ability to control future risks. Based upon this assessment, the practical future demand of the Eastern Service Area at build out for NPR was estimated to be approximately 700 AFY. A possible extension of the Eastern Service Area system was also identified that could serve the Bridges Golf Course in the Olivenhain Municipal Water District (OMWD) service area, which would add another 400 AFY of demand.

A summary of the recycled water demands that have been identified through these previous studies is provided in Table 1.

Table 1: Recycled Water Demands

Agency	Type	Recycled Water Demand (existing) (AFY)	Recycled Water Demand (future) (AFY)	Recycled Water Demand Average Day (MGD)	Recycled Water Demand Peak Month[1] (MGD)
San Dieguito WD	NPR	700	--	0.6	1.1
San Dieguito WD	SWA	--	2,250	2.0	2.0
Santa Fe ID	NPR	500	--	0.4	0.8
Santa Fe ID	SWA	--	2,250	2.0	2.0
OMWD (Bridges)	NPR	--	400	0.4	0.6
Total		**1,200**	**4,900**	**5.4**	**6.6**
Santa Fe ID[2]	*NPR[2]*	--	*700[2]*	*0.6[2]*	*1.1[2]*

[1] Based on a summer peaking factor of 1.8 for NPR systems and 1.0 for surface water augmentation (SWA)
[2] SFID future demands will be either NPR or SWA, not both; therefore, total does not include future 700 AFY NPR.

Additional sources of recycled water are required to satisfy all the identified future demands, especially during the peak summer months. Options for additional recycled water include: diversions of wastewater that could be treated at the SEWRF, diversion of secondary effluent that could be used to supplement the secondary effluent from the SEWRF for further treatment, and/or diversion of tertiary treated wastewater that could be used to satisfy the existing and future non-potable demands. The potential supplies of additional wastewater or recycled water are summarized in Table 2.

Table 2: Available Recycled Water Supplies

Agency	Type	Flow Available (MGD)
SEJPA WRF	Wastewater	2.8
Del Mar (currently treated by San Diego Metro)	Wastewater	0.4
Northern Encinitas (currently treated at Encina WPCF)	Wastewater	1.0
Leucadia WWD, Gafner WRF	Tertiary Effluent	2.7
Rancho Santa Fe WRF	Secondary Effluent	0.4
Escondido Outfall	Secondary Effluent	TBD
Total		**7.3**

There is also the option of reducing the production of recycled water for SWA during the summer months to satisfy the peak irrigation demands of the NPR systems served from the SEWRF.

SCOPE OF SERVICES

The purpose of this proposed scope of services is to build on the 2016 PRFS to address some of the remaining areas of concern, and to compare the SWA project with the NPR alternative(s), either as a phased approach to potable reuse or as a standalone NPR project. The source of advanced treated (AWT) recycled water for the SWA project would be the SEWRF. The AWT water would be delivered to SDR as the environmental buffer prior to treatment at the Badger Filtration Plant and delivery into the existing SFID and SDWD potable water distribution systems.

Three alternatives will be evaluated as part of this study:

1. Potable reuse using SWA at the SDR as defined in the PRFS; no expansion of NPR
2. Expansion of NPR system to the SFID Eastern Service Area and the Bridges GC; no potable reuse.
3. Phased combination of Alternatives #1 and #2.
    a. Phase I - Expand the NPR system to serve the SFID Eastern Service Area:
        i. Do not include NPR service to the Bridges GC.
        ii. Include NPR service to the Bridges GC.
    b. Phase II - Upgrade the water quality serving the SFID Eastern Service Area with AWT water and extend to the SDR for SWA.

The analysis of these three alternatives will consider the following:

- Alternative sources of wastewater, secondary effluent or tertiary effluent area to address water supply deficiencies (note that preferred source maybe different for different alternatives)
- Improvements required at R.E. Badger Filtration Plant to address water quality variability from Lake Hodges that are currently mitigated in the SDR
- Estimates of the capital, O&M and unit costs for each project alternative
- Institutional complexity and regulatory compatibility for each project alternative
- Identification of a preferred project alternative along with next steps for implementation

Services are to be provided by the team of Woodard & Curran and Trussell Technologies.

The following scope of services is proposed to assist the agencies to determine the highest and best use of the existing facilities and recycled water supply for the area. The tasks are divided into two phases: the first phase consists of Task 1 (Regulatory Constraints) and Task 2 (Evaluation of Recycled Water Supplies). A workshop will be held after completion of Tasks 1 and 2 with the agencies involved. The Team will not proceed beyond Task 2 without written authorization.

A description of the proposed services is contained in the following tasks.

Task 1 – Regulatory Constraints

Regulations for surface water augmentation (SWA) using recycled water have been further developed since preparation of the 2016 PRFS. On July 21st, draft SWA regulations were released by the State Water Resources Control Board (SWRCB) for public comment through September 12, 2017. The draft regulations define an "augmented reservoir" as a surface water reservoir used as a source of domestic drinking water supply that receives recycled municipal wastewater from a Surface Water Augmentation Project (SWAP).

Under this task the team will review the quantity of water that can likely be reused for SWA using the SDR. Additionally, the team will also discuss the anticipated source control requirements for the various wastewater streams under consideration in Task 2 and how these requirements differ for potable reuse versus non-potable reuse applications. A Technical Memorandum (TM) will be prepared to summarize the regulatory constraints identified under Task 1. Comments on the draft TM will be included in the Summary Report. A final TM is not anticipated.

Task 2 – Evaluation of Recycled Water Supplies

Additional wastewater or recycled water is necessary for SEJPA to meet the existing NPR demands, along with potential future SWA and/or NPR demands identified for SDWD, SFID and OMWD. Five potential supplies of additional wastewater or recycled water have been identified: 1) Del Mar wastewater diversion; 2) City of Encinitas wastewater diversion; 3) Leucadia Wastewater District (LWD) recycled water; 4) City of Escondido Outfall wastewater diversion; and 5) Rancho Santa Fe recycled water via blending. This task will evaluate each supply in regards to average and seasonal volume of supply, approximate capital cost to implement, institutional complexity and regulatory compatibility. A brief description of the evaluation to be performed for each supply option is contained in the following subtasks.

Task 2.1 – Del Mar Wastewater Diversion

The diversion of wastewater flow from Del Mar to SEWRF does not require an engineering analysis because there is already an existing connection. However, flow is not currently treated at SEWRF from the

City of Del Mar due to issues with seawater intrusion that has increased the wastewater TDS, making biological treatment challenging. SEJPA is currently working with the City of Del Mar to reduce or eliminate infiltration into the Del Mar sewer system. This task will quantify the anticipated water quality of the wastewater flow from Del Mar by considering existing water quality data along with discussions with SEJPA and Del Mar on likely improvements anticipated. The potential impact to the biological and AWT processes at SEWRF will be discussed along with potential impacts to the future SWA via SDR.

It is assumed that the Del Mar flow and water quality data at the point of connection to SEJPA system will be provided.

Task 2.2 – City of Encinitas Wastewater Diversion

This task will evaluate the feasibility of rerouting the wastewater flow from the collection system in Encinitas that is currently treated at the Encina Water Pollution Control Facility (WPCF) to the SEWRF. The engineering analysis will include a review of the existing sewer system within the City of Encinitas collection system to identify a trunk sewer or sewers that are likely large enough to convey the additional flow south. Hydraulic analysis of the collection system will be performed using the existing sewer model of the existing system. A cursory review of the Moonlight Beach Pump Station will be performed to identify the modifications needed to reroute flows to the SEWRF.

This task will also identify the potential impacts on the Encina WPCF and future financial obligations by the City of Encinitas. The cost analysis of this option will look at the potential elimination of this obligation if capacity were to be sold to another Encina agency. It is assumed that data on the wastewater quality, pump station, and collections systems hydraulic model for the City of Encinitas will be provided.

Task 2.3 – Gafner Water Recycling Facility

Gafner Water Recycling Facility (GWRF) that is owned by the Leucadia Wastewater District (LWD) currently produces recycled water for irrigation at the La Costa Golf Course. LWD has estimated that the GWRF could be expanded up to 2.4 MGD to provide additional recycled water suitable for irrigation. The intent of this supply option would be to use the recycled water produced at the GWRF to augment SEJPA's recycled water production.

This task includes the effort to update information from LWD on the costs and facilities needed at the GWRF to treat up to 2.4 MGD of recycled water. This task will also identify an alignment and facilities needed to connect the existing NPR system serving demands in SDWD and SFID. It is assumed that the Team will be provided and can utilize the existing hydraulic model of the SEJPA recycled water system to identify the conveyance facilities needed.

Task 2.4 – Escondido Outfall Wastewater Diversion

The Escondido Land Outfall is currently accessed at times by the SEJPA to supplement recycled water supplies during peak demand periods. The quality of the water in the Escondido outfall is highly variable due to the brine discharges that can significantly increase the wastewater salinity. This task will investigate the constraints associated with utilizing this source of recycled water on a long-term basis. Constraints and willingness of Escondido to commit this resource will be based on discussions with the staff at the City of Escondido. This task will also include an outline of modifications that may be needed at the SEWRF.

It is assumed that the SEJPA will facilitate meeting(s) with the City of Escondido to identify constraints to using the Escondido Land Outfall for the long-term.

Task 2.5 – Rancho Santa Fe WWTP

The Rancho Santa Fe (RSF) WWTP current treats approximate 0.35 MGD of flow. Secondary effluent that has a high concentration of salt is currently disposed through percolation ponds near the WWTP. There is desire by the community to use this effluent for irrigation on the Rancho Santa Fe Golf Course. This task includes an evaluation of the potential to blend the effluent from the RSF WWTP with the high-quality

water from the SEWRF and potentially eliminate the need for Reverse Osmosis and the benefits that could be derived from such an approach.

Task 2.6 – Summary

This task includes a TM to document the results of Tasks 2.1 through 2.5. Seasonal variation of volumes for each supply will also be summarized. Planning level cost estimates will be developed for each of the five supplies, including both capital and annual operations and maintenance (O&M) costs. Costs will be based on unit cost assumptions for pipelines, pump stations, and O&M from similar facilities. The TM will include identification of the facilities, approximate capital and O&M costs and constraints for each supply.

Task 2 Deliverables:

- Draft TM in electronic pdf format (Comments on the draft TM will be included in the Summary Report. A final TM is not anticipated.)

Task 3 – Badger WTP Improvements

Water quality variability from Lake Hodges is currently mitigated in the SDR. This task will identify improvements to the treatment processes at the Badger Water Treatment Plant so that raw water can be taken directly from Lake Hodges without going through the SDR. These improvements are needed since the SDR will be used to obtain the detention time needed to satisfy the regulatory requirements for SWA. Treatment alternatives and the approximate capital and O&M costs of the needed improvements will be developed and discussed with SFID staff. A TM will be prepared to summarize the recommended improvements at the Badger WTP identified under Task 3. Comments on the draft TM will be included in the Summary Report. A final TM is not anticipated.

Task 4 – Evaluation of Alternatives

Information developed and the analysis performed during Tasks 1 through 3 will be used to investigate the feasibility of the three alternatives previously described. The alternatives analysis will evaluate the feasibility of each project alternative based on criteria identified by the stakeholders, including:

- Capital cost
- O&M cost
- Unit cost of supply in $/AF
- Phasing and implementation schedule
- Regulatory feasibility
- Institutional complexity

The unit cost of supply, in $/AF, will be developed for each alternative. This task will compare the projected unit cost for each alternative versus the projected cost for imported water from the SDCWA. It is assumed that information on projected imported water costs will be provided by SFID, SDWD and OMWD.

A schedule will be developed to address the timeline for implementation of the NPR and SWA portions of the projects to provide and understanding of the duration of each project phase. Phasing will address that not all additional sources will be needed until the SWAP is implemented. This task will verify if the future peak NPR demands can be met without supplemental flows and whether improvements at the SEWRF (filters, pumps, disinfection, etc.) will be needed.

This task will conclude working with the agencies to identify the preferred, most viable source of additional supply and the next steps for project implementation, including schedule. The implementation plan and schedule will include environmental documentation, permitting, design, and construction. This task will

also explore possible institutional arrangements for how the costs would be allocated for the preferred project.

Task 5 – Summary Report

The draft and final Summary Report will document the analysis, findings, and recommendations from Tasks 1 through 4. The draft report will be provided to the agencies for review and comment. Comments on the draft Summary Report will be incorporated into a final Summary Report.

Task 5 Deliverables:

- Draft Summary Report (10 hard copies and pdf)
- Final Summary Report (10 hard copies and pdf)

Task 6 – Project Management

This task includes meetings, presentations and overall project management and is divided into two subtasks: Task 6A and Task 6B. Task 6A consists of a kickoff meeting, one progress meeting, and a workshop to be conducted at the completion of Tasks 1 and 2. Task 6B consists of three additional progress meetings and three presentations to each agencies' Board of Directors (SFID, SDWD and SEJPA) of the Final Summary Report. It is anticipated that it will take approximately seven to eight months to develop a complete Summary Report.

Agendas and meeting minutes will be provided for each progress meeting. Overall project management includes monthly progress reports along with monthly invoices.

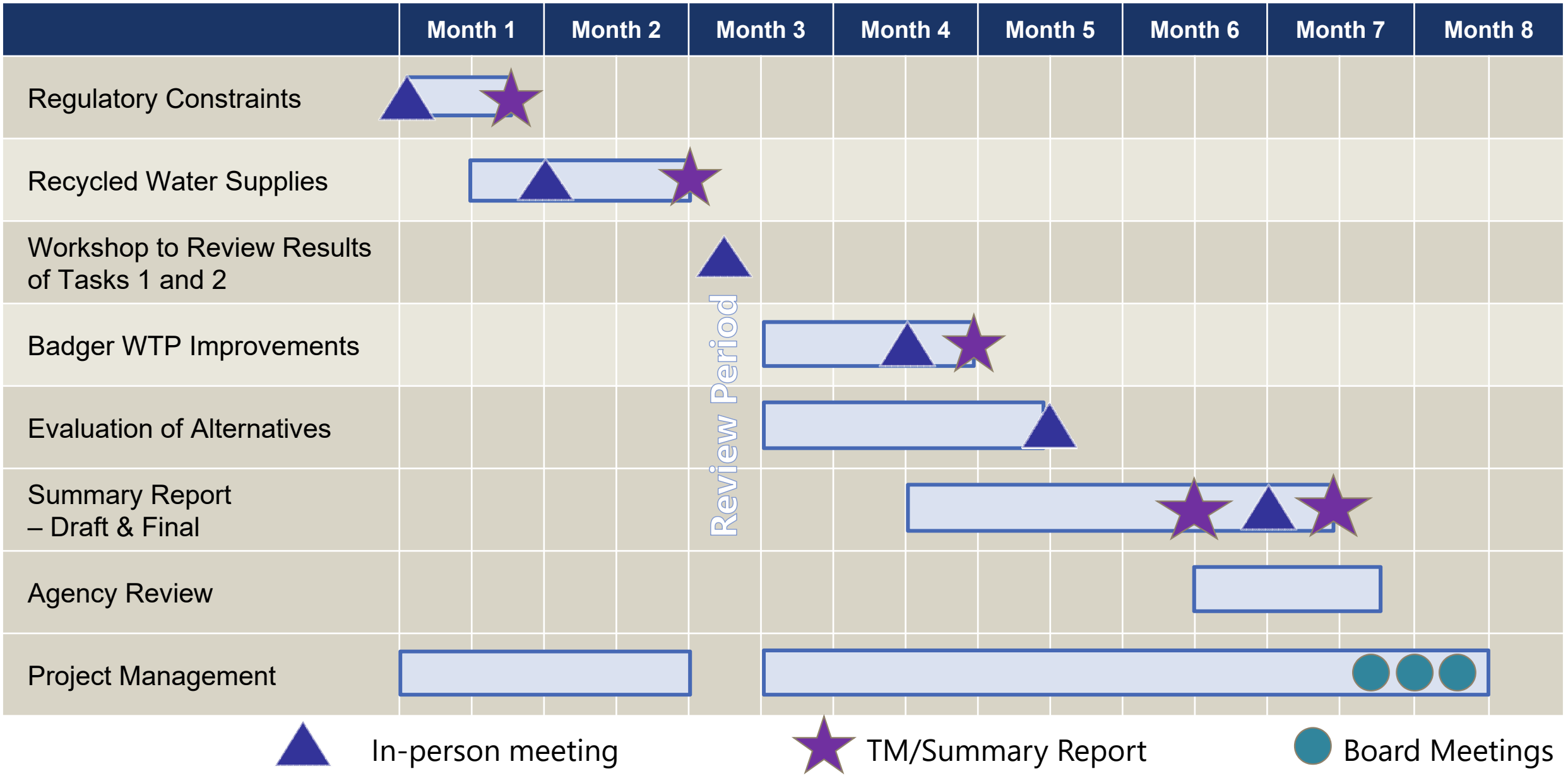
WOODARD &CURRAN

September 29, 2017
Santa Fe Irrigation District
Recycled Water Expansion Plan Development

Tasks	Woodard & Curran Labor									Trussell Technolgies Labor								ODCs		Total
	Scott Goldman			Janet Fordunski						Shane Trussell	Brian Pecson	Brieanne Webber	James Hake							
Project Role	Principal	Senior Technical Manager	QA/QC	Project Manager	Engineer 3	Engineer 1	Admin. Asst.	Total Hours	Woodard & Curran Labor Costs (1)	Prin. Eng III	Prin. Eng I	Engineer II	Ass. Eng. II		Trussell Technologies Total Hours	Trussell Technologies Labor Costs (1)	Trussell Technologies Total Cost (2)	ODCs	Total ODCs (3)	Total Fee
Workforce Category	STPL	STM	SPM	PE2	E3	E1	PA													
Billing Rate	$295	$266	$266	$222	$201	$152	$105			$245	$210	$125	$108	$100						
Task 1A: Regulatory Constraints																				
1.1 Evaluate quantity of water for SWA based on current regulations								0	$0	4	8	24			36	$5,660	$6,226		$0	$6,226
1.2 Discuss source control requirements for SWA vs. NPR								0	$0	4	8		80		92	$11,300	$12,430		$0	$12,430
Subtotal Task 1:	0	0	0	0	0	0	0	0	$0	8	16	24	80	0	128	$16,960	$18,656	0	0	$18,656
Task 2A: Evaluation of Recycled Water Supplies																				
2.1 Del Mar Wastewater Diversion	2			8				10	$2,366	4		16			20	$2,980	$3,278		$0	$5,644
2.2 City of Encinitas Wastewater Diversion	4	16		8	64	24		116	$23,724	2		8			10	$1,490	$1,639		$0	$25,363
2.3 Gafner Water Recycling Facility	4	8		8	64			84	$17,948						0	$0	$0		$0	$17,948
2.4 Escondido Outfall Wastewater Diversion	8			8		16		32	$6,568	4		16			20	$2,980	$3,278		$0	$9,846
2.5 Rancho Santa Fe WWTP	4	4		8		16		32	$6,452						0	$0	$0		$0	$6,452
2.6 Technical Memo	4	4	16	32		40		96	$19,684	4		16			20	$2,980	$3,278		$0	$22,962
Subtotal Task 2:	26	32	16	72	128	96	0	370	$76,742	14	0	56	0	0	70	$10,430	$11,473	$0	0	$88,215
Task 6A: Project Management																				
6.1 Project Adminstration	2			12			6	20	$3,884	2	10				12	$2,590	$2,849		$0	$6,733
6.2 Kickoff and monthly meetings (3 meetings assumed)	12			16				28	$7,092	12	6				18	$4,200	$4,620	$540	$594	$12,306
6.2 Workshop	4			4		4		12	$2,676	4					4	$980	$1,078	$180	$198	$3,952
Subtotal Task 6A:	18	0	0	32	0	4	6	60	$13,652	18	16	0	0	0	34	$7,770	$8,547	$720	$792	$22,991
Phase A TOTAL	**44**	**32**	**16**	**104**	**128**	**100**	**6**	**430**	**$90,394**	**40**	**32**	**80**	**80**	**0**	**232**	**$35,160**	**$38,676**	**$720**	**$792**	**$129,862**
Task 3B: Badger WTP Improvements																				
3.1 Identify treatment process improvements to Badger WTP	4			4				8	$2,068	40	80	160			280	$46,600	$51,260		$0	$53,328
Subtotal Task 3:	4	0	0	4	0	0	0	8	$2,068	40	80	160	0	0	280	$46,600	$51,260	$0	0	$53,328
Task 4B: Evaluation of Alternatives																				
4.1 Alternatives evaluation	8			12		48		68	$12,320	8	4				12	$2,800	$3,080		$0	$15,400
4.2 Implementation schedules for NPR and SWA	8			8		24		40	$7,784	4	4				8	$1,820	$2,002		$0	$9,786
4.3 Recommended project	8			8		24		40	$7,784	4	4				8	$1,820	$2,002		$0	$9,786
Subtotal Task 4:	24	0	0	28	0	96	0	148	$27,888	16	12	0	0	0	28	$6,440	$7,084	$0	0	$34,972
Task 5B: Summary Report																				
5.1 Draft and final summary report	8	4	16	32		60	8	128	$24,744	16	16	40			72	$12,280	$13,508		$0	$38,252
Subtotal Task 5:	8	4	16	32	0	60	8	128	$24,744	16	16	40	0	0	72	$12,280	$13,508	$0	0	$38,252
Task 6B: Project Management																				
6.1 Project Adminstration	2			12			6	20	$3,884	2	10				12	$2,590	$2,849		$0	$6,733
6.2 Monthly meetings (3 meetings assumed)	12			16				28	$7,092	12	6				18	$4,200	$4,620	$540	$594	$12,306
6.2 Presentations to Boards (SFID, SDWD, OMWD, SEJPA - 4 assumed)	12			12		12		36	$8,028	12					12	$2,940	$3,234	$740	$814	$12,076
Subtotal Task 6B:	26	0	0	40	0	12	6	84	$19,004	26	16	0	0	0	42	$9,730	$10,703	$1,280	$1,408	$31,115
Phase B TOTAL	**62**	**4**	**16**	**104**	**0**	**168**	**14**	**368**	**$73,704**	**98**	**124**	**200**	**0**	**0**	**422**	**$75,050**	**$82,555**	**$1,280**	**$1,408**	**$157,667**
TOTAL	**106**	**36**	**32**	**208**	**128**	**268**	**20**	**798**	**$164,098**	**138**	**156**	**280**	**80**	**0**	**654**	**$110,210**	**$121,231**	**$2,000**	**$2,200**	**$287,529**

1. The individual hourly rates include salary, overhead and profit.
2. Subconsultants will be billed at actual cost plus 10%.
3. Other direct costs (ODCs) such as reproduction, delivery, mileage (rates will be those allowed by current IRS guidelines), and travel expenses, will be billed at actual cost plus 10%.

Recycled Water Plan Development Schedule



ATTACHMENT 2

AGREEMENT BETWEEN SANTA FE IRRIGATION DISTRICT, SAN DIEGUITO WATER DISTRICT, SAN ELIJO JOINT POWERS AUTHORITY, LEUCADIA WASTEWATER DISTRICT AND OLIVENHAIN MUNICIPAL WATER DISTRICT REGARDING JOINTLY RETAINING AN ENGINEERING CONSULTANT

THIS AGREEMENT TO RETAIN AN ENGINEERING CONSULTANT ("Agreement") is entered into this _____ day of _____, 2017, ("Effective Date") by and among the SANTA FE IRRIGATION DISTRICT ("SFID"), SAN DIEGUITO WATER DISTRICT ("SDWD"), LEUCADIA WASTEWATER DISTRICT ("LWD"), and OLIVENHAIN MUNICIPAL WATER DISTRICT ("OMWD"), Water Districts operating under Water Code Section 20500, et seq., and the SAN ELIJO JOINT POWERS AUTHORITY ("SEJPA"), a joint powers authority formed and operating pursuant to Government Code section 6500, et seq., (collectively referred to as "Parties" or individually as "Party").

RECITALS

A. SFID, SDWD and OMWD currently purchase recycled water from SEJPA that is produced at the San Elijo Water Reclamation Facility and conveyed through SEJPA's recycled water distribution system. Recycled water use is restricted based on its level of treatment and is primarily used for landscape irrigation.

B. In 2016, SFID, SDWD and SEJPA completed a Potable Reuse Feasibility Study (PRFS) that concluded that augmentation of the San Dieguito Reservoir (SDR) with advanced treated water recycled water was a viable strategy for providing a locally controlled, drought proof supply of potable water.

C. In 2011, SFID completed the Eastern Service Area Recycled Water Facilities Plan (Facilities Plan). This Facilities Plan defined the most viable non-potable recycled water for expansion of the SFID Eastern Service Area. A possible extension of the Eastern Service Area system was also identified that could serve non-potable recycled water to a golf course in the OMWD service area.

D. SFID, LWD, OMWD and SEJPA are members of the North San Diego Water Reuse Coalition (NSDWRC), a coalition of ten North San Diego County water and wastewater agencies formed to proactively plan for and combine resources to optimize the reuse of available wastewater in the region. The coalition has been successful in securing both State and Federal Grant funding for participating agency projects.

E. The Parties are interested in further evaluating the joint development of a potable reuse project that would maximize recycled water use in the Parties' service areas for the benefit of the Parties' respective customers ("Project").

F. Through this Agreement, the Parties desire to retain an engineering consultant ("Consultant") to, among other things, provide a regulatory update on surface water augmentation, assess the cost and complexity of acquiring wastewater supplies, identify

necessary improvements at the R.E. Badger Filtration Plant and further investigate the feasibility of the potable reuse (PR) and non-potable reuse (NPR) alternative supply projects.

G. The Parties intend for this Agreement to set forth the terms for procuring and contracting with an engineering consultant to prepare a report as further described herein.

AGREEMENT

NOW, THEREFORE, the Parties agree, as follows:

1. **Recitals Incorporated**. The foregoing recitals are incorporated herein by reference.

2. **Term**. The term of this Agreement is one (1) year from the Effective Date, unless otherwise agreed to in writing by the Parties.

3. **Lead For Retaining Consultant.** SFID will act as the lead for retaining the Consultant pursuant to SFID's relevant procurement requirements and the procedures stated in this Agreement. Any Engineering Services Agreement issued by SFID will include a pay-when-paid provision stating that SFID only pays SDWD's, SEJPA's, LWD's, and OMWD's shares of the charges after SFID receives their payments.

4. **Payment and Administration.** The compensation to be paid to the Consultant will be shared as follows: SFID, SDWD and SEJPA: 25% each of total, OMWD: 18.8% of total, and LWD – 6.2% of total. SFID will invoice SDWD, SEJPA, LWD, and OMWD for their respective shares, and SDWD, SEJPA, LWD, and OMWD will pay said shares of the charges to SFID within 30 days of receipt of the invoice from SFID. SFID will act as the administrator of the agreement with the Consultant at no charge to the other Parties, provided that SFID will have no obligation to advance funds to the Consultant on behalf of the other Parties for their share. SFID will administer the agreement with the Consultant as a convenience only and will assume no other responsibility under the agreement with the Consultant on behalf of the other Parties.

5. **Engineering Committee**. Each Party will designate one person from its agency to serve on an engineering committee ("Engineering Committee"). The Engineering Committee has met and developed Project objectives and the Scope of Work for the Project. The Engineering Committee will meet throughout the course of the Consultant's work, as needed, in order to facilitate the timely completion of the Project.

6. **Change Orders**. Any changes to the Consultant's Scope of Work and/or compensation, shall be reviewed and approved by the Engineering Committee, and any resultant increased costs will be shared equally by the Parties. SFID will process any required amendments to the Selected Consultant's agreement as a result of changes in the Scope of Work and/or compensation to the Selected Consultant.

7. **Miscellaneous Costs**. Any Party's out of pocket costs for travel, meetings, or supplemental work that are incurred by the staff, other consultants or Board members of

the Parties shall be borne by each respective Party as their own costs in support of this Agreement and shall not be reimbursed by other Parties to this Agreement.

8. **Documents and Records**. The Report and any documents created by the consultant related to this Agreement shall be shared and owned equally amongst the Parties. The Report may be used by the Parties to apply for grant funding. SFID shall provide copies of all invoices, payments, and fund requests upon the request of a Party made to SFID's Administrative Services Manager. The Parties shall have the right to comment on these records and request corrections thereto, if necessary.

9. **Ability to Terminate Participation**. In the event that any Party to this Agreement notifies the other Parties in writing 30 days in advance of its intent to terminate participation in this Agreement, no refunds of any monies already paid will be reimbursed and the Party will have no further interest or right in this Agreement nor the work product created after the date that the Party terminates its participation. Any Party terminating its participation will pay for its share of costs for the work by the Selected Consultant up to the date of termination. The remaining Parties agree to adjust their future cost sharing on an equal basis among the remaining Parties.

10. **Grant Funding Setoff**. Any grant funding received related to preparing the Report before, during, or after its completion will be credited equally to each Party so that the benefit is shared equally by the Parties.

11. **Entire Agreement; Amendment**. This Agreement contains the entire agreement of the Parties with respect to the subject matter hereof, and supersedes all prior negotiations, understandings and agreements. The Parties may agree in writing to amend this Agreement.

12. **Indemnity**. Each Party ("Indemnifying Party") will indemnify, defend and hold each other Party, its officers, employees, agents, and representatives ("Indemnified Parties") harmless from and against any liabilities, claims, causes of action, damage to property, personal injury, losses, costs (including costs of suit and attorneys' fees and expenses) or demands of whatever nature, character, type of description, whether direct or indirect, known or unknown, existing or potential, or suspected or unsuspected resulting from the negligence or willful misconduct of the Indemnifying Party arising from the obligations stated in this Agreement, but excluding any claims resulting from the negligence or willful misconduct of the Indemnified Parties.

13. **Notice**. Any notice or instrument required to be given or delivered by this Agreement may be given or delivered by depositing the same in any United States Post Office, certified mail, return receipt requested, postage prepaid, addressed to:

Santa Fe Irrigation District
P.O. Box 409
Rancho Santa Fe, CA 92067-0409
Attn: General Manager

San Dieguito Water District
160 Calle Magdalena
Encinitas, CA 92024-3633
Attn: General Manager

San Elijo Joint Powers Authority
2695 Manchester Avenue
Cardiff by the Sea, CA 92007
Attn: General Manager

Leucadia Wastewater District
1960 La Costa Avenue
Carlsbad, CA 92009
Attn: General Manager

Olivenhain Municipal Water District
1966 Olivenhain Road
Encinitas, CA 92024
Attn: General Manager

Notice and delivery shall be effective upon receipt thereof.

14. **Third Party Rights**. Nothing in this Agreement shall be construed to give any rights or benefits to anyone other than the Parties.

15. **Severability**. The unenforceability, invalidity or illegality of any provision(s) of this Agreement shall not render the other provisions unenforceable, invalid or illegal.

16. **Construction; Captions**. The Parties or their agents have participated fully in the preparation of this Agreement, and the language of this Agreement shall be construed simply, according to its fair meaning, and not strictly for or against any Party. The captions of the various articles and paragraphs are for convenience and ease of reference only, and do not define, limit, augment, or describe the scope, content, or intent of this Agreement.

17. **Waiver**. No waiver of any default shall constitute a waiver of any other default or breach, whether of the same or other covenant or condition. No waiver, benefit, privilege, or service voluntarily given or performed by a Party shall give the other Party any contractual rights by custom, estoppel, or otherwise.

18. **Counterparts**. This Agreement may be signed in counterparts, each of which shall constitute an original.

19. **Survival**. All rights and obligations hereunder that by their nature are to be performed after any expiration or termination of this Agreement shall survive any such expiration or termination.

IN WITNESS WHEREOF, the Parties have caused this AGREEMENT TO RETAIN AN ENGINEERING CONSULTANT FOR A POTABLE REUSE STUDY to be executed by their duly authorized representatives to be effective on the day and year first written above.

SANTA FE IRRIGATION DISTRICT

By: _____

Michael J. Bardin, General Manager

SAN DIEGUITO WATER DISTRICT

By: _____

William O'Donnell, General Manager

SAN ELIJO JOINT POWERS AUTHORITY

By: _____

Michael Thornton, General Manager

LEUCADIA WASTEWATER DISTRICT

By: _____

Paul J. Bushee, General Manager

OLIVENHAIN MUNICIPAL WATER DISTRICT

By: _____

Kimberly Thorner, General Manager

AGENDA ITEM NO. 15

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

November 13, 2017

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: General Manager

SUBJECT: BUILDING PROGRAM AND COMMUNITY BIKE PATH UPDATE

RECOMMENDATION

No action required. This memorandum is submitted for information only.

BACKGROUND

The San Elijo Joint Powers Authority (SEJPA) has initiated a Building and Site Improvement Program to address building needs and deficiencies, expand workspace, enhance physical and cyber security, increase functionality of the water reclamation campus, and replace or improve aging support infrastructure. The cornerstone of this effort will be consolidating the administration, operation, and laboratory functions into a single new building located at the entrance of the campus. In addition to the operational functionality, the building design will include improved public accessibility and provide water education features.

Key design considerations for the Building and Site Improvement Program are developing a water treatment campus that integrates the following elements:

- Efficient use of space and land
- Practical building design with allowance for future expansion
- Appropriate physical and cyber security
- Storm water retention, infiltration, and reuse features
- Site grading with consideration for future climate changes and sea level rise
- Solar power, energy efficiency, and other Green House Gases limiting features
- Well-designed for educational tours
- Community connection – accessible, informative, and transparent to the public

Site improvements are proposed to include public parking and a regional bike/pedestrian path. Public parking is estimated to be 31 parking stalls and is intended for SEJPA visitors, the bike/pedestrian path, and to provide overflow parking for the San Elijo Nature Center located across Manchester Avenue. The bike/pedestrian path is being pursued as a collaborative effort between the SEJPA, Caltrans, and the City of Encinitas. The path is planned on the west side of the SEJPA property, from north to south, which will connect Birmingham Drive and Manchester Avenue as part of the North Coast Corridor (NCC) Program.

The NCC Program is a balanced transportation system to provide travelers choices for the future while enhancing the quality of life for residents. The Program is comprised of three primary focus areas – the Interstate 5 (I-5) Express lanes Project, coastal rail and transit enhancements, and environmental protection and coastal access improvements.

The design of the bike/pedestrian path also includes the construction of a traffic calming roundabout on Manchester Avenue at the entrance to the water reclamation facility to facilitate bike/pedestrian traffic crossing Manchester Avenue.

DISCUSSION

This report provides a status update of work completed to date on the Building and Site Improvement Program.

Roesling Nakamura Terada Architects (RNT Architects) has completed the plan and elevation design for the new operations center and maintenance shop. This includes floor plans, roof lines, site sketches, and landscape layouts.

Fuscoe Engineering, a civil engineering firm, is developing site grading, storm water management, and fire service system designs.

Staff is developing the photovoltaic (PV) system design with a net-zero energy goal to meet building energy needs with renewable solar power. The team is considering a combination of carport, roof, and ground-mounted PV panels. The sizing of the PV system and design to integrate with the existing site power system is in process.

Staff is working with Caltrans and the City of Encinitas to refine the bike/pedestrian path and traffic calming measures on Manchester Avenue. Caltrans and the SEJPA are currently developing a cooperative agreement to define project roles and responsibilities, cost sharing terms, and deliverable dates for the transportation elements of the project. Upon finalization of the terms, the cooperative agreement will be presented to the SEJPA Board for approval consideration.

Staff is reviewing the environmental documents for the bike/pedestrian path to confirm all project elements have been properly documented. A revised CEQA document may be required if project elements are determined to differ significantly from the previously approved CEQA documentation.

RNT Architects will present site drawings, building sketches, and floor plans that capture the key design considerations listed above.

FINANCIAL IMPACT

There is no financial impact associated with this project status report. The Building Project has a funded level of $7.69 million. Site improvements (excluding Caltrans components) has a funded level of $3.05 million. Solar generation has a funded level of $200,000, which is only intended to fund the initial planning and design work. Solar installation is expected to be developed through a power purchase agreement (PPA).

No action required. This memorandum is submitted for information only.

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager